

Index

- 9**
90% rule (for adamantinomatous craniopharyngiomas) 850
- A**
abaloparotide 1211
abximizab
– contraindicated with tPA 1564
– for endovascular neurosurgery 1914
abdominal cutaneous reflex 1140
– in multiple sclerosis 188
abdominal pseudocyst, *see* pseudocyst - abdominal
abducens nerve 87
– palsy of 598
– as false localizing sign 598
– due to brainstem compression 1589
– due to clival fracture 1065
– due to elevated ICP 598
– due to elevated ICP from tumor 624
– following lumbar puncture 1815
– in Gradenigo's syndrome 601
– in pseudotumor cerebri 961
– in trauma 1005
abduction relief sign 1281
abductor sign 1253
abscess
– cerebral 343
– from gunshot wound 1094
– MR spectroscopy findings 244
– Nocardia 366
– TB 363
– toxoplasmosis 355
– treatment 347
– spinal epidural 381
absence seizure
– absence status epilepticus 514
– definition 482
acalculia 99
ACAS, *see* either asymptomatic carotid stenosis, or Asymptomatic Carotid Atherosclerosis Study
ACDF, *see* anterior cervical discectomy and fusion
acetaminophen 144
acetazolamide
– challenge, with CTP 239, 1537
– for CSF fistula 420
– for hydrocephalus 452
– for Meniere disease 606
– for pseudotumor cerebri 965
– for seizures 496
– IV 496
– side effects 496
acetazolamide challenge, with SPECT for NPH 445
achondroplasia
– and frontal bossing 1665
– and macrocephaly 1692
– and myelopathy 1696, 1703
achondroplasia, and spinal stenosis 1329
acid inhibitors 134
acid pump inhibitors 135
ACNU (nimustine) 628
acoustic neuroma, *see* vestibular schwannoma
AC-PC line 58
acrocephaly 267
acromegaly 870
– and hyperostosis frontalis interna 974
– biochemical cure criteria 903
– evaluation 881
– growth hormone endocrinology 153
– management 889
– outcome following treatment 903
– reversibility of abnormalities 870
– treatment
– medical treatment 890
– radiation therapy for 893
ACST, *see* Asymptomatic Carotid Surgery Trial
activity modifications for low back problems 1237
acupuncture 1239
acute callosal angle (in iNPH) 441
acute cerebellar ataxia 1686
acute confusional state 182
acute disseminated encephalomyelitis (ADEM) 190
acute high-altitude sickness 1028
acute hydrocephalus associated with aSAH, practice guideline 1427
acute inflammatory demyelinating polyradiculoneuropathy 193
acute intermittent porphyria 116, 194
acute kidney injury (in rhabdomyolysis) 137
acute motor axonal neuropathy variant Guillain-Barré 194
acute mountain sickness 1028
acyclovir
– for herpes simplex encephalitis 399
– for herpes zoster 523
adalimumab 1378
adamantinomatous craniopharyngioma 849
Adamkiewicz' artery 87–88
– Adamkiewicz 88
Adams forward bend test (scoliosis) 1320
Addisonian crisis, *see* adrenal crisis
Addison's disease 154
ADEM, *see* acute disseminated encephalomyelitis
adenocarcinoma
– bronchogenic 911
– metastatic to brain 915
adenohypophysis 151
ADH, *see* antidiuretic hormone
adhesive arachnoiditis, *see* arachnoiditis
Adie's pupil 592
adjacent segment disease, after cervical fusion 1308
admission criteria, for alcohol withdrawal seizures 506
adolescent idiopathic scoliosis (AIS) 1319
– curve progression 1320
adrenal crisis (adrenal insufficiency)
– Addisonian crisis 157
– and macrocephaly 1692
– from meningitis (Waterhouse-Friderichsen) 340
– precipitated by ketoconazole 892
– precipitated by steroid withdrawal 154
– precipitated by stress 155
– precipitated by thyroid replacement 886
adrenal crisis (adrenal insufficiency) 157
adrenalectomy
– and Nelson's syndrome 892
– for Cushing's disease 891
adrenocorticotropic hormone, *see* corticotropin
adult Chiari malformation 295
adult degenerative scoliosis 1352
adult idiopathic scoliosis (AdIS) 1325
adult idiopathic scoliosis (AdIS) classification 1325
adult spinal deformity 1352
aer sinusitis 1419
afferent pupillary defect 591–592
Affix™ interspinous fusion plate 1346
AFO, *see* ankle-foot-orthosis
afterloading catheters 1910
agenesis of the corpus callosum 274, 304
– in DandyWalker malformation 270
Aggrenox® (dipyridamole/aspirin) 1547
aggressive pituitary tumors 856
agraphesthesia 99
agraphia without alexia 99
agyria 309
Ahumada-del Castillo syndrome 867
Aicardi syndrome 276
AIDS 353
– AIDS related myelopathy 1699
– and CNS lymphoma 354–355, 357, 841
– and infectious aneurysms 1492
– and neurosyphilis 354
– and varicella-zoster leukoencephalitis 399
– encephalopathy 353
– from cadaveric bone graft 1285
– management of intracerebral lesions 355
– neurologic manifestations 353
– neuropathy 574
– neuroradiologic findings 355
– toxoplasmosis abscess treatment 356
AIN, *see* anterior interosseous nerve - neuropathy
air embolism 1738
– with cerebral angiography/endovascular intervention 1914
air in spinal canal (pneumorrhachis) 1387
airplane headache 1418
airway management guideline in long-term TBI 1106
akinetism mutism 1694
alar ligament 67
ALARA 235
alendazole
– for echinococcosis (hydatid cyst) 408
– for neurocysticercosis 407
Alberta stroke program early CT score (ASPECTS) 1559
albumin
– for hyperdynamic therapy 1446
– transfusion 162
albuminocytologic dissociation 194
alcohol (ethyl), *see* ethanol
alcohol withdrawal seizures, *see* ethanol - withdrawal seizures
alendronate, for osteoporosis 1212
alkaline phosphatase, in Paget's disease 1363
Allcock test 1480
allergic reactions, to intravenous contrast media 232
allergy prep

- for gadolinium allergy 232
- for iodine allergy 232
- allocheiria 100
- allodynia
 - in CRPS 526
 - in postherpetic neuralgia 522
- allograft 1723
- alpha-2 adrenoceptor agonists 141
- alpha-adrenergic agonists, and intra-cerebral hemorrhage 1611
- alpha-fetoprotein
 - and neural tube defects 313
 - as a tumor marker 635
 - in CSF as a tumor marker 832
- alpha-melanocyte-stimulating hormone 151
- ALS, see amyotrophic lateral sclerosis
- alteplase
 - for acute MI 1611
 - for stroke 1563
- alternating hemiplegia 1582
- Alzheimer's disease
 - CSF markers 443
 - treatment with CSF shunt 447
- amaurosis fugax 1544
 - differential diagnosis 1690
 - in giant cell arteritis 204
- amaurotic pupil 592
- ambient cistern 1421
- amebic infections of CNS 410
- amenorrhea-galactorrhea syndrome 863, 867
 - with empty sella syndrome 952
- American Academy of Otolaryngology hearing classification 781
- American Society of Anesthesiologists (ASA) classification 108
- American Spinal Injury Association (ASIA)
 - impairment scale 1132
 - motor scoring system 1129
 - sensory scoring system 1130
 - spinal cord injury completeness scale 1132
- amikacin, for meningitis 340
- Aminoff-Logue disability scale (spinal dural AVF) 1398
- aminoglutethimide 892
- 5-aminolevulinic acid (5-ALA)
 - guided resection of gliomas 670
- aminopylline, for contrast media reaction 234
- 21-aminosteroids, for severe TBI 1055
- amitriptyline
 - as analgesic adjuvant 519
 - for painful diabetic neuropathy 572
 - for postherpetic neuralgia 524
 - side effects 572
- amniotic fluid embolism 1542
- amobarbital 1890
- amphetamines
 - abuse and stroke 1542
 - and the nervous system 216
- amphotericin B, for cryptococcal meningitis 410
- Amplatzer™ Vascular Plug 1520
- amprenavir 574
- amrinone 133
- amygdalo-hippocampectomy 1751, 1893
- amyloid
 - amyloid angiopathy 1112, 1612
 - amyloid angiopathy related inflammation 1612
 - amyloid neuropathy 576
 - hTTR amyloidosis 549
 - in chronic traumatic encephalopathy 1112
 - plaques
 - in Creutzfeldt-Jakob disease 401
 - in kuru 401
- amyotrophic lateral sclerosis 191
 - differential diagnosis 1700, 1709
 - differentiating from myelopathy 1301
 - with parkinsonism 186
- analgesics 143
 - adjuvant medications 149
 - for mild to moderate pain 146
 - for moderate to severe pain 147
 - for severe pain 147
 - nonsteroidal anti-inflammatory drugs (NSAIDs) 144
 - opioid 146
- anaphylaxis, from IV contrast media 233
- anatomic screw placement 1792
- anatomy
 - cortical surface 56
 - fourth ventricle 1743
 - frontal sinus 1066
 - internal capsule 66
 - occipitoatlantoaxial complex 67
 - parietal lobe 98
 - spinal cord 69
 - sural nerve 1833
- ANCA-associated vasculitis 207
- Andersson lesions 1367
- andexanet alfa for coagulopathy 175
- anecephaly 308
- anesthesia dolorosa 1863
- anesthesiology 108
- aneurysm
 - definition 1416
 - hemorrhage risk, familial aneurysms 1487
- aneurysm clips, and MRI 242
- aneurysm mass effect, clipping vs. coiling to treat 1460
- aneurysm treatment decisions, practice guideline 1460
- aneurysmal bone cyst 979
 - in fibrous dysplasia 977
 - sacral 1702
 - skull, differential diagnosis 1663, 1665
 - spine 979
 - differential diagnosis 991
- aneurysms 1453, 1457
 - and autosomal dominant polycystic kidney disease 1455
 - and fibromuscular dysplasia 209
 - and pregnancy 1425
 - and subarachnoid hemorrhage 1417
 - angiogram for 1423
 - angiographic findings 1423
 - anterior cerebral artery 1475
 - anterior communicating artery (ACoA) 1473
 - associated systemic conditions 1455, 1457, 1460
 - basilar bifurcation/tip 1482
 - basilar trunk 1484
 - berry 1453
 - bleeding risk, see aneurysms - hemorrhage risk
 - carotid terminus (bifurcation) 1476
 - cavernous carotid 1477
 - cavernous carotid artery 1491
 - cavernous ICA 1489
 - Charcot-Bouchard 1612
 - DACA, see aneurysms - distal anterior cerebral artery
 - distal anterior cerebral artery 1475
 - dome to neck ratio 1424
 - endovascular treatment 1922
 - false aneurysms 1491
 - following carotid endarterectomy 1567
 - familial 1455, 1490
 - follow-up after treatment 1468
 - fusiform 1453
 - giant 1493
 - hemorrhage risk
 - ruptured aneurysms (rebleeding) 1417, 1437
 - unruptured aneurysms 1486
 - imminent rupture 1463
 - in infancy and childhood 1453
 - in moyamoya disease 1582
 - incidental 1453, 1486
 - follow-up after diagnosis 1489
 - infectious 1492
 - intraoperative rupture, with craniotomy 1466
 - prevention 1466
 - location 1453
 - mass effect 1454
 - middle cerebral artery (MCA) 1476
 - military 1612
 - multiple 1490
 - mycotic 1492
 - operative techniques 1463
 - ophthalmic artery 1478
 - ophthalmic segment 1478
 - PICA 1480
 - posterior circulation 1479
 - posterior communicating artery (PComA) 1475
 - posttraumatic, see aneurysms - traumatic
 - presentation 1454
 - rebleeding 1437
 - intraoperative 1466
 - prevention 1437
 - recurrence after treatment 1467
 - rests 1463
 - saccular 1453
 - superior hypophyseal artery 1478
 - supracarotid 1478
 - surgery for 1463
 - brain relaxation 1464
 - cerebral protection 1464
 - lumbar drainage 1464
 - timing of surgery 1461
 - basilar bifurcation aneurysms 1482
 - thrombosis
 - spontaneous 1454
 - with detachable coils 1456
 - transmural pressure 1427
 - traumatic 1066, 1491
 - treatment, trapping 1456
 - treatment options 1456
 - surgery 1457, 1463
 - thrombosis with detachable coils 1456
 - thrombosis with Onyx 1456
 - trifurcation 1476
 - unruptured 1486
 - vein of Galen, see vein of Galen malformation
 - vertebral artery 1479
 - vertebral-basilar junction 1481
 - with AVM 1507
 - wrapping 1457
- angina pectoris
 - mimicked by cervical radiculopathy 1280
 - spinal cord stimulation for 1886
 - sympathetomy for 1853
- angiocentric glioma 679
- angioedema
 - following anterior cervical discectomy 1287
 - from contrast media reaction 233
 - from propofol 1466
- angioendotheliomatosis, see intra-vascular lymphomatosis
- angiogram
 - angiogram-negative SAH 1494

- anterior cerebral artery 79
- computed tomography angiography (CTA)
 - for aneurysm detection 1421
 - for carotid stenosis 1546
 - technical information 238
- dynamic (for bow hunter's stroke) 1593
- following aneurysm surgery 1466
- for aneurysms 1423
- for bow hunter's stroke 1593
- for brain death 333
- for carotid stenosis 1545
- in gunshot wounds to the head 1094
- in head trauma 1012
- in hydranencephaly 311
- in intracerebral hemorrhage 1620
- in meningiomas 812
- in non-missile penetrating head trauma 1096
- in penetrating neck trauma 1220
- in pregnancy 1425
- in subarachnoid hemorrhage 1423
- intraoperative 1466
- ICG, for spinal AVM 1399
- magnetic resonance angiography (MRA)
 - for carotid stenosis 1546
 - for cerebral aneurysms 1422
 - middle cerebral artery 80
 - posterior fossa arterial 83
 - posterior fossa venous 87
 - radiation dose 235
 - repeating after SAH 1495
 - risks 1498, 1545, 1550
 - spinal, for angio negative SAH 1496
 - supratentorial venous system 85
- angiographic findings, with aneurysms 1423
- basilar bifurcation 1482
- angiographically occult vascular malformations 1524
- angioliipoma 980
- angioma (venous), see developmental venous anomaly (DVA)
- Angiomax® (bivalirudin) 166, 173
- angioplasty
 - for carotid stenosis 1571
 - indications 1572
 - for vasospasm 1445
- angioplasty for vasospasm 1925
- angiotensin-converting enzyme 198
- angular gyrus, surface anatomy 62
- anisocoria 591
 - from third nerve compression 593
 - from uncus herniation 327, 593
 - physiologic 591
- ankle-brachial index (ABI) 1335
- ankle-foot-orthosis for foot drop 564
- ankylosing spondylitis 1229, 1365, 1705-1706
 - and cervical fractures 1194
 - and lumbar spinal stenosis 1329
 - and upper cervical spine problems 1308
- annular, see annular
- annulus of Zinn 598
- annulus tendineus 598
- anosmia
 - and postconvulsive syndrome 1111
 - differential diagnosis 1687
 - in Foster Kennedy syndrome 100, 808
 - in Kallmann syndrome 864, 1687
 - with basal skull fracture 1065
 - with CSF fistula 417
- anosognosia 99
- anoxic encephalopathy 321, 328
 - use of EEG for 249
- ansa hypoglossi/cervicalis 1569
- anterior approaches to the spine
 - cervical
 - for trauma 1195
 - upper cervical 1771
 - thoracic 1272
- anterior cerebral artery 79
 - angiogram 79
- anterior cervical discectomy and fusion 1284
 - Cloward technique 1289
 - complications 1286
 - dysphagia 1287
 - esophageal perforation 1288
 - pseudarthrosis following 1289
 - redo 1285
 - Smith-Robinson technique 1289
- anterior cervical plates 1787
- anterior cervical plating 1305
 - practice guideline 1285
- anterior choroidal artery 75, 78
 - ligation for parkinsonism 1840
 - occlusion 1539
- anterior column reconstruction (ACR) 1358
- anterior commissure (AC) 58
- anterior cord syndrome 1135
- anterior horn cell diseases 531
- anterior iliac crest bone graft 1725
- anterior inferior cerebellar artery, see artery - AICA
- anterior interosseous nerve 538, 543
 - neuropathy of 545
- anterior lumbar interbody fusion (ALIF) 1795
- anterior spinal artery 87-89
- anterior spinal artery syndrome 1135
- anterior spine approaches
 - retroperitoneal 1791
 - sternal splitting 1790
 - transoral 1771
 - transthoracic 1790
- anterior tibial compartment syndrome 1259
- anterior tibialis
 - innervation 534
 - weakness in common peroneal nerve palsy 563
 - weakness with lumbar disc herniation 1252
- anterolisthesis 1337
- anthropoid posture 1331
- antibiotics
 - for CSF fistula 420
 - prophylactic
 - for external ventricular drains 1039
 - for gunshot wounds to the head 1095
 - with CSF shunt 475
 - in pregnancy 448
- anticholinergics (for neurogenic bladder) 96
- anticoagulation 163
 - and acute subdural hematoma 1076
 - and intracerebral hemorrhage
 - anticoagulation after the hemorrhage 1622
 - anticoagulation before the hemorrhage 1613
 - and risk of chronic subdural hematoma 1081
 - anticoagulants 169
 - considerations in neurosurgery 163
 - following craniotomy 164
 - for cardioembolic stroke 1591
 - reversal of 174
 - with cavernous malformations 1527
- antidepressants
 - for low back pain 1238
 - for pain 149, 519
 - for painful diabetic neuropathy 572
 - for postherpetic neuralgia 524
- antidiuretic hormone 153
- antiepileptic drugs 485
- antifibrinolytic therapy
 - for aneurysms 1437, 1442, 1456
 - practice guideline 1437
- anti-Q1b antibodies 194
- antihistamines
 - for inadvertent intrathecal ionic contrast 230
 - for pain 149
- antiphospholipid-antibody syndrome 1542
- and cerebral venous thrombosis 1594
- antiplatelet drugs
 - and safety with neurosurgical procedures 168
 - for carotid stenosis 1547
 - reversal of 169
 - with cavernous malformations 1527
- antiplatelet therapy, for acute ischemic stroke 1558
- antiseizure medication 485
- antiseizure medications, see antiepileptic drugs
 - and birth defects 501
 - and bleeding complications 485
 - and cerebral abscess 348
 - and newly diagnosed brain tumors 626
 - and oral contraceptives 500
 - and pregnancy 500
 - monotherapy vs. polytherapy 487
 - prophylactic use after head trauma 506, 1004
 - prophylactic use with brain tumors 626
 - withdrawal 499
 - following head trauma 506
- antisiphon device
 - for intracranial hypotension 464
 - for slit ventricle syndrome 464
 - for subdural hematoma following shunt 465
- antitubercular therapy 358-359
- Anton-Babinski syndrome 99
- Antoni A & B fibers 769
 - in neurofibromas 638
- Antoni A & B tissue
 - in spinal schwannomas 982
 - in vestibular schwannoma 777
- Anton's syndrome 430
- anular fissures, see anular tears
- anular tears (lumbar disc pathology), differential diagnosis 1705
- anulus fibrosus, definition 1226
- AOD, see atlantooccipital dislocation
- AOL, see atlantooccipital interval
- aortic aneurysms, in giant cell arteritis 204
- aortic bifurcation 1259
- aortic dissection, causing low back pain 1705
- Apert's syndrome 266, 268
- apex (scoliosis) 1312
- aphasia, differential diagnosis 1694
- apical odontoid ligament 69
- apical petrositis, see Gradenigo's syndrome
- apical vertebra (scoliosis) 1312
- apixaban 166

- aplanation principle 1041
 aplastic anemia
 - with carbamazepine 491
 - with felbamate 495
 apnea
 - and bradycardia (A's and B's) 1633
 - and Chiari malformation 304
 - sleep apnea
 -- following C3-4 discectomy 1286
 -- following cordotomy 1878
 -- following surgery for Chiari malformation 300
 -- with acromegaly 871
 - with intracerebral hemorrhage in newborns 1633
 apnea test (challenge) 331
 apneustic respiratory pattern 322
 apolipoprotein E (apoE) allele
 - and amyloid angiopathy 1612
 - and chronic traumatic encephalopathy 1111, 1113
 - and dementia 182
 - and severe brain injury 1111
 apoplexy
 - differential diagnosis 1684
 - pituitary apoplexy 865
 apparent diffusion coefficient (on diffusion-weighted MRI) 243
 appendicitis in patients with a VP shunt 374
 approaches
 - anterior spine 1790
 - anterior thoracic spine 1272
 - cerebellopontine angle (CPA) 1742
 - fourth ventricle 1743
 - lateral ventricle 1757
 - middle frontal gyrus 1762
 - middle temporal gyrus 1893
 - modified pterional 1483
 - pineal region tumors 761
 - pterional 1748
 - retroperitoneal 1791
 - superior temporal gyrus 1477
 - third ventricle 1757
 - transcallosal 761, 1758
 - transoral 1771
 - transthoracic 1790
 apraclonidine 595
 aqueductal stenosis 273, 426
 arachnoid cyst, pineal region 261
 arachnoid cysts
 - intracranial 260
 -- causing macrocephaly 1692
 -- follow-up 263
 -- intraventricular (differential diagnosis) 1668
 -- pineal region 758
 -- retrocerebellar 271
 -- suprasellar (differential diagnosis) 1654
 -- treatment 263
 - intraventricular 260
 - spinal 280
 arachnoid diverticula (spinal) 280
 arachnoid granulation, giant 1659
 arachnoid granulations 1662
 arachnoid villi (granulations) 414
 arachnoiditis 287, 1243
 - following myelography 1244
 - MRI findings 1244
 - myelographic findings 1244
 - postoperative 1259
 arachnoiditis ossificans
 - lumbar 1700
 - thoracic 1697
 arcade of Fröhse 559
 arcade of Lazorthes 88
 arcade of Struthers 554
 Archimedes' screw for intracerebral hematoma 1839
 arcuate lines 222
 arcuate sinus 1481
 ardeparin 173
 - reversal with protamine sulfate 174
 area postrema 624
 Ardenberg shunt 606
 Argatroban 165
 arginine vasopressin, *see* antidiuretic hormone, antidiuretic hormone (ADH)
 Argyll Robertson pupil 591
 arhinencephaly 311
 Arixtra 165
 Arixtra® (fondaparinux) 173
 arm claudication 204
 arm weakness (differential diagnosis) 1709
 armored endotracheal tube 1739
 Arnold-Chiari malformation 303
 arrested hydrocephalus 435
 arrow injuries 1096
 arsenic, toxicology on the nervous system 573
 arteria radicularis anterior magna, *see* artery - Adamkiewicz
 arterial hyperoxia 1434
 arterial-venous oxygen content difference 1045
 arteriosclerosis, *see* atherosclerosis
 arteriosclerotic parkinsonism 185
 arteriovenous fistula, cerebral 1504
 arteriovenous fistulae, spinal 1395
 arteriovenous malformation 1504
 - and moyamoya disease 1581
 - causing macrocephaly 1692
 - cryptic 1524
 - dural (intracranial) 1514
 - embolization 1926
 - endovascular treatment 1926
 - grading 1509
 - hemorrhage
 -- lifetime risk 1506
 -- location of 1505
 -- morbidity and mortality 1505
 - management 1510
 - normal perfusion pressure breakthrough 1512
 - producing subarachnoid hemorrhage 1417
 - rupture during pregnancy 1425
 - spinal 1395, 1697
 - stereotactic radiosurgery for 1906
 - treatment 1510
 arteritis, Takayasu's 203
 artery
 - Adamkiewicz 87
 - AICA
 -- anatomy 81
 -- as cause of hemifacial spasm 1871
 - anterior cerebral 79
 - anterior choroidal 78
 -- *See also* anterior choroidal artery
 - ascending pharyngeal 76
 - basilar 81
 - Bernasconi & Cassinari 77, 812
 - external carotid 76
 - Heubner's 77, 79
 -- occlusion 1539
 - inferior hypophyseal 77
 - internal carotid 76
 - labyrinthine 81
 - lenticulostriate 74, 77, 79
 -- as source of hemorrhage 1609
 - lateral 80
 - medial striate, *see* artery - Heubner's
 - middle cerebral 80
 - middle meningeal 76
 -- as source of epidural hematomas 1072
 - neuromeningeal trunk 76
 - occipital 76, 1538
 - ophthalmic 78, 1478
 - Percheron, artery of 82
 -- occlusion 1539
 - persistent primitive trigeminal 83, 1859
 - PICA 81-82
 -- anatomic variations 81
 -- as cause of hemifacial spasm 1871
 - posterior cerebral 81, 83
 - posterior communicating 78
 - recurrent artery of Heubner 77
 - SCA (superior cerebellar) 81
 -- as cause of hemifacial spasm 1871
 -- as cause of trigeminal neuralgia 1859, 1869
 - superficial temporal 76
 -- bypass 1602
 -- sparing frontal branch with craniotomy 1748
 - superior hypophyseal 75, 78, 1478
 - vertebral
 -- anatomy 80
 -- management of trauma to 1221
 -- segments 81
 - vidian 77, 1537
 arthroplasty, cervical disc 1290
 arthritis interspinosa 1332
 ARUBA study 1510
 A's and B's 1633
 Ascenda catheter 1850
 ascending paralysis 1704
 - in Guillain-Barré syndrome 193
 - in spinal cord injury 1412
 ascending pharyngeal artery 76
 aseptic meningitis 342
 ash leaf macules 644
 Ashworth (spasticity) score 1845
 ASM, *see* antiepileptic drugs
 ASPECTS 1559
 Aspen® interspinous fusion plate 1346
 aspergillosis, and multiple cranial neuropathies 1688
 aspirin
 - and DVT in glioma patients 176
 - and elective surgery 169
 - and intracerebral hemorrhage 1611
 - as analgesic 145
 - before carotid endarterectomy 1566
 - following carotid endarterectomy 1567
 - for atrial fibrillation 1591
 - for DVT prophylaxis 177
 - for endovascular neurosurgery 1914
 - for occlusive cerebrovascular disease 1547
 - for stroke prevention 1547
 - use in acute ischemic stroke 1558
 astereognosis 99
 asterion 61
 astroblastoma, MN1-altered 703
 astrocytoma 657
 - *See also* glioma
 - cerebellar (pilocytic) 693
 - dedifferentiation 662
 - diffuse 658
 - pilocytic 689
 - pilomyxoid 689
 - spinal cord 985
 - subependymal giant cell 645, 700
 asymptomatic carotid artery stenosis 1548
 Asymptomatic Carotid Atherosclerosis Study 1549

- Asymptomatic Carotid Surgery Trial 1549
- asymptomatic meningiomas 807
- ataxia, differential diagnosis 1686
- ataxia telangiectasia 1524
- ataxic respiratory pattern 322
- atenolol, for ethanol withdrawal 214
- atherosclerosis 1543
- and moyamoya disease 1581
 - and stroke in young adults 1541
 - intracranial 1591
- atlantoaxial fusion 1778, 1780
- C1-2 facet screws 1779
 - Dickman and Sonntag fusion 1783
- atlantoaxial impaction, see basilar impression
- atlantoaxial subluxation
- and increased atlantodental interval 1160
 - differential diagnosis/etiologies 1677
 - from metastases 922
 - in Down syndrome 1381, 1677
 - surgical indications 1778
 - in Morquio syndrome 1309
 - in rheumatoid arthritis 1377
 - indications for treatment 1378
 - rotatory subluxation/fixation 1158
 - surgical fusion 1778
 - traumatic 1158
 - anterior dislocation 1160
 - V shaped pre-dens space 1161
 - with odontoid fractures 1171
- atlantodental interval 223, 1161
- abnormalities in rheumatoid arthritis 1378
 - increased (differential diagnosis) 1677
 - posterior atlantodental interval 1378
 - posterior atlantodental interval (PADI) 223
- atlantooccipital dislocation 1153
- following cervical traction 1148
 - in pediatrics 1153
 - radiographic criteria 1153
- atlantooccipital interval 1154
- atlas vertebra (C1)
- fractures of 1162
 - BNI guidelines 1164
 - treatment 1164
 - lateral mass screws 1780
 - metastatic tumors of 922
 - ossification centers 224
- atonic seizures, in Lennox-Gastaut syndrome 484
- atrial catheter placement 1827
- atrial fibrillation, and stroke 1590-1591
- atrial myxoma 1542, 1590
- atrophy
- first dorsal interosseous muscle 1709
 - hand 1709
 - in Charcot-Marie-Tooth 568
 - in diabetic amyotrophy 572
 - quadriceps 573
 - with carpal tunnel syndrome 547
 - with lower motor neuron paralysis 531
 - with ulnar nerve palsy 555
- atropine
- and pupillary dilatation 321, 335
 - for bradycardia in spinal cord injury 1139
 - for bradycardia with Precedex™ 141
 - for brain death evaluation 335
 - for contrast media reaction 233
 - for reversal of paralytics 143
- AT/RT or ATRT, see atypical teratoid/rhabdoid tumor
- atypical choroid plexus papilloma 740
- atypical facial pain 1857
- percutaneous trigeminal rhizotomy for 1862
- atypical neurofibroma 769
- atypical teratoid/rhabdoid tumor 754
- atypical trigeminal neuralgia 1857
- audiometrics, with vestibular schwannoma 780
- auditory evoked potentials, see brainstem auditory evoked responses
- autograft 1723
- autoimmune hypophysitis 1656
- autoimmune limbic encephalitis 1672
- autologous blood transfusion 161
- autonomic dysreflexia, see autonomic hyperreflexia
- autonomic hyperreflexia 1222
- autoregulation (cerebral) 1036, 1536
- loss in trauma 1037
 - loss with inhalational anesthetics 109
- autosomal dominant polycystic kidney disease
- and arterial dissections 1577
 - and cerebral aneurysms 1455
- avascular necrosis of bone from steroids 157
- Avinza® (extended release morphine) 149
- AVP, see antidiuretic hormone (ADH)
- avulsion, nerve root, see nerve root avulsion
- avulsion fracture 1185
- awake craniotomy 1732
- axial manual traction 1282
- axillary nerve 536
- injuries 560
- axis vertebra (C2)
- anatomy 1166
 - fractures 1165
 - lesions, differential diagnosis 1678
 - ossification centers 226
 - pedicle screws 1780, 1783
 - translaminar screws 1784
 - tumors, differential diagnosis 1678
- axonal shearing 1026
- axotomy 578
- B**
- Baastrup's syndrome 1332
- Babinski sign 91
- with cerebellar infarction 1589
 - with cervical spondylotic myelopathy 1298
- back pain 1226, 1230
- chances of return to work 1241
 - chronic 1241
 - conservative treatment 1237
 - differential diagnosis 1704
 - failed back surgery syndrome 1243
 - in cancer patients 922, 924
 - in spinal Paget's disease 1362
 - physical examination 1229
 - psychological components 1229
 - psychosocial factors 1236
 - with SAH 1418
 - back school 1238
- baclofen
- for ethanol withdrawal 214
 - for spasticity
 - intrathecal 1847
- mechanism of action 1846
 - oral 1846
 - for trigeminal neuralgia 1860
 - in ALS 192
 - overdose management 1849
 - pump 1847
 - withdrawal syndrome (intrathecal) 1849
- bacterial aneurysm 1492
- bacterial endocarditis
- and cerebral abscess 344
 - and infectious aneurysms 1492
 - and spinal epidural abscess 382
- BAER, see brainstem auditory evoked responses
- BAI-BDI method of diagnosis
- atlanto-axial dislocation 1153
- Baker cyst and peroneal nerve palsy 563
- balance problems, differential diagnosis 1686
- ballistics 1093
- balloon
- microcompression trigeminal rhizolysis 1861
 - occlusion test 1480
- balloon disc (herniation) 1266
- balloon-assisted coiling 1923
- Balo's disease (concentric sclerosis) 190
- bamboo spine 1365, 1678
- banana sign 1647
- Bannwarth's syndrome 365
- barbiturate
- cerebral protection
 - during aneurysm surgery 1464
 - during carotid endarterectomy 1569
 - coma 1055
 - for anesthesia induction 110
 - high-dose therapy 1055
- barbotage 1825
- barium swallow (modified) study 1373
- basal angle 228
- basal cisterns
- enhancement in carcinomatous meningitis 920
 - in cerebellar infarct 1588
 - in external hydrocephalus 434, 1692
 - in prognosticating head injury 1109
 - obliteration in subdural empyema 351
 - obliteration in trauma 1109
 - perimesencephalic cisterns 1497
 - posterior and lateral limbs 1109
- basal energy expenditure 1107
- basal ganglia
- calcification 1667
 - differential diagnosis of abnormalities 1673
 - in Parkinson's disease 184
 - involvement in AIDS 355
 - lacunar strokes, arteriosclerotic parkinsonism 185
- basal skull fractures 1005, 1064
- and diabetes insipidus 126, 1065
 - and traumatic aneurysms 1491
- basal vein of Rosenthal 85
- basilar artery 81
- aneurysms, see aneurysms - basilar bifurcation/tip or vertebrubasilar
 - basilar dolichoectasia
 - causing facial pain 520
 - causing trigeminal neuralgia 1859
- basilar artery migraine 184
- basilar impression/invasion 228
- congenital 1406

- in rheumatoid arthritis 1376, 1379
- with Paget's disease 1362
- basilar tip aneurysms, *see* aneurysms
 - basilar bifurcation/tip
- basion-dental interval 1153
- Batson's plexus
 - and cerebral abscess 344
 - and cerebral metastases 909
 - and spinal metastases 921
 - and vertebral osteomyelitis 387
- Battle's sign 1005, 1065
- BCG vaccine 358
- BCNU (carmustine) 628
 - Gliadel® wafers 673
- beaten copper cranium 433
 - description 267
 - with craniosynostosis 265
 - with lambdoid synostosis 267
- beaten silver cranium, *see* beaten copper cranium
- beating aneurysm sign 1463
- bed rest
 - following lumbar puncture 420
 - for low back problems 1237
 - for whiplash injuries 1120
- bedside confrontational test (visual fields) 588
- Behçet's syndrome 203, 208
 - and cerebral venous thrombosis 1595
 - and pseudotumor cerebri 962
- bellhop's tip position 579
- Bell's cruciate paralysis, *see* cruciate paralysis
- Bell's palsy 608
 - in Lyme disease 364
- belzutifan 649
- Bence-Jones protein 930
- benediction hand
 - with median nerve dysfunction 544
 - with ulnar nerve dysfunction 554
- Benedikt's syndrome 101
- benign cerebral angiopathy or vasculitis 1418
- benign external hydrocephalus 433
- benign intracranial hypertension 955
- benign organic cephalgia 1419
- benign (paroxysmal) positional vertigo 603, 605
- benign postictal pleocytosis 513
- benign subdural collections of infancy 1087
- benign thunderclap headache 1418
- benzodiazepines
 - for ethanol withdrawal 213
 - in anesthesia 110
- Bernasconi & Cassinari, artery of 812
- Bernhardt-Roth syndrome 561
- berry aneurysms 1453
- Bertolotti's syndrome 1382
- Best disease (macular dystrophy) 593
- beta blockers
 - and IV contrast reactions 233
 - for ethanol withdrawal 214
- beta-hCG, in CSF as a tumor marker 832
- betamethasone, for community acquired meningitis 340
- bevacizumab
 - for radiation necrosis 1901
 - for vestibular schwannoma 785
- bicycle test 1335
- bilateral myoclonus, *see* juvenile myoclonic epilepsy
- Bill's bar (of IAC) 63
- bimastoid line 229
- Binswanger's disease 1670
- biofeedback, for low back pain 1239
- biomechanical stability 1118
- biopsy
 - brain biopsy
 - for Creutzfeldt-Jakob disease 403
 - for dementia 182
 - for herpes simplex encephalitis 398
 - for neurodegenerative disorders 182
 - for neurosarcooidosis 199
 - for possible cerebral mets 915
 - in AIDS 357
 - stereotactic, *see* stereotactic surgery
 - (superficial) temporal artery 205
 - sural nerve 1832
- Biot's breathing 322
- birth control pills, *see* oral contraceptives
- birth injuries
 - acute subdural hematoma 1087
 - brachial plexus 579
 - cephalhematoma 1099
 - ping-pong ball fractures 1101
 - subperiosteal hematoma 1099
- Bischof's myelotomy 1847
- bisphosphonates
 - for multiple myeloma 930
 - for osteoclastoma of spine 996
 - for osteoporosis 1211
 - for Paget's disease 1364
 - for vertebral metastases 926
- bitemporal hemianopsia 864, 875
 - with clival fractures 1065
 - with superior hypophyseal artery aneurysms 1478
- bivalrudin 166, 173
- bladder
 - dysfunction
 - differential diagnosis 93
 - in cauda equina syndrome 1254
 - management 98
 - with lumbar disc herniation 1251
 - neurophysiology 92
 - urinary retention 95
- Blake's pouch cyst 271
- bleeding time
 - and NSAIDs 144
 - and ticlopidine 1548
- blepharoptosis 1691
- blepharospasm 1871
- blind spot 588
- blindness
 - cortical 402, 430
 - following head injury 1005
 - differential diagnosis
 - binocular 1689
 - monocular 1690
 - unilateral (amaurosis fugax) 1690
 - following lumbar spine surgery 1259
 - following optic nerve trauma 1014
 - following pallidotomy 1841
 - following trigeminal rhizotomy 1864
 - from cavernous carotid aneurysms 1490
 - from fibrous dysplasia 976
 - from giant cell arteritis 203-204
 - acute onset 206
 - from hydrocephalus 429
 - from hypotension 431
 - from pseudotumor cerebri 961
- blistering of the skull 813
- block vertebrae 289
- blockogram 925
- blood component therapy 160
- blood ethanol concentrations 213
- blood patch
 - for intracranial hypotension 423
 - for post LP headache 1817
- blood volume
 - cerebral 1037, 1052
 - circulating (systemic) 160
- blood-brain barrier 90
 - and chemotherapy 628
 - and CNS metastases 908
 - and the pituitary gland 151
 - opened by mannitol 1054
- bloody tap (LP) 1813
- blunt cerebrovascular injury 1028
- BMP, *see* bone morphogenic protein
- BNI guidelines for C1 fractures 1164
- bobble-head doll syndrome 262
- bolt, *see* subarachnoid screw
- bone density, *see* bone mineral density
- bone flap
 - infection 380
 - options following craniectomy 1766
- bone flap resorption 1764
- bone grafts 1721
- bone growth stimulators 1724
 - indications 1725
- bone island 1680
- bone mineral density 1209
- bone morphogenetic protein 1723
 - and bone growth stimulators 1724
 - in anterior cervical fusion 1285
 - in lumbar fusion 1721
- bone scan
 - for ankylosing spondylitis 1367
 - for craniosynostosis 265
 - for discitis 391
 - for lambdoid craniosynostosis 268
 - for low back problems 1235
 - for osteoid osteoma 991
 - for spine fractures 1145
 - for vertebral osteomyelitis 389
 - in coccydynia 1242
 - in hyperostosis frontalis interna 975
 - in multiple myeloma 930
 - in Paget's disease 1363
 - in spinal metastases 925
 - in spondylolysis 1342
 - three phase 247
 - to assess lumbar fusion 1722
- bone tumors
 - metastases to the spine 921
 - of the skull 972
 - primary tumors of the spine 989
- Booking the case
 - anterior cervical discectomy (ACDF) 1284
 - C1-2 fusion using lateral mass screws 1781
 - cervical disc arthroplasty (artificial disc) 1291
 - cervical keyhole laminectomy 1292
 - cervical laminectomy 1291
 - cervical laminectomy ± fusion for stenosis 1305
 - costotransversectomy 1273
 - craniotomy
 - awake craniotomy 1732
 - for acute epidural/subdural hematoma 1075
 - for aneurysm 1463
 - for arteriovenous malformations 1511
 - for chronic subdural hematoma 1083
 - for depressed skull fracture 1063
 - for infratentorial tumor 625
 - for intracerebral hemorrhage 1624

- for microvascular decompression 1867
 - for supratentorial tumor 624
 - retrosigmoid for vestibular schwannoma 793
 - transcallosal approach 1758
 - kyphoplasty 1214
 - lateral interbody fusion 1805
 - lumbar discectomy 1256
 - lumbar laminectomy ± fusion for stenosis 1345, 1348
 - odontoid screw fixation 1776
 - percutaneous trigeminal rhizotomy 1865
 - shunts 1825
 - translabyrinthine approach, for vestibular schwannoma 792
 - transoral approach 1772
 - transpedicular approach 1275
 - transsphenoidal surgery 897
 - transthoracic spine surgery 1275
 - ventricular access device (Ommaya reservoir) 1831
 - ventricular shunt 1825
 - Borrelia burgdorferi 364
 - bortezomib 930
 - Boston brace 1205, 1342
 - botulinum toxin
 - for hemifacial spasm 1871
 - for piriformis syndrome 1701
 - for torticollis 1844
 - for trigeminal neuralgia 1861
 - botulism 1687, 1703
 - Boutonneville's disease 644
 - bovine circulation 76
 - bovine spongiform encephalopathy (BSE) 401
 - bow hunter's sign 1778
 - bow hunter's stroke 1592
 - bowstring sign 1252
 - bow-tie sign 1187
 - brachial neuritis 570
 - brachial plexus 535–536
 - injuries 579
 - birth injuries 579
 - during 1st rib resection 582
 - gunshot wounds 580
 - perioperative 576
 - neuropathy 570
 - in thoracic outlet syndrome 581
 - brachycephaly 267
 - brachytherapy 1838, 1910
 - brachyury 826
 - bracing
 - cervical spine 1124
 - halo-vest 1124
 - application 1148
 - for adolescent idiopathic scoliosis (AIS) 1324
 - lumbar spine
 - for low back pain 1239
 - for spondylolysis 1342
 - thoracolumbar spine 1205
 - bradycardia
 - in Cushing's triad 1038
 - in spinal shock 1119
 - bradyphrenia 439
 - BRAF V600E mutation (in PXAs) 700
 - brain death 330
 - in children 335
 - brain mapping 1731
 - brain relaxation, for aneurysm surgery 1464
 - brain swelling, intraoperative 1728
 - brain tissue oxygen tension monitoring 1045
 - treatment thresholds 1047
 - brain tumor polyposis syndrome 2 (BTP2) 651
 - brain tumors 616
 - See also tumors - brain
 - brainstem auditory evoked responses (BAER)
 - during pentobarbital coma 1056
 - with vestibular schwannoma 782
 - brainstem auditory evoked responses (BAER) 252
 - brainstem glioma 683, 695
 - dorsally exophytic 696
 - tectal glioma 697
 - brainstem nodule (in hydranencephaly) 310
 - brainstem syndromes 101
 - breach grading (pedicle screws) 1799
 - breakthrough bleeding
 - following AVM surgery 1512
 - following carotid endarterectomy 1567
 - bregma 61
 - brevicollis 290
 - bridge therapy 172
 - bright spot in pituitary gland 883
 - broad-based disc herniation 1227
 - Broca's area 56, 1762
 - Brodman's areas 56
 - bromocriptine
 - for acromegaly 890
 - for prolactinoma 888
 - with extremely high prolactin levels 888
 - bronchogenic cancer
 - metastatic to brain 910
 - non-small-cell 911
 - small-cell 910
 - bronchospasm, from contrast media reaction 233
 - brown tumor of hyperparathyroidism 1655
 - Brown-Séquard syndrome 1135
 - from cervical disc herniation 1704
 - from spinal cord herniation 1405, 1697
 - in cervical spondylosis 1299
 - in radiation myelopathy 1902
 - with spinal cord tumor 987
 - Brudzinski sign 340, 1419
 - bruit
 - carotid
 - asymptomatic 1544
 - with carotid dissection 1579
 - cranial
 - with AVM 1505
 - with carotid-cavernous malformation 1520
 - with dural AVM 1515
 - spinal, with spinal AVM 1398
 - Brun syndrome 406
 - Bruns-Garland syndrome 572
 - BSAER, see brainstem auditory evoked responses
 - buffalo hump (in Cushing's syndrome) 868
 - bulbar-cervical dissociation 1132, 1153
 - bulbocavernosus reflex 1131
 - bulk flow model of CSF 414
 - bullet velocity, see ballistics
 - bundles of Probst 275
 - bupivacaine
 - following lumbar laminectomy 1258
 - for coccydynia 1242
 - buprenorphine 148
 - burner (football injury) 1126
 - burning hands syndrome 1126
 - differential diagnosis 1711–1712
 - burr holes
 - for chronic subdurals 1083
 - for trauma (emergency) 1014
 - Frazier 1742, 1745, 1821
 - burst fractures
 - cervical 1195
 - C1 1162
 - subaxial 1183
 - L5 1206
 - thoracolumbar 1201
 - treatment 1206
 - burst suppression
 - and pentobarbital levels 1057
 - definition 249
 - during aneurysm surgery 1465
 - ICP management orders 1056
 - with etomidate 1466
 - butorphanol 148
 - butterfly glioma 658
 - butterfly gliomas 668
 - butterfly vertebra 227
 - in lipomyelomeningocele 285
- ## C
- C1 pedicle screws 1782
 - C1–2 arthrodesis 1778
 - C1 lateral mass screws 1780
 - Dickman and Sonntag fusion 1783
 - transarticular facet screws 1779
 - C1–2 puncture 1819
 - C1-dens distance, see atlantodental interval
 - C5 palsy, post-op 1306
 - C7 lateral mass screw 1786
 - C7 transfacet screw 1786
 - cabergoline
 - dosing forms 889
 - for prolactinoma 889
 - cable for spine fusion 1835
 - cachexia, pituitary 864
 - acosmia 483
 - CADASIL 210
 - café au lait spots
 - in McCune-Albright syndrome 975
 - in neurofibromatosis 639
 - caffeine, as pain medication adjuvant 149
 - calciolol 1211
 - calcifediol 1211
 - calcification
 - basal ganglia 1667
 - choroid plexus 1665
 - in stroke 1559
 - intracranial (differential diagnosis) 1665
 - of subperiosteal hematoma 1099
 - pineal 1665
 - calcitonin
 - for fibrous dysplasia 978
 - for odontoid fracture 1173
 - for osteoporosis 1211
 - for Paget's disease 1364
 - calcitriol 1211
 - calcium, for osteoporosis 1211
 - calcium channel blockers, for vasospasm 1434
 - calcium pyrophosphate deposition (CPPD) disease 1678
 - Call-Fleming syndrome 1494
 - callosal angle 441
 - callosotomy 1760
 - caloric, see oculovestibular reflex
 - Calve-Kummel-Verneuil disease 1679
 - Campylobacter jejuni in Guillain-Barré 193
 - Canadian CT Head Rule 1007
 - Canavan's disease 1692
 - candelabra effect 334
 - candidal meningitis, treatment 343
 - candidiasis
 - infections in CNS 409
 - shunt infections 371
 - candle guttering
 - on myelography in arachnoiditis 1244
 - with tuberos sclerosis 645
 - canthomeatal line 238

- capillary hemangioma 821
 capillary telangiectasia 1524
 capping (on myelography) 925
 capsacin
 – for diabetic neuropathy 524
 – for painful diabetic neuropathy 573
 – for postherpetic neuralgia 524
 – for trigeminal neuralgia 1861
 capsular arteries of McConnell 78
 capsule (disc space), definition 1227
 caput medusae 1513
 carbamazepine 490
 – as cause of
 myelomeningocele 313
 – as cause of SIADH 116
 – dosing forms 491
 – for deafferentation pain 144
 – for trigeminal neuralgia 1860
 Carbatrol® 490
 carbon dioxide
 – and cerebrovascular vasodilation 1052
 – and hyperventilation for ICP control 1052
 – and laparoscopic surgery 466
 carbon monoxide
 – and basal ganglion abnormalities 1673
 – and leukoencephalopathy 1653
 – and secondary parkinsonism 185
 – encephalopathy 217
 – toxicity 216
 carbonic anhydrase inhibitors, *see* acetazolamide
 carcinoembryonic antigen 635
 carcinoid syndrome 942
 carcinomatous meningitis 920
 cardiac catheterization, neurologic complications 577
 cardiac effects from SAH 1438
 cardiac sympathectomy 1853
 cardiogenic brain embolism 1590
 – risk on withholding anticoagulation 1622
 carmustine 628
 Carney complex 652
 carotid angioplasty/stenting 1571
 carotid artery, *see* internal carotid artery
 – aneurysms, *see* aneurysms - carotid
 – bruit
 – with carotid dissection 1579
 – with carotid stenosis 1544
 – injury, grading (Denver) 1029
 – plaque morphology 1543
 – stenosis
 – angiographic criteria 1545
 – asymptomatic 1548
 carotid body tumors 941
 carotid compression
 – Allcock test 1480
 – during angiography
 – for AComA a. 1423
 – Huber maneuver 1520
 – Mehringer-Hieshima maneuver 1520
 – to treat dural AVMs 1517
 carotid dissection, *see* internal carotid artery - dissection
 – endovascular treatment 1931
 carotid endarterectomy 1565–1566
 – and intracerebral hemorrhage 1570, 1610
 – complications 1567
 – emergency 1570
 – indications 1565
 – post-op check 1567
 – technique 1569
 – vs. angioplasty/stenting 1571
 carotid ring 1478
 carotid sinus syncope 1684
 – anatomy 86
 – aneurysms, *see* cavernous ICA aneurysms
 – carotid-cavernous fistula, *see* carotid-cavernous fistula
 – lesions (differential diagnosis) 1660
 – thrombosis 1595, 1691
 cavernous sinus syndrome, differential diagnosis 1689
 cav-mal 1525
 cavum septi pellucidi 1657
 cavum septum pellucidum
 – and transcallosal surgery 1760
 – and traumatic brain injury 1113
 cavum velum interpositum 1657
 cavum vergae 1657
 CBF, *see* cerebral blood flow
 CCF, *see* carotid-cavernous fistula
 CCNU (lomustine) 628
 CDKN2A & B, with astrocytoma IDH-mutant 660
 ceftriaxone, for meningitis 343
 ceiling effect 144, 146
 cell phones and cancer risk 657
 cenobamate 499
 central canal, *see* central spinal canal
 central cord syndrome 1132
 – in cervical spondylosis 1299
 – surgical treatment for 1134
 central herniation 325
 – and PCA infarction 429
 central neurocytoma 719
 central pontine myelinolysis 119
 central sacral vertical line 1314
 central spinal canal 1408
 central sulcus 56
 – on axial imaging 58
 – surface anatomy 61
 central venous pressure, and cerebral salt wasting 117
 centripetal fat (in Cushing's syndrome) 868
 cephalhematoma 1099
 cephalocele 269
 cerebellar astrocytoma (pilocytic) 693
 cerebellar ataxia 1686
 cerebellar clamp 603
 cerebellar diaschisis 100, 202
 cerebellar hemorrhage
 – etiologies 1611
 – following supratentorial craniotomy 1611, 1729
 – presentation 1614
 – relative frequency 1609
 – treatment
 – guidelines 1625
 – surgical technique 1626
 cerebellar infarction 1588
 – surgery for 1589
 cerebellar lesions, differential diagnosis 1646
 cerebellar liponeurocytoma 721
 cerebellar mutism 100, 1744
 cerebellar ptosis (sag) 307
 cerebellar sag 307
 cerebellar syndrome 100
 cerebellar syndromes 625
 cerebellar vermis 1743
 – lobules 1743
 – splitting 1744
 cerebellopontine angle (CPA)
 lesions 1647
 – cystic CPA lesions 1648
 – meningioma, surgery 817
 – meningioma vs. vestibular schwannoma 1648
 – vestibular schwannoma 777
 – vestibular schwannoma vs. meningioma 1648
 cerebral abscess 343
 – treatment 347

- cerebral amyloid angiopathy, see amyloid - amyloid angiopathy
- cerebral arterial anatomy 74
- cerebral arterial dissections, from spinal manipulation 1238
- cerebral autoregulation 1536
- Cerebral Autosomal Dominant Arteriopathy with Subcortical Infarcts and Leukoencephalopathy (CADASIL) 210
- cerebral blood flow 1536
 - in moyamoya disease 1583
 - in normal pressure hydrocephalus 444
 - in trauma patients 1053
 - regional monitoring 1046
 - in vasospasm 1443
- cerebral blood volume 1037, 1052
- cerebral embolism, see embolism - cerebral
- cerebral hemorrhage, see intracerebral hemorrhage
- cerebral hyperperfusion syndrome 1568
- cerebral ischemia 1464
- cerebral metabolic rate of oxygen consumption (CMRO2)
 - and cerebral protection 1464
 - normal values 1537
- cerebral metastases 908
 - See also metastases - cerebral
- cerebral microdialysis 1046
- cerebral perfusion pressure 1036
 - thresholds in trauma 1047
- cerebral protection during surgery 1464
- cerebral radionuclide angiogram (CRAG) 333
 - hollow skull sign 334
- cerebral salt wasting 115, 122
- cerebral vasospasm, see vasospasm
- cerebral venous anatomy 84-85
- cerebral venous thrombosis 1594
- cerebral venous thrombosis (CVT), endovascular treatment 1934
- cerebrospinal fluid 414
 - absorption 414
 - conductance 444
 - constituents 415
 - differentiating from urine 455
 - findings with parameningeal infection 383
 - fistula 415
 - diagnostic tests 418
 - following a procedure 1816
 - anterior cervical discectomy 1286
 - p-fossa crani 1746
 - transphenoidal surgery 421
 - unintended durotomy 1258, 1261
 - vestibular schwannoma surgery 796
 - nontraumatic 418
 - spinal 422
 - posttraumatic 416, 1065
 - pseudo-CSF rhinorrhea 419
 - rhinorrhea, see cerebrospinal fluid - rhinorrhea
 - spontaneous 416
 - with PitNET 864
 - with pseudotumor cerebri 958
 - with spontaneous intracranial hypotension 422
 - flow study (for Chiari malformation) 298
 - impedance 444
 - in Guillain-Barré 194
 - in multiple sclerosis (MS) 190, 417
 - in neurosarcoidosis 199
 - in SAH 1421, 1814
 - metastases of primary CNS tumors 908
 - otorrhea 415
 - pleocytosis following status epilepticus 513
 - pressure 414
 - production 414
 - protein 415
 - and VP shunt 1636
 - in pathologic conditions 417
 - SAH vs. traumatic tap 1814
 - variation with age 416
 - rhinorrhea 415
 - following bromocriptine therapy for PitNET 888
 - following vestibular schwannoma surgery 796
 - nontraumatic 418
 - with empty sella syndrome 952
 - with pituitary tumors 864
 - shunts 454
 - solutes 415
 - specific gravity 414
- cerebrovascular occlusion syndromes 1538
- cerebrovascular reserve/reactivity 1537
- cerebrovascular resistance 1536
- cervical bar 1296
- cervical collar
 - after trauma 1142
 - for whiplash 1120
- cervical disc herniation 1280, 1808
 - shoulder abduction test 1282
 - traumatic 1280
- cervical discectomy, with arthroplasty 1290
- cervical hand (symptom) 1280
- cervical laminoplasty 1787
- cervical lateral mass screws
 - C1 1780
 - C2 1783
 - C3-6 1784
 - C7 1786
- cervical plates (anterior) 1787
- cervical radiculopathy 1280
 - differential diagnosis 1710
- cervical rib 581
- cervical spine
 - cervical sprain 1119
 - clearing after trauma 1141
 - compression injuries 1183
 - extension injuries 1191
 - facet fractures 1191
 - flexion injuries 1183
 - follow-up schedule 1125
 - fractures, surgical treatment 1194
 - herniated disc 1280, 1808
 - lateral mass fractures 1191
 - ligamentous injuries, MRI findings 1146
 - spondylosis 1296
 - differential diagnosis 1709
 - stenosis 1296
 - radiologic criteria 224, 1301
 - surface landmarks (levels) 63
 - whiplash injuries 1119
 - X-rays 222
 - flexion-extension 1145
- cervical spondylotic myelopathy
 - differential diagnosis 1300
 - evaluation 1301
 - treatment 1303
- cervical traction
 - causing subdural empyema 350
 - for hangman's fracture 1169
 - for locked facets 1190
 - Gardner-Wells tong placement 1148
 - in basilar impression 1380
 - in rheumatoid arthritis 1380
 - atlantoaxial subluxation 1379
 - with halo for trauma 1148
- cervical transarticular screw fixation 1786
- cervical translaminar screw fixation 1786
- cervicomedullary angle 1380
- cervicothoracic fractures 1124
- chalkstick fracture 1368
- Chamberlain's line 229
- Chamber's rule 914
- Chance fracture 1202
- Charcot joint 1407
- Charcot-Bouchard aneurysms 1612
- Charcot-Marie-Tooth syndrome 568
 - as cause of foot drop 1708
 - use of sural nerve biopsy 1832
- Chassaignac's tubercle 1834
- Chater's point 61
- chemical hemostasis 1719
- chemical meningitis 342
- chemical spasmolysis 1925
- chemodectoma 939
- chemoneurolysis, and myelitis 196
- chemotherapy 627, 672
 - for cerebral metastases 917
 - for chordoma 828
 - for CNS lymphoma 844
 - for WHO grade 2 astrocytomas 672
 - intra-arterial 628
 - methotrexate for CNS lymphoma 844
 - Stupp regimen 672
- chevron osteotomy 1356
- Cheyne-Stokes respirations 321
- Chiari malformation 295
 - and C1-2 puncture 1819
 - and pregnancy 302
 - as contraindication to LP 1811
 - Chiari zero malformation 298
 - type 1 295
 - and hydrocephalus 296
 - and spinal cord injury 1196
 - and syringomyelia 296
 - following lumbar puncture 1814
 - from LP shunt 456
 - sports restrictions 1024
 - surgical treatment 300
 - tonsillar herniation 298
 - type 2 303
 - and hydrocephalus 303
 - with pseudotumor cerebri 301
- Chiari-pseudotumor cerebri syndrome 301
- chiasmal cavernous malformations 1531
- chiasmal syndrome 809
- chiasmepexy 952
- chiasmatic sulcus 809
- child abuse 1103
 - and chronic extra-axial fluid collections 1088
 - and interhemispheric subdural hematoma 1079
- children's coma scale 318
- chlorthalidoxepoxide
 - for ethanol withdrawal 213
 - for ethanol withdrawal seizures 506
- chlormera 980, 1697
- chlorpromazine, for hiccups 157
- chlorpropamide
 - as a cause of SIADH 116
 - for diabetes insipidus (DI) 128
- cholesteatoma 937
 - of external auditory canal in fibrous dysplasia 978
- chole (Cho) on MRS 244
- chondroma, of the spine 980
- chorda tympani 607
- choroid glioma 702
- chordoma 825
 - cranial 827

- spinal
- differential diagnosis 979, 1678
- sacral 827
- choriocarcinoma 634, 758, 836
- chorionic gonadotropin 634
- choroid plexus 452
- choroid plexus
 - calcification of 1665
 - coagulation of 453
 - tumors 739, 1668
 - as cause of hydrocephalus 426, 740
- choroid plexus carcinoma 741
- choroid plexus papilloma 739
 - atypical 740
- choroidal point of PICA 81
- chromogranin 632
- chronic brain injury scale 1113
- chronic dysimmune neuropathy 1700
- chronic granuloma of the orbit 600
- chronic hydrocephalus associated with aSAH, practice guideline 1427
- chronic inflammatory demyelinating polyneuropathy (CIDP) 195
- chronic low back pain 1241
- chronic lymphocytic leukemia, and PML 354
- chronic subdural hematoma, see subdural hematoma - chronic
- chronic subthreshold cortical stimulation 1892
- chronic traumatic encephalopathy 185, 1112
- chronic traumatic encephalopathy (CTE) 1025
- Churg-Strauss syndrome 208
- CIDP, see chronic inflammatory demyelinating polyneuropathy
- ciliospinal center of Budge-Waller 590
- ciliospinal reflexes 324
- cimetidine
 - drug-drug interaction, carbamazepine 491
 - for contrast media reaction 233
 - for iodine contrast prep 232
- cIMPACT-NOW 616
- cingulate herniation 324
- cingulotomy 1877
- CIP, see critical illness polyneuropathy
- Circle of Willis 74-75
- circular sinus 86
- cisatracurium 143
- CISS (3D CISS) MRI 241
- cisterna magna, enlarged (mega) 271, 1656
- cisternal tap 1819
- cisternogram, see radionuclide cisternography
- cisterns
 - basal, see basal cisterns
 - posterior fossa 1496
- clasp thumbs 435
- clasp-knife resistance 531
- classic migraine 183
- Claude syndrome 1541
- claudication
 - arm 204
 - neurogenic vs. vascular 1331
 - of jaw 204
- claw deformity 554, 579
- clay shoveler's fracture 1183
- clevidipine, for hypertension 131
- clinic visit schedule
 - cervical spine 1125
 - post-op lumbar fusion 1808
- clips, aneurysm, see aneurysm clips
- clival fractures 1065
- clodronate 1364
- clofibrate 902
 - for diabetes insipidus (DI) 128, 902
- clonazepam 495
- clonidine
 - clonidine suppression test 940
 - for alcohol withdrawal syndrome 214
- clopidogrel 169, 1548
 - dosing forms 1548
 - reversal of platelet inhibition 169
- clopidogrel 170
- clopidogrel (Plavix), for endovascular neurosurgery 1915
- close lipped schizencephaly 309
- Cloward, anterior cervical discectomy 1289
- club foot 291
- clubbing of the feet, in lipomyelomeningocele 284
- club-shaped conus medullaris 1681
- clumsy hand
 - dysarthria-clumsy hand syndrome 1541
 - numb-clumsy hand syndrome 1299
- cluneal nerves 1725
- cluster breathing 322
- cluster headache 183
 - prophylaxis 184
 - treatment 184
 - deep brain stimulation 1886
 - CO₂, see carbon dioxide
- coagulopathies 174
 - elevated PTT pre-op 175
 - hypercoagulable states and strokes 1542
 - in head trauma 175
 - reversal of anticoagulants 174
 - use of ICP monitor in 1039
- Coats disease 1658
- Cobb angle 1312
- cocaine
 - and cerebral vasculitis 209
 - and fetal microcephaly 312
 - and fetal neural defects 313
 - and intracerebral hemorrhage 1611, 1631
 - and spontaneous subdural hematoma 1085
 - and status epilepticus 511
 - and stroke 1543
 - and subarachnoid hemorrhage 216
 - and the nervous system 215
 - in diagnosing Horner syndrome 594
- coccidiomycosis 409
- coccydynia 1241
 - coccygectomy for 1242
- cock robin head position 1158
- Cockcroft-Gault equation (creatinine clearance) 146
- codeine 146
- Codman Hakim programmable shunt valve 469
- Codman split trocar 1826
- coiling aneurysms 1923
- coils, electrolytically detachable, for carotid-cavernous fistula 1520
- colchicine, for low back pain 1238
- colistin, for meningitis 340
- collagen (for bone grafting) 1724
- collateral circulation 1537
 - with internal carotid artery occlusion 1537
 - with vertebrobasilar occlusion 1538
- Collet-Sicard syndrome 103
- Collins' law 693
- colloidion, for CSF leak 1746
- colloid cyst 944
 - differential diagnosis 1667
 - treatment 946
- transcallosal approach 1758
- coloboma 269
- coma
 - approach to patient 320, 327
 - barbiturate 1055
 - definition 318
 - differential diagnosis 319
 - from infratentorial mass 324
 - from subarachnoid hemorrhage 1419
 - from supratentorial mass 324
 - pseudocoma 320
 - scales
 - children's 318
 - Glasgow 318
- combined system disease 1699, 1703
- commissural myelotomy 1880
- common migraine 183
- common peroneal nerve
 - anatomy 563
 - entrapment, see peroneal nerve - palsy
- communicating hydrocephalus 426
- community acquired meningitis 340
- compensated hydrocephalus 435
- complete spinal cord injuries 1132
- complex partial seizure 481
- complex regional pain syndrome 525
 - following lumbar laminectomy and discectomy 1259, 1710
 - spinal cord stimulation for 1885
 - upper extremity 1710
 - following anterior cervical discectomy 1287
 - following brachial plexus gunshot wound 580
 - following carpal tunnel surgery 553
- complex repetitive discharge on EMG 255
- complications
 - late
 - following cervical decompression 1308
 - following GSW to the brain 1094
 - following spinal cord injury 1222
 - following traumatic brain injury 1111
 - related to
 - anterior cervical discectomy 1286
 - autograft procurement 1723
 - carotid endarterectomy 1567
 - carpal tunnel surgery 552
 - cervical decompression 1306
 - chronic subdural hematoma evacuation 1084
 - cingulate gyrus retraction 1475
 - cranial-cervical traction for spine trauma 1149
 - femoral arterial catheterization 577
 - ICP monitors 1039
 - lumbar drainage for suboccipital pseudomeningocele 1746
 - lumbar laminectomy 1258
 - lumbar puncture 1814
 - mannitol for ICP management 1054
 - posterior fossa craniectomy 1745
 - pregnancy and seizures 500
 - sitting position 1737
 - stellate ganglion block 1834
 - suboccipital craniectomy for Chiari malformation 300
 - surgical treatment for cervical spine fractures 1196
 - third ventriculostomy 453
 - transcallosal approach 1761
 - transphenoidal surgery 900
 - ventricular CSF shunts 447

- vertebroplasty/kyphoplasty 1214
- compound skull fracture, *see* skull fractures - compound
- compression fracture
 - cervical compression flexion fracture 1184
 - thoracolumbar 1201
 - in osteoporosis 1208
 - treatment 1204
- compression of pituitary gland 864
- compression palsy 541
 - *See also* entrapment neuropathy, hereditary neuropathy with liability to pressure palsies
- computed tomography angiography (CTA), for carotid stenosis 1546
- concentric sclerosis of Balo 190
- Concorde position 1737
- concussion 1019
 - admission criteria 1012
 - diagnosis 1020
 - indications for imaging 1022
 - postconcussive syndrome 1111
 - return to play guidelines 1024
 - second impact syndrome 1025
- Concussion, Sports Concussion Assessment Tool (SCAT3™) 1022
- conductive hearing loss 611
- condylar fracture, *see* fractures - occipital condyle
- condylar gap 1154
- condyle screws, *see* occipital condyle screws
- condyle-C1 interval (CCI) 1154
- cone of economy 1313
- confluence of sinuses 85
- confusion, in delirium 182
- congenital absence of cervical pedicle 1189
- congenital brain tumors 622
- congenital conditions, *see* developmental anomalies
- congenital hypermelanosis 1692
- congestive heart failure, and mannitol 1004
- conophilic angiopathy 1612
- convaptan 122
- conjoined nerve root 293, 1700
- conjunctival injection, with SUNCT 520
- conservative treatment for back pain 1237
- constitutional mismatch repair deficiency syndrome 651
- constitutional
 - ventriculomegaly 1692
- contour lines (on lateral C-spine X-ray) 222
- contralateral gaze 98
- contrast agents
 - and migraine H/A 183
 - in neuroradiology 230
 - inadvertent intrathecal injection of ionic agents 230
 - iodinated 232
 - allergy prep 232
 - renal insufficiency prep 232
 - ionic agents 230
 - reactions (allergies) 232
 - water-soluble 230
- contrast-induced nephropathy 232
- contrecoup brain injury 1025
- contusio cervicalis posterior 1136
- contusion, cerebral 1025, 1071
- conus medullaris
 - club-shaped 1681
 - lesions 923
 - normal location in adult 1129, 1812
- conversion factors
 - ACTH (corticotropin) 868
 - cortisol 868
 - mm Hg to cm water 1041
- Cooley's anemia 179
- copular point of PICA 81
- cord sign 1596
- corpectomy
 - for spasticity 1847
 - for syringomyelia 1412
- Cordis shunt 470
- cordotomy 1878
 - open (Schwartz technique) 1879
 - percutaneous 1878
 - sacral 1878
- corduroy pattern of hemangiomas 993
- core neuro exam (for coma) 321
- corneal mandibular reflex 601
- corneal reflex 330
- coronal spinal balance 1314
- coronal suture
 - relative to lateral ventricles 62
 - relative to motor strip 61
 - synostosis of 266
- coronal synostosis 266
- coronal vertical axis 1314
- coronary angiography/angioplasty as cause of peripheral neuropathy 577
- corpectomy, *see* vertebral corpectomy
- corpus callosum
 - agenesis 274
 - callosotomy 1760, 1892
 - for Lennox-Gastaut syndrome 484
 - in hydrocephalus 433
 - lesions (differential diagnosis) 1653
- corset brace 1205
- cortical blindness 430
 - due to vascular encephalopathy 202
 - following head injury 1005
 - in Creutzfeldt-Jakob disease 402
- cortical screw fixation (lumbar) 1799
- cortical stimulation 1734
- cortical surface anatomy 56
- cortical vein sign 434, 1086-1087
- cortical venous thrombosis 1594
- corticospinal tract 70
- corticotropin 863
 - ectopic secretion 868
 - endocrinology of 151
 - reserve post-op 902
- corticotropin-releasing hormone (CRH)
 - ectopic secretion 867
 - stimulation test 880
- cortisol
 - physiology 153
 - replacement therapy 154
 - serum levels
 - after transsphenoidal surgery 902
 - with cosyntropin stimulation test 880
 - with dexamethasone suppression test 879
 - with insulin tolerance test 881
 - with pituitary tumors 876
 - urine free cortisol 876
 - urticine 154
- costotransversectomy 1273
 - for spinal metastases 928
- cosyntropin stimulation test 880
 - for stress dose steroids 155
- cough effect, with radiculopathy 1251
- Coumadin® (warfarin) 172
- counting levels in spine surgery 1719
- coup de poignard of Michon 1398
- coup-contrecoup brain injury 1025
- coupling ratio 1537
- covered stents for aneurysm treatment 1924
- Cowden syndrome 651
- CPA, *see* cerebellopontine angle
- CPPD (calcium pyrophosphate deposition) disease 1678
- crack cocaine, *see* cocaine
- CRAG, *see* cerebral radionuclide angiogram
- Cram test 1252
- cranial arteritis, *see* giant cell arteritis
- cranial foramina 63
- cranial nerves, sensitivity to radiation 1905
- cranial neuropathy
 - differential diagnoses 1687
 - due to unruptured aneurysm 1454
- cranialization of the frontal sinus 1067
- craniectomy
 - decompressive 1765
- for head trauma 1051
- for MCA infarction 1589
- suboccipital
 - for cerebellar hemorrhage/infarction 1559
 - for cerebellar infarction 1589
 - techniques 1766
 - timing after trauma 1071
 - headache following 1731
 - suboccipital 1737
 - temporal 1751-1752
- craniocerebral disproportion 464, 1087
- craniocervical dislocation 1153
- craniocervical junction
 - abnormalities 1308
 - anatomy/ligaments of 67
 - traumatic dislocation 1153
- craniofacial development 264
- craniofacial dysmorphic syndromes 268
- craniofacial fractures 1066
- craniofacial pain syndromes 519
 - differential diagnosis (etiologies) 519
- craniolacunia 304
- craniometric points 60
- craniopharyngioma 849
 - adamantinomatous 849
 - intraventricular 1668
 - juxtassellar 1654
 - papillary 850
- cranioplasty 1762
 - for hyperostosis frontalis interna 975
 - to avoid post-craniotomy headache 1731, 1744
- craniorachischisis 308
- craniostenosis 264
- cranosynostosis 264
 - and Chiari I malformation 296
 - and microcephaly 312
 - following CSF shunting 466
 - from CSF shunt 462
- craniotomy
 - awake 1732
 - decompressive, suboccipital 1737
 - frontal 1754
 - headache following 1731
 - infection 380
 - modified pterional 1483
 - occipital 1756
 - petrosal 1755
 - posterior fossa 1737
 - post-op hematoma 1611, 1729
 - pterional 1748
 - temporal 1751
 - types 1728
- cranium bifidum 269
- crash migraine 1418

- CRASH syndrome 435
CRD, *see* complex repetitive discharge
- C-reactive protein
– and cerebral abscess 345
– and giant cell arteritis 205
– and vertebral osteomyelitis 387
– in postoperative discitis 378
– normal values after craniotomy 380
– normal values after spine surgery 378
- creatine (Cr) on MRS 244
creatine phosphokinase (in rhabdomyolysis) 136
creatinine clearance – Cockcroft-Gault equation 146
creatinine (serum) and iodine dye 232
cremasteric reflex, in spinal cord injury 1140
crescendo TIA 1571
crescent sign 1578
Creutzfeldt-Jakob disease 399
– differential diagnosis 403
– EEG findings 249
cribriform neuroepithelial tumor 755
critical illness myopathy 195
critical illness polyneuropathy 569
Crohn's disease, and psoriasis abscess 393
crossed adductors 1253
crossed cerebellar diaschisis 202
crossed dominance 1892
crossed straight leg-raising test 1252
Crouzon's syndrome 266, 268
– and intracranial hypertension 463
cruciate ligament 69
cruciate paralysis 1709
– from atlantooccipital dislocation 1153
cryoprecipitate 163
cryptic cerebrovascular malformations 1524
cryptococcal involvement of the CNS 409
– cryptococcal meningitis 409
– associated intracranial hypertension 409
– in AIDS patients 356
– management 409
cryptogenic seizures 481
CSF, *see* cerebrospinal fluid
CSF leak, *see* cerebrospinal fluid – fistula
CSVL 1314
CT angiography (CTA)
– following aneurysm treatment 1468
– for stroke 1560
– technical information 238
CT perfusion, technical information 239
CTA, *see* CT angiography
cubital tunnel syndrome 554
cultures, for discitis 379
cuneus 57
cupulolithiasis 603, 605
Cushing syndrome, in Carney complex 652
Cushingoid facies 868
Cushing's disease 863
– biochemical cure criteria 904
– inferior petrosal sinus sampling for ACTH 880
– management 891
– stereotactic radiosurgery for 891
Cushing's syndrome 867
– and osteoporosis 1210
– and spinal epidural lipomatosis 1381
– clinical findings 868
– iatrogenic 156
– medical therapy 892
– pseudo-Cushing's state 880
– transsphenoidal surgery for 891
Cushing's triad 1038, 1612
Cushing's ulcers 134, 1050
CVA (coronal vertical axis) 1314
cyanocobalamin, *see* vitamin B12
cyanotic heart disease, and cerebral abscess 344
cyclooxygenase 144
cyclophosphamide 209
– for granulomatosis with polyangiitis (GPA) 208
cyclosporine, for neurosarcooidosis 200
cyproheptadine 892
cyproheptadine (for intrathecal baclofen withdrawal) 1851
cyst
– arachnoid
– intracranial 260, 263
– spinal 280
– associated with gliomas 658
– cerebellopontine angle (CPA) 1648
– colloid 944
– dermoid and epidermoid, spine 287
– enterogenous, *see* neurenteric cyst
– ependymal 1668
– neurenteric 313
– cerebellopontine angle (CPA) 1647
– spinal 1696
– perineural 1400
– pineal 948
– posttraumatic leptomeningeal 1100
– spinal 1340
– ganglion 1340
– meningeal 1400
– pilonidal 287
– synovial 1340
– Tarlov 1400
– with cerebellar (pilocytic) astrocytoma 693
cystic cerebellar astrocytoma 693
cystic medial necrosis 1576
cysticercosis, *see* neurocysticercosis
cystometrogram 95
– in cauda equina syndrome 1254
cystourethrogram 96
cytokeratin stain 632
cytomegalovirus, and nerve root enhancement 1682
cytotoxic cerebral edema 90, 1055
- D**
dabigatran 165
dabigatran 173
dalteparin 173
– reversal with protamine sulfate 174
danaparoid 173
Dandy Walker malformation 270, 426
Dandy Walker variant 271
Dandy's point 1823
Dandy's syndrome 604
dantrolene 112
– for spasticity 1846
dapson, and peripheral neuropathy 195, 573
darifenacin 96
Dawson's fingers on MRI in MS 190
DBS, *see* deep brain stimulation
DDAVP® (desmopressin) for coagulopathy 175
D-dimer 178
– in cerebral venous thrombosis 1599
de Morsvain syndrome, *see* septo-optic dysplasia
de Quervain's syndrome 548
deafferentation pain, following lumbar laminectomy 1243
deafness 611
– *See also* hearing loss
– in Chiari malformation 297
– in Klippel-Feil syndrome 290
– in Paget's disease 1362
decrebrate posturing 319, 323
decompressive cervical laminectomy 1306
decompressive craniectomy
– for cerebral venous thrombosis 1600
– for pseudotumor cerebri 967
– for spontaneous intracerebral hemorrhage 1623
decorticate posturing 319, 323
dedifferentiation of astrocytomas 662
deep brain stimulation
– for pain 1886
– for seizures 1891
deep brain stimulation (DBS) 1839
– for tremor 1841
deep-vein thrombosis
– in neurosurgical patients 176
– in severe TBI 1106
– in spinal cord injuries 1141
degenerative disc disease
– and smoking 1327
– MRI findings 1234
– thoracic and lumbar 1327
dehydroepiandrosterone 875
Dejerine-Roussy syndrome 1541
delayed acute subdural hematoma 1081
delayed cerebral ischemia (DCI) 1440
delayed cervical instability 1221
delayed deterioration
– after back surgery (discitis) 1243
– after head injury 1000
– after spinal cord injury 1221
– after transsphenoidal surgery 900
– with cryptococcal meningitis 409
delayed epidural hematoma 1075
delayed ischemic neurologic deficit (DIND) 1440
delayed onset muscle soreness 1333
delirium 182
delirium tremens 214
delta sign 1597
deltoid spinal canal 1334
demeclocycline, for SIADH 122
dementia 182
– due to vitamin B12 deficiency 1699
– following radiation therapy 917, 1900
– in ALS 192
– in NPH 439
– parkinson-dementia complex of Guam 186
– posttraumatic 1111
dementia pugilistica 1112
– risk factors 1113
deminerallized bone matrix 1723
demyelination
– in Charcot-Marie-Tooth 568
– in chronic inflammatory demyelinating polyneuropathy (CIDP) 195
– in diabetic amyotrophy 572

- tumefactive demyelinating lesions 190
- Denis' 3-column model of the spine 1200
- denosumab 1212
- dentocentral synchondrosis, in pediatric trauma 1121
- Denver grading scale 1029
- Depacon® 492
- Depakote® 492
- depressed skull fractures 1062
- depression, in NPH 439
- depth electrodes, for seizure surgery 1891
- dermal sinus 286
 - cranial 288
 - spinal 287
- dermatomes
 - diagram of 72
 - table of 1130
- dermoid tumor/cyst
 - and dermal sinus 287
 - intraventricular 1668
 - skull 973
 - spinal 980
- following myelomeningocele closure 283
- descending evoked potentials 253
- descending paralysis 1704
- DESH (disproportionately enlarged subarachnoid space hydrocephalus) 441
- desipramine
 - as analgesic adjuvant 519
 - for painful diabetic neuropathy 573
 - side effects 573
- desirudin 167
- desmoplastic infantile ganglioglioma & astrocytoma 708
- desmopressin
 - following pituitary surgery 901
 - for diabetes insipidus (DI) 128-129
 - for thrombocytopenia 161
 - preparations 129
- desmopressin for coagulopathy 175
- destructive spondyloarthropathy in renal failure 1679
- developmental anomalies
 - intracranial 260
 - spinal 280
- developmental venous anomaly (DVA) 1512
- Devic syndrome 1698
- Devic tumor (in Cushing's syndrome) 868
- DEXA scan 1209
 - for interspinous process decompression 1346
- dexamethasone 154
 - following seizure surgery 1894
 - for brain tumor 626
 - for cerebral metastases 917
 - for cysticercosis 407
 - for gunshot wound to head 1095
 - for head trauma 1055
 - for headaches with intracranial hypotension 1817
 - for high altitude cerebral edema 1028
 - for radiation necrosis 1901
 - for SAH 1434
 - for spinal metastases 924
 - post craniotomy 1730
 - suppression test
 - high-dose 880
 - overnight 879
- dexmedetomidine 141
 - for awake craniotomy 1733
 - in neuroanesthesia 111
- dextran, and impaired coagulation 1434
- DI, see diabetes insipidus
- DI watch 901
- diabetes insipidus 124
 - DI watch 901
 - following craniopharyngioma surgery 852
 - following head injury 1014
 - following transphenoidal surgery 901
 - following transtentorial herniation 325
 - from pituitary apoplexy 866
 - from suprasellar germ cell tumor 759, 1654
 - in lymphocytic hypophysitis 1656
 - in neurosarcoidosis 198
 - in Wegener's granulomatosis 207
 - with ACoA aneurysm 1473
 - with basal skull fractures 1065
 - with PitNET 864
 - with Rathke's cleft cyst 949
- diabetic amyotrophy 572
- diabetic autonomic neuropathy 95, 572
- diabetic neuritis 1333
- diabetic neuropathy 572
- diabetic plexus neuropathy 572
- diastatic fractures 1062
- diastematomyelia 292
- diathermy, for low back pain 1238
- diazepam
 - for autonomic hyperreflexia 1223
 - for ethanol withdrawal 213
 - for Meniere disease 606
 - for spasticity 1846
- DIC, see disseminated intravascular coagulation
- Dickman and Sonntag fusion technique 1783
- diclofenac 145
- didanosine 574
- diencephalic syndrome 695
- differential diagnosis
 - abducens palsy 598
 - amaurosis fugax 1690
 - anisocoria 591
 - ankylosing spondylitis 1367
 - anosmia 1687
 - anterior horn cell disease 531
 - aphasia 1694
 - apoplexy 1684
 - arachnoid cysts 1656
 - ataxia 1686
 - atlantoaxial subluxation 1677
 - atlantodental interval, increased 1677
 - axis (C2) lesions 1678
 - Babinski sign 92
 - back pain 1704
 - balance problems 1686
 - basal ganglion abnormalities 1673
 - bladder dysfunction 93
 - blindness
 - binocular 1689
 - monocular 1690
 - brachial plexopathy 570
 - burning hands syndrome 1711-1712
 - by signs and symptoms 1683, 1696
 - calcifications (intracranial) 1665
 - carpal tunnel syndrome 547
 - cauda equina syndrome 1254
 - cavernous sinus lesions 1660
 - cerebellar lesions 1646
 - cerebellopontine angle (CPA) lesions 1647
 - cerebral metastases 915
 - cervical radiculopathy 1710
 - chordomas, cranial 827
- chronic meningitis 341
- coma
 - metabolic 319
 - structural 319
- corpus callosum lesions 1653
- cranial nerve palsies 1687
- craniofacial pain (etiologies) 519
- Creutzfeldt-Jakob disease 403
- cysts
 - CPA 1648
 - intraspinal 1681
 - supratentorial 1656
- diabetes insipidus (DI) 125
- diffuse demineralization of the skull 1663
- diplopia 1687
- dizziness 603
- drop attacks, see apoplexy
- dural enhancement 1670
- DWI-MRI bright signal 243
- encephalocele 1674
- encephalopathy 249, 1683
- enhancing nerve roots 1681
- enlarged (mega) cisterna magna 271, 1656
- epidymal enhancement 1671
- exophthalmos 1690
- extra-axial fluid collections in children 1087
- extraforaminal disc herniation 1264
- facial diplegia 1689
- facial nerve palsy 607
- facial sensory changes 1694
- fasciculations 1709
- femoral neuropathy 574, 1702
- first dorsal interosseous atrophy/weakness 1709
- foot drop 1708
- foot drop (etiologies) 1708
- foramen magnum lesions 1649
- foramen magnum tumors 1649
- giant cell arteritis 204
- Guillain-Barré syndrome 194
- gyral enhancement 1560
- hand atrophy/weakness 1709
- headache 182
- headache of sudden onset 1418
- hemiparesis/hemiplegia 1703
- hydrocephalus 433
- hyperpigmentation 869
- increased CSF signal on FLAIR MRI 240
- infratentorial masses causing coma 325
- internuclear ophthalmoplegia (INO)—etiologies 596
- intracranial cysts 1656
- intracranial/extracranial lesions 1665
- intramedullary spinal cord tumor 984
- intraspinal cysts 1681
- intrathecal baclofen withdrawal syndrome 1850
- intraventricular lesions 1667
- ivory bone 1680
- L4 radiculopathy 1702
- L5 radiculopathy 1708
- language disturbance 1694
- lateral disc herniation 1264
- leukoencephalopathy 1652
- Lhermitte's sign 1712
- lipomas (intracranial) 276
- localized increased density of calvaria 1664
- low back pain 1704
- low density lesion in AIDS 355
- low density on CT 1653
- lumbar spinal stenosis 1332
- lumbosacral plexus neuropathy 571
- lytic skull lesions 1662

- macrocephaly 1691
- macrocrania 1691
- mass posterior to odontoid 1678
- medial temporal lobe lesions 1672
- Meniere disease 605
- meningeal thickening/enhancement 1670
- meningioma 813
- meralgia paresthetica 561
- metastases (cerebral) 915
- midline intracranial cavities 1656
- multiple cranial neuropathies 1687
- multiple intracranial lesions 1650
- multiple sclerosis 188
- multiple strokes 1590, 1651
- myelopathy 1696
- nasal/intracranial lesions 1673
- neck pain 1710
- nerve root enhancement 1681
- nodular enhancing intraspinal lesions 1681
- normal pressure hydrocephalus 440
- occipital neuralgia 541
- oculomotor palsy 596
- ophthalmoplegia 596
- painful 599
- optic nerve tumors 1658
- orbital lesions 1658
- osteoid osteoma 990
- osteolytic skull lesions 1662
- painless ophthalmoplegia 600
- papilledema, mimics 587
- papilledema (unilateral) 588
- paraplegia 1702
- parasellar lesions 1653
- Parinaud's syndrome 101
- Parkinson's disease 185
- paroxysmal headache 1418
- pathologic lid retraction 1691
- perioral numbness 1694
- periventricular enhancement 1671
- periventricular lesions 1670
- peroneal nerve palsy 1708
- petrous apex lesions 1648
- pituitary tumors 1653
- posterior fossa CSF collections 271
- posterior fossa lesions 1646
- proptosis 1690
- pseudocoma 320
- pseudotumor cerebri 961
- pseudotumor of the orbit 1658, 1691
- ptosis 1691
- quadriplegia 1702
- radiculopathy
- lower extremity 1700
- upper extremity 1710
- retinal hemorrhage 1104
- ring enhancing lesions 1651
- sacral lesions 1680
- sarcoidosis of the orbit 1658
- schizencephaly 309
- sciatica 1700
- seizures (new onset) 503
- sellar/parasellar lesions 1653
- septum pellucidum, absence of 276
- shoulder pain 1710
- skull 1663
- diffuse demineralization 1663
- diffuse increased density 1663
- hyperostosis 1663
- increased density of calvaria 1664
- increased density of skull base 1664
- lesions of 1661
- lucencies (approach) 1661
- lytic lesions 1662
- slit ventricles 462
- spinal cord tumors 979
- spinal epidural abscess 382
- spinal epidural masses 1696
- spinal tumors, primary 1697
- SSPE 249
- status epilepticus 511
- subarachnoid hemorrhage (SAH) on CT 1421
- subependymal enhancement 1671
- supraorbital neuralgia 521
- suprascapular nerve entrapment 560
- suprasellar/parasellar lesions 1653
- supratentorial masses causing coma 324
- swallowing difficulties 1712
- syncope 1684
- synovial cyst (spinal) 1341
- syringomyelia
- etiologies 1405
- other conditions 1408
- thalamic lesions 1673
- thoracic outlet syndrome 581
- tinnitus 1693
- torticollis 1844
- transient neurologic deficit 1685
- trigeminal neuralgia 1859
- upgaze palsy 101
- upper extremity weakness 1709
- urinary retention 95
- ventricular lesions 1667
- vertebral body abnormalities 1677
- vertebral hyperostosis 1680
- vertebral osteomyelitis 1679
- weakness
- ascending 1704
- descending 1704
- hemiparesis or hemiplegia 1703
- upper extremity 1709
- Wegener's granulomatosis 207
- white matter lesions 1652
- wide-based gait 1686
- Differential diagnosis, vertigo 603
- diffuse astrocytoma, IDH-mutant 658
- diffuse astrocytoma, MYB- or MYBL1-altered 679
- diffuse axonal shearing/injury, definition 1026
- diffuse glioneuronal tumor with oligodendroglioma-like features and nuclear clusters (DGONC) 711
- diffuse hemispheric glioma, H3 G34-mutant 685
- diffuse idiopathic skeletal hyperostosis (DISH) 1373
- diffuse infiltrating pontine glioma (DIPG) 683
- See also diffuse midline glioma, H3 K27M-altered
- diffuse leptomeningeal glioneuronal tumor 715
- diffuse low-grade glioma, MAPK pathway-altered 682
- diffuse midline glioma, H3 K27M-altered 683
- diffuse pediatric-type high-grade glioma, H3-wildtype and IDH-wildtype 686
- diffusion tensor tractography MRI 245
- diffusion-perfusion mismatch 244
- diffusion-weighted imaging (DWI-MRI) 243
- diffusion-perfusion mismatch 244
- trace image 243
- digastric line 229
- digit agnosia 99
- digital subtraction angiography, see angiogram
- dimple in wall of lateral ventricle (in schizencephaly) 309
- dimple of Venus 1725
- diphenhydramine
- for contrast media reaction 233
- for inadvertent intrathecal ionic contrast 230
- for iodine contrast allergy prep 232
- diplomyelia 293
- diplopia 1687
- from abducens palsy 598, 624
- in pseudotumor cerebri 959
- dipyridamole, for strokes 1547
- dipyridamole in Aggrenox® 1547
- direct carotid-cavernous fistula 1519
- direct fistula 1504
- direct waves (D-waves) 989
- disability index
- cervical spine
- Neck Disability Index 1299
- Nurick 1372
- low back pain 1228
- disabling positional vertigo 603, 605
- disc, intervertebral, see intervertebral disc
- discitis 390
- and spinal epidural abscess 381
- avascular 378
- postoperative 378
- discogenic pain 1235, 1331
- discography 1235
- as an indicator for lumbar fusion 1231
- for extreme lateral disc herniation 1265
- disco-ligamentous complex 1182
- disconnection syndrome 1893
- following transcallosal surgery 1760
- DISH, see diffuse idiopathic skeletal hyperostosis
- disproportionately enlarged subarachnoid space hydrocephalus (DESH) 441
- dissection, arterial
- aortic 1705
- with cocaine abuse 215
- internal carotid 1578
- vertebral 1579
- disseminated intravascular coagulation 175
- and malignant hyperthermia 112
- from intrathecal baclofen withdrawal 1850
- in trauma 1013
- dissociated sensory loss 297, 1406
- in amyloid neuropathy 576
- with anterior cord syndrome 1135
- with Brown-Séquard syndrome 1136
- with intramedullary spinal cord tumors 987
- distal dural ring 78
- distal junctional kyphosis (DJK), in correcting thoracic hyperkyphosis 1355
- distraction flexion fracture
- cervical 1185
- thoracolumbar 1204
- dizziness 603
- DLIF, see extreme lateral lumbar interbody fusion
- DNET or DNT, see dysembryoplastic neuroepithelial tumor
- dobutamine 133

- for neurogenic stunned myocardium 1439
 - for vasospasm 1447
 - dolichobasilar ectasia, see basilar artery - basilar dolichoectasia
 - dolichocephaly 265
 - following CSF shunting 466
 - doll's eyes, see oculocephalic reflex
 - dome to neck ratio (aneurysm) 1424
 - domino connector 1792
 - DOMS, see delayed onset muscle soreness
 - dopamine
 - for hypotension (shock) 133
 - for vasospasm 1447
 - dopamine agonists
 - for acromegaly 890
 - for prolactinoma 888
 - duration of treatment 889
 - dopamine transport (DaT) scan 1841
 - Doppler
 - transcranial
 - for brain death 334
 - for vasospasm 1443, 1446
 - ultrasound for carotid stenosis 1545
 - Dorello's canal 598, 601
 - dorsal column stimulation 1883
 - dorsal rhizotomy 1851
 - dorsal root entry zone (DREZ) lesions 1886
 - for postherpetic neuralgia 525
 - dorsal scapular nerve 538
 - dorsiflexion-eversion test (for tarsal tunnel) 565
 - dorsolateral fasciculus (of Lissauer) 71
 - double lumen sign 1578
 - double-crush syndrome 547
 - Down syndrome
 - and amyloid angiopathy 1612
 - and atlantoaxial subluxation 1381, 1677, 1778
 - and basilar impression 229
 - and moyamoya disease 1581
 - downbeat nystagmus 298, 586
 - doxepin, as analgesic adjuvant 519
 - dressign apraxia 100
 - DREZ, see dorsal root entry zone lesions
 - drop attacks
 - atonic seizures 482
 - differential diagnosis, see apoplexy
 - in Lennox-Gastaut syndrome 484
 - in Meniere disease 605
 - with vertebrobasilar insufficiency 1591
 - drop metastases 908
 - See also metastases - spinal seeding
 - with ependymomas 728
 - with medulloblastoma 744
 - with oligodendroglioma 664
 - with pineal region tumors 759
 - drop mets/metastases, see metastases - spinal seeding
 - droperidol 1881
 - drug-eluting stents, cardiac 169
 - drug-induced neuropathy 573
 - drusen 588, 1659
 - dry eye 607
 - DSA (digital subtraction angiography), see angiogram
 - DTT, see diffusion tensor tractography MRI
 - dual energy X-ray absorptiometry 1209
 - dual stream model of language 91
 - Duane syndrome 601
 - Dublin measure, for atlantooccipital dislocation 1154
 - dumbbell tumors 982
 - dural arteriovenous fistula (DAVF), endovascular treatment 1928
 - dural AVM
 - intracranial 1514
 - spinal 1395
 - dural enhancement, differential diagnosis 1670
 - dural ring
 - distal 78
 - proximal 77
 - dural sinus stenosis, and pseudotumor cerebri 958
 - dural sinus thrombosis 1594
 - in transcallosal surgery 1761
 - with pediatric skull fractures 1101
 - dural substitutes 1719
 - dural tail
 - with meningioma 812
 - with pleomorphic xanthoastrocytoma 700
 - dural tear, see durotomy - unintended
 - Duramorph® 1881
 - Durant's maneuver (for air embolism) 1738
 - Duret hemorrhages 326
 - durotomy
 - to remove herniated disc 1255
 - unintended 1258, 1260
 - with surgery for lumbar stenosis 1348
 - DVT, see deep-vein thrombosis
 - D-waves (direct waves) 989
 - DWI, see diffusion-weighted imaging (MRI)
 - eyes
 - contrast agents in neuroradiology 230
 - intraoperative 1716
 - dynamic cerebral angiography, for bow hunter's stroke 1593
 - dynamic Hoffman's sign 1298
 - dynamic imaging (MRI) 241
 - dynamic spinal cord mapping 254
 - dysarthria
 - following thalamotomy 1840
 - in ALS 192
 - dysembryoplastic neuroepithelial tumor 709
 - dysgeusia (with hyponatremia) 117
 - dysnomia 1735
 - dysphagia
 - due to DISH 1373
 - following ACD 1287
 - from ossification of the anterior longitudinal ligament 1372
 - from radiation therapy 1902
 - in ALS 192
 - in Chiari type 2 malformation 304
 - dysphasia, with brain tumors 624
 - dysplastic cerebellar gangliocytoma 716
 - dystonia
 - torticollis 1844
 - treatment, surgical 1842
- E**
- Eagle syndrome 1710
 - e-aminocaproic acid, see epsilon-aminocaproic acid
 - early brain injury (EBI) 1440
 - early surgery for aneurysms 1462
 - Eaton-Lambert syndrome 211
 - echinococcosis 408
 - echocardiography for cerebral embolism 1591
 - eclampsia, and intracerebral hemorrhage 1425, 1611
 - ecstasy (street drug), see methylenedioxymethamphetamine
 - ectopic bone 1222
 - edema
 - cerebral 90
 - cytotoxic 90, 1055
 - following head injury 1026
 - following radiation therapy 1899
 - from metastases 914
 - high altitude 1028
 - ischemic 90
 - vasogenic 90, 1055
 - exacerbated by mannitol 1054
 - with acute subdural hematoma 1076
 - pulmonary
 - from contrast media 234
 - high-altitude 1028
 - in spinal cord injury 1139
 - spinal cord
 - following injury 1126-1127, 1133
 - following radiation therapy 927, 1901
 - Edinger-Westphal nucleus 81, 590, 596
 - edoxaban 166
 - Edwards-Barbaro syringoperitoneal shunt 1410
 - EDX guidelines for cervical radiculopathy, practice guideline 1283
 - EEG, see electroencephalogram
 - effective serum osmolality 117
 - Effendi fracture (hangman's fracture) 1166
 - Effient® (prasugrel) 170
 - Ehlers-Danlos syndrome, and cerebral aneurysms 1455
 - EKG changes after SAH 1438
 - electrocerebral silence on EEG 333
 - electrocorticography 1892
 - electrodiagnostic criteria for CTS, practice guideline 548
 - electrodiagnostics 249
 - for carpal tunnel syndrome 548
 - for low back problems 1236
 - for ulnar neuropathy 555
 - electroencephalogram 249
 - electrocerebral silence 333
 - for brain death 333
 - for hydranencephaly vs. hydrocephalus 310
 - for withdrawal of antiseizure medications 499
 - monitoring for vasospasm 1443
 - rebuildup in moyamoya disease 1583
 - electromyography 255
 - for low back problems 1236
 - for radiculopathy 256
 - H-reflex 1236
 - in ALS 192
 - in cervical spondylotic myelopathy 1303
 - in diabetic amyotrophy 572
 - in facial palsy 608
 - in lumbosacral plexus neuropathy 571
 - in peroneal nerve palsy 564
 - electronuronography 1064
 - electronystagmography 782
 - elevating head of bed
 - following chronic subdural drainage 1083
 - to lower ICP 1052
 - ellipsisoid method of volume estimation on CT 1616
 - embolism (cerebral)
 - air 1738
 - amniotic fluid 1542
 - and atrial fibrillation 1590-1591

- and myocardial infarction 1590
- and patent foramen ovale 1590
- and prosthetic heart valves 1590
- and stroke in young adults 1541
- cardiogenic 1590
- echocardiography, use of 1591
- fat 1542
- paradoxical 1542, 1590
- septic 344
- top o' the basilar 1541
- embolism (pulmonary), *see* pulmonary embolism
- embolization
 - of AVM 1926
 - of dural AVMs 1517
 - of meningiomas 815
- olfactory groove meningiomas 808
- of spine tumors
- giant cell tumors 996
- hemangiomas 995
- metastatic 927
- embryonal carcinoma 835
- embryonal tumor with multilayered rosettes 756
- embryonal tumors 744
- emergency burr holes 1014
- EMG, *see* electromyography
- emotional incontinence, with pseudobulbar palsy 186
- emotional lability, *see* emotional incontinence
- empty can test 1710
- empty delta sign 1597
- empty sella syndrome 951
- from chronic hydrocephalus 433
- primary 952
- secondary 900, 952
- empyema
 - following thoracic vertebral osteomyelitis 386
 - subdural (intracranial) 350
- en bloc turning 445
- en passant nerve root 1250
- enalaprilat 132
- encephalitis
 - herpes simplex 397
 - multifocal necrotizing, *see* encephalitis - herpes simplex
 - paraneoplastic syndromes 211
 - post-encephalitic parkinsonism 185
 - varicella-zoster 399
 - with CNS lymphoma 842
- encephalocele 269, 1674
- encephaloduroarteriosyngangiosis 1585
- encephalomyosyngangiosis 1585
- encephalopathy
 - AIDS 353
 - bovine spongiform (BSE) 401
 - chronic traumatic 1112
 - differential diagnosis 249, 1683
 - due to carbon monoxide 217
 - epileptic (with hypothalamic hamartomas) 277
 - hypertensive 202
 - TB 364
 - Wernicke's 214, 513
- encephalotrigeminal angiomas 652
- enchondroma 980
- end tidal pCO₂, and malignant hyperthermia 112
- end vertebrae
 - in kyphosis 1355
 - in scoliosis 1312
- endocarditis, in cerebral embolism 1590
- endocrine evaluation
 - for pheochromocytoma/glomus jugulare 940
 - for PitNET/adenoma (table) 874
- endocrinology 151
 - pituitary 151
- endodermal sinus cyst, *see* neuroenteric cyst
- endolymphatic hydrops 605
- endolymphatic sac tumors 648
- endoneurium 577
- endoscopic discectomy 1257
- endoscopic third ventriculostomy (ETV), *see* third ventriculostomy
- in TB meningitis 362
- success score 453
- technique 1828
- endothelial cell proliferation
 - and radiation myelopathy 1901
 - following stereotactic radiosurgery 1906
- endothelial derived relaxant factor 1442
- endothelin 1442
- endothelin receptor antagonists 1444
- endovascular intervention 1913
 - angioplasty for vasospasm 1925
 - arteriotomy closure 1921
 - carotid angioplasty/stenting 1571
 - carotid dissection 1931
 - carotid-cavernous fistula 1929
 - cerebral venous thrombosis (CVT) treatment 1934
 - chemical spasmolysis 1925
 - coiling aneurysms 1923
 - ischemic stroke treatment 1932
 - refractory epistaxis treatment 1936
 - subclavian stenosis 1931
 - transverse sinus stenting for pseudotumor cerebri 966
 - treatment 1930
 - treatment for dural arteriovenous fistula (DAVF) 1928
 - tumor embolization 1935
 - vascular access 1920
- endovascular therapy
 - for carotid-cavernous fistula 1520
 - for ischemic stroke 1562
- Engel classification (seizure surgery outcome) 1894
- enlarged cisterna magna 271, 1656
- enostosis 1680
- enoxaparin 178
 - after craniotomy 164
 - reversal with protamine sulfate 174
- Enoxaparin 165
- enoxaparin 173
- enterogenous cyst, *see* neuroenteric cyst
- entheses/enthesisopathy (in ankylosing spondylitis) 1365
- entrapment neuropathy 541
- entrapped fourth ventricle 436
- entry points
 - C1 lateral mass 1781
 - C1-2 puncture 1819
 - C1-2 transarticular facet screws 1780
 - C2 pedicle screws 1784
 - C7 lateral mass screws 1786
 - C7 transfacet screws 1787
 - cervical lateral mass screws 1785
 - lumbar puncture 1812
 - occipital condyle screws 1774
 - occipital-C1 transarticular screws 1775
 - thoracic pedicle screws 1792
- enuresis (in radiculopathy) 1251
- eosinophilic granulomatosis with polyangiitis (EGPA) 208
- ependymal cyst 1668
- ependymal enhancement 1671
- ependymitis 1671
- ependymoma
 - intracranial, differential diagnosis 1668
 - myxopapillary, *see* ependymoma - spinal cord
 - posterior fossa 727
 - posterior fossa group A (PFA) 730
 - posterior fossa group B (PFB) 731
 - spinal 732-733
 - spinal cord 984
 - myxopapillary 734, 985
 - supratentorial 724
 - supratentorial, YAP1 fusion-positive 726
 - supratentorial, ZFTA fusion-positive 725
- ephedra alkaloids 1611
- epidermoid tumor/cyst
 - and dermal sinus 287
 - CPA (differential diagnosis) 1647
 - intraventricular (differential diagnosis) 1668
 - skull 973
 - spinal 985
 - following lumbar puncture 1815
- epidural abscess, spinal 381
- epidural blood patch
 - for intracranial hypotension 423
 - for post LP headache 1817
- epidural free fat graft 1258
- epidural hematoma 1072
 - CT scan 1073
 - delayed 1075
 - posterior fossa 1076
 - presentation 1072
 - spinal 1383
 - differential diagnosis 1697
 - postoperative 1259, 1262
 - treatment 1074
 - indications for surgery 1074
- epidural steroids
 - following lumbar discectomy 1258
 - for chronic low-back pain 1239
 - for radiculopathy 1238
- epilepsy
 - definition 480
 - medically refractory 1889
- epilepsy partialis continua 511
- epilepsy surgery, *see* seizure surgery
- epileptic encephalopathy 277
- epileptogenic zone 1889
- epinephrine 134
 - for contrast media reaction 233
- epineurium 577
- epistaxis
 - endovascular treatment 1936
 - from cavernous carotid aneurysms 1477, 1491
 - from olfactory neuroblastoma 1674
 - from traumatic aneurysm 1491
 - with Osler-Weber-Rendu syndrome 1524
- episthrophilic ligament 542
- epithelioid glioblastoma 666
- epsilon-aminocaproic acid, for subarachnoid hemorrhage 1437
- Epstein-Barr virus (and CNS lymphoma) 842
 - in AIDS 356
- eptifibatid (Integrilin®), for endovascular neurosurgery 1915
- Erb's palsy 579
- Erb's point 582
- erythema chronicum migrans 364
- erythralgia 1711
- erythrocyte sedimentation rate
 - and anemia 378
 - following uncomplicated discectomy 378
 - in cerebral abscess 345

- in discitis 392
 - in giant cell arteritis 205
 - in isolated angilitis of the CNS 209
 - in postoperative discitis 378
 - in spinal epidural abscess 383
 - in vertebral osteomyelitis 387
 - erythromelalgia, see erythralgia
 - eslicarbazepine 492
 - esmolol 132
 - in neuroanesthesia 111
 - esophageal injury after anterior spine surgery/ACDF 1288
 - essential hyperhidrosis 1853
 - esthesioneuroblastoma 935
 - estrogen, for osteoporosis 1211
 - etanercept 1378
 - ethanol
 - and intracerebral hemorrhage 1608, 1611
 - and the nervous system 212
 - neuropathy 569
 - withdrawal seizures 212, 506
 - ethanol drip treatment 214
 - withdrawal syndromes 212
 - prophylaxis 213
 - ethosuximide 494
 - dosing forms 494
 - etidronate
 - for osteoporosis 1212
 - for Paget's disease 1364
 - to reverse steroid-induced osteoporosis 157
 - etodolac 145
 - etomidate 110
 - for anesthesia induction 110
 - ETV success score 453
 - Evans ratio
 - criteria for NPH 445
 - definition 431
 - EVD, see ventricular catheterization
 - everolimus, use in SEGA 702
 - evoked potentials 249
 - for intramedullary spinal cord tumor surgery 989
 - in cervical spondylotic myelopathy 1303
 - intraoperative 251
 - anesthesia requirements 112
 - for mapping sensory/motor cortex 1732
 - transcranial motor evoked potentials 252
 - visual 250
 - with PitNETs 874
 - Ewing's sarcoma of the spine 980
 - executive function 445
 - exercise, for low back problems 1237
 - exophthalmos 1690
 - due to oculomotor palsy 596
 - with fibrous dysplasia 976
 - with multiple myeloma 929
 - exploratory burr holes 1014
 - extension TLSO 1205
 - extensor hallucis longus (EHL)
 - innervation 534
 - weakness in common peroneal nerve palsy 563
 - weakness with lumbar disc herniation 1252
 - extent of resection 670
 - external carotid artery 76
 - external hydrocephalus 433
 - external ventricular drain (EVD), see ventricular catheterization
 - related infection 374
 - extinction (in asomatognosia) 100
 - extra-axial fluid collections in children 1087
 - extracorporeal membrane oxygenation 1631
 - extracranial-intracranial (EC/IC) bypass
 - for moyamoya disease 1585
 - for vasospasm 1445
 - extraforaminal lumbar disc herniation 1263
 - extramedullary hematopoiesis 179
 - causing visual deficit 1655
 - extraocular muscles 596
 - extraventricular neurocytoma 720
 - extreme lateral lumbar disc herniation 1263
 - extreme lateral lumbar interbody fusion (XLIF), see lateral lumbar interbody fusion
 - extruded intervertebral disc 1227
 - extubation, timing of 1106
- F**
- FABER test 1252
 - facet fractures 1191
 - facet fusion 1806
 - facet joint injections
 - for low back pain 1239
 - for synovial cysts 1341
 - facet (pedicle) screws (lumbar) 1805
 - facet syndrome 1239
 - facial colliculus 607, 728
 - facial diplegia
 - differential diagnosis 1689
 - etiologies 607
 - in Lyme disease 364
 - facial myokymia 1871
 - facial nerve
 - anastomosis for facial palsy 610
 - palsy 607
 - Bell's palsy 608
 - bilateral 1687
 - central vs. peripheral 607
 - differential diagnosis 607
 - posttraumatic 1064
 - treatment 609
 - with cerebellar infarct 1589
 - with facial nerve neuroma 608
 - with fibrous dysplasia 976
 - with Guillain-Barré 193
 - with Lyme disease 364
 - with vestibular schwannoma 778
 - following treatment 797
 - grading 779
 - facial nerve neuroma 608, 1647
 - vs. vestibular schwannoma 783
 - facial pain, see pain - craniofacial
 - facial sensory changes 1694
 - following vestibular schwannoma treatment 798
 - facial vein
 - for ventriculo-atrial shunt 1827
 - in carotid endarterectomy 1569
 - factor VII
 - for intracerebral hemorrhage 1622
 - prior to subarachnoid bolt insertion 1039
 - to reverse antiplatelet drugs 169
 - factor VIII, elevation and dural sinus thrombosis 1595
 - factor Xa
 - effect of LMWH on 172
 - inhibitors 173
 - levels to check anticoagulation on LMWH 168
 - factor XIII, and spontaneous subdural hematoma 1085
 - Fahr's disease 1667
 - failed back surgery syndrome 1243, 1262
 - spinal cord stimulator for 1884
 - failure of segmentation (spine) 288
 - faint 1684
 - Fajersztajn's sign 1252
 - falciform ligament 1478
 - false aneurysms 1491
 - carotid 1567
 - falk syndrome 1080
 - famciclovir, for herpes zoster 523
 - familial adenomatous polyposis 1 651
 - familial aneurysms 1490
 - familial intracranial aneurysm syndrome 1455
 - familial isolated pituitary adenoma (FIPA) 863
 - familial syndromes with CNS tumors 637
 - famotidine 135
 - fanning of cervical spines 224
 - far lateral disc herniation, see extreme lateral lumbar disc herniation
 - fascicles 577
 - fasciulations
 - differential diagnosis 1709
 - tongue 1301
 - fast spin echo (on MRI) 240
 - fastigium 744
 - fastigium (of the 4th ventricle) 64, 1743
 - fat embolism syndrome 1013, 1542
 - fat suppression MRI 241
 - fatal familial insomnia 400
 - fatty filum (terminale) 286
 - fatty infiltrate in vertebral bodies 1678
 - febrile seizures 503, 509
 - and mesial temporal sclerosis 483
 - definition 509
 - preceding status epilepticus 511
 - fecal incontinence, in cauda equina syndrome 1254
 - felbamate 494
 - dosing forms 495
 - femoral neuropathy 573
 - perioperative 576
 - vs. L4 radiculopathy 1702
 - vs. lumbosacral plexus neuropathy 571
 - vs. plexus neuropathy 572
 - femoral stretch test 1252
 - femolodopam 132
 - fenpropofen 145
 - fentanyl 110, 140
 - for severe pain 148
 - patch 148
 - to control ICP 1048, 1050
 - fesoterodine 97
 - festinating gait 184
 - fetal carotid-vertebrobasilar anastomoses 83
 - fetal circulation 80-81, 1476
 - fetal hydatin syndrome 501
 - fetal warfarin syndrome 172
 - FFP, see fresh frozen plasma
 - FGFR genes, see fibroblast growth factor receptor genes
 - fibrillation potentials
 - in ALS 192
 - vs. fasciulations 531
 - fibrillation potentials (fibs) (on EMG) 255
 - fibrin glue 421
 - fibroin necrosis 1610
 - fibroblast growth factor receptor genes 269
 - fibropolypoma of filum terminale 286
 - fibromuscular dysplasia 209
 - and arterial dissection 1576
 - and intracranial aneurysms 1455
 - and moyamoya disease 1581
 - and stroke in young adults 1542
 - fibromyalgia 1710
 - fibrous dysplasia 975
 - differential diagnosis 1662
 - fibular bone graft (autogenous) 1725
 - FIESTA MRI 241

- fifth ventricle 1657
 filum terminale
 - distinguishing features 292
 - myxopapillary ependymoma of 985
 - tethering 290
 - thickened filum
 -- definition 291
 -- in tethered cord 290
 filum terminale lipoma 286
 finger flexor reflex 1280
 Finkelstein's test 548
 first dorsal interosseous muscle,
 atrophy/weakness 1709
 Fischgold's lines 229
 Fisher SAH grade 1441
 Fishman's formula 1813
 fistula
 - arteriovenous (direct) 1504
 - CSF, see cerebrospinal fluid -
 fistula
 flail foot 1707
 FLAIR images (on MRI) 240
 - for SAH 1422
 flame hemorrhages 1597
 flaring of cervical spinous pro-
 cesses 224, 1144
 flat back syndrome, causes 1355
 flexion compression fracture - cervi-
 cal, see compression flexion
 fracture
 flexion-distraction injury (FDI) 1202
 flexion-extension X-rays
 - cervical spine 1145
 - lumbar spine 1232
 flexor synergy 91
 flick sign 547
 floating lateral mass 1192
 floppy infant syndrome 501, 1702
 FLOSEAL® 1719
 flow diverting stents for
 aneurysms 1924
 flow study
 - cerebrospinal fluid 298
 - for arachnoid cyst 263
 fluconazole, for cryptococcal
 meningitis 410
 fludrocortisone
 - for Addisonian crisis 157
 - for cerebral salt wasting 123
 fluids and electrolytes, and elevated
 ICP 1050
 flumazenil
 - for benzodiazepine overdose 320
 - precipitating seizures 503
 fluorescein 90
 - intrathecal 1716
 fluoride 1211
 fluorodeoxyglucose PET scan, see
 PET scan
 fluoxetine, interaction with
 phenytoin 490
 fluphenazine, for diabetic
 neuropathy 572
 flurbiprofen 145
 focal disc herniation 1227
 focal onset seizure 481
 focal to bilateral tonic-clonic
 seizure 482
 fogging
 - on CT 1559
 - on MRI 1561
 Foix-Alajouanine disease 1398,
 1697
 folic acid
 - and pernicious anemia 1699
 - to reduce neural tube defects 313
 follow-up
 - aneurysms after treatment 1468
 - cervical spine 1125
 - lumbar fusion 1808
 - nonfunctioning PitNETs 905
 - nonfunctioning PitNETs
 posttreatment 905
 - nonfunctioning pituitary adeno-
 mas managed neurosurgically 887
 fondaparinux 165
 fondaparinux 173
 fontanelles 264
 foot drop 1706
 - ankle-foot-orthosis for 564
 - differential diagnosis 1708
 - emergency (disc) surgery
 for 1256
 - EMG findings 564
 - from lead toxicity 217
 - from parasagittal
 meningiomas 808
 - from peroneal nerve palsy 563
 - in Charcot-Marie-Tooth 568
 - recovery after disectomy 1263
 football
 - and cervical spine injury 1125
 - helmet removal guidelines 1138
 foramen magnum 65
 - compression syndrome 297
 - lesions
 -- differential diagnosis 1649
 -- tumors 1649
 - meningiomas 810
 foraminal disc herniation 1263
 foraminal stenosis 1329
 Forbes-Albright syndrome 867
 forced duction test 599
 Forestier disease 1373
 Forteo® 1211
 Fortin Finger test 1332
 fosphenytoin 490
 - dosing forms 490
 Foster Kennedy syndrome 100, 808
 four 1898
 four hour rule for subdural
 hematoma 1078
 fourth ventricle
 - anatomy 1743
 - tumors/lesions of 1669
 Fowler's syndrome (urinary
 retention) 1254
 fractional curve 1322
 fractionation
 - hyperfractionated radiation
 therapy 697
 - of radiation therapy 1898
 fracture, chalkstick 1368
 fractures 1062, 1191
 - axis (C2), see fractures - spine -
 axis
 - craniofacial 1066
 - frontal sinus 1066
 - Jefferson (C1), see fractures -
 spine - atlas
 - Le Fort 1067
 - occipital condyle 1156
 - skull 1062
 -- basal 1005, 1064
 -- clivus 1065
 -- depressed 1062
 -- growing 1100
 -- in child abuse 1104
 -- in epidural hematoma 1073
 -- linear non-displaced 1062
 -- temporal bone 1064
 - spine 1182
 -- atlas (C1), lateral mass 1163
 -- atlas (C1) (Jefferson) 1162
 -- axis (C2) 1165
 --- hangman's 1165, 1168
 --- miscellaneous 1177
 --- odontoid (dens) 1171
 --- cervical (subaxial) 1181
 --- burst 1183
 --- classification systems 1181
 --- compression flexion 1184
 --- distraction flexion 1185
 --- facet 1191
 --- quadrangular 1185
 --- teardrop 1184
 --- treatment 1194
 --- coccyx, and coccydynia 1241
 -- hangman's, see fractures - spine -
 axis
 -- limbus 1251
 -- lumbar 1200
 -- sacral 1215
 -- spinous process
 --- cervical (clay shoveler's) 1183
 --- thoracolumbar 1201
 -- thoracic 1200
 -- thoracolumbar
 --- burst 1201, 1206
 --- Chance 1202
 --- compression 1201
 --- fracture-dislocation 1204
 --- lamina 1201
 --- seat belt 1202
 --- TLICS classification 1206
 --- transverse process 1201, 1204
 --- treatment 1204
 fractures: cervical (subaxial), with
 ankylosing spondylitis 1194
 Francis grade (hangman's
 fracture) 1170
 Frankel neurological performance
 scale 1132
 Frankfurt plane 61
 FRAX® tool (for osteoporosis 1210
 Frazier burr hole 1742, 1821
 - emergency use of 1745
 free fat graft (epidural) 1258
 free fragment of disc material 1227
 free radical scavengers, for intrao-
 perative cerebral protection 1464
 FREE study 1213
 freehand thoracic pedicle screw
 placement 1792
 Freiberg test 1701
 French door laminoplasty 1787
 fresh frozen plasma 162
 fried egg cells 663
 Frisén scale (papilledema) 587
 Froin's syndrome 987
 Froment's prehensile thumb
 sign 554
 frontal bossing 1665
 - with acromegaly 870
 - with benign subdural collections
 of infarct 1088
 - with fibrous dysplasia 976
 - with frontal pneumosinus
 dilatans 1665
 - with hydrocephalus 427
 - with sagittal (cranio)
 synostosis 265
 frontal craniotomy 1754
 frontal eye field 57, 98, 596
 frontal nerve 521
 frontal sinus
 - anatomy/development 1066
 - cranialization of 1067
 - fractures 1066
 - infection and subdural
 empyema 350
 frontal suture 267
 frontal-occipital horn ratio 462
 frozen section, see intraoperative
 pathology consultations
 Functional Independence
 Measure 1643
 fungal infections
 - CNS 409
 - meningitis 341
 - vertebral osteomyelitis 386
 funneling (Sylvian aqueduct) 274
 furosemide
 - for hydrocephalus 452
 - for ICP management 1051, 1054
 - for pseudotumor cerebri 966
 - for pulmonary edema 234

- prior to mannitol 1004
 - Furstenberg sign 1674
 - furuncle, in spinal epidural abscess 381
 - fusiform aneurysms 1453
 - fusion
 - lumbar spine 1240
 - bone graft extenders/ substitutes 1721
 - brace therapy 1342
 - choice of technique 1240
 - correlation with outcome 1722
 - cortical bone trajectory screw fixation 1799
 - technique 1800
 - following discectomy 1240
 - for (chronic) low back pain 1239
 - pedicle screw fixation
 - angulation 1797
 - for low back pain 1241
 - technique 1797
 - post-op clinic visits 1808
 - radiographic assessment 1722
 - with stenosis and spondylolisthesis 1347
 - with stenosis without spondylolisthesis 1347
 - risk factors for nonunion 1348
 - sacrum, S2-alar-iliac screws (S2AI screws), technique 1808
 - F-wave response (on EMG) 255, 1236
- G**
- gabapentin
 - dosing forms 497, 524
 - for neuropathic pain 519
 - for painful diabetic neuropathy 573
 - for postherpetic neuralgia 524
 - for seizures 496
 - for trigeminal neuralgia 1861
 - gadolinium
 - accumulation in brain 243
 - allergy prep 232
 - contrast for MRI 242
 - in pregnancy 1425
 - nephrogenic systemic fibrosis with 243
 - gallbladder shunt 1825
 - gallbladder shunts 1828
 - gallium scan
 - comparison to bone scan for osteomyelitis 388
 - in sarcoidosis 199
 - in vertebral osteomyelitis 248, 388
 - gammopathy 574
 - gliangioglioma 706
 - anaplastic 706
 - gliangiogliomas, brainstem 696
 - ganglion cyst (spinal) 1340
 - ganglion impar (ganglion of Walther) 1242
 - Gardner-Robertson hearing classification 781
 - Gardner's syndrome 972
 - Gardner-Wells tong placement 1148
 - garlic, antiplatelet effect 169
 - Gasserian ganglion, see trigeminal ganglion
 - gastric acid secretion inhibitors 135
 - gastric emptying, in head injury 1107
 - gastrografin swallow study 1288
 - Geipel hernia 1266
 - gelastic seizures 277
 - gelatin sponge 1719
 - gemistocytic astrocytomas 664
 - generalized seizure 482
 - generalized tonic-clonic seizure 482
 - genetic generalized epilepsies 481
 - genetic syndromes with CNS tumors 637
 - geniculate neuralgia 1873
 - genitofemoral nerve, injury following LLIF 1804
 - gentamicin, for meningitis 340
 - germ cell tumors 831
 - choriocarcinoma 836
 - differential diagnosis 1654
 - embryonal carcinoma 835
 - germinoma 834
 - immature teratoma 833
 - mature teratoma 832
 - mixed germ cell tumor 837
 - synchronous 831
 - teratoma with somatic-type malignancy 833
 - yolk sac tumor 835
 - germinal matrix hemorrhage 1630
 - germinoma 832, 834
 - Gerstmann syndrome 99
 - GFAP, see glial fibrillary acidic protein
 - ghost-cell tumor 843
 - ghrelin 153
 - gliar aneurysms 1493
 - giant arachnoid granulation 1659
 - giant cell arteritis 203
 - giant cell glioblastoma 665
 - giant cell reparative granuloma, of spine 980
 - giant cell tumor (of bone) 995
 - of the sacrum 1702
 - of the spine, differential diagnosis 980
 - gigantism (from excess growth hormone) 870
 - Gill procedure 1345, 1347
 - Ginkgo biloba
 - and subdural hematoma 1085
 - antiplatelet effect 169
 - ginseng, antiplatelet effect 169
 - glabella 61
 - Glasgow coma scale 318
 - for children 318
 - Glasgow outcome scale 1641
 - glial fibrillary acidic protein 631, 664
 - and oligodendrogliomas 664
 - glioblastoma
 - epithelioid 666
 - giant cell 665
 - in adult posterior fossa 1646
 - multiple 667
 - glioependymal cysts 1656
 - glioma 657
 - angiocentric 679
 - astroblastoma, MN1-altered 703
 - brainstem 683, 695
 - butterfly 658
 - chordoid 702
 - diffuse hemispheric glioma, H3 G34-mutant 685
 - diffuse infiltrating pontine glioma (DIPG) 683
 - diffuse midline H3 K27M-altered 683
 - grading, radiographic 657
 - hypothalamic 695
 - infant-type hemispheric glioma 687
 - multiple 667
 - multiple primary 667
 - nasal 1674
 - optic 694
 - pediatric-type high-grade glioma, H3-wildtype and IDH-wildtype 686
 - pilocytic astrocytoma 689
 - spread 658
 - tectal 697
 - treatment, for high grade astrocytomas 672
 - wounded glioma syndrome 669
 - gliomas
 - butterfly 668
 - surgical goals 669
 - gliomatosis cerebri 667
 - glioneuronal elements (with DNTs) 710
 - gliosarcoma 665
 - global spinal balance 1354
 - globus
 - definition 1373
 - following ACFD 1287
 - globus hystericus 1373
 - glomus AVM (spinal) 1395
 - glomus jugulare tumor 939
 - glomus jugulare tumors 941
 - glomus tympanicum tumors 941
 - glossopharyngeal neuralgia 1873
 - glove-distribution sensory loss 1297
 - glove/stocking sensory loss 1711
 - glucagon, for hypotension 233
 - glucocorticoids 153
 - glucose
 - in coma 320
 - in status epilepticus 511
 - in stroke 1557
 - glucose suppression test (for growth hormone secretion) 882
 - gluteus maximus, innervation 534
 - gluteus medius 534
 - examination in foot drop 1707
 - glycopyrrolate 143
 - for bradycardia with Precedex™ 141
 - GnRH, see gonadotropin-releasing hormone
 - goggle neuralgia 521
 - gonadotroph hyperplasia 1654
 - gonadotropin
 - chorionic 634
 - secreting adenoma 864
 - medical treatment 867
 - serum 877
 - gonadotropin-releasing hormone (GnRH) 153
 - in gonadotroph adenomas 893
 - in hypothalamic hamartomas 277
 - Gore-Tex, for sinus reconstruction 816
 - Gorlin's syndrome 1667
 - Gradenigo's syndrome 601
 - gradient echo MRI 241
 - for AVM 1508
 - grading scales
 - adolescent idiopathic scoliosis (AIS - Lenke) 1325
 - adult idiopathic scoliosis (Lenke) 1321
 - American Academy of Otolaryngology hearing classification 781
 - Aminoff-Logue disability (spinal dural AVF) 1398
 - arteriovenous malformation (AVM)
 - cerebral 1509
 - spinal 1395
 - Ashworth (spasticity) 1845
 - ASIA
 - impairment (spinal cord injury) 1132
 - motor (spinal cord injury) 1129
 - sensory (spinal cord injury) 1130
 - astrocytoma 657
 - Bricé and MacKissock (spinal metastases) 923
 - cerebrovascular injuries (Denver) 1029
 - cervical myelopathy 1299
 - CHADS2 (stroke risk in a-fib) 1590
 - chronic brain injury 1113

- chronic subdural hematoma (Markwalder) 1082
 - coma 318
 - CT grading TBI (Marshall) 1009
 - Denver (vertebral artery injury) 1029
 - Dickman (transverse ligament injury) 1161
 - diffuse axonal injury (DAI) 1026
 - disability from low back pain 1228
 - Engel (seizure surgery outcome) 1894
 - facial nerve 779
 - Fisher grade (vasospasm) 1441
 - Francis (hangman's fracture) 1170
 - Frankel (spinal cord injury) 1132
 - Frisén (papilledema) 587
 - Functional Independence Measure (spinal cord injury outcome) 1643
 - Gardner and Robertson (hearing) 781
 - Glasgow (coma) 318
 - glioma, radiographic 657
 - GMFCS in cerebral palsy 1851
 - hangman's fracture 1166, 1170
 - Hardy (pituitary tumor extension) 857
 - hearing 781
 - House and Brackmann (facial nerve) 779
 - Hunt and Hess 1424
 - INPH Radscale 442
 - intracerebral hemorrhage 1618
 - Karnofsky (outcome) 1640
 - Koos (vestibular schwannoma size) 784
 - Lawton-Young (AVM - cerebral) 1509
 - Levine/Effendi (hangman's fracture) 1166
 - Markwalder (chronic subdural hematoma) 1082
 - Marshall CT grading of TBI 1009
 - Medical Research Council (strength) 530
 - meningioma removal 815
 - meningioma (Sindou) 809
 - Meyerding (spondylolisthesis) 1340
 - modified Japanese Orthopedic Association scale (cervical myelopathy) 1299
 - (modified) Rankin scale (outcome) 1641
 - muscle stretch reflexes 531
 - myelopathy 1376
 - NIH stroke scale 1554
 - NPH (INPH Radscale) 442
 - Nurick (cervical spondylosis) 1372
 - osteotomy classification 1356
 - Oswestry disability index (low back pain) 1228
 - outcome 1640
 - pain 1228
 - Papille (subependymal hemorrhage) 1632
 - pedicle screw breach 1799
 - Ranawat (myelopathy) 1376
 - Ranchos Los Amigos cognitive scale 1641
 - Richmond agitation-sedation scale (RASS) 139
 - Risser stage (skeletal maturity) 1321
 - Sanders (skeletal maturity) 1321
 - sedation/agitation 139
 - Simpson (meningioma removal) 815
 - Sindou (meningioma) 809
 - skeletal maturity, Risser stage 1321
 - spasticity 1845
 - Spetzler et al (AVM - spinal) 1395
 - Spetzler-Martin (AVM - cerebral) 1509
 - spinal cord injury 1129-1130, 1132
 - spinal dural AVF (Aminoff-Logue) 1398
 - spinal metastases
 - spinal cord function 923
 - spinal stability (SINS) 927
 - spinal stability with trauma (TLICS) 1206
 - Spine Instability Neoplastic Score (SINS) (spinal metastases) 927
 - spondylolisthesis 1340
 - stroke 1554
 - subarachnoid hemorrhage 1424
 - subependymal hemorrhage 1632
 - Suzuki (moyamoya) 1583
 - Thoracolumbar injury classification and severity score (TLICS) 1206
 - TICI (cerebral revascularization) 1933
 - transverse ligament injury (Dickman) 1161
 - vasospasm 1441
 - vertebral artery injury (Denver) 1029
 - vestibular schwannoma (Koos) 784
 - Virginia Radiosurgery AVM Scale 1906
 - visual analogue scale (pain) 1228
 - World Federation of Neurosurgical Societies (SAH) 1424
 - grand-mal seizure, see generalized tonic-clonic seizure
 - granular cell tumors 853
 - granuloma, spinal catheter tip 1389
 - granulomatosis with polyangiitis (GPA) 207
 - granulomatous angitis 199
 - GRASS MRI 241
 - Graves' disease 878, 1659
 - and exophthalmos 1690
 - and moyamoya disease 1581
 - Gray (radiation dose) 234
 - great cerebral vein of Galen 85
 - greater occipital nerve 541
 - greater superficial petrosal nerve 607
 - Greenfield filter 179
 - Grinker's myelinopathy 217
 - Grisel syndrome 1158
 - and increased atlantodental interval 1677
 - Gross Motor Function Classification System (GMFCS) 1851
 - gross total resection (definition) 669
 - ground glass appearance (in fibrous dysplasia) 977
 - growing skull fractures 1100
 - pseudogrowing skull fracture 1100
 - growth hormone 153
 - acromegaly 870
 - biochemical cure criteria 903
 - management of 889
 - medical treatment for 890
 - ectopic secretion 870
 - evaluation of 882
 - in acromegaly 881
 - in fibrous dysplasia 977
 - transmitting Creutzfeldt-Jakob disease 401
 - use in myelomeningocele 284
 - with McCune-Albright syndrome 976
 - guanethedine block 527
 - Guidelines for the Management of Severe Traumatic Brain Injury 1046
 - Guilford brace 1124
 - Guillain-Barré syndrome 193
 - differential diagnosis 194, 1700
 - variants 194
 - gunshot wounds
 - to peripheral nerves 581
 - to the brachial plexus 580
 - to the head 1093
 - antibiotics for 1095
 - entrance/exit wound 1094
 - indications for angiography 1094
 - to the spine 1219
 - Guyon's canal 558
 - gyral enhancement
 - differential diagnosis 1560
 - on CT 1560
 - on MRI 1561
 - gyri of Heschl 56
 - gyrus rectus corticectomy, for AComA aneurysm 1474
- ## H
- HACE, see high altitude cerebral edema
 - hair-on-end skull 179, 1663
 - hair-pin turn of artery of Adamkiewicz 88
 - Hakim shunt 470
 - Hakim-Adams syndrome, see normal pressure hydrocephalus
 - half-lives to steady state 487
 - Halifax clamps 1779
 - hallucinosus 213
 - halo sign 419
 - haloperidol
 - and parkinsonism 185
 - for DTs 214
 - halo-vest brace 1124
 - and cerebral abscess 344
 - halo application 1148
 - pin care 1148
 - vest application 1149
 - hamartomas
 - hypothalamic 277
 - with tuberous sclerosis 645
 - handcuff injury to radial nerve 560
 - hanging drop technique 1817
 - hangman's fracture 1165
 - Francis grade 1170
 - Levine/Effendi grade 1166
 - treatment 1168
 - hard disc 1296
 - harlequin eye sign 267
 - Harris line (for atlantooccipital dislocation) 1153
 - Harris-Benedict equation 1107
 - head circumference, see occipital-
frontal circumference
 - head fixation in surgery 1716
 - skull block for 1717
 - headache 182
 - airplane headache 1418
 - following craniotomy 1731
 - from cranial defect 1731
 - in pseudotumor cerebri 958
 - in subarachnoid hemorrhage 1418
 - medication overuse H/A 960
 - migraine 183
 - paroxysmal 1418
 - post myelogram/LP 1816
 - spinal, see headache - post myelogram/LP
 - thunderclap 1418
 - tussive 296
 - warning (in subarachnoid hemorrhage) 1418
 - with brain tumors 623

- with giant cell arteritis 204
- with orgasm 1419
- with unruptured aneurysms 1418, 1454
- hearing classification 781
- hearing loss 611
 - American Academy of Otolaryngology hearing classification 781
 - asymmetric/unilateral 780
 - following loss of CSF 1815
 - following lumbar puncture 1815
 - following MVD for hemifacial spasm 1872
 - Gardener and Robertson classification 781
 - posttraumatic 1027
 - with glomus jugulare tumor 942
 - with Meniere disease 605
 - with vestibular schwannoma 778, 780
 - following treatment 797
 - sudden/spontaneous 778
- heart valves (prosthetic), see prosthetic heart valves
- Heiss-Oldfield theory 1406
- HELLP syndrome 1425
- helmets
 - football, removal after injury 1138
 - motorcycle 1079
- hemangioblastoma
 - intracranial 822
 - differential diagnosis 1646
 - retinal 648
 - spinal cord 986
- hemangioblastomatosis 646
- hemangioma 821
 - capillary
 - orbital 1658
 - skull 973
 - vertebral 992
 - cavernous 1646
 - intracranial, see cavernous malformation
 - orbital 1658
 - vertebral 992
 - facial 1647
 - in Sturge-Weber 652, 1658
 - of the skull 973, 1662
 - radiographic appearance 1661
 - vertebral 992, 1383, 1697
 - and spinal epidural hematoma 1697
 - treatment 994
- hemangiopericytoma (obsolete) 820
- hemiatrocipt
 - in hyperdynamic therapy 1446
 - in vasospasm 1445
- hematology 160
- hematoma
 - epidural
 - cerebral 1072
 - spinal 1697
 - intracerebral 1608
 - posterior fossa 1089
 - post-op 1729
 - subdural 1076
- Hemedex® monitor 1046
- hemianopsia
 - bitemporal 864, 875
 - homonymous
 - from occipital lobe lesions 98
 - with parietal lobe tumors 623
 - with pituitary tumors 875
 - junctional scotoma 875, 1478
- hemiballism 1541
- hemicrania continua 521
- hemicraniectomy (for increased ICP), see craniectomy - decompressive hemifacial spasm 1870
 - treatment 1871
- hemiparesis
 - differential diagnosis 1703
 - infantile
 - and seizure surgery 1889
 - from arterial dissection 1579
 - pure motor 1541
 - hemiplegia cruciata 1709
 - hemiplegic migraine 183
 - hemispherectomy 1891
 - hemivertebra 289
 - hemodialysis, following intracerebral hemorrhage 1623
 - hemodynamic augmentation
 - for acute central cord syndrome 1134
 - for vasospasm 1447
 - hemogenic meningitis, see meningitis - hemogenic
 - hemorrhagic brain tumors 1612
 - hemorrhagic contusion 1025, 1071
 - excision to control ICP 1051
 - hemorrhagic conversion of ischemic infarcts 1591
 - hemostasis (surgical) 1718
 - hemotympanum 1005, 1065
 - heparin 172
 - and thrombocytopenia 172
 - considerations in neurosurgery 163
 - contraindications 163
 - discontinuation prior to neurosurgical procedures 168
 - for cardioembolic stroke 1591
 - for cerebral venous thrombosis 1600
 - for cerebrovascular dissection 1031
 - for DVT prophylaxis 177
 - for DVT treatment 178
 - for endovascular neurosurgery 1916
 - for pulmonary embolism 179
 - for spinal cord injury 1141
 - for VA shunt 1828
 - low molecular weight 172, 177
 - reversal with protamine 174
 - low-dose 172, 177, 1141
 - discontinuation prior to neurosurgical procedures 168
 - reversal 174
 - hepatolenticular degeneration 1673
 - herbal supplements, and platelet aggregation 169
 - hereditary hemorrhagic telangiectasia 1455
 - hereditary motor and sensory neuropathy, see Charcot-Marie-Tooth syndrome
 - hereditary neuropathy with liability to pressure palsies (HNPP) 568
 - hereditary spastic paraplegia 1301, 1696
 - hereditary TTR (hTTR) amyloidosis 549
 - herniation
 - brain
 - central 325
 - during craniotomy 1728
 - following LP 1815
 - herniation syndromes 324
 - tonsillar 325
 - uncalled 327
 - upward (cerebellar) 325
 - upward (transtentorial) 625
 - intraoperative 1728
 - spinal cord 1404, 1697
 - herpes simplex encephalitis 249, 397
 - herpes simplex eruption following trigeminal rhizotomy 1863
 - herpes zoster 522
 - and facial paralysis 609
 - leukoencephalitis 399
 - myelopathy 1699
 - ophthalmic 522
 - and stroke in young adults 1542
 - radiculopathy 1701
 - herpetic ganglionitis 1873
 - Heschl's gyri 56
 - hetastarch 133
 - and impaired coagulation 1434, 1446
 - for contrast media reaction 233
 - heterotopia 309
 - Heubner's artery 74, 77, 79
 - occlusion 1539
 - Heuter-Volkman principle 1320
 - Heyer-Schulte shunt 470
 - hiccup
 - from steroids 157
 - treatment, chlorpromazine (Thorazine®) 157
 - with lateral medullary syndrome 1539
 - high altitude cerebral edema (HACE) 1028
 - high risk meningiomas 813
 - high-grade astrocytoma with piloid features 698
 - HIMALAIA study 1433
 - hippocampus 482
 - hippus 601
 - Hirayama disease 1403
 - histamine
 - release with morphine 110
 - release with paralytics 143
 - histamine2 (H2) antagonists 135
 - for head trauma 1050
 - histaminic migraine 183
 - HNPP, see hereditary neuropathy with liability to pressure palsies
 - hockey-stick incision 1740
 - Hoffman's sign 92
 - dynamic 1298
 - in cervical spondylotic myelopathy 1298
 - Hollenhorst plaques 1544
 - hollow skull phenomenon (sign) on CRAG 334
 - Holmes-Adie's pupil 592
 - holoprosencephaly 311
 - Holter valve 471
 - Homans' sign 177
 - homocystinuria
 - and arterial dissections 1577
 - and cerebral venous thrombosis 1595
 - and strokes 1542
 - homonymous hemianopsia, see hemianopsia - homonymous
 - homunculus 58
 - honeycomb appearance of hemangiomas 993
 - honeycomb pattern (on skull X-ray) 1662
 - honeymoon paralysis 543
 - honeymoon seizures 1894
 - hook effect (on prolactin level) 877
 - Hoover sign 1253
 - horizontalization of the facet joint 1192
 - horizontal-vertical lumbar valve 470
 - Horner syndrome 594
 - due to pituitary apoplexy 866
 - following cervical discectomy 1286
 - from cervical cordotomy 1879
 - from stellate ganglion block 1834
 - in brachial plexus injury 579
 - in carotid dissection 1578
 - in fibromuscular dysplasia 209
 - in Raeder's paratriggering neuralgia 601
 - with cervical disc herniation 1280
 - with cluster headaches 183

- with foramen magnum tumors 1650
- hot bath test (Uthoff sign) in MS 189
- Hounsfield units 238
 - in osteoporosis 1209
- hourglass deformity on myelogram 925
- House and Brackmann grading scale 779
- H-reflex (on EMG) 255, 1236
- Huber maneuver 1520
- Hueter-Volkman law 1374
- hum test 611
- Hunt and Hess grade 1424
- hunterian ligation
 - for aneurysms 1456
 - for giant aneurysms 1494
 - for VA-PICA aneurysms 1480
- huntingtin 1673
- Huntington's chorea 1673
 - and parkinsonism 186
- Hunt's neuralgia 1873
- Hurler syndrome 228, 260, 1696
- hybrid nerve sheath tumors 772
- hydatic cyst 408
- hydranencephaly 309, 433
- hydrocephalus
 - and contact sports - return to play 1024
 - and pregnancy 447
 - and type 2 Chiari malformation 303
 - arrested 435
 - benign external 433
 - catch-up phase of brain growth 1636
 - chronic (differentiated from acute) 433
 - communicating 426
 - compensated 435
 - differential diagnosis 433
 - due to arachnoid cyst 261
 - etiologies 426
 - ex vacuo 433
 - following TBI 1108
 - external 433
 - following excision of 4th ventricle tumor 1744
 - following excision of cerebellar pilocytic astrocytoma 693
 - following myelomeningocele closure 281
 - following p-fossa SAH 1479
 - following pituitary surgery 900
 - following SAH 1420, 1426, 1432-1433
 - traumatic SAH 1108
 - with AComm aneurysms 1473
 - following subependymal hemorrhage 1633
 - following traumatic brain injury 1108, 1111
 - following vestibular schwannoma surgery 797
 - from bullet fragment 1094
 - from neurocysticercosis 406
 - from pituitary apoplexy 866
 - from pituitary macroadenoma 858
 - frontal-occipital horn ratio 462
 - in Chiari type 1 malformation 296
 - in myelomeningocele 281
 - instructions to patients 475
 - medical treatment 452
 - normal pressure 438
 - normal volume 463
 - obstructive 426
 - otitic 1594
 - posttraumatic 1108, 1111
 - pseudohydrocephalus 433
 - surgical treatment 452
 - triventricular 273, 426
 - ventricular measurements 431
 - vs. hydranencephaly 309
 - with neurosarcooidosis 198
 - with posterior fossa tumors 625
 - with vein of Galen malformations 1518
 - with vestibular schwannoma 779, 791
 - X-linked 434
- hydrochlorothiazide
 - causing SIADH 116
 - for diabetes insipidus (DI) 128
- hydrocodone 147
- hydrocortisone 154
 - as a measure of adrenal sufficiency 155
 - for Addisonian crisis 157
- hydromorphone 148
- hydromyelia, see syringomyelia
- hydroxyrhomelia, see syringomyelia
- hydroxyamphetamine, and neurotoxicology 216
- hydroxyapatite 1721, 1724
- hydroxylapatite bone graft 1285
- hydroxyproline 1363
- hydroxyzine 149
- hygroma, subdural
 - following lumbar puncture 1815
 - in intracranial hypertension 423
 - traumatic 1085
- hyperacusis 607
- hyperbaric oxygen, for air embolism 1557
- hyperbilirubinemia, with cephalhematoma 1100
- hypercalcemia
 - from bone metastases 922
 - from multiple myeloma 929
- hyperchloremic acidosis 124
- hypercoagulable states and strokes 1542
- hyperdense artery sign 1560, 1589
- hyperdynamic therapy, hematocrit 1446
- hyperemia (cerebral) 1536
 - and malignant cerebral edema 1026
 - distinguishing from vasospasm 1443
 - following evacuation of chronic subdural 1084
 - following head injury 1037
 - in pediatrics 1098
 - harmful effect of mannitol 1054
 - indications of 1045
 - occlusive 1512
- hyperflexion sprain 1186
- hyperfractionated radiation therapy 697
- hyperglycemia
 - in head injury 1050
 - in stroke 1557
- hyperhidrosis 1412, 1853
 - facial 297
 - with acromegaly 870
- hyperkalemia
 - due to NSAID nephrotoxicity 144
 - due to succinylcholine 142
 - in Addisonian crisis 157
- hyperlordosis of the cervical spine 1296
- hypnatremia 124
- hypernephroma, see renal-cell carcinoma
- hyperostosis
 - and meningiomas 816
 - hyperostosis cranialis interna 1689
 - hyperostosis frontalis interna 974
- vertebral, differential diagnosis 1680
- hyperoxia 1434
- hyperparathyroidism, in multiple endocrine adenomatosis 863
- hyperparathyroidism
 - with central cord syndrome 1133
 - with meralgia paresthetica 566
- hyperpigmentation
 - differential diagnosis 869
 - in Cushing's syndrome 868
 - in Nelson's syndrome 869
- hypersensitivity vasculitis 209
- hypertension
 - in Cushing's syndrome 868
 - treatment 131
- hypertensive encephalopathy 202
- hypertensive hemorrhage 1608
- hyperthermia
 - malignant 112
 - with hypothalamic lesion 852
- hyperthyroidism 875
 - and ophthalmopathy 1659
 - Graves' disease 1659
 - primary 878
 - secondary (central) 871, 878
 - signs and symptoms 871
- hypertonic saline, to lower ICP 1055
- hypertrichosis
 - with diastematomyelia 292
 - with tethered cord syndrome 291
- hyperventilation
 - and hypocalcemia 1003
 - for brain relaxation during surgery 1464
 - in coma 322
 - in the E/R 1003
 - neurogenic 322
 - producing symptoms in moyamoya disease 1582
 - to lower ICP 1052
- hypocaloric feeding 1107
- hypocortisolism 157
 - in myxedema coma 158
 - post-op pituitary surgery 902
- hypoglossal artery 84
- hypoglossal canal 65, 102
- hypoglossal nerve
 - anastomosis to facial nerve 610
 - injury from carotid endarterectomy 1568
 - mobilizing for carotid endarterectomy 1569
- hypogonadotropic hypogonadism, following head injury 1111
- hypoid 80
- hypokalemia
 - hypokalemic alkalosis in Cushing's syndrome 868
 - in spinal cord injury 1139
- hyponatremia 114, 119
 - following SAH 1435
 - postoperative 117
 - pseudohyponatremia 116
 - work-up 117
- hypophysitis 1656
- hypopituitarism
 - and septo-optic dysplasia 276
 - and suprasellar germ cell tumors 759
 - due to aneurysm 1478
 - due to pituitary apoplexy 887
 - due to pituitary tumor 864
 - due to radiation therapy 893, 1900
 - due to suprasellar germ cell tumors 1654
 - following head trauma 1014
 - following pituitary surgery 900
- hypotension
 - and ischemic optic neuropathy 431

- causing blindness 431
 - causing spinal cord infarction 1385
 - during aneurysm surgery 1465
 - following head trauma
 - etiologies 1002
 - prognostic significance 1002
 - following spinal cord injury (spinal shock) 1119, 1139
 - from contrast media reaction 233
 - impact in severe traumatic brain injury 1049
 - intracranial, *see* intracranial hypotension
 - orthostatic 186
 - treatment 132
 - hypothalamic glioma 691, 695
 - hypothalamic hamartomas 277
 - hypothermia
 - and determining brain death 332
 - and effect on CMRO2 108
 - and wound infection 377
 - as cause of fixed pupils 321
 - for acute ischemic stroke 1557
 - for cerebral protection
 - during aneurysm surgery 1464
 - with closed head injury 1051
 - prophylactic 1052
 - for spinal cord injury 1141
 - hypothyroidism 158
 - and pituitary tumors 878
 - danger of precipitating adrenal crisis 886
 - from aminoglutethimide 892
 - hypoxia, following head trauma, prognostic significance 1002
 - hypsarrhythmia 484
- I**
- IAC protocol (MRI) 241
 - ibuprofen 145
 - ICH score, *see* intracerebral hemorrhage - score
 - ICP, *see* intracranial pressure
 - propofol, use of 1057
 - ictal onset zone 1889
 - ICU neuropathy, *see* critical illness polyneuropathy
 - IDET, *see* intradiscal endothermal therapy
 - IDH-mutant & 1p/19q-codeleted, oligodendroglioma 662
 - idiopathic brachial plexus neuropathy 570
 - idiopathic cranial polyneuropathy 1688
 - idiopathic inflammatory sensory neuropathy (IHHS) 1660
 - idiopathic intracranial hypertension 955
 - IDTA, *see* intradiscal endothermal therapy
 - IGF-1, *see* insulin-like growth factor-1
 - ileus
 - following lumbar laminectomy (Ogilvie's syndrome) 1259
 - following spinal cord injury 1139
 - iliac crest bone graft 1725
 - and meralgia paresthetica 561
 - iliac screws 1806
 - imatinitib, for chordomas 828
 - immature teratoma 833
 - imminent aneurysm rupture 1463
 - immunodeficiency-associated CNS lymphomas (IDA-CNSL) 845
 - immunohistochemical staining patterns 631
 - impedance, during trigeminal rhizotomy 1865
 - impedance plethysmography 178
 - incidental aneurysms 1453, 1486
 - incidental durotomy 1260
 - incidental PitNET 866
 - incidentaloma, syringomyelia 1409
 - incomplete spinal cord injury syndromes 1132
 - incontinence, unawares type (unconscious) 94
 - indigo carmine 1716
 - Indium-111 labeled WBC scan, for vertebral osteomyelitis 389
 - indocyanine green, intraoperative angiography 1466
 - indocyanine green angiography, for spinal dural AVF 1399
 - indomethacin 145
 - in treating/diagnosing hemicrania continua 521
 - to prevent subependymal hemorrhage 1632
 - infantile acute subdural hematoma 1081
 - infantile hemiplegia syndrome 1579, 1889
 - infantile spasms 484
 - infant-type hemispheric glioma 687
 - infarction, *see* stroke
 - cerebellar 1588
 - cerebral 1536
 - myocardial 1590
 - spinal cord 1385
 - venous 1594
 - watershed 1536
 - infection
 - abscess
 - cerebral 343
 - spinal epidural 381
 - AIDS 353
 - bone flap 380
 - Creutzfeldt-Jakob disease 399
 - disc, *see* discitis
 - echinococcosis 408
 - fungal
 - CNS 409
 - meningitis 341
 - herpes simplex encephalitis 397
 - ICP monitors and 1039
 - in craniospinal trauma 341
 - Lyme disease 364
 - meningitis 340
 - *See also* meningitis
 - neurocysticercosis 404
 - prions 400
 - shunt, *see* shunts - problems - infection
 - skull 380
 - slow virus 400
 - spine 380
 - epidural abscess 381
 - subdural abscess (empyema) 385
 - vertebral osteomyelitis 386
 - syphilis (neurosyphilis) 354
 - viral encephalitis 397
 - wound
 - craniotomy 380
 - laminectomy 377
 - infectious aneurysm 1492
 - inferior hypophyseal artery 77
 - inferior orbital fissure 65
 - inferior petrosal sinus
 - anatomy 85
 - sampling for Cushing's disease 880
 - inflection point (of lumbar lordosis) 1313
 - infiximab 1378
 - infratentorial tumor/mass 625
 - and coma 324
 - differential diagnosis 1646
 - Informorph® 1881
 - infundibulum 1423
 - infundibulum sign 951
 - Infusaid pump 1882
 - inguinal hernia, and VP shunt 455
 - inhalational anesthetic agents 109
 - iniencephaly 269, 290
 - injection injuries, sciatic nerve 1707
 - injection therapy, for low back pain 1239
 - INO, *see* internuclear ophthalmoplegia
 - iNPH Radscale 442
 - INR, *see* International Normalized Ratio
 - insensitive space 1234
 - insonation windows 1443
 - instability (spinal), *see* spinal stability
 - insular ribbon sign (stroke) 1559
 - insulin tolerance test 881
 - insulin-like growth factor-1 153
 - levels 881
 - Integriin®, for endovascular neurosurgery 1915
 - intercarotid line 884
 - intercostal nerve block 1835
 - intercostal neuralgia
 - intercostal nerve block for 1835
 - spinal cord stimulation for 1883
 - intercrystal line 63, 1812
 - interhemispheric approach 1762
 - for anterior cerebral artery aneurysms 1475
 - for anterior communicating artery aneurysms 1474
 - for colloid cysts 1758
 - interhemispheric scissure 1079
 - interhemispheric subdural hematoma 1079
 - from ruptured aneurysm 1420
 - interleukin-2, and cerebral edema 916
 - intermuscular septum (medial, in ulnar nerve surgery) 556-557
 - internal capsule 66
 - internal carotid artery
 - anatomy 76
 - dissection 1578
 - occlusion
 - management 1587
 - syndromes 1538
 - stenosis
 - angiographic criteria 1545
 - asymptomatic 1548
 - indications for surgery 1565
 - internal cerebral vein 85
 - inferior displacement 758
 - retrograde filling with AVMs 1518
 - internal decapitation 1153
 - internal disc disruption 1258
 - internal genu (facial nerve) 607
 - internal jugular vein, thrombosis of 1286
 - internal jugular veins 84
 - International Normalized Ratio (INR) 172
 - safe levels for neurosurgical procedures 164
 - therapeutic levels for warfarin 172
 - internuclear ophthalmoplegia 323, 326, 596
 - in multiple sclerosis 188
 - interpedunculate distance 1202
 - interpeduncular cistern 1421
 - interscapular pain
 - following ACFD 1287
 - in cervical radiculopathy 1710
 - interspinous distance 224
 - interspinous fusion 1346
 - interspinous plates 1346
 - interspinous process
 - decompression 1346
 - interspinous spacer 1346
 - contraindications 1346

- InterStim™ bladder neuromodulator 97
- interstitial brachytherapy 1910
- interventional neuroradiology (INR) 1913
- intervertebral disc 1226
- anular tears 1705
 - as a source of pain 1235
 - degenerated, on MRI 1234
 - destruction
 - with ankylosing spondylitis 1680
 - with discitis 1680
 - herniation
 - balloon disc 1266
 - cervical 1280, 1292, 1808
 - ACDF for 1284
 - arthroplasty for 1290
 - intravertebral disc herniation 1266
 - lumbar 1250
 - and spondylolisthesis 1337
 - conservative treatment 1237
 - extreme lateral 1263
 - foraminal 1263
 - in asymptomatic patients 1230
 - in pediatrics 1266
 - indications for surgery 1256
 - intradural 1266
 - percutaneous procedures 1257
 - physical findings 1251
 - radiographic evaluation 1230
 - recurrent 1267
 - SPORT 1263
 - surgical treatment 1256
 - upper lumbar 1263
 - natural history 1255
 - Schmorl's node 1266, 1706
 - sequestered 1227
 - surgical options 1257
 - syndromes
 - cervical 1280
 - lumbar 1253
 - thoracic 1271
 - infection (discitis) 390, 1680
 - lumbar, pathology nomenclature 1227
 - sparing with tumors 1680
 - vacuum disc 1227
- intoxication
- cocaine 215
 - ethanol 212
 - opioid 215
- intra-arterial chemotherapy 628
- intracarotid amytal test 1890
- intracerebral hemorrhage 1608
- and alpha-adrenergic agonists 1611
 - and cerebral amyloid angiopathy 1612
 - and leukemia 1630
 - and migraine 1610
 - and prosthetic heart valves 1623
 - and sympathomimetics 1611
 - and vasculitis 203
 - angiogram, indications for 1620
 - anticoagulation
 - following the hemorrhage 1622
 - preceding the hemorrhage 1613
 - cerebellar
 - following craniotomy 1611
 - surgical technique 1626
 - treatment guidelines 1625
 - during percutaneous trigeminal procedures 1863
 - etiologies 1610
 - following carotid endarterectomy 1567
 - emergency endarterectomy 1570
 - following craniotomy 1611
 - following evacuation of chronic subdural 1083–1084
 - from brain tumors 1612
 - from depth electrodes 1891
 - grading system 1618
 - in the newborn 1630
 - in young adults 1630
 - lobar 1609
 - clinical syndromes 1615
 - mortality 1626
 - management 1619
 - after tPA 1564
 - MRI appearance 1616
 - postpartum 1611
 - rebleeding 1615
 - recurrent 1612
 - score 1618
 - spot sign (on CTA) 1616
 - stereotactic aspiration of 1839
 - surgical treatment 1623
 - STICH study 1624
 - tissue plasminogen activator
 - injection into clot to treat 1839
 - intraventricular injection to treat 1626
 - preceding the hemorrhage 1564, 1611–1612
 - traumatic, see hemorrhagic contusion
 - treatment 1619
 - volume
 - estimation 1616
 - prognostic value 1625
 - with aneurysmal rupture 1454
 - with ICP monitor 1039
- intracranial arachnoid, see pneumocephalus
- intracranial atherosclerosis 1591
- intracranial cysts 1656
- intracranial hypertension, see intracranial pressure
- intracranial hypotension
- from overshunting 462
 - spontaneous 421
- intracranial pressure 1036
- converting mm Hg to cm water 1041
 - definitions 1036
 - elevation
 - from histamine release 110
 - with nitroglycerin 131
 - with succinylcholine 142
 - following SAH 1427
 - hypertension
 - heavy sedation for 1050
 - management 1047, 1049, 1052
 - hypothermia 1051
 - second tier therapy 1051
 - surgery for 1049
 - orbital findings 964
 - with cryptococcal meningitis 409
 - hypotension
 - following CSF shunting 462
 - spontaneous 421
 - indications to treat 1047
 - management
 - heavy sedation for 1050
 - protocol 1047, 1049
 - monitoring 1038
 - and hemorrhage 1039
 - and prophylactic antibiotics 1039
 - complications 1039
 - estimating ICP in infants 1041
 - fontanometry 1041
 - in gunshot wounds 1096
 - in multiple trauma 1013
 - indications 1038
 - infection and 1039
 - monitor insertion technique 1823
 - treatment threshold 1047
 - normal values 1037
 - respiratory variations 1044
 - secondary rise 1038
 - waveforms 1044
- intradiscal electrothermal anulo-
plasty, see intradiscal endother-
mal therapy
- intradiscal endothermal ther-
apy 1257–1258
- intradiscal pressure 1237, 1257
- intradiscal procedures 1257
- intradural disc herniation 1266
- intramedullary spinal cord
tumors 984
- in neurofibromatosis 638
 - management 988
- intranasal/intracranial lesions 1673
- intraoperative aneurysm rupture,
with craniotomy 1466
- intraoperative angiography 1466
- intraoperative cortical
mapping 1731
- intraoperative dyes 1716
- intraoperative evoked poten-
tials 251, 989
- anesthesia requirements 112
- intraoperative pathology
consultations 629
- intraoperative
pneumoencephalogram 1013
- intraoperative ultrasound, for spine
fracture 1207
- intraosseous meningiomas 803
- intrapertoneal pressure 454
- intraspinal lesions, see sellar lesions
- intraspinal cysts 1681
- intraspinal narcotic
administration 1881
- implantable pump 1882
- intraspongious disc herniation, see
Schmorl's node
- intrathecal baclofen, withdrawal
syndrome 1849
- intrathecal drugs
- baclofen 1847
 - contrast agents 230
 - inadvertent use of ionic
agent 230
 - iohexol 231
 - implantable pump 1882
 - methotrexate 844
 - treatment for overdose 844
 - morphine
 - for pain 1881
 - for spasticity 1846
 - narcotics 1881
 - implantable pump 1882
 - rituximab 844
 - steroids for postherpetic
neuralgia 525
- intrathecal spinal cord pressure
measurement 1151
- intravascular lymphomatosis 842
- and cauda equina
syndrome 1254
- intravenous pyelography 96
- intraventricular catheter 1040–1042
- See also ventricular
catheterization
 - insertion technique 1041
- intraventricular hemorrhage
- and vasospasm 1439
 - etiologies 1671
 - from closed head injury 1008
 - in the newborn 1630
 - with aneurysmal rupture 1421,
1454
 - PICA aneurysms 1480
 - with intracerebral hemor-
rhage 1620, 1623
 - in newborns 1630
 - yield of angiography 1620
- intraventricular lesions 1667
- surgical approaches 1757
- intraventricular narcotic
administration 1882

- intravertebral disc herniation 1227, 1266
- intubation, in severe TBI 1050
- indications 1003
- invasive PitNET, treatment 886
- invasive pituitary tumors 855
- inverse ptosis 594
- inverted radial reflex 1298
- inverted teardrop (neural foramen) 1330
- iodinated contrast
- adverse reactions 232
 - with metformin (Glucophage®) 230
 - agents used in neuroradiology 230
 - allergy
 - kyphoplasty and 1214
 - prep 232
 - prep for renal insufficiency 232
- iodixanol 232
- iohexol 230
- for arteriography 231
 - for myelography 231, 247
 - for ventriculo-atrial shunt 1828
 - intrathecal 231
- ionic contrast agents 230
- iopamidol 231
- iopromide 232
- ioversol 231
- for arteriography 231
- IPG, see impedance plethysmography
- Iprivask® (desirudin) 167
- iridoplegia, traumatic 592
- irritative zone 1889
- ischemia (cerebral), see cerebral ischemia
- ischemic cerebral edema 90
- ischemic optic neuropathy
- following lumbar spine surgery 1261
 - from hydrocephalus 431
- ischemic stroke, endovascular treatment 1932
- isoflurane, and cerebral protection 1464
- isolated angitis of the CNS 208
- isolated CNS vasculitis 208
- isolated fourth ventricle 436
- isolated posterior circulation 1593
- isoproterenol 134
- isthmus, of the axis (C2) 1166
- IV solutions, and elevated ICP 1050
- iv tPA 1918
- IVC, see ventricular catheterization
- ivory bone 1362
- differential diagnosis 1680
- J**
- J shaped sella turcica 228
- jackknife spasms 484
- Jackson classification of glomus tumors 942
- Jackson's syndrome 104
- Jakob-Creutzfeldt disease, see Creutzfeldt-Jakob disease
- Japanese Orthopedic Association scale (modified) 1299
- jaw claudication 204
- jaw jerk 1298
- JC virus 354
- Jefferson fracture 1123, 1162
- jejunal feedings 1107
- Jendrassik maneuver 531
- jet ventilation 1052
- Jewett hyperextension brace 1205
- Joubert's syndrome 271
- J-shaped sella turcica 694
- jugular bulb 941
- jugular foramen 65
- syndromes 102
- jugular venous oxygen monitoring 1045
- oxygen saturation (SjVO2) 1045
- jugular venous oxygen saturation, treatment threshold 1047
- jumped facets, see locked facets
- junctional scotoma 590
- with ophthalmic artery aneurysms 1478
 - with optic nerve excision 694
 - with pituitary tumors 875
- juvenile myoclonic epilepsy 484
- juvenile pilocytic astrocytoma 689
- juvenile pilocytic astrocytoma (JPA) 689
- juvenile spinal AVM 1395
- juxtafacet cyst (spinal) 1340
- K**
- Kadish classification (olfactory neuroblastoma) 935
- kakosmia 483
- Kallmann syndrome 864
- Kambin's triangle 1235
- Kaplan's cardinal line 551
- Kapp-Gielchinsky shunt 1064
- Karnofsky scale 1640
- and survival with astrocytoma 666
- Katzman test for NPH 444
- Keen's point 1823
- Keppra XR® 495
- Kernig sign 340, 381, 1419
- Kernohan's phenomenon 327, 1072
- ketamine, for anesthesia induction 110
- ketoconazole, for Cushing's disease 892
- ketoprofen 145
- ketorolac tromethamine 145
- dosing forms (oral) 146
- keyhole foraminotomy
- for cervical radiculopathy 1292
 - in cervical myelopathy 1306
- Ki-67 index, in astrocytomas 660
- Ki-67 proliferation index 632
- in meningiomas 807
- kindling 480
- kissing spines 1332
- Kleebattschädel syndrome 268
- Klippel-Feil syndrome 289
- Klumpke's palsy 579
- knee jerk, see patellar reflex
- knee of Wilbrand 590, 875, 1478
- Kocher's point 1821
- Koos grading system 784
- Korsakoff's syndrome/psychosis 215
- kuru 400-401
- kyphoplasty 1213
- kyphosis
- in cervical spondylotic myelopathy 1296
 - Scheuermann's kyphosis 1374
- kyphotic deformity
- following anterior cervical discectomy 1286
 - stability criteria
 - thoracolumbar burst fracture 1206
 - thoracolumbar fracture-dislocation 1205
- L**
- L1 syndromes 435
- L5 burst fractures 1206
- la belle indifference 188
- labetalol 131
- for AVM surgery 1511
 - for glomus tumors 943
 - in strokes 1558
- lacertus fibrosus compression of median nerve 543
- lacosamide 499
- Lacricert® 1746
- lacrimal glands, involvement in sarcoidosis 199
- lacrimation
- absence with pseudo-CSF rhinorrhea 419
 - with cluster headache 183
 - with hemifacial spasm 1870
 - with SUNCT 520
- lactotroph
- hyperplasia in pregnancy 1654
 - tumor 863, 867
- lacunar strokes 1540
- and arteriosclerotic parkinsonism 185
- Ladd epidural monitor 1041
- LAMB syndrome 652
- lambda 61
- lamdboid synostosis 267
- Lambert-Eaton syndrome, see Eaton-Lambert syndrome
- lamina cribrosa (of IAC) 63
- lamina fracture, thoracolumbar 1201
- laminectomy
- cervical 1291, 1306
 - and subluxation 1284
 - and swan neck deformity 1304
 - lumbar 1258
 - and complex regional pain syndrome (AKA RSD) 1259, 1710
 - and subluxation 1344
 - complications of epidural fat graft 1258
 - epidural fat graft 1258
 - for herniated disc 1257
 - post-op check 1262
 - post-op orders 1262
 - urgent (indications) 1256
 - thoracic 1272
 - wound infection 377
- laminoplasty (cervical) 1877
- laminotomies 1345
- lamotrigine 497
- Langerhans cell histiocytosis
- of the skull 846, 974
 - of the spine 980
- language and speech function 90
- language disturbance, differential diagnosis 1694
- language mapping 1735
- lansoprazole 136, 1434
- laparoscopic surgery in patients with VP shunts 466
- Lasègue's sign 1252
- laser disc decompression 1257
- laser interstitial thermal therapy (LITT), for radiation necrosis/pseudoprogression 674
- laser interstitial thermal therapy (LITT)
- for high grade gliomas 674
 - for meningioma 814
- last substantially touched vertebra 1322
- lateral bending test 1264
- lateral canthal advancement 267
- lateral cervical puncture 1819
- lateral cutaneous nerve of the forearm 538
- lateral femoral cutaneous nerve 561
- lateral fissure, surface anatomy 61
- lateral mass displacement (LMD) 223, 1161
- lateral mass fracture of atlas 1163
- lateral medullary syndrome 1539
- and vertebral artery dissection 1579
- lateral oblique position 1737-1739
- lateral recess 1335

- lateral recess syndrome 1329
lateral rectus palsy 598
lateral spine approach
– approach for thoracic disc herniation 1276
– lateral lumbar interbody fusion (LLIF) 1357, 1802
lateral ventricle
– surface anatomy 62
– surgical approaches 1757
– tumors/lesions of 1669
latex allergy, in
– myelomeningocele 281
laughing (with gelastic seizures) 277
law of Laplace 463
Lawton-Young grade (AVM – cerebral) 1509
lazaroids, for severe TBI 1055
Lazarus sign 332
lazy lambdaoid 267
Le Fort fractures 1067
lead poisoning 217
– and foot drop 1708
– and macrocephaly 1692
– and wrist drop 559
– from retained bullet 1219
– vs. Guillain-Barré syndrome 194
left-right confusion 99
length-dependent peripheral neuropathy 569
Lenke classification (scoliosis) 1321
Lennox-Gastaut syndrome 484, 511
lenticulostriate arteries 74–75, 77, 79
– lateral 80
– lenticulostriate 75
leopard man sign 199
leptomeningeal angiomatosis 652
leptomeningeal carcinomatosis, see carcinomatous meningitis
leptomeningeal cysts 260
– posttraumatic 1100
lesion in continuity, use of NAP recording 535
l'etat lacunaire 1541
lethal midline granuloma 207, 1674
leukemia
– and intracerebral hemorrhage 1630
– and PML 354
leukoaraiosis 1670
leukoencephalopathy
– differential diagnosis 1652
– from RTX + methotrexate 1900
level
– C-spine surface landmarks 63
– in spinal cord injuries 1118
levetiracetam 495
– dosing forms 495
Levine classification (hangman's fracture) 1166
levophed 134
– for vasospasm 1447
Lewy bodies 185
Lhermitte-Duclos disease 716
Lhermitte's sign
– differential diagnosis 1712
– in central cord syndrome 1133
– in cervical spondylotic myelopathy 1298
– in Chiari I malformation 296
– in multiple sclerosis 188
– in radiation myelopathy 1899, 1902
Licox® monitor 1045
lidocaine
– for ICP management 1051
– in neuroanesthesia 111
– nasal spray for V2 trigeminal neuralgia 1861
– patch
– for neuropathic pain 519
– for postherpetic neuralgia 523, 525
lifetime risk of hemorrhage from
– AVM or aneurysm 1506
Li-Fraumeni syndrome 650
ligamentotaxis 1207
ligaments
– cervical spine, injury of
– atlantooccipital dislocation 1153
– MRI findings 1146
– occipitoatlantoaxial joint 67
ligamentum flavum
– in buckling of
– in cervical spine 1296
– in lumbar spine 1331
– ossification of 1328
– cervical 1296
– lumbar 1328
ligation (proximal) for
– aneurysms 1456
light chain deposition disease 549
light reflex 590
light-near dissociation 591
Liliequist's membrane 1497
limbic encephalitis
– (autoimmune) 1672
limbus fracture 1251
limbus sphenoidale 809
lindane, and pseudotumor cerebri 957
Lindgaard ratio 1443
linea nigra 869
linear-quadratic (LQ) equation 1898
liothyronine 159
lipohyalinosis 1540, 1610
lipoma
– intracranial 276
– with agenesis of corpus callosum 275
– of the cauda equina 284
– spinal cord 986
– and dorsal dysraphism 284
lipomatosis, spinal epidural 1381
– differential diagnosis 1697
lipomatous medulloblastoma, see cerebellar liponeurocytoma
lipomyelomeningocele 284
lipomyeloschisis 284
liponeurocytoma (cerebellar), see cerebellar liponeurocytoma
lipothymia 1684
Lisch nodules 639
lissencephaly 308–309
lithium
– as a cause of diabetes insipidus (DI) 125
– for cluster headache 184
– for SIADH 122
lithotomy position, and neuropathy 576
liver failure and ICP monitoring 1039
LLIF, see lateral lumbar interbody fusion
LOAF muscles 538, 543
lobar hemorrhage 1609
– clinical syndromes 1615
– mortality 1626
lobectomy, temporal 1753
localizing levels in spine surgery 1719
locked facets
– C2–3 in hangman's type III fracture 1167, 1170
– subaxial C-spine 1186
locked-in syndrome 249, 320, 1541
lomustine 628
long thoracic nerve 538
long-standing overt ventriculomegaly in an adult (LOVA) 437
lorazepam, for ethanol withdrawal seizures 213
Lou Gehrig's disease, see amyotrophic lateral sclerosis
Lovenox® (enoxaparin) 173
low back pain, see back pain
low ICP syndrome 462
low molecular weight heparins 172
– discontinuation prior to neurosurgical procedures 168
low-density areas (in moyamoya disease) 1583
low-dose heparin 177, 1141
– discontinuation prior to neurosurgical procedures 168
lower motor neuron paralysis 531
lower motor neurons 531
LP shunt, see lumboperitoneal shunt
lucid interval (with EDH) 1072
Lüdenschädel 304
lumbar corsets and support belts 1239
lumbar cortical screw fixation 1799
lumbar disc, see intervertebral disc – lumbar
lumbar drainage 1817
– for aneurysm surgery 1464
– for CSF fistula 420
– for intracranial hypertension 1051
– for NPH 444
– for pituitary macroadenomas 898
– for post-op pseudomeningocele 1746
lumbar laminectomy
– complications 1258
– post-op orders 1262
– risks 1258
– urgent surgery (indications) 1256
– with fusion, see fusion – lumbar spine
lumbar lordosis
– distribution (Roussouly) 1313
– relationship to thoracic kyphosis 1313
lumbar lordosis (LL) 1314
lumbar pseudodisc 1337
lumbar puncture 1811
– complications 1814
– central herniation 346, 351, 1815
– cerebral venous thrombosis 1595
– epidemoid tumor 1815
– headache 1816
– spinal epidural abscess 382
– spinal epidural hematoma 173, 1383
– contraindications 1811
– for carcinomatous meningitis 920
– for cerebral abscess 345
– for CSF fistula 420
– for paraneoplastic syndrome 212
– for suspected SAH 1421
– in AIDS patients 356
– in normal pressure hydrocephalus 443
– in pseudotumor cerebri 962
– in spinal epidural abscess (precautions) 383
– needles 1817
– opening pressure 1812
– in NPH 443
– normal values 1812
– serial
– for hydrocephalus after ventricular hemorrhage 452
– for pseudotumor cerebri 965
– technique 1812
– traumatic 1813
– vs. SAH 1814
lumbar spinal fusion 1240

- anterior lumbar interbody fusion (ALIF) 1795
 - facet fusion 1806
 - for spinal stenosis 1347
 - lateral lumbar interbody fusion (LLIF) 1802
 - posterior lumbar interbody fusion (PLIF) 1801
 - transfacet pedicle screws
 - for 1805
 - transformal lumbar interbody fusion (TLIF) 1801
 - lumbar spinal stenosis 1328
 - differential diagnosis 1332
 - evaluation 1330
 - treatment 1342
 - interspinous process decompression 1346
 - laminectomy 1345
 - lumbar spine fractures 1200
 - lumbar stenosis, see lumbar spinal stenosis
 - lumbar sympathetic block 1835
 - lumbar translaminar screw fixation 1800
 - lumboperitoneal shunt
 - and tonsillar herniation 456
 - evaluation 1830
 - placement 1829
 - pseudotumor cerebri, for 966
 - tapping 1830
 - lumbosacral plexopathy 571
 - lumbosacral sprain 1704
 - Lundberg waves 1044
 - lung cancer, see bronchogenic cancer
 - lupus anticoagulant 175, 1542
 - See also systemic lupus erythematosus
 - luteinizing hormone releasing hormone, see gonadotropin releasing hormone
 - luxury perfusion 1045
 - Lyme disease 364
 - and Bell's palsy 1688
 - and facial palsy 608
 - lymphangioma, of the orbit 1658
 - lymphocytic hypophysitis 1656
 - lymphoid adenohypophysitis 1656
 - lymphoma
 - cerebral
 - and PML 354
 - differential diagnosis 1670
 - nonenhancing 843
 - intraocular 843
 - intravascular lymphomatosis 842
 - of the skull 972
 - primary CNS 840, 1688
 - in AIDS 354
 - imaging findings 355
 - prognosis 357
 - spinal 979
 - differential diagnosis of myelopathy 1697
 - lymphomas, immunodeficiency-associated 845
 - lymphomatoid granulomatosis 208
 - lymphomatous meningitis 920
 - Lyodura®, and Creutzfeldt-Jakob disease 401
 - lytic skull lesions 1662
- M**
- ma huang 1611
 - MacDonald criteria for glioma response 674
 - MACE Study 1550
 - Macewen's sign 427
 - macrocephaly 1691
 - differential diagnosis 1691
 - macrocrania 433, 1691
 - macroencephaly (macrocephaly) 312
 - macroprolactinemia 877
 - macular sparing 589, 1539
 - macular splitting 589
 - mad cow disease 401
 - MAGEC® rods 1325
 - magnetic gait 439
 - magnetic resonance angiography (MRA) 243
 - for carotid stenosis 1546
 - for cerebral aneurysms 1422
 - for vasospasm 1443
 - magnetic resonance imaging (MRI) 239
 - and aneurysm clips 242
 - blood
 - best sequence for parenchymal blood (gradient-echo T2WI) 1353, 1529
 - best sequence for SAH (FLAIR) 1422
 - intracerebral hemorrhage 1616
 - cervical spine
 - in cervical spondylosis 1302
 - increased signal in spinal cord 1302
 - CISS image 241
 - contraindications 242
 - contrast 242
 - diffusion tensor tractography 245
 - diffusion-weighted imaging (DWI) 243
 - dynamic MRI for pituitary tumors 883
 - FIESTA image 241
 - FLAIR images 240
 - in SAH 1422
 - for failed back surgery syndrome 1245
 - gadolinium contrast 242
 - gradient echo 241, 1508
 - in head trauma 1011
 - in multiple sclerosis 190
 - in pregnancy 1425
 - in spinal mets 922-923
 - lumbar spine 1233
 - Modic's classification 1335
 - to select patients for fusion 1231
 - perfusion-weighted imaging 244
 - thoracic spine, pulsation artifact 1407
 - magnetic resonance spectroscopy (MRS) 244
 - and cerebral abscess 346
 - and radiation necrosis 1900
 - main en griffe 554
 - malignant cerebral edema 1026, 1098
 - malignant hypertension
 - and hypertensive encephalopathy 202, 1683
 - and optic disc edema 962
 - malignant hyperthermia 112
 - malignant melanotic nerve sheath tumor (MMNST) 773
 - malignant middle cerebral artery territory infarction 1589
 - malignant peripheral nerve sheath tumor, in neurofibromatosis type 1 638
 - malignant peripheral nerve sheath tumor (MPNST) 774
 - malignant transformation, of astrocytomas 662
 - manganese toxicity 185, 1673
 - man-in-the-barrel syndrome 324
 - manipulation therapy, see spinal manipulation
 - mannitol
 - and aneurysmal rebleeding 1464
 - contraindication in pregnancy 1426
 - for cerebral protection 1446, 1464
 - for ICP management
 - complications 1054
 - dosing 1051
 - effect & indications 1053
 - in E/R 1004
 - masking DI 126
 - to improve blood rheology 1446
 - use in hyperemia 1054
 - manufacturer
 - Heyer-Schulte 470
 - Infusaid, Inc. 1882
 - Sophysa USA 469
 - marantic thrombosis 1594
 - marble bone disease 1689
 - marche à petits pas 184, 1541
 - Marcus Gunn
 - phenomenon 601
 - pupil 592
 - Marfan syndrome
 - and arterial dissections 1576
 - and intracranial aneurysms 1455
 - and stroke in young adults 1542
 - Marie-Strümpell disease, see ankylosing spondylitis
 - Markwalder neurologic grade (chronic subdural) 1082
 - Marshall CT classification of TBI 1009
 - masking effect (on CT after stroke) 1559
 - mass posterior to odontoid, differential diagnosis 1678
 - Masson's vegetant intravascular hemangioendothelioma
 - causing facial palsy 608
 - causing intracranial hypertension 961
 - causing spinal cord compression 980
 - mastoid air cells 264, 1742
 - mastoid emissary vein 1868
 - mature teratoma 832
 - maximum measured kyphosis 1355
 - Mayfield head-holder 1717
 - for suboccipital craniotomy 1739
 - McComb reservoir 1635
 - McCune-Albright syndrome 975
 - McDonald criteria for MS 189
 - McGregor's line 229
 - McRae's line 228
 - MD Anderson protocol (bevacizumab) 1901
 - mean arterial pressure 253
 - mean carotid pressure 1036
 - mean transit times (on CT perfusion) 239
 - mechanical heart valves, see prosthetic heart valves
 - mechanical thrombectomy (for stroke) 1562
 - Meckel's cave
 - abnormalities (differential diagnosis) 1660
 - anatomy 1858
 - arachnoid cyst 1660
 - enlargement 963
 - glycerol injection 1861
 - meclizine HCl 606
 - meclofenamate 145
 - medial branch block for facet joint pain 1332
 - medial gap 1453
 - medial intermuscular septum (in ulnar nerve surgery) 556-557
 - medial lemniscus 71
 - medial longitudinal fasciculus 596
 - medial orbitotomy 966
 - medial posterior choroidal artery 76
 - medial temporal lobe lesions 1672
 - medial thalamotomy 1877
 - median artery thrombosis 547

- median eminence 151
 median nerve 536
 - anatomy 543
 - entrapment 543
 - perioperative neuropathy 576
 Medical Research Council strength grading 530
 medication overuse headache 960
 medulionitudinal myelotomy 1880
 Medpor® transphenoidal sellar implant 899
 Medtronic shunts 467
 Medtronic Synchroned II pump 1848
 medulloblastoma 750
 - classic 749
 - desmoplastic/nodular 749
 - differential diagnosis 1647
 - large cell/anaplastic 749
 - non-WNT/non-SHH 753
 - SHH-activated, TP53-mutant 752
 - SHH-activated, TP53-wildtype 751
 - staging 746
 - with extensive nodularity 749
 - WNT-activated 750
 medulloblastoma 748
 mefenamic 145
 mega cisterna magna 271, 1656
 megalencephaly 312
 Mehringer-Hieshima maneuver 1520
 Mehta angle 1324
 Mehta casting 1319
 Meige's syndrome 1871
 melanin, on MRI 240
 melanocytic medulloblastoma 748
 melanocytic tumors 829
 melanoma
 - and carcinomatous meningitis 920
 - and CSF carcinoembryonic antigen 635
 - and intramedullary spinal cord mets 986
 - metastatic to brain 911
 -- differential diagnosis 1650
 - orbital 1658
 - primary CNS 830
 Mellanby effect 212
 membrane, Lilliequist's 1497
 Meniere disease 604
 - differential diagnosis of tinnitus 1693
 meningeal carcinomatosis, see carcinomatous meningitis
 meningeal cyst (spinal) 1400
 meningeal gliomatosis 667
 meningeal melanocytoma 830
 meningeal melanocytosis 829
 meningeal melanoma 830
 meningeal melanomatosis 829
 meningeal thickening/enhancement 1670
 meningiomas 803
 - anaplastic (malignant) 805
 - and hyperostosis 816
 - and intracerebral hemorrhage 1613
 - angiographic findings 812
 - angiomatous 804
 - asymptomatic 807
 - atypical 805
 - blood supply 812
 - chordoid 805
 - clear cell 805
 - CP angle 1647
 -- surgery 817
 -- vs. vestibular schwannoma 1648
 - differential diagnosis 813
 - extraneural metastases 909
 - falx, see parasagittal and falicine fibrous 804
 - following radiation therapy 1900
 - foramen magnum 810, 1649
 -- surgery 817
 - grading 805
 - growth rate 813
 - high risk 813
 - incidental 807
 - intraosseous 803
 - Ki-67 proliferation index 807
 - location 807
 - lymphoplasmacyte-rich 805
 - meningioma en plaque 803
 - meningothehal 804
 - metaplastic 805
 - microcystic 804
 - olfactory groove 808
 -- surgery 817
 - papillary 805
 - parasagittal and falicine 808
 -- surgery 816
 - parasellar, MRI findings/differential diagnosis 1654
 - peritumoral edema 812
 - planum sphenoidale 809
 - psammomatous 804
 - radiation therapy for 814
 - rhabdoid 805
 - secretory 805
 - sphenoid wing 807
 -- surgery 816
 - spinal 981
 - subcutaneous 803
 - subtypes 803
 - transitional 804
 - tuberculum sellae 809
 -- surgery 817
 meningismus 1419
 meningitis 340
 - amebic 410
 - aseptic 342
 -- with microvascular decompression 1864, 1870, 1872
 - carcinomatous 920
 - chemical 342
 - chronic 341
 -- with cysticercosis 406
 - cryptococcal 356
 - following PSR for trigeminal neuralgia 1863
 - hemogenic 1864, 1870, 1872
 - in CSF fistula 418
 -- following vestibular schwannoma surgery 796
 - lymphomatous 920
 - Naegleria fowleri 410
 - postoperative
 -- bacterial 340
 -- chemical 342
 -- posttraumatic 341
 - recurrent 269, 287-288, 341, 416
 - tuberculous (TB) 360
 - with neurenteric cyst 314
 - with ventriculostomy 1039
 meningocoele
 - cranial 269
 - spinal 281
 meningohypophyseal trunk 77-78
 meniscus sign 925, 988
 Mephyton® (vitamin K) 174
 meralgia paresthetica 561
 - following cardiac catheterization 577
 - in AIDS 574
 - post-laminectomy 576
 mercury density compared to water 1041
 merlin 640, 768
 mesencephalothalamic syndrome 1541
 mesencephalotomy 1877
 mesenchymal, non-meningothelial tumors 820
 mesh, for cranioplasty 1764
 mesial temporal lobe epilepsy 483
 mesial temporal sclerosis 482
 - differential diagnosis 1672
 mesoneurium 577
 metabolic craniopathy 974
 metabolic requirements 1107
 metabolic syndrome due to growth hormone deficiency 864
 metal detectors and spine implants 1389
 metaproterenol, for contrast media reaction 234
 metastases
 - cerebral 908, 915
 -- differential diagnosis 915
 -- evaluation 914
 -- management 915
 --- chemotherapy 917
 --- radiation therapy 917
 --- solitary vs. multiple lesions 918
 --- surgery 918
 -- micro-metastases 917
 -- outcome 919
 -- radiosensitivity 917
 -- recursive partitioning analysis 915
 -- solitary 908
 -- stereotactic radiosurgery for 919, 1907
 -- survival 919
 -- unknown primary 915
 -- use of steroids 916, 919
 -- work-up for primary 914
 - CSF seeding, see metastases - spinal seeding
 - intramedullary spinal cord 986
 - of CNS tumors through CSF 908
 - of primary CNS tumors 909
 - spinal 921
 -- evaluation 922
 -- indications for surgery 925
 -- radiation therapy for 927
 -- radiosensitivity 927
 -- SINS classification 927
 -- treatment 926
 -- upper cervical spine 922
 -- vertebroplasty/kyphoplasty for 926
 -- work-up for primary 924
 - spinal seeding 908
 -- choroid plexus tumors 739
 -- ependymomas 728
 --- post-op LP for 729
 -- malignant gliomas 658
 -- medulloblastoma 744
 -- pilocytic astrocytomas 693
 -- pineal region tumors 759
 -- shunt tumor filter for 458
 metformin 230
 methadone 148
 methimazole 893
 method of An (lateral mass plating) 1785
 methohexital 139
 - for seizure surgery 1892
 methotrexate
 - and leukoencephalopathy 1900
 - intraventricular
 -- for CNS lymphoma 844
 -- overdose treatment 844
 methsuximide 494
 - dosing forms 494
 methylene blue 1716
 methylenedioxyamphetamines, and hypercoagulability 1542
 methylenedioxyamphetamines (MDMA)
 - and Parkinsonism 185
 - and SIAD 116
 methylmethacrylate 1764
 - and pulmonary embolism 1214

- cranioplasty for hyperostosis frontalis interna 975
- for spine fractures 1195
- for vertebroplasty/kyphoplasty 1212
- strut graft with Steinmann pins 928
- to strengthen spinous process for interspinous spacer 1346
- methylprednisolone 154
 - for iodine contrast allergy prep 232
 - for spinal cord injury 1140
 - for stereotactic radiosurgery 1909
- methysergide, for cluster headache 184
- metopic synostosis 267
- metyrapone, for Cushing's syndrome 892
- metyrapone test
 - for ACTH reserve 902
 - for localizing ACTH secretion 880
- mexiletine, for painful diabetic neuropathy 572
- Meyer's loop 589-590, 1894
- MGMT gene silencing 673
- MGUS, *see* monoclonal gammopathy of undetermined significance
- MIB-1 index 632
- MIBG scintigraphy 941
- Mickey Mouse ventricles 432
- microadenoma 861
- microaneurysms of Charcot-Bouchard 1612
- microcephaly 312, 429
 - and maternal cocaine abuse 312
 - following CSF shunting 466
 - with TORCH infections 1692
- microfibrillar collagen 1719
- microglioma 840
- micrographia 184
- micro-metastases 917
- microscope, *see* operating microscope
- microvascular decompression
 - for hemifacial spasm (CrN VII) 1872
 - for torticollis (CrN XII) 1845
 - for trigeminal neuralgia (CrN V) 1862, 1867
- midazolam
 - for EtOH withdrawal 213
 - for intracranial hypertension (ICP) 1050
- middle cerebral artery 80
 - angiogram 80
 - pseudotrifurcation 75
 - trifurcation 75
- middle frontal gyrus, approach to lateral or third ventricle 1762
- middle temporal gyrus, approach to amygdala 1893
- midline shift
 - and coma 320
 - in trauma 1110
 - with strokes 1559
- migraine 183
 - and intracerebral hemorrhage 1610
 - as a cause of stroke 1543
 - crash 1418
 - thunderclap headache 1418
- migrated disc (disc migration) 1227
- migration abnormalities 309
- miliary aneurysms 1612
- Millard-Gubler syndrome 101
- Miller Fisher test 443, 446
- Miller-Fisher variant Guillain-Barré 194
- million dollar nerve 551
- milrinone, for neurogenic stunned myocardium 1439
- mineralocorticoids 153, 157
- mini-dose heparin, *see* low-dose heparin
- minimally invasive spine surgery
 - lumbar
 - juxtafacet joint cyst 1342
 - spinal stenosis 1346
 - percutaneous pedicle screws 1797
- Minnesota Multiphasic Personality Inventory (MMPI)
 - and low back problems 1236
 - and nonepileptic seizures 509
- miosis
 - from narcotics 215, 321
 - in Horner syndrome 594
- mirror motions 290
- misery perfusion 1601
- MISME syndrome 640
- misoprostol 144
- missile wounds, to peripheral nerves 581
- mitotane 892
- mitral valve prolapse and stroke 1542
- mixed germ cell tumor 837
- mixed vascular malformations 1514
- mJOA, *see* modified Japanese Orthopedic Association scale
- MLS, *see* midline shift
- MMPI, *see* Minnesota Multiphasic Personality Inventory
- Mobius syndrome 607
- Möbius syndrome 1687
- modafinil 1684
- Modic's classification 1335
 - response to fusion 1240
- modified barium swallow study 1373
- modified ellipsoid volume 1616
- modified Japanese Orthopedic Association scale (cervical myelopathy) 1299
- modified Rankin scale 1641
- monoclonal gammopathy 574
- monoclonal gammopathy of undetermined significance (MGUS) 575
- monomelic amyotrophy 1403
- mononeuropathy, definition 568
- mononeuropathy multiplex
 - definition 568
 - ischemic 572
- Monro-Kellie doctrine 1037
- 24 month rule (for peripheral nerve repair) 535
- moon facies (in Cushing's syndrome) 868
- morbid obesity, and risks of spine surgery 1360
- Morgagni's syndrome 974
- morphine 148, 1881
 - disadvantages in neuro patients 110
 - extended release oral forms 148
 - for pulmonary edema 234
 - intraspinal 1881
 - intrathecal 1846
- Morquio syndrome 1309, 1696
- mosaic pattern in Paget's disease 1362
- most anterior mastoid point 61
- motion-preservation lumbar surgery 1343
- motor cortex
 - cortical anatomy 56
 - stimulation
 - for facial pain 1862
 - for facial postherpetic neuralgia 525
 - surface anatomy 61
- motor evoked potentials 252
- motor generalized seizure 482
- motor neuron disease, *see* amyotrophic lateral sclerosis
- motor neuron diseases 191
- motor oil fluid 1081
- motor point block 1846
- motor strip 56
- motor trephine syndrome 1763
- motor unit action potential 256
- motor unit action potential (on EMG) 255
- motorcycle helmets 1079
- moyamoya disease 1581
 - and arterial dissections 1577
 - angiographic stages (Suzuki) 1583
 - asymptomatic 1584
 - secondary moyamoya 1581
- MPTP 185
- MRI, *see* magnetic resonance imaging
 - following brain tumor surgery 628
 - IAVProtocol 241
 - pituitary protocol 241
- MRS, *see* magnetic resonance spectroscopy
- MS, *see* multiple sclerosis
- MS Contin 148
- Mt. Fuji sign 1068
- MTFHR gene and neural tube defects 313
- mTICI revascularization scale 1933
- MUAP, *see* motor unit action potential
- mucin secretion with neurenteric cyst 314
- mucocele 1674
 - post-op 1067
- mucomycosis 599, 1542, 1660, 1688
- mucosal coupling 951
- Müller's muscle 590, 594
- multicentric (multifocal) gliomas 667
- multifocal motor neuropathy 1700, 1710
- multifocal necrotizing encephalomyelitis, *see* encephalitis - herpes simplex
- multifocal varicella-zoster leukoencephalitis 399
- multinodular and vacuolating neuronal tumor (MVNT) 717
- multiple aneurysms 1490
- multiple endocrine adenomatosis 863
 - and acromegaly 870
- multiple intracranial lesions 1650
- multiple myeloma 928
 - and amyloidosis 576
 - and carpal tunnel syndrome 576
 - of the skull 1662
 - of the spine 921
 - work-up for 930
- multiple sclerosis 187
 - and multiple primary gliomas 667
 - and trigeminal neuralgia 188, 1859, 1864
 - and urinary bladder dysfunction 95
 - concentric sclerosis of Baló 190
 - diagnostic criteria 189
 - McDonald criteria 189
 - MR spectroscopy appearance 245
 - myelopathy 1698
- multiple subpial transections 1891
- multiple system atrophy 186
- multistranded cable 1835
- Munchausen's syndrome, and nonepileptic seizures 507
- mural nodule
 - in hemangioblastoma 824

- in pilocytic astrocytoma, of cerebellum 693
 - in pilocytic astrocytomas 691
 - in pleomorphic xanthoastrocytoma (PXA) 700
 - Murphy's test 1490
 - muscle innervation 531
 - muscle relaxants, for low back pain 1237
 - muscle stretch reflex
 - following lumbar spine surgery 1263
 - grading 531
 - in alcohol withdrawal syndrome 213
 - in amyotrophic lateral sclerosis 192
 - in cauda equina syndrome 1254
 - in cervical spondylitic myelopathy 1298
 - in extreme lateral lumbar disc herniations 1264
 - in Guillain-Barré syndrome 193
 - in herniated cervical disc 1280
 - in herniated lumbar disc 1253
 - in herniated upper lumbar discs 1263
 - in lumbar spinal stenosis 1331
 - in multiple sclerosis 188
 - in odontoid fracture 1173
 - in radiculopathy 1227, 1251
 - in spinal cord injury 1130, 1140
 - in trauma exam 1006
 - in whiplash associated disorder 1119
 - musculocutaneous nerve 538
 - muzzle velocity 1093
 - myalgia 1706
 - myasthenia gravis
 - and abducens palsy 599
 - and painless ophthalmoplegia 600
 - as a paraneoplastic syndrome 211
 - MYB- or MYBL1-altered astrocytoma 679
 - Mycobacterium avium complex vertebral osteomyelitis 387
 - myocytic aneurysms 1492
 - mydriasis
 - from cocaine abuse 216
 - in botulism 1703
 - pharmacologic vs. third nerve compression 593
 - traumatic 592
 - myelinopathy (Grinker's) 217
 - myelitis 195
 - myelocele 308
 - myelogram, *see* myelography
 - myelography 247
 - capping 925
 - causing arachnoiditis 1244
 - contraindications 247
 - emergency blockogram 925
 - for drop metastases 728, 746
 - for low back problems 1234
 - for spinal metastases 925
 - for trauma 1146
 - in diagnosing arachnoiditis 1244
 - paintbrush effect 925, 987
 - myeloma, *see* multiple myeloma
 - myelomeningocele 281
 - and latex allergy 281
 - closure 282
 - intrauterine defect closure 281
 - myelopathy
 - differential diagnosis 1696
 - due to cervical disc herniation 1280
 - from nonunion of odontoid fracture 1175
 - from Paget's disease 1363
 - radiation myelopathy, *see* radiation injury and necrosis
 - vs. myelitis 195
 - myelotomy
 - Bischof's 1847
 - commissural 1880
 - for spasticity 1847
 - myocardial infarction in cerebral embolism 1590
 - myoclonic status epilepticus 514
 - myodonus
 - following intrathecal injection of ionic contrast agent 230
 - in Creutzfeldt-Jakob disease 402
 - in hypoxic coma 328
 - in metabolic coma 323
 - in West's disease 484
 - juvenile myoclonic epilepsy 484
 - myoclonic status epilepticus 514
 - myoglobinuria (in rhabdomyolysis) 136
 - myopathy
 - of critical illness 195
 - steroid 157
 - myotomes 531
 - myxedema coma 158, 900
 - myxoid glioneuronal tumor 714
 - myxoid liposarcoma metastatic to spine 922
 - myxopapillary ependymoma 734, 985
- N**
- NAA on MRS, *see* N-acetyl aspartate
 - nametome 145
 - N-acetyl aspartate (NAA) on MRS 244
 - N-acetyl cysteine, for iodine study prep 232
 - Naegleria fowleri
 - meningoencephalitis 410
 - naevus flammeus 291
 - nafcillin, for meningitis 340
 - naked facet sign 1187
 - nalbuphine 148
 - following spinal narcotics 1881
 - nalmafene 215
 - naloxone
 - for opioid overdose 215
 - for reversal of spinal narcotics 1881
 - for spinal cord injury 1140
 - in coma 320
 - naproxen & naproxen sodium 145
 - for cluster headache prophylaxis 184
 - narcoleptic cataplexy 1684
 - narcotics
 - analgesics 146
 - anesthetics 110
 - effect on pupils 215, 321
 - naloxone for overdose 215
 - nasal glial heterotopia 1674
 - nasal glioma 1674
 - nasal quadrantanopsia 1455
 - nasal step (in pseudotumor cerebri) 961
 - NASCET trial 1565
 - measurement criteria 1545
 - nasogastric tube
 - and frontal basal skull fractures 1065
 - intracranial placement 1065
 - Neck Disability Index 1299
 - neck pain
 - differential diagnosis 1710
 - with cervical disc herniation 1281
 - with cervical spondylosis 1297
 - needle aspiration, of cerebral abscess 349
 - Nelson's syndrome 863, 869, 892
 - treatment 888
 - neonatal brain tumors 622
 - neoplasm of uncertain biological potential (ANNUPB) 769
 - neostigmine 143
 - neurogenic diabetes insipidus (DI) 125
 - neurogenic systemic fibrosis 243
 - nerve action potentials 535
 - nerve block 1834
 - for occipital neuralgia 542
 - ganglion impar (ganglion of Walthers) 1242
 - intercostal 1835
 - lumbar sympathetic 1835
 - stellate ganglion 1834
 - nerve conduction velocities
 - for low back problems 1236
 - in carpal tunnel syndrome 548
 - in ulnar nerve entrapment 555
 - nerve fiber classification 530
 - nerve of Wrisberg 1873
 - nerve palsies - in HNPP 568
 - nerve root anomalies 293
 - nerve root avulsion 579
 - from motorcycle trauma 579
 - treatment for pain 1886
 - nerve root enhancement 1681
 - nerve root syndromes
 - cervical 1280
 - lumbar 1253
 - tension signs 1252
 - nerve root tension signs 1252
 - nerve sheath tumors 768
 - nervi erigentes 93
 - nervi vasorum 1442
 - nervus intermedius 65, 1873
 - nervus intermedius neuralgia 1873
 - neural canal width, *see* posterior atlantodental interval
 - neural tube defects 308
 - neuralgia
 - geniculate 1873
 - glossopharyngeal 1873
 - intercostal 1835, 1883
 - occipital 541, 1166, 1173
 - postherpetic 522, 1835
 - superior laryngeal 1874
 - supraorbital 521
 - supratrochlear 521
 - trigeminal 1857
 - neuralgic amyotrophy 570
 - neurectomy
 - for trigeminal neuralgia 1862
 - peripheral 1878
 - supraorbital 1862
 - supratrochlear 1862
 - neurenteric canal 314
 - neurenteric cyst 313
 - differential diagnosis 1647
 - cerebellopontine angle (CPA) 1647
 - spinal 1696
 - neurinoma 777
 - neurinoma, acoustic, *see* vestibular schwannoma
 - neuritis 637
 - neuroanesthesia 108
 - inhalational agents 109
 - intravenous agents 109
 - paralytics for intubation 111
 - neurocardiogenic syncope 1684
 - neurocentral synchondrosis of C1 226
 - neurocutaneous disorders 637
 - neurocutaneous melanosis (NCM) 653
 - neurocysticercosis 404
 - giant cysts 405
 - intraventricular, differential diagnosis 1668
 - neurocytoma (central), extraventricular 720

- neurocytoma (central) 719
- neuroectodermal cysts 1656
- neuroendocrine stains 632
- neuroendocrine tumors 632
- neuroendovascular intervention, stents 1931
- neuroepithelial cysts, *see* colloid cysts
- neurofibromas
 - in neurofibromatosis 1 639
 - in neurofibromatosis 2 (dermal) 640
 - spinal 980
 - vs. schwannomas 637
- neurofibromatosis 637
 - and meningiomas 810
 - and moyamoya disease 1581
 - and optic gliomas 639, 694
 - and vestibular schwannoma 777
 - type 1 638
 - type 2 640
- neurofibromin 639
- neurogenic bladder 94
- neurogenic claudication 1331
 - differential diagnosis 1332
 - from spinal synovial cyst 1341
- neurogenic dysphagia 304
- neurogenic motor evoked potentials, *see* descending evoked potentials
- neurogenic pulmonary edema, and subarachnoid hemorrhage 1435
- neurogenic shock 133
- neurogenic stunned myocardium, following SAH 1438
- neurohypophysis 151
- neurolemoma/neurilemmoma 777
- neurological assessment
 - in coma 320, 327
 - in head trauma 1005
 - in myelomeningocele 281
 - in spinal cord injury 1127
 - in stroke 1554
- neurology 182
- neurolysis of the median nerve at the wrist 550
- neuroma
 - acoustic (vestibular schwannoma) 777
 - facial nerve 608, 1647
 - trigeminal 1647
- neuroma in continuity 580
- neuromeningeal trunk 76
- neuromodulation, for bladder issues 97
- neuromonitoring 1036
 - brain tissue oxygen tension (pBT O₂) 1045
 - cerebral microdialysis 1046
 - intracranial pressure (ICP) 1036
 - jugular venous oxygen 1045
 - regional blood flow (rCBF) 1046
- neuromuscular block, and pupil size 332
- neuromuscular blocking agents 141
- neuromyelitis optica 1698
- neuron specific enolase 632
- neuroparalytic keratitis
 - eye protection measures 1866
 - following trigeminal rhizotomy 1863
 - in Guillain-Barré syndrome 195
- neuropathic arthropathy, with syringomyelia 1407
- neuropathic pain 518
- neuropathy 568
 - alcohol 569
 - amyloid 576
 - associated with monoclonal gammopathy 574
 - brachial plexus 570
 - diabetic 572
 - drug-induced 573
 - entrapment 541
 - femoral 573
 - following cardiac catheterization 577
 - in giant cell (temporal) arteritis 204
 - in HIV infection 574
 - lumbosacral plexopathy 571
 - perioperative 575
 - sensory neuropathy and neoplasms 569
 - ulnar, entrapment 553
 - uremic 576
- neuropathy of critical illness, *see* critical illness polyneuropathy
- neurophthalmology 586
- neurophysiology
 - bladder 92
 - pupillary 590
- neuropore, embryologic closure 281
- neuropaxia 578
 - cervical cord 1125
- neuroradiology 222
- neurosarcoidosis 198
 - and gyral enhancement 1560
 - as a cause of coma 319
 - as a cause of cranial nerve palsies 1688
- vs. pseudotumor cerebri 962
- neurostorming 1048
- neurosyphilis
 - as a cause of myelitis 195
 - as a cause of stroke 1542, 1557
 - in AIDS 354
 - pupillary findings 591
- neurotmesis 578
- neurotology 603
- neurotoxicology 212
 - amphetamines 216
 - carbon monoxide 216
 - cocaine 215
 - ethanol 212
 - lead poisoning 1219
 - manganese toxicity 185, 1673
 - opioid 215
- neurotuberculosis 357
- neurovascular compression syndromes 1857
- neurulation defects 308
- neutral position splint 550
- neutral vertebra 1322
- nevus flammeus 652
- nevus of Ota 830
- new onset seizures 503
- New Orleans Criteria for head CT 1008
- new variant CJD, *see* Creutzfeldt-Jakob disease
- nicardipine, for hypertension 131
- nickel factory workers and SNUC 1674
- niclosamide 407
- nidus (AVM) 1505
- Niemeyer approach, for amygdalo-hippocampectomy 1893
- nifedipine
 - for autonomic hyperreflexia 1223
 - for migraine 183
 - for strokes 1558
- night pain
 - with carpal tunnel syndrome 547
 - with diabetic amyotrophy 572
 - with extraspinal tumors 1701
 - with osteoid osteoma and osteoblastoma 990
 - with spinal cord tumors 986
- NIH stroke scale 1554
- nimodipine
 - in pregnancy 1426
 - perioperative use for VS surgery 789, 794
- nimustine 628
- nitrofurantoin, and peripheral neuropathy 573
- nitrogen balance 1107
- nitroglycerin, IV for hypertension 131
- nitroglycerine, for endovascular neurosurgery 1917
- nitropruside, for autonomic hyperreflexia 1223
- nitrosoureas 628
- nitrous oxide anesthesia, and pneumocephalus 109
- nizatidine 135
- NMO, *see* neuromyelitis optica
- NMO-IgG 1698
- Nocardia cerebral abscess 366
 - modified acid-fast stain for 349
- nocturnal pain, *see* night pain
- nodular enhancing intraspinal lesions 1681
- nonaccidental trauma (NAT) 1103
- non-aneurysmal SAH 1496
- non-communicating hydrocephalus 426
- nonepileptic seizures 507
- nonfunctional PitNET 866
- nonfunctioning PitNET 872
- nonfunctioning PitNETs
 - management 887
 - natural history 887
- nonfunctioning pituitary adenomas, follow-up schedule for nonsurgical management 887
- non-missile penetrating head trauma 1096
- nonmotor focal seizure 481
- nonmotor generalized seizure 482
- non-small-cell lung cancer 911
- nonsteroidal anti-inflammatory drugs 144
 - and nonunion of bone 1348
- norepinephrine 134
- normal perfusion pressure breakthrough 1512, 1610
- normal pressure hydrocephalus 438
 - differential diagnosis 440
 - Katzman test 444
 - resistance testing 444
 - secondary NPH 438
 - tap test for 443
 - treatment 446
- normal pressure hyperperfusion breakthrough, following carotid endarterectomy 1568
- normal saline infusion test 117
- normal volume hydrocephalus 463
- North American Symptomatic Carotid Endarterectomy Trial (NASCET) 1565
- norriptyline, for postherpetic neuralgia 524
- NOS & NEC usage with CNS tumors 616
- NPH, *see* normal pressure hydrocephalus
- NSAIDs, *see* nonsteroidal anti-inflammatory drugs
- NSF, *see* nephrogenic systemic fibrosis
- NSM, *see* neurogenic stunned myocardium
- nucleoplasty 1257
- nucleotome 1257
- nucleus pulposus, definition 1227
- numb-clumsy hand syndrome 1299
- nummular headache 522
- Nurick grade (disability from cervical spondylosis) 1372
- nusinersen 1703
- nutrition in head injuries 1106
- nystagmus 586
 - downbeat 586
 - with Chiari I malformation 298

- monocular 596
 - nystagmus retractorius 101, 586
 - optokinetic 323
 - seesaw 586
- O**
- OALL, see ossification - of the anterior longitudinal ligament
- oat cell lung cancer, see small-cell lung cancer
- Obersteiner-Redlich zone 1857
- obesity
- and hyperostosis frontalis interna 974
 - and pseudotumor cerebri 956-957
 - as a risk factor for neural tube defects 313
- obex 1743
- oblique cervical spine X-rays 1144
- obliteration of basal cisterns on CT
- following head injury 1109
 - in cerebellar infarct 1588
- observer eyepiece position on operating microscope 1716
- obsessive compulsive disorders, deep brain stimulation for 1842
- obstructive hydrocephalus 426
- obturator nerve entrapment 562
- obturator neurectomy 1847
- obturator neuropathy, following cardiac catheterization 577
- occipital artery 76
- as collateral for vertebral artery occlusion 1538
- occipital condyle fracture 1156
- occipital condyle screws 1774
- occipital craniotomy 1756
- occipital nerve entrapment 541
- occipital neuralgia 541
- with hangman's fracture 1166
 - with odontoid fractures 1173
- occipital neurectomy 543
- occipital-C1 transarticular screws 1774-1775
- occipital-cervical fusion, see occipitocervical fusion
- occipital-frontal circumference 427
- graph
 - children (inside front cover) 427
 - for preemies 429
 - related to weight and height 430
 - measurement technique 427
- occipitalization of the atlas, and Chiari I malformation 296
- occipital-parietal burr hole 1821
- occipitoatlantal dislocation, see atlantooccipital dislocation
- occipitoatlantal junction, normal motion 1773
- occipitoatlantoaxial complex anatomy 67
- occipitocervical dislocation 1153
- occipitocervical fusion 1773
- indications 1773
 - keel plate method 1774
 - occipital condyle screws 1774
 - occipital-C1 transarticular screws 1775
- occlusion syndromes 1538
- occlusive hyperemia 1512
- occult cerebrovascular malformations 1524
- octreotide
- for glomus jugulare tumors 943
 - for growth hormone-secreting PitNETs 890
 - LAR Depot formulation 890
 - for TSH-secreting PitNETs 893
- octreotide scan 882
- ocular bobbing 323, 601
- ocular dysmetria 586
- ocular hemorrhage, from subarachnoid hemorrhage 1419
- oculocephalic reflex 323, 331
- oculomotor nerve compression, as cause for anisocoria 593
- oculomotor palsy 596
- See also ophthalmoplegia
 - from PComA aneurysm 1463
- oculosympathetic palsy 1578
- oculovestibular reflex 323, 331
- odontoid process
- distance to C1, see atlantodental interval
 - fractures 1171
 - compression screw fixation 1775, 1779
 - in rheumatoid arthritis 1376
 - nonunion 1174
 - pannus 1376
 - retroversion 296
- odontoid screw fixation 1775
- odynophagia 1712
- following ACFD 1287
- OFC, see occipital-frontal circumference
- Ogilvie's syndrome 1259
- OK sign 545
- olfactory groove meningiomas 808
- olfactory hallucinations 483
- olfactory neuroblastoma 935
- differential diagnosis 1674
- oligoclonal bands
- in Lyme disease 365
 - in multiple sclerosis 189-190
- oligodendroglioma, grading 662
- oligodendroglioma, IDH mutant and 1p/19q-deleted 662
- olisthesis 1337
- olivopontocerebellar degeneration 185
- omeprazole 136
- Ommaya® reservoir 1831
- insertion 1831
- oncocyoma 872
- ondansetron 1434
- Ondine's curse 1878
- Onyx
- for aneurysms 1456
 - for AVMs 1927
 - for dural AVMs 1517
- opalescent CSF 360
- open door laminoplasty 1787
- open lipped schizencephaly 309
- opening pressure (on LP) 1812
- in NPH 443
 - normal values 1812
- operating microscope 1716
- observer eyepiece location 1716
- operating room equipment 1716
- ophthalmic artery 78, 1478
- aneurysms 1478
 - involvement in giant cell arteritis 204
 - retrograde (collateral) flow 1537
- ophthalmic segment aneurysms 1478
- ophthalmoplegia
- abducens palsy 598
 - due to cavernous carotid artery aneurysms 1490, 1689
 - in Guillain-Barré 194
 - internuclear, see internuclear ophthalmoplegia
 - multiple extraocular muscle involvement 599
 - oculomotor palsy 596
 - painful 599
 - painless 600
 - trochlear nerve palsy 598
- opioid
- analgesics 146
 - effects on pupils 215, 321
 - naloxone for overdose 215
- toxicity 215
 - withdrawal syndrome 215
- opisthion 61
- OPLL, see ossification - of the posterior longitudinal ligament
- oposclonus 601
- optic glioma, in neurofibromatosis 639
- optic nerve
- decompression
 - for indirect optic nerve injury 1014
 - in osteopetrosis 1689
 - indirect injury 1014
- optic nerve sheath
- dilatation 587
 - fenestration, for cerebral venous thrombosis 1600
 - fenestration, for pseudotumor cerebri 966
- optic (nerve/pathway) glioma 694
- optic neuritis 187, 592
- vs. papilledema 587
- optic neuropathy, in fibrous dysplasia 978
- optical coherence tomography (OCT) 876
- optokinetic nystagmus 99, 323
- oral contraceptives
- and cerebral venous thrombosis 1594
 - and pseudotumor cerebri 957
 - and seizure medication 500
 - and stroke in young adults 1543
- oral glucose suppression test (for growth hormone secretion) 882
- orbital apex syndrome 599
- orbital lesions 1658
- orbital pseudotumor, see pseudotumor - orbital
- orbitomeatal line 238
- orders
- admitting
 - for minor head injury 1012
 - for moderate head injury 1012
 - subarachnoid hemorrhage 1434
 - post-op
 - aneurysm clipping 1447
 - baclofen pump insertion 1848
 - cervical disc arthroplasty 1291
 - craniotomy 1730
 - lumbar laminectomy 1262
 - transphenoidal pituitary surgery 901
 - VP shunt 1827
 - pre-op
 - craniotomy 1729
 - transphenoidal pituitary surgery 896
- organ donation 336
- after cardiac death 337
- organ transplant patients, and cerebral abscess 345
- organic cephalgia, see benign orgasmic cephalgia
- orthostatic hypotension 1684
- with Shy-Drager syndrome 186
- Osontoideum 1175
- Osborne's ligament 554, 558
- oscillopsia 601
- following vestibular neurectomy 604
- Osler-Weber-Rendu syndrome 1524
- and capillary telangiectasia 1524
 - and cerebral abscess 344
 - and cerebral AVMs 1505
 - and intracranial aneurysms 1455
 - and stroke in young adults 1542
- osmolality
- serum 114, 117
 - calculated 114
 - in SIADH 119

- urine, in diabetes insipidus (DI) 126
 - osmotic demyelination syndrome 119
 - osmotic therapy 1051
 - ossiculum terminale 1175
 - ossification
 - of the anterior longitudinal ligament 1372
 - of the ligamentum flavum 1296, 1328
 - of the posterior longitudinal ligament (OPLL) 1296, 1370
 - differential diagnosis 1697
 - ossification centers
 - atlas (C1) 224
 - axis (C2) 226
 - ossification of the ligamentum flavum 1328
 - ossification of the yellow ligament, *see* ossification - of the ligamentum flavum
 - osteitis condensans ilii 1706
 - osteitis deformans, *see* Paget's disease
 - osteoblastic spinal lesions 923
 - osteoblastic spinal metastases 979, 989
 - osteoblastoma
 - of the skull 1664
 - of the spine 990
 - osteocartilaginous exostosis 980
 - osteochondroma, of the spine 980
 - osteoclastoma, *see* giant cell tumor
 - osteochondroma 1722
 - osteogenesis 1722
 - osteogenic sarcoma
 - of the skull 972
 - of the spine 980
 - osteoid osteoma
 - of the skull 1664
 - of the spine 990
 - osteoinduction 1722
 - osteolytic skull lesions 1662
 - osteoma (skull) 972
 - differential diagnosis 1664
 - osteomyelitis
 - of the skull 380
 - vertebral 386
 - work-up 389
 - osteopetrosis 1689
 - osteoporosis 1208
 - and interspinous spacers 1346
 - and spine fractures 1208
 - CT scan to estimate 1209
 - DEXA scan to assess 1209
 - from chronic heparin therapy 172
 - in Cushing's syndrome 868
 - in multiple myeloma 930
 - steroid induced 157, 1208
 - treatment 1210
 - with prolactinomas 867
 - with reflex sympathetic dystrophy 526
 - osteoporosis circumscripta, *see* Paget's disease of the skull
 - osteosarcoma
 - cerebral metastases 910
 - of the spine 991
 - osteosclerosis 1689
 - osteosynthesis
 - for cervical lateral mass fractures 1193
 - for hangman's fracture 1171
 - for odontoid fractures 1775
 - osteotomy
 - pedicle subtraction (PSO) 1356
 - Smith-Petersen 1356
 - vertebral column resection (VCR) 1357
 - Oswestry disability index 1228
 - otalgia 520
 - in geniculate neuralgia 1873
 - in glossopharyngeal neuralgia 1874
 - otic artery 83
 - otic capsule 1064
 - otitic hydrocephalus 958, 1594
 - otorrhea, CSF 417
 - otosclerosis 611
 - outcome assessment 1640
 - ovarian hyperstimulation syndrome 867
 - overshunting 461
 - owl's eyes (pedicles on AP X-ray) 923
 - oxacillin, for meningitis 340
 - oxaprozin 145
 - oxcarbazepine 491
 - dosing forms 491
 - for postherpetic neuralgia 524
 - for trigeminal neuralgia 1860
 - oxidized cellulose 1719
 - oxybutynin 96
 - oxycephaly 268
 - oxycodone 147-148
 - for postherpetic neuralgia 523
 - OxyContin® 147
 - oxygen
 - for cluster headache 184
 - for pneumocephalus 1069
 - oxygen extraction fraction 1052, 1601
 - OxylR® 147
 - oxymorphone 148
 - oxytocin 153
- P**
- PA-catheter, *see* pulmonary-artery catheter
 - pacchionian bodies 1662
 - pachygyria 309
 - pachymeningitis hemorrhagica interna 1081
 - Paget's disease 1362, 1706
 - and increased skull density 1663
 - and lumbar spinal stenosis 1329
 - as a cause of cranial neuropathies 1689
 - as a cause of myelopathy 1697
 - of the skull 1663
 - of the spine, differential diagnosis 1680
 - pain 518
 - causalgia 525
 - craniofacial 519
 - discogenic 1235
 - from metastatic bone disease 144
 - in diabetic neuropathy 572
 - medication 143
 - meralgia paresthetica 561
 - neuropathic 518
 - nocturnal, *see* night pain
 - procedures 1877
 - commissural myelotomy 1880
 - cordotomy 1878
 - deep brain stimulation 1886
 - dorsal root entry zone lesions 1886
 - for trigeminal neuralgia 1861
 - intraspinal narcotics 1881
 - intraventricular narcotics 1882
 - spinal cord stimulation 1883
 - reflex sympathetic dystrophy 525
 - visceral 144
 - pain pump, *see* intrathecal drugs - implantable pump
 - Paine reticulotomy 551
 - painful disc syndrome 1235
 - painful ophthalmoplegia 599
 - paintbrush effect (on myelography) 925, 987
 - palatal myoclonus 1871
 - Pallister-Hall syndrome 277
 - PALM C1 screws 1782
 - palmar cutaneous branch 543
 - palmaris longus tendon 543
 - palsies, nerve - in HNPP 568
 - PAM (primary amebic meningoencephalitis) 410
 - памидронат 1364
 - pan-cerebellar degeneration 211
 - Pancoast tumor
 - and brachial plexopathy 570, 579
 - and Horner syndrome 594
 - Pancoast syndrome 570
 - pancuronium 111
 - effect on pupil 593
 - pre-treatment before succinylcholine 142
 - Panda bear sign 1005
 - pannus, odontoid 1376
 - Pantopaque 230
 - pantoprazole 136
 - papaverine, for endovascular neurosurgery 1917
 - papillary craniopharyngioma 850
 - papillary glioneuronal tumor (PGNT) 712
 - papillary tumor of the pineal region 765
 - papilledema 586
 - and lumbar puncture 1815
 - from high altitude 1028
 - grading (Frisén scale) 587
 - unilateral, differential diagnosis 588
 - with pseudotumor cerebri 960
 - para-articular heterotopic ossification 1222
 - paracentral lobule 57
 - paradoxical embolism
 - air embolism 1738
 - cerebral embolism 1542, 1590
 - paradoxical pupillary reaction 593
 - paraganglioma 939
 - paraganglioma of the cauda equina 774
 - paraldehyde, for ethanol withdrawal seizures 214
 - paralysis
 - ascending (in Guillain-Barré) 193
 - from spinal cord injury, grading 1139
 - Todd's (post-seizure) 480
 - upper vs. lower motor neuron 531
 - paralytisis 141
 - early use in neurotrauma 1002
 - paramedian pontine reticular formation 596
 - paraneoplastic syndrome 196, 211, 569
 - paraplegia, differential diagnosis 1702
 - parasellar lesions 1653
 - parasitic infections 404
 - parasympathetic
 - supply to bladder 93
 - supply to pupil 590
 - parietal boss 1821
 - parietal craniotomy 1758
 - parietal lobe, anatomy 98
 - parietal lobe syndromes 98
 - parietal thinning 1662
 - Parinaud's syndrome 101, 322, 427, 1541
 - park bench position 1739
 - Parkinson, triangular space of 87
 - Parkinson-dementia complex of Guam 186
 - Parkinsonism 184
 - *See also* Parkinson's disease
 - in NPH 439
 - Parkinson's disease 184

- secondary parkinsonism 185
- treatment, surgical 186, 1840
- paroxetine, for painful diabetic neuropathy 573
- paroxysmal headache, *see* headache
- paroxysmal
- paroxysmal sympathetic/autonomic instability 1048
- pars distalis of the pituitary gland 151
- pars interarticularis 1340
 - defect in spondylolysis 1340
 - of the axis (C2) 1165-1166
- pars intermedia of the pituitary gland 151
- pars marginalis 57
 - bracket sign 57
- pars tuberalis of the pituitary gland 151
- Parsonage-Turner syndrome 570
- partial onset seizure with secondary generalization 482
- partial status epilepticus 511
- patch graft, for carotid endarterectomy 1570
- patellar reflex
 - crossed adductors 1253
 - in herniated lumbar disc 1253
 - in herniated upper lumbar discs 1263
 - in Holmes-Adie syndrome 592
 - in lumbar spinal stenosis 1331
- patent foramen ovale in cerebral embolism 1590
- pathologic fracture of the spine
 - differential diagnosis 1679
 - osteoporotic compression fractures 1208
 - sacral insufficiency fracture 1705
- pathologic lid retraction, differential diagnosis 1691
- Patrick's test (FABER) 1252, 1705
- Pavlov ratio 1302
- PCV (chemotherapy) 628
- PECARN algorithm (mTB) 1098
- pediatrics
 - brain tumors 621
 - cervical spine anatomy 224
 - cervical spine injuries 1121
 - head injury 1098
- pediatric-type diffuse low-grade gliomas 679
- pedicle, congenital absence of 1189
- pedicle screw, breach
 - classification 1799
- pedicle screw/rod instrumentation
 - cervical
 - C1 lateral mass 1780
 - C2
 - for C1-2 fusion 1780
 - technique 1784
 - C7 1786
 - lumbar 1796
 - screw placement angles 1797
 - use with PLIF 1802
 - with posterolateral fusion for spondylolysis 1347
 - with posterolateral fusion without spondylolysis 1241
 - X-ray evaluation 1797
 - percutaneous pedicle screws 1797
 - rod diameters 1799
 - S2 1806
 - thoracic 1791
 - anatomic placement 1792
 - freehand placement 1792
 - straightforward placement 1792
- pedicle subtraction osteotomy (PSO) 1356
- PEEP and ICP 1052
- pegvisomant 891
- pelvic incidence (PI) 1314
 - pelvic tilt (PT) 1314
 - pelvic tilt (Trendelenburg sign) 1252
 - pelvic traction 1238
 - penetrating trauma
 - head
 - and posttraumatic seizures 505
 - arrow 1096
 - gunshot wounds 1093
 - non-missile 1096
 - spine
 - gunshot wounds 1219
 - neck 1219
 - pentazocine 146, 148
 - pentobarbital 139
 - high dose therapy 1055
 - low dose therapy 1050
 - pentobarbital coma, for ICP management 1055
 - penumbra 1464, 1536, 1553, 1557
 - on DWI/PI MRI 244
 - perched facets 1186
 - Percheron, artery of 82, 1539
 - percutaneous cordotomy 1878
 - percutaneous endoscopic
 - discectomy 1257
 - percutaneous laser disc
 - decompression 1257
 - percutaneous pedicle screws 1797
 - percutaneous radiofrequency lesion
 - cordotomy 1878
 - for cluster headache 184
 - for spasticity (spinal) 1847
 - for trigeminal neuralgia, *see* percutaneous trigeminal rhizotomy
 - percutaneous trigeminal rhizotomy 1861, 1864
 - balloon microcompression 1861
 - for atypical facial pain 1862
 - glycerol injection 1861
 - indications 1862
 - microcompression rhizolysis (balloon) 1866
 - radiofrequency lesion 1865
 - complications 1863
 - post-op orders 1866
 - pre-op orders 1865
 - results 1866
 - technique 1865
 - percutaneous vertebroplasty, *see* vertebroplasty/kyphoplasty
 - perfusion imaging
 - CT 239
 - perfusion-weighted MRI 244
 - periarthritis nodosa 208
 - peridural scar and
 - radiculopathy 1245
 - perimedullary AVM (spinal) 1395
 - perimesencephalic cisterns 1497
 - perimesencephalic nonaneurysmal subarachnoid hemorrhage 1496
 - perimetric mean deviation 589
 - perinatal brachial plexus injury 579
 - perineural cysts 1341, 1400
 - perineurioma 771
 - perineurium 577
 - periodic alternating gaze 323
 - periodic lateralizing epileptiform discharges 249
 - following carotid endarterectomy 1568
 - in herpes simplex encephalitis 398
 - periodic spikes (on EEG), in Creutzfeldt-Jakob disease 403
 - perioperative neuropathies 575
 - perioral numbness 1694
 - peripheral nerve, tumors 771
 - peripheral nerves 530
 - anatomy of 577
 - definition 530
 - injuries of 578
 - lesion in continuity 535
 - regeneration 577
 - peripheral nervous system 530
 - peripheral neuropathy 568
 - initial screening work-up 569
 - lab/diagnostic workup 549
 - peritoneal catheter placement 1826
 - peritoneal pressure 454
 - peritonitis in patients with VP shunts 374
 - peritumoral edema, with
 - meningiomas 812
 - periventricular enhancement, differential diagnosis 1671
 - periventricular lesions, differential diagnosis 1670
 - periventricular-intraventricular hemorrhage (PIVH), *see* intracerebral hemorrhage - in the newborn
 - pernicious anemia 1699
 - peroneal muscular atrophy, *see* Charcot-Marie-Tooth syndrome
 - peroneal nerve
 - functional anatomy 563
 - palsy 563
 - differential diagnosis 1708
 - perioperative 576
 - surgical decompression 564
 - persistent fetal carotid-vertebrobasilar anastomoses, *see* carotid-vertebrobasilar anastomoses
 - persistent primitive trigeminal artery 83
 - as cause of trigeminal neuralgia 1859
 - persistent stapedial artery 1693
 - PET scan
 - for dysembryoplastic neuroepithelial tumors (DNT) 710
 - for grading astrocytomas 657
 - for lung cancer staging 911
 - for mesial temporal sclerosis 483
 - for metastatic melanoma 911
 - for radiation necrosis 1900
 - for seizure surgery 1890
 - for spinal metastases 924
 - petit-mal seizure, *see* absence seizure
 - petrolingual ligament 77
 - petrosal craniotomy 1755
 - petrous apex lesions 1648
 - petrous pyramid fractures 1064
 - PFA, *see* platelet function assay (PFA)
 - PHACES syndrome 1647
 - phakomatoses 637
 - Phalen's test 547
 - phantom limb pain 1886
 - pharmacologic pupil 593
 - pharyngeal-cervical-brachial variant
 - Guillain-Barré 194
 - phase reversal potentials 252, 1732
 - phenazopyridine 1223
 - dosing forms 1223
 - phenicyclidine producing
 - seizures 503
 - phenobarbital 493
 - dosing forms 493
 - for alcohol withdrawal 214
 - for febrile seizures 510
 - phenothiazines
 - as analgesics 149
 - for diabetic amyotrophy 572
 - for DTs 214
 - phenoxybenzamine
 - for autonomic hyperreflexia 1223
 - for glomus tumors 943
 - phenolamine 943
 - phenylephrine 134
 - for vasospasm 1447
 - in spinal cord injuries 1139
 - ophthalmic (for pupillary dilatation) 593

- Phenylek® 488
 phenytoin 488
 – and nasogastric feeding 489
 – as a cause of diabetes insipidus (DI) 126
 – dosing forms 488
 – drip loading 490
 – drug-drug interaction 490
 – for ethanol withdrawal seizures 214
 – for intracerebral hemorrhage 1620
 – for posttraumatic seizures 506
 – fosphenytoin 490
 – intravenous 489
 – toxicity 490
 – with renal failure 488
 pheochromocytoma 939–940
 – in neurofibromatosis 639
 – in von Hippel-Lindau disease 647
 pheresed platelets 162
 Philadelphia collar 1124
 pholedrine, in diagnosing Horner syndrome 595
 photophobia
 – following concussion 1111
 – following SAH 1418, 1496
 phrenic nerve stimulation 1132
 physaliphorous cells 827
 physical therapy, for back pain 1237–1238
 physiological blind spot 588
 PICA, see artery - PICA
 PICA syndrome, see lateral medullary syndrome
 pie in the sky visual defect 590, 875
 pillar view of cervical spine 1144
 pilocarpine, in pupil testing 593
 pilocytic astrocytoma 689
 – with histological features of anaplasia 689
 – intraventricular 1669
 pilomyxoid astrocytoma 689
 pilonidal cysts 287
 pin care, for cranial-cervical traction 1148
 pincer mechanism in c-spine 1296
 pinch sign 545
 pineal cysts 948
 – follow-up 948
 pineal gland, tumors of, see pineal region tumors
 pineal parenchymal tumor of intermediate differentiation 763
 pineal region 758
 – arachnoid cyst 261
 – tumors 758
 pineoblastoma 764
 pineocytoma 762
 ping-pong ball skull fractures 1101
 ping-pong gaze 323
 pinpoint pupils 321
 PION, see posterior ischemic optic neuropathy
 pipeline embolization device 1924
 piriformis muscle 1701
 piriformis syndrome
 – differential diagnosis 1701
 – from sitting position 1737
 piroxicam 145
 pitocin 129
 Pitressin® 129
 – See also vasopressin
 pituitary adenoma 853
 – differential diagnosis 1653
 pituitary adenoma, diagnostic criteria 854
 pituitary apoplexy 865, 887
 – differential diagnosis 1684
 pituitary cachexia 864
 pituitary carcinoma 856
 pituitary gland 151, 874
 – degeneration from cocaine abuse 216
 – embryology 151
 – enlargement
 -- differential diagnosis 1653
 -- hyperplasia 1653
 -- in pregnancy (lactotroph hyperplasia) 1654
 -- with hypothyroidism 158
 -- with intracranial hypotension 423
 – hemorrhage into 865
 -- See also pituitary apoplexy
 – hormones 151
 -- sensitivity to compression 864
 – hypophysitis 1656
 – neurohypophysis 151
 -- bright spot 883
 – normal size 882
 – PitNET/adenoma 861, 890, 1653
 -- ACTH secreting 863
 --- evaluation 879
 --- management 891
 --- medical treatment 892
 --- stereotactic radiosurgery 891
 --- transphenoidal surgery for 891
 -- ACTH-secreting 867
 -- endocrine evaluation (table) 874
 -- giant 855
 -- growth-hormone secreting 870, 889
 --- evaluation 881
 --- hydrocephalus, and 858
 --- following surgery 900
 --- pituitary apoplexy 866
 -- invasive 855
 --- treatment 886
 --- management 886
 --- microadenoma 861
 --- nonfunctional 872
 --- management 887
 --- oncocyoma 872
 --- surgical indications 887
 -- nonfunctioning 866
 -- prolactinoma 867
 --- evaluation 877
 --- management 888
 --- medical management 888
 -- radiation therapy for 893
 -- recurrent 906
 -- stereotactic radiosurgery for 1908
 -- surgical treatment 887, 896
 --- approach to sphenoid sinus 899–900
 --- for Cushing's disease 899
 --- medical preparation 896
 --- post-op orders 901
 --- transcranial (pterional) approach 900
 --- transphenoidal approach 897
 -- thyrotropin (TSH) secreting 863, 871
 --- evaluation 876
 --- management 892
 --- outcome 904
 -- treatment decisions 886
 -- vs. tuberculum sellae meningioma 1654
 – plain films 227
 – pseudotumor 878, 1653
 – suppression following steroid use 154
 – surgery 896
 – thyrotroph hyperplasia 878
 – trauma to 1014
 – tumors 861
 -- aggressive 856
 -- differential diagnosis 1653
 -- granular cell tumors 853
 -- invasive 855
 -- PitNet/adenoma 861
 -- PitNET/adenoma 854
 -- pituitary adenoma 853
 -- pituitary carcinoma 856
 -- spindle cell oncocyoma 854
 pituitary neuroendocrine tumor (PitNET), diagnostic criteria 854
 pituitary protocol (MRI) 241
 pituitary stalk
 – avoiding injury during surgery 900
 – deviation 883
 – stalk effect and prolactin level 877
 – thickening of 883
 PIVH, see intracerebral hemorrhage - in the newborn
 placental alkaline phosphatase (PLAP) 832
 plagioccephaly 266
 – posterior 267
 plantar reflex 91
 planum sphenoidale meningiomas 809
 PLAP, see placental alkaline phosphatase
 plaque morphology in carotid stenosis 1543
 plaques
 – amyloid, see amyloid - plaques
 – Hollenhorst 1544
 – in multiple sclerosis (MS) 187
 plasma protein fraction 162
 plasmacytoma
 – definition 931
 – of the skull 1662
 Plasma-Lyte A 124
 Plasmanate® 162
 plate
 – anterior cervical
 -- fusion rates 1305
 -- placement 1305
 -- occipital keel 1774
 plateau waves 1044
 platelet function assay (PFA) 168
 platelets 161
 – inhibition
 -- agents 1547
 -- by aspirin 1547
 -- by clopidogrel (Plavix®), reversal of 169
 -- by clopidogrel (Plavix®) 169
 -- by dobutamine 133
 -- by NSAIDs 144
 -- by valproic acid 492
 – pheresed 162
 – role in DVT 177
 – thrombocytopenia
 -- and Avitene® 1719
 -- in DIC 176
 -- with heparin 172
 – transfusion
 -- criteria 161
 -- in DIC 176
 platybasia 228
 Plavix® (clopidogrel) 170
 PLEDs, see periodic lateralizing epileptiform discharges
 pleomorphic
 – xanthoastrocytoma 698
 pleural catheter placement 1827
 plexal point 77, 79
 plexiform neurofibromas 639
 plexopathy
 – brachial plexus 570
 – lumbosacral plexus 571
 plumbism, see lead poisoning
 PML, see progressive multifocal leukoencephalopathy
 PMR, see polymyalgia rheumatica
 PNET, see primitive neuroectodermal tumors
 pneumatic compression boots 177
 pneumatocele, see pneumocephalus

- pneumorrhachis 1387
 pneumocele 1664
 pneumocephalus 109, 1067
 – and nitrous oxide anesthesia 109
 – differential diagnosis 1067
 – etiologies (differential diagnosis) 1067
 – treatment 1068
 – with basal skull fracture 1065–1066
 – with CSF fistula 418–419
 pneumococcal vaccine (for CSF leak) 341, 420, 1066
 pneumoencephalogram in trauma 1013
 pneumonia, and histamine₂ (H₂) antagonists 135
 pneumorrhachis 1387
 pneumosinus dilatans 1664
 – with tuberculum sellae meningiomas 1654
 pneumosinus dilatans 811
 Pneumovax vaccine (for CSF leak) 341
 poikilothermy, following spinal cord injury 1139
 poker spine 1365
 pollakiuria with NPH 445
 polyarteritis nodosa, *see* periarteritis nodosa
 polycystic kidney disease, *see* autosomal dominant polycystic kidney disease
 polycystic ovarian syndrome and pseudotumor cerebri 956
 polycythemia, with hemangioblastoma 647
 polymethylmethacrylate, *see* methylmethacrylate
 polymethylmethacrylate (PMMA) 1764
 polymicrogyria 309
 polymorphic reticulosis 207, 1674
 polymorphous low-grade neuroepithelial tumor of the young (PLNTY) 680
 polymyalgia rheumatica 206
 polymyositis 211
 polynuropathy
 – length-dependent 569
 – small fiber 1712
 polyphasic potentials (on EMG) 255
 polyuria - definition 126
 polyvinyl alcohol, sponge for microvascular decompression 1869, 1872
 POMC, *see* proopiomelanocortin
 popcorn pattern (on MRI) 1529
 porencephaly 309
 – following germinal matrix hemorrhage 1634
 Portnoy device, shunt (CSF) 465
 Portnoy (on-off) device 465
 port-wine facial nevus 652
 porus acusticus 63
 porus trigeminus 1858
 positional flattening (molding) 267
 positive sharp waves 255
 post concussion syndrome 1023
 postconcussive syndrome 1111
 poster braces 1124
 posterior approaches to the spine, cervical, for trauma 1195
 posterior arch lateral mass (PALM) C1 screws 1782
 posterior atlantodental interval (PADI) 223
 – in rheumatoid arthritis 1378
 posterior axial line 1153
 posterior cerebral artery 81
 posterior choroidal artery, medial 76
 posterior circulation 80
 posterior commissure 1843
 posterior commissure (PC) 58
 posterior cord syndrome 1136
 posterior fossa
 – arteriogram 83
 – craniotomy 1737
 – complications 1745
 – epidural hematoma 1076
 – lesions (differential diagnosis) 1646
 – traumatic mass lesions 1089
 – tumors 625, 1646
 – venogram 87
 posterior fossa ependymoma 727
 posterior fossa group A (PFA) ependymoma 730
 posterior fossa group B (PFB) ependymoma 731
 posterior fossa syndrome 100
 posterior iliac crest bone graft 1725
 posterior inferior cerebellar artery, *see* artery - PICA
 posterior interosseous nerve 536
 – neuropathy 559
 posterior ischemic optic neuropathy 1261
 posterior loop of ICA 76
 posterior lumbar interbody fusion (PLIF) 1801
 posterior plagiocephaly 267
 posterior reversible encephalopathy syndrome 202
 posterior sacral vertical line (PSVL) 1355
 posterior spinal artery 89
 posterior spinal instrumentation
 – C2 pedicle screws 1783
 – C7
 – lateral mass screw 1786
 – pedicle screw 1786
 – C7 screw placement 1786
 – occipitocervical fusion 1773
 – S2 pedicle screws 1806
 – T1 lateral mass screws 1792
 – thoracic pedicle screws 1791
 posterior tibial nerve entrapment 565
 posterolateral fusion
 – following decompressive laminectomy 1347
 – for LBP from degenerative disc disease 1240
 postfixed chiasm 875
 postherpetic neuralgia 522
 – intercostal nerve block for 1835
 postneurulation defects 308
 post-op check
 – anterior cervical discectomy (ACD) 1285
 – carotid endarterectomy 1567
 – lumbar laminectomy 1262
 – p-fossa craniectomy 1744
 postoperative visual loss 1259
 postpartum cerebral angiopathy 1611
 postpartum intracerebral hemorrhage 1611
 post-SAH seizures, practice guideline 1436
 postspinal headache, *see* headache - post myelogram/LP
 posttraumatic aneurysms, *see* aneurysms - traumatic
 posttraumatic cerebral edema 1026
 posttraumatic hydrocephalus 1108
 posttraumatic meningitis 341
 posttraumatic seizures 504
 – and depressed skull fractures 1063
 – prophylaxis 1004
 posttraumatic syringomyelia 1411
 posturing 319
 Pott puffy tumor 380
 Pott's disease 1276
 – and discitis 392
 – and spinal epidural abscess 381
 – spinal 387
 POVL, *see* postoperative visual loss
 Powers' ratio, for atlantooccipital dislocation 1154–1155
 PPRF, *see* paramedian pontine reticular formation
 PPSV23 (pneumococcal vaccine) 341
 practice guideline
 – acute hydrocephalus associated with aSAH 1427
 – airway management in long-term TBI 1106
 – aneurysm treatment decisions 1460
 – anterior cervical plating 1285
 – antifibrinolytic therapy 1437
 – assessment of subaxial fusion 1289
 – asymptomatic carotid stenosis 1548
 – atlantooccipital dislocation injuries 1155–1156
 – atlas fractures 1164
 – audiology screening for vestibular schwannomas 780
 – BMP in cervical interbody fusion 1285
 – bone growth stimulators (BCS) 1725
 – brace therapy for low-back pain 1342
 – cavernous malformation
 – imaging recommendations 1529
 – treatment 1530
 – central cord injuries 1134
 – cervical disc arthroplasty 1290
 – cervical immobilization after trauma 1142
 – cervical laminoforaminotomy 1292
 – cervical pseudarthrosis
 – assessment 1289
 – management 1290
 – cervical spondylotic myelopathy
 – choice of surgical approach 1304
 – conservative management 1303
 – use of intraoperative electrophysiologic monitoring 1304
 – use of pre-op SEPs 1303
 – chronic hydrocephalus associated with aSAH 1427
 – combination atlas & axis fractures 1177
 – critical care management of SCI in the hospital 1140
 – CT scan in minor pediatric head injury 1099
 – depressed skull fracture - surgical treatment 1062
 – diagnosis of NPH 444
 – DVT in SCI 1141
 – EDX guidelines for cervical radiculopathy 1283
 – electrodiagnostic criteria for CTS 548
 – electrodiagnostic criteria for ulnar neuropathy at the elbow 555
 – epidural hematoma, surgical treatment 1074
 – follow-up for nonfunctioning Pit-NET/adenomas 905
 – fractures of the axis body 1177
 – hangman's fracture 1168
 – hemorrhagic contusion—surgical treatment 1071
 – ICP
 – barbiturates, use of 1055
 – brain tissue oxygen tension monitoring 1047
 – CPP issues 1047

- hyperventilation for ICP management 1052
- hypothermia (prophylactic) 1052
- indications for monitoring 1038
- infection prophylaxis 1040
- treatment threshold 1047
- imaging for vestibular schwannomas 782
- initial closed reduction in fracture-dislocation cervical SCI 1147
- initial head CT with mTBI (ACEP) 1007
- injection therapy for low back pain 1239
- intracerebral hemorrhage
 - anticoagulation resumption 1622
 - blood pressure management 1621
 - coagulopathy 1621
 - initial diagnosis/assessment 1615
 - seizure management 1621
 - surgical management 1623
 - thromboembolism management 1621, 1623
- intraoperative electrophysiologic monitoring 1304
- lumbar fusion
 - bone graft extenders/substitutes 1721
 - correlation with outcome 1722
 - for disc herniation 1240
 - for low back pain 1239
 - fusion with stenosis and spondylolisthesis 1347
 - fusion with stenosis without spondylolisthesis 1347
 - pedicle screw fixation 1241
 - radiographic assessment 1722
 - use of posterolateral fusion and/or interbody fusion 1240
- malignant transformation after SRS for VS 799
- management of CTS 550
- management of vestibular schwannomas 786, 789
- mechanical thrombectomy (for stroke) 1562
- methylprednisolone in SCI 1140
- MRI & discography as indication for lumbar fusion 1231
- NPH, diagnosis 444
- occipital condyle fractures 1157
- odontoid fractures 1173
- os odontoidem 1176
- pediatric C-spine injuries
 - evaluation 1122
 - treatment 1124
- perioperative nimodipine for vestibular schwannoma surgery 789, 794
- PitNETs
 - endocrine evaluation 876
 - imaging 882
 - management of nonfunctional adenomas 887
 - surgical techniques/technology 896
 - visual evaluation 874
 - posterior fossa mass lesions 1090
 - post-SAH seizures 1436
 - prophylactic antiseizure medications with brain tumors 627
 - pseudotumor cerebri 967
 - reduction in cervical fracture-dislocation 1147
 - retreatment with SRS for VS 799
 - SCIWORA 1197
 - severe head injury
 - antibiotics for intubation 1106
 - cerebral edema 1071
 - diffuse injury (surgical indications) 1071
 - early sedation and paralysis 1002
 - extubation timing 1106
 - hyperventilation, early/prophylactic 1003
 - initial resuscitation and BP management 1002
 - intubation, antibiotics for 1003
 - intubation, indications for 1003
 - mannitol
 - early use of 1004
 - use of 1053
 - nutrition 1106
 - prophylactic antiseizure medications after TBI 1004
 - tracheostomy timing 1106
 - use of glucocorticoids (steroids) 1055
 - skull X-ray in minor pediatric head injury 1099
 - skull X-rays in evaluating mTBI 1011
 - subaxial cervical spine injury 1181, 1194
 - subdural hematoma - surgical treatment 1078
 - timing of intervention for ruptured aneurysm 1462
 - vasospasm management 1446
 - vertebral artery injuries 1033
 - X-rays in cervical SCI 1142-1143
 - Pradaxa® 165
 - Pradaxa® (dabigatran) 173
 - Prass probe 1794
 - prasugrel 170
 - praziquantel 407
 - PRBC transfusion 160
 - precentral gyrus 56
 - precocious puberty
 - etiologies 277
 - with arachnoid cysts 262
 - with fibrous dysplasia 976
 - with hypothalamic hamartomas 277
 - with pineal region tumors 759
 - with septo-optic dysplasia 276
 - precuneus 57
 - prelental space 223
 - prednisolone, for Bell's palsy 609
 - prednisone 154
 - for giant cell arteritis 206
 - for iodine contrast allergy prep 232
 - for orbital pseudotumor 600
 - preclampsia, and vasospasm 1440
 - prefixed chiasm 851
 - prefrontal lobes 98
 - pregabalin, for painful diabetic neuropathy 573
 - preganglionic peripheral nerve injury 579
 - pregnancy
 - and accelerated growth of vestibular schwannoma 642
 - and antiseizure medications 500
 - and autologous blood transfusion 161
 - and bone scan 1235
 - and bromocriptine therapy 888
 - and carpal tunnel syndrome 546
 - and cerebral venous thrombosis 1595
 - and Chiari malformation 302
 - and de Quervain's syndrome 548
 - and enlargement of PitNETs 888
 - and hydrocephalus management 447
 - and intracerebral hemorrhage from eclampsia 1611
 - and intracranial hemorrhage 1425
 - and MRI 242
 - and neural tube defects 313, 447
 - and prolactin levels 879
 - and pseudotumor cerebri 969
 - and seizures 500
 - and steroids 157
 - and stroke in young adults 1542
 - and ultrasound/diathermy for back pain 1239
 - and vertebral hemangioma 992
 - vasospasm with eclampsia 1440
 - premotor area 56
 - PRES, see posterior reversible encephalopathy syndrome
 - pressure, intraperitoneal 454
 - pressure palsies, see hereditary neuropathy with liability to pressure palsies
 - pressure palsies - in HNPP 568
 - pretectal nuclear complex 591
 - pretruncal nonaneurysmal subarachnoid hemorrhage 1496
 - prevertebral soft tissue 224
 - priapism 1140
 - primary amebic meningoencephalitis 410
 - primary aspiration 1934
 - primary cerebellar ectopia, see Chiari malformation, type I
 - primary CNS lymphoma, see lymphoma - primary CNS
 - primary CNS melanoma 830
 - primary diffuse large B-cell lymphoma of the CNS (CNS-DLBCL) 840
 - primary lateral sclerosis 191, 1700
 - primary progressive aphasia of adulthood 1694
 - primidone 493
 - dosing forms 493
 - primitive neuroectodermal tumors 744
 - primitive reflexes 1298
 - in hydranencephaly 310
 - prions 400
 - proatlantal intersegmental artery 84
 - PROCESS trial (spinal cord stimulation) 1885
 - prochlorperazine, and parkinsonism 185
 - progabide, for spasticity 1846
 - programmable shunt valves 456
 - progressive multifocal leukoencephalopathy 354
 - and multiple gliomas 667
 - due to steroids 354
 - imaging findings 355
 - in AIDS 354
 - MR spectroscopy appearance 245
 - progressive muscular atrophy 191
 - progressive supranuclear palsy 186
 - prolactin 151, 877
 - elevation with empty sella syndrome 952
 - hyperprolactinemia
 - differential diagnosis of 879
 - symptoms of 867
 - levels
 - during pregnancy 879
 - following seizures 879
 - follow-up after therapy 888
 - hook effect 877
 - with PitNETs 877
 - macroprolactinemia 877
 - prolactinoma, see pituitary gland - adenoma - prolactinoma
 - proliferosan with BCNU, see BCNU-Gliadel wafers
 - pronator (teres) syndrome 544
 - prophylactic antibiotics
 - with basal skull fractures 1065
 - with CSF shunt 475
 - in pregnancy 448
 - with ICP monitors 1039

- prophylactic antiepileptic medications
with brain tumors 627
- prophylactic cranial irradiation (PCI),
for small-cell lung Ca 911
- propiomelanocortin 151
- propofol 110
- for anesthesia induction 109
- for awake craniotomy 1733
- for ICP management 1057
- for neuroprotection 1466
- for sedation 140
- propofol infusion syndrome 140
- propofol infusion syndrome 140
- propranolol 132
- before AVM surgery 1511
- pre-op for glioma tumors 943
- proptosis, definition/criteria 1690
- prosopalgia 1873
- prosthetic heart valves
- and cerebral embolism 1590
- and intracerebral hemorrhage 1623
- protamine, to reverse enoxaparin
(Lovenox®) 165
- protamine sulfate
- for heparin reversal 174
- to reverse low molecular weight
heparins 174
- protein C or S deficiency 1542
- prothrombin complex
concentrate 174
- prothrombin time (PT)
- safe levels for neurosurgical
procedures 164
- therapeutic levels for
warfarin 172
- proton beam therapy
- for chordoma 828
- for pituitary tumors 893
- protruded disc (disc
protrusion) 1227
- provoked seizure 480
- proximal dural ring 77
- proximal muscle weakness 1688,
1700
- pruritus without rash 1850
- PS Medical shunt 467
- psammoma bodies 803
- pseudarthrosis, following anterior
cervical discectomy 1289
- pseudo von Graefe sign 602
- pseudoaneurysm
- carotid, after transphenoidal
surgery 898
- following carotid
endarterectomy 1567
- from arterial dissection 1576
- traumatic 1491
- pseudo-angina 1280
- pseudobulbar palsy 186
- pseudocholinesterase deficiency,
and paralytics 332
- pseudoclaudication 1331
- pseudocoma 320
- pseudo-CSF rhinorrhea 419
- pseudo-Cushing state 867, 880
- pseudocyst
- abdominal
-- and shunt infection 372, 455
-- treatment 465
- brain, with cryptococcal
infection 409
- pseudodelta sign 1597
- pseudo-DIC 176
- pseudodisc 1337
- pseudoephedrine, and intracerebral
hemorrhage 1611
- pseudogrowing skull fracture 1100
- pseudohydrocephalus 433
- pseudohyponatremia 116
- pseudomeningioma pattern 843
- pseudomeningocele
- spinal
-- following unintended
durectomy 1258
-- indicating preganglionic
injury 579
-- traumatic (from nerve root
avulsion) 579
- suboccipital, post-op 1745
- pseudomonas meningitis 343
- pseudoneuropathy 568
- pseudo-obstruction of colon 1259
- pseudopapilledema 588
- pseudoprogession 674
- vestibular schwannoma 789
- pseudoptosis 1691
- pseudoradiculopathy 1333
- pseudoresponse 674
- pseudo-SAH in intracranial
hypotension 423
- pseudosciatica, with piriformis
syndrome 1701
- pseudoepilepsies, see seizures -
nonepileptic
- pseudospread of the atlas 1123
- pseudosubluxation 1123
- pseudotumor
- orbital 600
-- differential diagnosis 1658, 1691
- pituitary 878, 1653
- pseudotumor cerebri 955
- and empty sella syndrome 952,
963
- and pregnancy 969
- fulminant 967
- guidelines (management) 967
- papilledema 960
- sinovenous obstruction 958
- transverse sinus stenting for 966
- with CSF fistula 958
- without papilledema 960
- without papilledema -
management 969
- pseudotumor cerebri, Chiari I
association 301
- pseudotumor cerebri syndrome,
without papilledema 958
- pseudoxanthoma elasticum 1455
- and moyamoya disease 1581
- and stroke in young adults 1542
- PSNP, see progressive supranuclear
palsy
- psaos abscess
- in Pott's disease 387
- in spinal epidural abscess 393
- psaos hematoma 1701
- following LLIF 1804
- psaos muscle 393, 1335
- weakness following LLIF 1804
- PSR, see percutaneous trigeminal
rhizotomy
- PSW, see positive sharp waves
- psychogenic non-epileptic attack
(PNEA) 507
- PT (prothrombin time), see pro-
thrombin time
- PTEN hamartoma tumor
syndrome 651
- pteron 60
- pterional craniotomy 1748
- for anterior communicating
artery aneurysm 1474
- for suprasellar tumor 900
- modified 1483
- pterygium colli 290
- ptosis
- cerebellar 307
- differential diagnosis 1691
- in Horner syndrome 594
- with pituitary apoplexy 865
- PTT, elevation pre-op 175
- ptudendal neurectomy 1847
- Pulmonaid® 1222
- pulmonary angiogram 179
- pulmonary edema
- from contrast media reaction 234
- in spinal cord injury 1139
- pulmonary embolism 178
- following lumbar
discectomy 1259
- from methylmethacrylate 1214
- pulmonary hypertension 456
- pulmonary-artery catheter, for
SAH 1433
- pulsed brain 1049
- pulsatile proptosis 1690
- pulsatility (CSF) 437
- pulsation artifact on MRI 1494
- pulsation artifact on thoracic
MRI 1407
- punch drunk syndrome, see demen-
tia pugilistica
- pupil sparing ophthalmoplegia 592,
598
- pupillary diameter 590
- and ophthalmoplegia 598
- anisocoria 591
- effect of cocaine 216
- effect of narcotics 215, 321
- effect of neuromuscular blocking
agents 593
- in brain death 330
- in Horner syndrome 594
- paradoxical reaction 593
- pinpoint pupils 321
- pupillary dilatation
- and anoxic encephalopathy 328
- and carotid-cavernous
fistula 1520
- and central herniation 326
- and epidural hematoma 1072
- and exploratory burr holes 1014-
1015
- and herniation in the E/R 1002
- and hypothermia 321
- ciliospinal reflex 324
- differential diagnosis, see
anisocoria
-- with oculomotor palsy 597
- in trauma 1005
- pupillary escape 591
- pupillary innervation 590
- pure motor hemiparesis 1541
- pure sensory stroke 1541
- purkinjoma 716
- Purtscher's retinopathy 1104
- putaminal hemorrhage 1614
- PWI, see perfusion-weighted imag-
ing (MRI)
- pyramidal cells of Betz 56
- pyramidal decussation 1709
- pyridoxine-dependent seizures 513

Q

- quadrangular fracture 1185
- quadrantanopsia, nasal 1455
- quadriceps weakness
- from femoral neuropathy 573
- from lumbosacral plexus
neuropathy 571
- from upper lumbar disc
herniation 1263
- quadriplegia
- differential diagnosis 1702
- with sitting position 1385, 1737
- quasi-moyamoya disease 1581
- Queckenstedt's test 987, 1812
- question-mark skin incision 1752
- Quincke (LP) needle 1817

R

- raccoon's eyes 1005, 1065
- radial nerve 536
- injuries 558
- radial tunnel syndrome 559
- radiation dose

- with CT scan 235
- with radiology studies 235
- radiation injury and necrosis
 - brachial plexus neuropathy 571
 - cranial 1899
 - differentiating from recurrent glioma 1900
 - effect on IQ in children 1900
 - following pituitary radiation 893
 - myelopathy
 - differential diagnosis 1697
 - following radiation therapy 1901
 - neuropathy 571
 - radiation-induced tumors 1909
 - with interstitial brachytherapy 1910
- radiation neuropathy, *see* radiation injury and necrosis
- radiation safety 234
- radiation therapy 1898
 - *See also* radiation injury and necrosis
 - effect on IQ in children 1900
 - for cerebral metastases 917
 - for chordoma 827
 - for CNS lymphoma 844
 - for melanoma metastatic to brain 912
 - for meningiomas 814
 - for multiple myeloma 930
 - for PitNETs 893
 - for plasmacytoma 931
 - for spinal metastases 927
 - for vertebral hemangioma 994
 - for WHO grade 2 astrocytomas 672
 - hyperfractionated 697
 - inducing glioma 657
 - prophylactic cranial 911
 - stereotactic radiosurgery 1902
 - stereotactic radiotherapy 1903
 - test dose for pineal tumors 760
- radiculomedullary arteries 87
- radiculopathy
 - C5
 - following cervical decompression 1306
 - from disc herniation 1280
 - C6
 - from disc herniation 1280
 - mimicking MI 1280
 - C7, from disc herniation 1280
 - C8, from disc herniation 1280
 - cervical 1280
 - keyhole foraminotomy for 1292
 - mimicking MI 1280
 - definition 1227
 - differential diagnosis 1700
 - L4
 - from disc herniation 1253
 - vs. femoral neuropathy 1702
 - L5
 - and foot drop 1708
 - differential diagnosis 1708
 - from disc herniation 1253
 - from sacral fracture 1216
 - lumbar
 - physical findings 1251
 - radiographic evaluation 1230
 - upper 1263
 - S1, from disc herniation 1253
 - thoracic 1271
 - radiobiology 1898
 - radiographic vasospasm 1440
 - radionuclide cisternography, for NPH 442
 - radionuclide cisternography (RNC) 419
 - radionuclide scanning 247
 - radionuclide shuntography 459
 - radiosensitivity of metastases
 - cerebral 917
 - spinal 927
 - rads (radiation dose) 234
 - Raeder's paratrigeminal neuralgia 601
 - raloxifene 1212
 - dosing forms 1212
 - Ramsay Hunt syndrome 1873
 - Ranawat grading scale 1376
 - Rancho Los Amigos cognitive scale 1641
 - ranitidine 135
 - use with steroids 1050
 - RANK ligand 1212
 - inhibitors
 - for fibrous dysplasia 978
 - for giant cell tumor 996
 - for metastatic tumor 926
 - for osteoporosis 1212
 - Rankin scale 1641
 - RANO (Response Assessment in Neuro-Oncology) criteria 674
 - Rathke's cleft cyst 949
 - and apoplexy 865
 - Rathke's pouch 151
 - RCVS, *see* reversible cerebral vasoconstrictive syndrome
 - Real-Time Quaking-Induced Conversion (RT-QuIC) assay 403
 - rebleeding
 - with aneurysms 1437
 - with angiogram negative SAH 1495
 - with intracerebral hemorrhage 1615
 - with perimesencephalic nonaneurysmal SAH 1496
 - rebuildup in moyamoya disease 1583
 - recombinant activated coagulation factor VII, *see* factor VII
 - rectal exam 1130
 - recurrent artery of Heubner 74
 - recurrent herniated lumbar disc 1258, 1267
 - recurrent intracerebral hemorrhage 1612
 - recurrent laryngeal nerve 1284
 - injury during ACD 1286
 - prevention 1284
 - recurrent meningitis 341
 - with basal encephalocele 269
 - with CSF fistula 416
 - with dermal sinus 287-288
 - recurrent motor branch, median nerve 551
 - recursive partitioning analysis, for brain metastases outcome 915
 - red flags (in low back problems) 1230
 - reduced recruitment on EMG 256
 - redundant nerve roots 1334
 - reflex sympathetic dystrophy, *see* complex regional pain syndrome
 - reflexes
 - abdominal cutaneous
 - in multiple sclerosis 188
 - in spinal cord injury 1140
 - anal cutaneous 1130
 - cremasteric 1140
 - primitive 310, 1298
 - reflexology 1120
 - refractory epilepsy 1889
 - refractory seizures 1889
 - regeneration of peripheral nerves 577
 - regional brain syndromes 98
 - Reid's base line 61
 - Reiter syndrome 1705
 - relative afferent pupillary defect (RAPD) 592
 - rem, *see* roentgen-equivalent man
 - remifentanyl 110, 140
 - renal failure
 - and destructive spondyloarthropathy 1679
 - from intrathecal contrast media 230
 - with mannitol 1054
 - renal-cell carcinoma
 - in von Hippel-Lindau disease 648
 - metastatic to brain 913
 - metastatic to spine 925
 - pre-op embolization 927
 - Rendix® (dabigatran) 173
 - reoperation, for failed back surgery syndrome 1246
 - ReoPro, for endovascular neurosurgery 1914
 - repeat angiography, for SAH 1495
 - reservoir sign 419
 - residual canal diameter 224
 - residual tumor volume 670
 - resistance testing, for NPH 444
 - respiratory patterns in coma 321
 - Response Assessment in Neuro-Oncology criteria 674
 - responsive neurostimulation 1892
 - rests, aneurysm 1463
 - rete mirabile 1581, 1583
 - reticulum cell sarcoma 840
 - retinaculotomy 551
 - retinal hemangioblastomas 648
 - retinal hemorrhage
 - and platelet transfusion 161
 - differential diagnosis 1104
 - from high altitude 1028
 - in child abuse 1104
 - in infantile acute subdural hematoma 1081
 - in subarachnoid hemorrhage 1419
 - with chronic extra-axial fluid collections 1088
 - retinoblastoma 1658
 - retraction syndrome 601
 - retrobulbar neuritis 187, 592
 - retroclival hematoma 1102
 - retrocondylar groove 554
 - retrograde ejaculation, with ALIF 1795
 - retrograde flow
 - through internal cerebral vein (with vein of Galen malformations) 1518
 - through ophthalmic artery 1537
 - with dural AVMs 1515
 - retrolithesis 1337
 - retroperitoneal approach to spine 1791
 - retropulsed bone in spinal canal
 - in cervical compression fractures 1183
 - with burst fractures 1202
 - with osteoporotic spine fractures 1208
 - retrosigmoid approach, for vestibular schwannoma 793
 - retroversion of the odontoid 296
 - return to play guidelines
 - following concussion 1024
 - following C-spine injury 1126
 - with foramen magnum abnormalities 1024
 - with hydrocephalus 1024
 - reversal
 - of heparin 174
 - of muscle blockade 143
 - of narcotic intoxication 215
 - of warfarin 174
 - reverse straight leg raising 1252
 - reversible cerebral vasoconstriction syndrome (RCVS) 1494
 - reversible cerebral vasoconstrictive syndrome 1418
 - reversible posterior leukoencephalopathy syndrome, *see* posterior

- reversible encephalopathy syndrome
 - Rexed lamina 69–70
 - Reye's syndrome, and decompressive craniectomy 1766
 - rFVIIa, see factor VII
 - rhabdomyolysis 136
 - in atypical Guillain-Barré 194
 - in malignant hyperthermia 112
 - with IT injection of ionic contrast 230
 - with statins 1706
 - rheologic properties of blood
 - with mannitol 1054, 1446
 - with vasospasm 1446
 - rheumatoid arthritis
 - and atlantoaxial subluxation 1377
 - and basilar impression 1376, 1379
 - and CNS lymphoma 841
 - and craniocervical abnormalities 1376
 - and entrapment neuropathies 541
 - and subaxial subluxation 1380
 - rheumatoid spondylitis, see ankylosing spondylitis
 - rhinorrhea
 - CSF, see cerebrospinal fluid - rhinorrhea
 - pseudo-CSF rhinorrhea 419
 - with cluster headache 183
 - with opioid withdrawal 215
 - with SUNCT 520
 - rhizotomy
 - for spinal spasticity
 - dorsal 1851
 - foraminal 1847
 - trigeminal 1861
 - rib hump 1320
 - ribbon enhancement, on MRI 1561
 - Richie-Cannieu anastomosis 540
 - Richmond agitation-sedation scale (RASS) 139
 - Richmond subarachnoid bolt 1824
 - ring sign 419
 - ring-enhancing lesions on CT/MRI
 - differential diagnosis 1651
 - with glioblastoma 665
 - Rinne test 611
 - with vestibular schwannoma 779
 - risedronate
 - for osteoporosis 1212
 - for Paget's disease 1364
 - risks
 - anterior cervical discectomy 1286
 - carotid endarterectomy 1567
 - cerebral arteriogram 1545
 - craniotomies 1729
 - lumbar laminectomy 1258
 - microvascular decompression for hemifacial spasm 1872
 - suboccipital craniectomy for vestibular schwannoma 797
 - Risser stage (skeletal maturity) 1321
 - ritonavir 574
 - rituximab, intraventricular for CNS lymphoma 844
 - rivaroxaban 166
 - rocuronium 142
 - reversal with sugammadex 143
 - roentgen-equivalent man 234
 - Rolandic fissure, surface anatomy 61
 - Roland-Morris disability questionnaire 1228
 - Rosai-Dorfman disease 813
 - Rosenmüller's fossa 416
 - Rosenthal fibers 691
 - rosette-forming glioneuronal tumor 713
 - rostral-caudal deterioration 324
 - rotating paralysis 1649
 - rotatory atlantoaxial subluxation/fixation 1158
 - Roussouly classification (lumbar lordosis) 1313
 - RPA, see recursive partitioning analysis
 - RPLS, see posterior reversible encephalopathy syndrome, reversible posterior leukoencephalopathy syndrome
 - RSD (reflex sympathetic dystrophy), see complex regional pain syndrome
 - rule of 2's (CT enhancement after stroke) 1560
 - rule of Spence 223, 1161
 - rule of the pupil 597
 - rule of thirds, Steele's 1165
- S**
- S-100 protein
 - in Creutzfeldt-Jakob disease 403
 - used clinically 635
 - used histologically 631
 - S2 screws 1797, 1806
 - S2AI (S2-alar-iliac) screws 1807
 - S2-alar-iliac screws (S2AI screws) 1807–1808
 - saccular aneurysms 1453
 - sacral agenesis 1681
 - sacral cordotomy 1878
 - sacral fractures 1215
 - U-shaped 1216
 - sacral insufficiency fracture 1705
 - sacral lesions, differential diagnosis 1680
 - sacral slope (SS) 1314
 - sacral sparing 1118
 - sacrococcygeal chordoma 827
 - sacroiliitis 1705
 - in lumbar spinal stenosis 1332
 - saddle anesthesia
 - with cauda equina syndrome 1254
 - with sacral fractures 1216
 - saddle nose deformity 207
 - safe zones
 - for lateral interbody fusion 1804
 - for pedicle screw breaches 1799
 - sagging brain 423
 - sagittal balance 1354
 - sagittal split fracture 1184
 - sagittal stable vertebra (SSV) 1355, 1376
 - sagittal suture, relationship to superior sagittal sinus 61
 - sagittal synostosis 265
 - following CSF shunting 466
 - sagittal vertical axis (SVA) or (C7-SVA) 1314
 - SAH, see subarachnoid hemorrhage
 - salaam seizures 484
 - saline infusion test 117
 - salivary cortisol test 880
 - salsalate 145
 - salt and pepper skull 1663
 - Saltzman variants of trigeminal artery 83
 - Sanders (skeletal) maturity scale 1321
 - Sandostatin®, long-acting (LAR) formulation 891
 - SANTE trial (DBS for seizures) 1892
 - sarcoidosis, see neurosarcoidosis
 - intrasellar 1655
 - Saturday night palsy 559
 - Savaysa™ (edoxaban) 166
 - scaleneotomy, for thoracic outlet syndrome 582
 - scalenus (anticus) syndrome 582
 - scalloping of vertebral bodies, differential diagnosis 1679
 - scalpel sign 1402
 - scanning speech 188
 - scar tissue causing radiculopathy 1245
 - Scheuermann's kyphosis 1374
 - Schiff-Sherrington phenomenon 1119
 - Schilling test 1699
 - schizencephaly 275, 309
 - Schmidt syndrome 104, 158
 - Schmorl's node (intravertebral disc herniation) 1227
 - differential diagnosis 1706
 - Schmorl's node (intravertebral disc herniation) 1266
 - Schober test 1367
 - Schwab classification of osteotomies 1356
 - Schwab Grade 3 osteotomy 1358
 - schwannoma
 - spinal 981
 - dumbbell 982
 - vestibular 777
 - vs. neurofibroma 637
 - schwannomatosis 642
 - Schwartz technique (cervical cordotomy) 1879
 - Schwartz-Bartter syndrome, see syndrome - antidiuretic hormone secretion
 - sciatic nerve 563
 - injection injuries 1700, 1707
 - perioperative neuropathy 576
 - sciatic trunk innervation 534
 - sciatic notch tenderness 1251
 - sciatica
 - caused by extraspinal tumors 1701
 - definition 1228
 - differential diagnosis 1700
 - localizing lesion 1702
 - sciatic nerve anatomy 1700
 - scintigrams, see bone scan
 - for brain death determination 333
 - for cerebral abscess 346
 - for discitis 391
 - for normal pressure hydrocephalus (NPH) 442
 - for reflex sympathetic dystrophy 526
 - for shunt patency 459
 - for vertebral osteomyelitis 389
- SCIWORA, see spinal cord - injuries - without radiographic abnormality
- sclerosis
 - of vertebral body 923
 - with radiographic skull lucencies 1662
- scoliosis
 - adolescent idiopathic scoliosis (AIS) 1319
 - adult degenerative 1352
 - adult idiopathic scoliosis (AdIS) 1325
 - and MRI 1233
 - apex/apical vertebra 1312
 - Cobb angle 1312
 - from laminectomy for LP shunt 456
 - in myelomeningocele 290
 - in tethered cord 291
- Scotty dog on L5 spine X-ray 1340
- scrapie 401
- screw fixation
 - cervical spine
 - C1–2 facet 1779
 - C7 options 1786
 - odontoid screw fixation 1775

- lumbar spine, transfacet pedicle screws 1805
- seat belt type fracture 1202
- second impact syndrome 1025
- secondary germinal layer 709
- secondary NPH 438
- sedatives 139
 - early use in neurotrauma 1002
- sedatives and paralytics 139
- Seddon classification of nerve injury 578
- seesaw nystagmus 586
- Seesel's pouch 314
- seizure surgery 1889
 - corpus callosotomy 1892
 - deep brain stimulation (DBS) 1891
 - postoperative management 1894
 - selective amygdalo-hippocampectomy 1893
 - temporal lobectomy 1893
 - vagus nerve stimulation 1895
- seizures
 - generalized onset 482
 - absence 482
 - and cocaine abuse 216
 - and newly diagnosed brain tumors 626
 - and shunt infection 371
 - antiepileptic drugs 485
 - antiseizure medication 485
 - atonic (drop attack) 482
 - classification 480
 - cryptogenic 481
 - drug related 503
 - ethanol withdrawal 506
 - factors that lower seizure threshold 480
 - febrile 503, 509
 - and mesial temporal sclerosis 483
 - preceding status epilepticus 511
 - focal onset 481
 - focal to bilateral tonic-clonic 482
 - following carotid endarterectomy 1567
 - following closed head injury, see seizures - posttraumatic
 - following flumazenil administration 503
 - following penetrating head injury 505
 - following stereotactic radiosurgery 1909
 - following stroke 503
 - following surgery for subdural hematoma 1079, 1084
 - from contrast media reaction 234
 - from fat embolism 1013
 - from hypertensive encephalopathy 202
 - gelastic 277
 - generalized tonic-clonic 482
 - genetic generalized epilepsies 481
 - idiopathic 481
 - in brain tumor patients 622
 - in infantile acute subdural hematoma 1081
 - in pregnancy 500
 - new onset 503
 - nonepileptic 507
 - partial (focal) 481
 - posttraumatic 504, 506, 1004, 1063
 - from fat embolism 1013
 - prophylaxis 1004
 - prophylaxis
 - following SAH 1434
 - posttraumatic 505
 - with alcohol withdrawal 506
 - with chronic subdural hematoma 1082
 - provoked 480
 - pseudoseizures 507
 - pyridoxine-dependent 513
 - refractory (definition) 1889
 - seizure threshold 480
 - status epilepticus 510
 - surgery, deep brain stimulation (DBS) 1891
 - surgery for 1889
 - symptomatic 480
 - uncinata 483
 - unprovoked 480
 - with AVMs 1507
 - with chronic extra-axial fluid collections 1088
 - with CSF shunts 455
 - with eclampsia 1425
 - with motor evoked potentials 253
 - with neurocysticercosis 406
 - with tuberous sclerosis 652
 - selective amygdalo-hippocampectomy (SAH) 1893
 - sella turcica
 - J-shaped 694
 - plain X-rays 227
 - size change after shunting 466
 - sellar lesions 1653
 - semi-Fowler position 1237
 - sensorineural hearing loss 612
 - sensory evoked potentials, see evoked potentials
 - for brain death 334
 - in cervical spondylotic myelopathy 1303
 - intraoperative 251-252
 - anesthesia requirements 112
 - for intramedullary spinal cord tumors 989
 - for mapping sensory/motor cortex 1732
 - interventions for deterioration 253
 - sensory level
 - with cervical spondylotic myelopathy 1297
 - with spinal cord injury 1130, 1139
 - with spinal metastases 922
 - sensory nerve action potential (SNAP) 255, 579
 - in lumbar disc disease 257
 - in nerve root avulsion 257
 - in plexopathy 257, 571
 - sensory nerves, diagram 72
 - sensory neuropathy, and neoplasms 569
 - sentinel hemorrhage 1418, 1454
 - SEP, see sensory evoked potentials
 - separation fracture of lateral mass 1192
 - septal vein 85
 - septo-optic dysplasia 275-276
 - septum pellucidum
 - absence
 - differential diagnosis 276
 - in agenesis of corpus callosum 275
 - in Chiari 2 malformation 303
 - in septo-optic dysplasia 276
 - cavity of 1657
 - cavum 1760
 - sequential compression devices 177
 - sequestered disc (disc sequestration) 1227
 - serum osmolality 114
 - calculated 114
 - in SIADH 119
 - serum protein electrophoresis (SPEP)
 - for multiple myeloma 930
 - for peripheral neuropathy 569
 - serviceable hearing 781
 - setting sun sign 101, 427
 - severe head injury, see trauma - head
 - definition 1001
 - shaken baby syndrome 1104
 - shaking palsy, see Parkinson's disease
 - shallow cervical canal 1296
 - sheath management
 - (endovascular) 1921
 - Sheehan's necrosis 77
 - shepherd's crook deformity 975
 - shift (on CT scan) 320
 - shine-through on MRI 243
 - shingles, see herpes zoster
 - shock, see hypotension
 - shopping cart sign 1331
 - Short Form 36 disability scale 1228
 - short pedicle syndrome 1329
 - short-lasting unilateral neuralgiform headache with conjunctival injection and tearing (SUNCT) 520
 - shoulder abduction test 1282
 - shoulder pain
 - differential diagnosis 1710
 - with cervical spondylosis 1297
 - shunt nephritis 372
 - shunt series 459
 - shunt-o-gram
 - with LP shunt 1831
 - with VP shunt
 - with iodinated contrast 460
 - with radionuclide tracer 459
 - shunts (CSF) 454
 - and CSF protein 1636
 - antiphosn device 461, 464
 - by manufacturer 467
 - Cordis (Hakim) 470
 - Heyer-Schulte 470
 - Holter 471
 - Medtronic 467
 - PS Medical 467
 - Salmon-Rickham 471
 - complications, see shunts (CSF) - problems
 - connectors 1825
 - insertion techniques 1825
 - laparoscopic surgery and 466
 - lumboperitoneal 456, 966, 1829
 - Ommaya® reservoir 1831
 - problems, with insertion 458
 - problems with 460
 - craniosynostosis 466
 - infection 371
 - Candida spp. 371
 - intracranial hypotension 462
 - overshunting 461
 - peritoneal catheter 455
 - peritonitis 374
 - seizures 455
 - shunt occlusion 460
 - silicone allergy 455
 - slit ventricle syndrome 462
 - subdural hematoma 464
 - tumor seeding 747
 - undershunting 460
 - programmable valve
 - Codman Hakim 469
 - Strata (Medtronic) 469
 - programmable valves 456
 - pseudotumor cerebri, for 966
 - removal 435
 - slit valves (distal) 455, 1826
 - subarachnoid bypass shunt (for syringomyelia) 1410
 - subgaleal 1635
 - surgical technique 1825
 - syngo-subarachnoid 1409
 - tapping 460
 - LP shunt 1830
 - reservoir 1832
 - Torkildsen 436, 454
 - tumor filter 458

- ventricular access device 1831
- insertion technique 1831
- ventricular catheterization 1825
- ventriculo-atrial 454, 456
- and pulmonary hypertension 456
- insertion technique 1827
- ventriculoperitoneal 455
- insertion technique 1826
- ventriculopleural 454
- in pregnancy 448
- insertion technique 1827
- wire-reinforced 1826
- X-ray appearance 456
- shunts (other than CSF)
 - for arachnoid cyst 263
 - subdural-peritoneal 1089
 - syringo-subarachnoid or -peritoneal 1409
 - tumor cyst 1831
- Shy-Drager syndrome 186
- SIAD, see syndrome of inappropriate antidiuresis
- SIADH, see syndrome of inappropriate antidiuretic hormone secretion
- sickle cell disease
 - and cerebral venous thrombosis 1594
 - and moyamoya syndrome 1581
 - and stroke in young adults 1542
 - and subarachnoid hemorrhage 1417
 - and tPA for stroke 1563
- siderosis 1697
- sievvert 234
- sign
 - Babinski 91
 - banana 1647
 - Battle's 1005, 1065
 - bow hunter's 1778
 - bowstring 1252
 - bow-tie 1187
 - Brudzinski 1419
 - cervical hand 1280
 - cord 1596
 - cortical vein 434
 - crescent (arterial dissection) 1578
 - delta 1597
 - double lumen 1578
 - empty delta 1597
 - Fajersztajn's 1252
 - flick 547
 - Froment's 554
 - Furstenberg 1674
 - halo 419
 - harlequin eye 267
 - Hoffman's 92
 - hollow skull 334
 - Homan's 177
 - hyperdense artery 1560
 - Kernig 381, 1419
 - Laségue's 1252
 - Lazarus 332
 - Lhermitte's 188, 1712
 - Macewen's 427
 - meniscus 925, 988
 - Mt. Fuji 1068
 - naked facet 1187
 - OK 545
 - pinch 545
 - pseudodelta 1597
 - reservoir 419
 - reverse Tinel's 547
 - ring 419
 - setting sun 101, 427
 - spot 1616
 - Spurling's 1282
 - string 1220, 1578
 - string and pearl 1578
 - Tinel's 547, 558, 564-565
 - transylvian 398
 - Trendelenburg 1252
 - Unthoff 189
 - Wartenberg's 554
 - Westphal's 1253
- SIH, see spontaneous intracranial hypotension
- silicone allergy and CSF shunts 455
- silver reticulum stain 842
- Simmonds' cachexia 864
- simple partial seizure 481
- simple skull fracture, see skull fractures - simple
- Simpson grading for meningioma removal 815
- Sindou grading system (meningioma) 809
- sinking skin flap syndrome 1763
- sinonasal undifferentiated carcinoma (SNUC) 1674
- sinovenous obstruction, in pseudo-tumor cerebri 958
- SINS (Spine Instability Neoplastic Score) 927
- sinus thrombosis, see cerebral venous thrombosis
- siphon
 - carotid 78
 - effect with shunts 462
- sitting knee extension test 1252
- sitting position
 - for cervical laminectomy 1306
 - for suboccipital craniotomy 1737
 - risks 1306
- Sjögren's syndrome, and CNS lymphoma 841
- skew deviation 101, 323
- skip laminectomies 384
- skip lesions, in giant cell arteritis 204
- skull block 1717, 1733
- skull fractures 1062
 - basal 1005, 1064
 - and traumatic aneurysms 1491
 - compound 1062
 - craniofacial 1066
 - depressed 1062
 - differentiating from suture 1062
 - growing 1100
 - in child abuse 1104
 - in epidural hematoma 1073
 - linear non-displaced 1062
 - ping-pong ball 1101
 - simple 1062
- skull lesions 1661
 - differentiating tumors 1661
 - lytic 1662
 - neoplastic 972
 - non-neoplastic 974
- skull tumors 972
- skull X-ray 227
 - differentiating fracture from suture 1062
 - for lambdoid craniosynostosis 267
 - in Chiari 2 malformation 304
 - indications (in trauma) 1011
 - lucencies, evaluation 1661
- SLIC, see subaxial cervical spine injury classification
- slit valves in VP shunts 455, 1826
- slit ventricles 462
 - and pregnancy 447
 - slit ventricle syndrome 463
- slow virus 400
- small fiber polyneuropathy 1712
- small-cell lung cancer 910
 - and cerebral metastases 910
 - chemotherapy & XRT for 911, 917
 - neuroendocrine stains 633
 - intramedullary spinal cord metastases 986
- smell - loss of, see anosmia
- Smith-Petersen osteotomy 1356
- Smith-Robinson
 - anterior cervical discectomy 1289
 - C1-2 wiring technique 1779
- smoking
 - and atherosclerosis 1547
 - and cerebral vasospasm 1442
 - and intracerebral hemorrhage 1609
 - and lung cancer 910
 - and nonunion of bone 1348
 - and spinal degenerative disease 1327
 - and stroke in young adults 1543
- SNAP, see sensory nerve action potential
- SNUC, see sinonasal undifferentiated carcinoma
- sodium
 - in CSF 415
 - serum 114
 - hyponatremia 124
 - hyponatremia 114
- sodium amyltal, for endovascular neurosurgery 1918
- solifenacin 96
- solitary fibrous tumor 820
- somatomammotropin, see prolactin
- somatomedin-C, see insulin-like growth factor-1
- somatosensory cortex 56
- somatosensory evoked potentials 250
 - for low back problems 1236
- somatostatin 153
- somatostatin analogues, for acromegaly 890
- somatotopic organization of cerebral cortex 58
- somatotroph adenoma 870
- somatotroph hyperplasia 1654
- SOMI brace 1124
- Songer cable 1835
- Søngsen criteria (Scheuermann's kyphosis) 1375
- Soto's syndrome 1692
- souttar skin incision 1066, 1754
- SPAM, see subacute progressive ascending myelopathy
- spasmodic torticollis 1844
- spastic foot drop 1708
- spasticity 1845
 - medical treatment 1846
 - surgical treatment 1846
- spear tackler's spine 1126
- specific gravity
 - CSF 414
 - urine, in diabetes insipidus (DI) 126
- SPECT scan
 - for cerebral vasospasm 1443
 - for Creutzfeldt-Jakob disease 403
 - for radiation necrosis 1900
 - for seizure surgery 1890
 - in low back pain 1235
- Spetzler™ lumbar peritoneal shunt 1829
- Spetzler-Martin grade of cerebral AVMs 1509
- sphenoid dysplasia 639
- sphenoid sinusitis 344
- sphenopalatine ganglion blockade 184
- spike and wave (on EEG) 482
- Spiller-Frazier procedure 1862
- spin density image (on MRI) 240
- spina bifida aperta 280
- spina bifida cystica 280
- spina bifida occulta 280
- spinal accessory nerve-facial nerve anastomosis 611

- spinal angiography, *see* angiogram - spinal
- spinal arteriovenous fistula (AVF) 1395
- spinal AVM, *see* spinal cord - AVM
- spinal canal 1408
- spinal canal diameter, on lateral X-ray 224
- spinal cord
- anatomy 69
 - AVM 1395, 1697
 - herniation
 - differential diagnosis 1697
 - idiopathic 1404
 - hypoperfusion 1306
 - infarction 1385
 - injuries 1118
 - complete vs. incomplete 1118
 - following anterior cervical discectomy 1286
 - football related 1125
 - in ankylosing spondylitis 1366
 - incomplete injury syndromes 1132
 - level 1118
 - management in hospital 1139
 - neuropraxia 1125
 - pediatric 1121
 - spinal shock 1119, 1845
 - management 1139
 - steroid usage 1140
 - surgical treatment 1194
 - timing 1149
 - syndromes 1132
 - without radiographic abnormality (SCIWORA) 1191, 1196
 - tracts 69
 - tumors 640, 979
 - *See also* tumors - spine
 - vascular malformations 1395
 - vasculature 87
- spinal cord mapping 254
- spinal cord stimulation 1883
- for recurrent herniated lumbar disc 1268
- spinal cysts, *see* intraspinal cysts
- spinal dural AVM/AVF 1395
- spinal dysraphism 280
- spinal ependymoma 732
- MYCN-amplified 733
- spinal epidural abscess 381
- spinal epidural hematoma 1383
- and heparin(s) 173
 - and vertebral hemangioma 1697
 - differential diagnosis 1697
 - postoperative 1259, 1262
 - traumatic with spine fracture 1383
- spinal epidural lipomatosis 1381
- differential diagnosis 1697
- spinal epidural masses, differential diagnosis 1696
- spinal epidural metastases 921
- evaluation 922
 - treatment 926
- spinal epidural/intradural air 1387
- spinal glioma AVM 1395
- spinal headache, *see* headache - post myelogram/LP
- spinal hemangioma, *see* hemangioma - vertebral
- spinal manipulation therapy
- and vertebral artery dissection 1032
 - for neck or low back pain 1238
- spinal meningeal cyst 1400
- spinal muscular atrophy 191, 1702
- spinal radiation 1899
- spinal shock 1119, 1845
- management 1139
- spinal stability
- cervical
 - delayed instability 1221
 - guidelines for assessment 1182
 - hangman's fracture, with 1169
 - SLIC classification 1181
 - treatment for instability 1194
 - White and Panjabi model 1182
 - definition 1118
 - thoracolumbar, model for fractures 1200
 - TLICS 1206
 - with spinal metastases 927
- spinal stenosis
- cervical 224, 1296
 - coincident cervical and lumbar 1308
 - lumbar 1328
 - in asymptomatic patients 1230
 - thoracic 1327
- spinal subdural empyema 385
- spinal subdural hematoma 1384
- spinal trigeminal tract 1694
- spinal tumors
- metastatic 921
 - primary 989, 1697
 - differential diagnosis 979, 1697
- spindle cell oncocyoma 854
- spine
- cervical
 - atlantoaxial fusion 1778
 - follow-up schedule 1125
 - fractures, surgical treatment 1194
 - occipitocervical fusion 1773, 1783
 - whiplash injuries 1119
 - X-rays 222, 1141
 - craniocervical junction 1308
 - fracture, and spinal epidural hematoma 1383
 - infections 380
 - lumbar, fusion 1240, 1347
 - metastases 921
 - sacrum, fractures 1215
 - surface landmarks (levels) 63
 - thoracolumbar, osteoporosis 1208
 - trauma, *see* trauma - spine
 - tumors 979
 - differential diagnosis 979
 - in neurofibromatosis 640
 - osteoblastic 923
 - tumors of the bone 921
 - primary 989
- Spine Instability Neoplastic Score (SINS) 927
- spine shortening vertebral osteotomy 292
- Spine Trauma Study Group
- subaxial cervical spine injury classification (SLIC) 1181
 - thoracolumbar spine injury classification 1206
- spinolaminar line 223
- spino-pelvic alignment
- age-related changes 1355
 - measurement methodology 1312
- spinous process fractures
- cervical 1183
 - axis (C2) 1177
 - thoracolumbar 1201, 1204
- Spire™ interspinous fusion plate 1346
- split cord malformation 292
- splitting the Sylvian fissure 1750
- spondylitis, *see* vertebral osteomyelitis
- spondylodiscitis 386
- spondylolisthesis 1337
- lumbar
 - and disc herniation 1337
 - following laminectomy 1344
 - grading scale (Meyerding) 1340
 - with spinal stenosis 1329
 - traumatic C2 1165
- spondylolysis 1340
- management 1342
- spondyloptosis 1340
- spondylolysis 1327
- cervical 1296
- spongy degeneration of the brain 1692
- spontaneous activity (on EMG) 255
- spontaneous bacterial peritonitis 374
- spontaneous intracranial hypotension 421
- spontaneous subdural hematoma
- intracranial 1084
 - spinal 1384
- SPORT
- for lumbar disc herniation 1263
 - for lumbar spinal stenosis 1348
- sports
- cervical spine injuries 1125
 - chronic traumatic encephalopathy 1112
 - restrictions 1126
 - after SCIWORA 1197
 - after spinal cord injury 1125
 - with arachnoid cysts 261
- spot sign (on CTA) 1616
- spreading depression in concussion 1023
- spreading depression of Leao 1686
- Sprengel's deformity 290
- sprung facets, *see* locked facets
- Spurling's sign 1282
- squamous cell cancer, lung 911
- square vertebral bodies (in ankylosing spondylitis) 1365
- squash preparation 629
- SRS-Schwab classification of adult degenerative spinal deformity 1353
- SSEP, *see* somatosensory evoked potentials
- SSPE, *see* subacute sclerosing panencephalitis
- St. Louis Carotid Occlusion Study 1538
- stability (spinal), *see* spinal stability
- stable vertebra 1322
- staging medulloblastoma 746
- Stagnara wake-up test 254
- stalk effect 877
- STA-MCA bypass, *see* extracranial-intracranial bypass
- standing scoliosis X-rays 1353
- stapedial artery, persistent 1693
- Staphylococcus aureus, meningitis 342
- status, *use after* ICH 1622
- status epilepticus 510
- absence 514
 - definition 510
 - status spongiosus 401
 - status trigeminus 1857
 - stavudine 574
- Steele-Richardson-Olszewski syndrome 186
- Steele's rule of thirds 1165
- stenosis
- aqueductal, *see* aqueductal stenosis
 - carotid artery, *see* carotid artery - stenosis
 - foramen (lumbar) 1329
- stent assisted coiling of aneurysms 1923
- stent retrievers 1934
- stents (neuroendovascular) 1931
- stephanion 61
- steppage gait 1709
- stereotactic angiography 1905
- stereotactic radiosurgery 1902
- and cranial nerve injury 1905
 - for cromegaly 893

- for AVMs 1510, 1906
- retreatment 1907
- for hemangioblastomas in VHL 649
- for mesial temporal epilepsy 1894
- for spinal epidural metastases 927
- for tectal gliomas 697
- for trigeminal neuralgia 1864, 1904
- of the spinal cord or medulla 1905
- premedication for 1909
- target localization 1905
- treatment morbidity and mortality 1909
- stereotactic radiotherapy 1903
- stereotactic surgery 1838
 - biopsy 1839
 - for pineal region tumors 760
 - for suspected cerebral mets 915
 - in AIDS 357
 - indications 1838
 - for cerebral abscess 349
 - for colloid cyst 947
 - mesencephalotomy 1877
 - radiosurgery, see stereotactic radiosurgery
- sternal splitting 1790
- steroids
 - and osteoporosis 1208
 - effect on CT contrast enhancement 629
 - effect on tissue plasminogen activator 157
 - epidural
 - following discectomy 1258
 - for low back problems 1238
 - equivalent doses 154
 - following lumbar discectomy 1258
 - for Addisonian crisis 157
 - for Bell's palsy 609
 - for brain tumor 626
 - for bronchospasm following IV contrast injection 234
 - for carpal tunnel syndrome 550
 - for cerebral abscess 348
 - for cerebral metastases 916, 919
 - for cysticercosis 407
 - for discitis 379
 - for giant cell arteritis 206
 - for gunshot wounds, to the head 1095
 - for head injury 1055
 - for intracerebral hemorrhage 1620
 - for iodine contrast allergy prep 232
 - for low back pain 1238
 - for myelitis 197
 - for neurocysticercosis 407
 - for orbital pseudotumor 600
 - for pain 144, 149
 - for pseudotumor cerebri 1055
 - for spinal cord injury 1140
 - for spinal metastases 924
 - for stereotactic radiosurgery 1909
 - physiologic replacement 154
 - replacement therapy 154
 - side effects 156
 - stress doses 155
 - unmasking diabetes insipidus (DI) 126
 - withdrawal 155
- Stevens-Johnson syndrome
 - with acetazolamide 496
 - with carbamazepine 491
 - with ethosuximide 494
 - with lamotrigine 497
 - with phenytoin 490
- STICH study 1624
- stinger (football injury) 1126
- STIR images (MRI), for vertebral fractures 1214
- STIR MRI image 241
- stocking sensory disturbance 1711
- Stokes-Adams attacks 1684
- straight leg raising test 1252
- straightforward screw
 - placement 1792
- Strata (Medtronic), for lumboperitoneal shunt 1829
- Strata (programmable) shunt valve 469
 - for lumboperitoneal shunt 1829
- stress dose steroids 155
- stress ulcers 1050
- stretch test
 - cervical spine 1183
 - femoral 1252
- striae - in Cushing's syndrome 868
- stridor from Chiari malformation 304
- string of pearls sign, on
 - angiography 1578
 - with fibromuscular dysplasia 210
 - with isolated CNS vasculitis 209
- string sign 1220, 1578
- stroke 1536, 1554, 1556
 - and new onset seizure 503
 - and status epilepticus 511
 - bow hunter's stroke 1592
 - cerebellar infarction 1588
 - CT findings 1559
 - hemorrhagic transformation 1610
 - in young adults 1541
 - evaluation 1543
 - malignant MCA territory infarction 1589
 - MR spectroscopy appearance 244
 - NIH stroke scale 1554
 - occlusion syndromes 1538
 - venous infarction 350, 1594, 1754, 1761
 - stroke volume variation 1433
 - structural curve 1322
 - Struther's arcade 554
 - Struthers ligament 544
 - stunned myocardium, see neurogenic stunned myocardium
 - Stupp regimen 672
 - Sturge-Weber syndrome 652
 - and choroidal hemangioma 1658
 - stylohyoid (Eagle) syndrome 1710
 - stylomastoid foramen 607
 - subacute cerebellar degeneration 211
 - subacute combined columnar degeneration 1699
 - subacute progressive ascending myelopathy 1221
 - subacute sclerosing panencephalitis 249
 - subarachnoid bypass shunt (for syringomyelia) 1410
 - subarachnoid cyst, see arachnoid cyst
 - subarachnoid hemorrhage
 - admitting orders 1434
 - and cardiac problems
 - cardiac arrhythmias 1438
 - neurogenic stunned myocardium 1438
 - and coma 1419
 - and EKG changes 1438
 - and hydrocephalus 1420, 1426, 1432-1433
 - and intraventricular blood 1421, 1454
 - and neurogenic pulmonary edema 1435
 - and ventricular catheterization 1433
 - aneurysm location based on blood on CT 1420
 - angiogram negative 1494
 - clinical features 1418
 - CT localization of aneurysm from pattern of blood 1420
 - differentiating from traumatic LP 1814
 - etiologies 1417
 - from AVM 1417
 - from cavernous carotid artery aneurysm 1477
 - from cocaine abuse 216
 - grading scales 1424
 - Fisher grade (vasospasm) 1441
 - Hunt and Hess 1424
 - World Federation of Neurosurgical Societies 1424
 - in pituitary apoplexy 866
 - in pregnancy 1425
 - in the elderly 1416
 - outcome 1417
 - in vasculitis 203
 - laboratory and radiographic evaluation 1420
 - lumbar puncture (LP) findings 1422
 - management 1432
 - nonaneurysmal 1496
 - outcome 1416
 - perimesencephalic nonaneurysmal 1496
 - posttraumatic 1008
 - and hydrocephalus 1108
 - pretruncal nonaneurysmal 1496
 - pseudo-SAH in intracranial hypotension 423
 - traumatic 1008
 - unknown etiology 1494
 - vasospasm 1439
 - with cerebral arterial dissection 1577
 - work-up 1420
 - xanthochromia and 1422
 - subarachnoid screw 1041
 - subaxial cervical spine injury classification (SLIC) 1181
 - subaxial subluxation, in rheumatoid arthritis 1380
 - subclavian steal 1592
 - subclavian stenosis, endovascular treatment 1931
 - subcutaneous meningiomas 803
 - subdural drain for chronic subdural 1084
 - subdural empyema 350
 - spinal 385
 - subdural grids or strips, for seizure surgery 1891
 - subdural hematoma 1076
 - acute, surgical indications/timing 1078
 - and anticoagulation 1076
 - benign subdural collections of infancy 1087
 - chronic 1081
 - and TIAs 1686
 - anticoagulation as risk factor 1081
 - embolization of the middle meningeal artery 1935
 - in children 1088
 - CT scan 1076
 - delayed 1081
 - following CSF shunting 446, 464
 - indication for third ventriculostomy 453
 - following lumbar puncture 1815
 - four hour rule 1078
 - from aneurysmal rupture 1416, 1454

- in infancy 1087
- infantile 1081
- interhemispheric 1079
- from ruptured aneurysm 1420
- spontaneous
- intracranial 1084
- spinal 1384
- subdural hygroma 1085
- symptomatic chronic extra-axial fluid collections in children 1088
- tap 1811
- subdural hygroma 1081, 1085
- subdural tap 1811
- for chronic extra-axial fluid collections 1088
- subependymal cyst, *see* arachnoid cyst
- subependymal enhancement 1671
- subependymal giant cell astrocytoma (SEGA) 645, 700
- subependymal hemorrhage 1630
- and hydrocephalus 1633
- subependymoma 735, 1668
- subfalxine herniation 324
- subgaleal hematoma 1099
- subgaleal shunt 1635
- subhyaloid preretinal hemorrhage 1419, 1614
- subluxation
 - atlantoaxial
 - anterior 1160
 - in Down syndrome 1381
 - in Morquio syndrome 1309
 - in rheumatoid arthritis 1377
 - rotatory 1158
 - cervical 1123
 - following laminectomy 1284, 1304
 - in hangman's fracture 1165
 - in rheumatoid arthritis 1380
 - normal 1145
 - traumatic 1144, 1186
 - lumbar 1337
 - following laminectomy 1344
- submental vertex view 227
- suboccipital approach, for vestibular schwannoma 793
- suboccipital craniotomy 1737
- for cerebellar infarction 1589
- for Chiari malformation 306
- for vestibular schwannoma, *see* retrosigmoid approach
- suboccipital pseudomeningocele (post-op) 1745
- subperiosteal hematoma 1099
- subscapular nerve 538
- substantia gelatinosa 69
- subtemporal decompression
 - for pseudotumor cerebri 967
 - for slit ventricle syndrome 464
- subthalamic nucleus 1843
- succinylcholine 141
- and malignant hyperthermia 112
- succussion splash (intracranial) 1068
- sucralfate 136
- sudden death
 - with aqueduct stenosis 273
 - with arrested hydrocephalus 435
 - with atlantoaxial subluxation 1378
 - with colloid cysts 944
- sudden infant death syndrome (SIDS)
 - and maternal cocaine abuse 216
 - and sleeping position 267
 - due to vertebral insufficiency 1593
- sudden unexplained death in epilepsy 480
- Sudeck's atrophy, *see* reflex sympathetic dystrophy
- SUDEP 480
- sufentanil 110
 - to control ICP 1050
- sugammadex 143
- sugar coating 747
- suicide jumper's fracture 1216
- sulcal arteries 87
- sulcus arteriosus of C1 1782
- sulindac 145
- sunburst pattern (on skull X-ray) 1662
- SUNCT 520
- Sunderland classification of nerve injury 578
- superficial radial nerve 560
- superficial siderosis 1697
- superficial temporal artery 76
 - biopsy 205
 - middle cerebral artery (STA-MCA) bypass 1602
 - sparing frontal branch with craniotomy 1748
- superior cluneal nerves 1725
- superior facet rule 1795
- superior hypophyseal artery 75, 78, 1478
 - aneurysms 1478
- superior laryngeal neuralgia 1874
- superior orbital fissure 65
 - syndrome of 599
- superior petrosal sinus, anatomy 85
- superior petrosal vein, coagulation for MVD 1868
- superior sagittal sinus
 - and transcallosal approach 1759
 - involvement with depressed skull fracture 1063
 - involvement with meningioma 815
 - reconstruction 816
 - relationship to sagittal suture 61
 - thrombosis 1595
 - CT findings 1597
- superior temporal gyrus, approach to MCA trifurcation aneurysms 1477
- supinator syndrome 559
- supplemental motor area 56
- supraclinoid aneurysms 1478
- suprameatal tubercle 1868
- supraorbital neuralgia 521
- supraorbital neurectomy 1862
- suprascapular nerve 532, 538
 - entrapment of 560
- suprasellar lesions 1653
- supratentorial ependymoma 724
 - YAP1 fusion-positive 726
 - ZFTA fusion-positive 725
- supratrochlear nerve 521
- supratrochlear neuralgia 521
- supratrochlear neurectomy 1862
- sural nerve
 - anatomy 1833
 - biopsy 1832
 - in diabetic amyotrophy 572
 - proximal origin 565
- surface anatomy, for spine levels 63
- surface EMG 1236
- SurgiFlo® 1719
- surveillance mode 627
- Suzuki grading system (moyamoya) 1583
- swallowing difficulties
 - differential diagnosis 1712
 - following anterior cervical discectomy 1286
 - following carotid endarterectomy 1567-1568
 - with jugular bulb thrombosis 1595
 - with ossification of anterior longitudinal ligament 1373
- Swann-Ganz catheter, *see* pulmonary-artery catheter
- swashbuckler's disease 561
- swimmer's view of cervical spine 1145
- swinging flashlight test 591-592
- Sylvian fissure
 - dissection 1750
 - surface anatomy 61
- sympathectomy 1853
 - cardiac (for angina pectoris) 1853
 - for hyperhidrosis 1854
 - for moyamoya disease 1585
 - for reflex sympathetic dystrophy 527
 - for vasospasm 1445
 - upper extremity 1853
- sympathetic block 1834
 - for reflex sympathetic dystrophy 527
- sympathetic dystrophy, *see* complex regional pain syndrome
- sympathetic nervous system
 - innervation of bladder 93
 - innervation of pupil 590
- sympathomimetics, and intracerebral hemorrhage 1611
- symptomatic chronic extra-axial fluid collections in children 1088
- symptomatic vasospasm 1440
- symptomatogenic zone 1889
- symptoms
 - clumsy hands 1299, 1541
 - dysgeusia (with hyponatremia) 117
 - laughing (with gelastic seizures) 277
- synaptophysin 632
- synchondroses of pediatric C-spine 226
- synchronous germ cell tumors 831
- syncope
 - differential diagnosis 1684
 - with colloid cysts 945
 - with glossopharyngeal neuralgia 1874
 - work-up for 1685
- syndesmosphytes in ankylosing spondylitis 1365
- syndrome
 - acquired immunodeficiency (AIDS) 353
 - Ahumada-del Castillo (amenorrhea-galactorrhea) 867
 - Aicardi 276
 - alcohol withdrawal 212
 - amenorrhea-galactorrhea 863, 867
 - anterior cerebral artery 1440
 - anterior choroidal artery 1539
 - anterior cord 1135
 - anterior tibial compartment 1259
 - antiphospholipid-antibody 1542, 1594
 - Anton-Babinski 99
 - Anton's 430
 - Apert's 266, 268
 - arterial occlusion syndromes 1538
 - Baastrop's 1332
 - Bannwarth's 365
 - Behçet's 203, 208
 - Benedikt's 101
 - Bernhardt-Roth 561
 - Bertolotti's 1382
 - bobble-head doll 262
 - brain tumor polyposis (BTTP) 651
 - Brown-Séquard 1135
 - Brun 406
 - Bruns-Garland 572
 - burning hands 1126
 - Call-Fleming (with cortical SAH) 1494

- carcinoid 942
 - Carney 652
 - carotid stump 1587
 - carpal tunnel 546
 - cauda equina 923, 1254
 - caudal regression 1681
 - caudal vermis 1744
 - cavernous sinus 1689
 - central cord 1132
 - cerebellar 625
 - cerebellar fossa 100
 - cerebellar mutism 100
 - cerebral hyperperfusion 1568
 - cervical disc herniation 1280
 - Charcot-Marie-Tooth 568
 - Chiari-pseudotumor cerebri 301
 - chiasmal 809
 - Churg-Strauss 208
 - Claude 1541
 - Collet-Sicard 103
 - constitutional mismatch repair deficiency 651
 - Cowden 651
 - craniofacial dysmorphic 268
 - craniofacial pain 519
 - CRASH (X-linked hydrocephalus) 435
 - cubital tunnel 554
 - Cushing's 867
 - Cushing's, iatrogenic 156
 - Dandy's 604
 - de Morsier 276
 - de Quervain's 548
 - Dejerine-Roussy 1541
 - Devic 1698
 - diencephalic 695
 - disconnection 1760, 1893
 - double-crush 547
 - Duane 601
 - Eagle 1710
 - Eaton-Lambert 211
 - empty sella 900, 951
 - ethanol withdrawal 213
 - failed back surgery 1243, 1262
 - falx 1080
 - familial intracranial aneurysms 1455
 - fat embolism 1013
 - fetal hydantoin 490, 501
 - floppy infant 1702
 - foramen magnum compression 297
 - Forbes-Albright (amenorrhea-galactorrhea) 867
 - Foster Kennedy 100, 808
 - Fowler's (urinary retention) 1254
 - Froin's 987
 - Gardner's 972
 - Gerstmann 99
 - Gorlin's 1667
 - Gradenigo's 601
 - Grisel 1158
 - Guillain-Barré 193
 - Hakim-Adams 438
 - HELLP 1425
 - herniation 324
 - Horner 594
 - Hurler 228, 1696
 - in cervical spondylosis 1299
 - inappropriate antidiuresis (SIAD) 117
 - inappropriate antidiuretic hormone secretion (SIADH) 118
 - infantile hemiplegia 1889
 - Jackson's 104
 - Joubert's 271
 - jugular foramen 102
 - Kallmann 864
 - Kleebattschädel 268
 - Klippel-Feil 289
 - Korsakoff's 215
 - L1 (X-linked hydrocephalus) 435
 - LAMB 652
 - lateral medullary 1539
 - lateral recess 1329
 - Lennox-Gastaut 484
 - Li-Fraumeni 650
 - lumbar disc herniation 1253
 - malignant hyperthermia 112
 - Marfan 1576
 - McCune-Albright 975
 - Meige's 1871
 - mesencephalothalamic 1541
 - middle cerebral artery 1440
 - Millard-Gubler 101
 - MISME 640
 - Möbius 1687
 - Möbius (facial diplegia) 607
 - Morgagni's 974
 - Morquio 1309, 1696
 - motor trephine 1763
 - Munchausen's 507
 - Nelson's 863, 869, 892
 - nerve root 1253
 - neurocutaneous 637
 - neurovascular compression 1857
 - of the jugular foramen 102
 - of the Sylvian aqueduct 101
 - of the trephined 1763
 - Ogilvie's 1259
 - orbital apex 599
 - Osler-Weber-Rendu 1524, 1542
 - osmotic demyelination 119
 - ovarian hyperstimulation 867
 - painful disc 1235
 - Pallister-Hall 277
 - Pancoast 570
 - paraneoplastic 211, 569
 - parietal lobe 98
 - Parinaud's 101, 427, 1541
 - Parkinson and related 184
 - Parsonage-Turner 570
 - PHACES 1647
 - piriformis 1701, 1737
 - postconcussive 1111
 - posterior cord 1136
 - posterior fossa 100
 - posterior reversible encephalopathy 202
 - pronator teres 544
 - propofol infusion syndrome 140
 - pseudotumor cerebri 955
 - PTEN hamartoma tumor 651
 - Ramsay Hunt 1873
 - reflex sympathetic dystrophy 525
 - Reiter 1705
 - reversible cerebral vasoconstriction syndrome (RCVS) 1494
 - scalenus (anticus) 582
 - Schmidt 104, 158
 - Schwartz-Bartter 118
 - second impact 1025
 - shaken baby 1104
 - short pedicle 1329
 - Shy-Drager 186
 - sinking skin flap 1763
 - Sjögren's 841
 - slit ventricle 462
 - Soto's 1692
 - spinal cord injury 1132
 - spontaneous intracranial hypotension 421
 - Steele-Richardson-Olszewski 186
 - Stevens-Johnson 490-491, 494, 496-497
 - Sturge-Weber 652
 - stylohyoid (Eagle) 1710
 - superior orbital fissure 599
 - supinator 559
 - Tapia 103
 - Terson 1419
 - tethered cord 290
 - thoracic outlet 581
 - Tolosa-Hunt 600
 - top o' the basilar 1541
 - Turcot 651
 - vasospasm 1440
 - Vernet's 102
 - Villaret's 103
 - Wallenberg's, see lateral medullary syndrome
 - Waterhouse-Friderichsen 340
 - Weber's 101, 1541
 - West 484
 - white cord 1308
 - wounded glioma 669
 - Zollinger-Ellison 136
 - syndrome of inappropriate antidiuresis (SIAD) 117
 - syndrome of inappropriate antidiuretic hormone secretion (SIADH) 118
 - following subarachnoid hemorrhage 1435
 - synekinesis 290
 - synovial cyst (spinal) 1340
 - syphilis
 - as cause of myelopathy 1700
 - neurosyphilis and AIDS 354
 - syringobulbia 1405
 - syringomyelia 1405
 - differential diagnosis
 - etiologies 1405
 - other conditions 1408
 - symptoms 1709
 - follow-up 1409
 - in Chiari type 1 malformation 296, 300
 - in Chiari type 2 malformation 304
 - in myelomeningocele patients 290
 - management 1409
 - syringobulbia 1405
 - with spinal hemangioblastoma 648
 - syringo-subarachnoid or -peritoneal shunt 1409
 - Edwards-Barbaro shunt 1410
 - syrinx, see syringomyelia
 - systemic lupus erythematosus
 - and cerebral venous thrombosis 1594
 - and primary CNS lymphoma 841
 - and stroke in young adults 1542
 - differential diagnosis on CT/ MRI 1650
 - vs. pseudotumor cerebri 962
- T**
- T1 pelvic angle (TPA) 1314
 - T2* GRE MRI 241, 1282
 - T2* GRE MRI image, flow enhancement in AVMs 1525
 - T2 shine-through on MRI 243
 - T2-FLAIR mismatch 660
 - T5K angle 1323
 - tabes dorsalis 1700
 - table salt sodium equivalents 123
 - tachyzoites 404
 - talalafil, and low back pain 1706
 - Taenia solium 404
 - tagged WBC scan for vertebral osteomyelitis 389
 - Takayasu's arteritis 203
 - talipes equinovarus, in lipomyelomeningocele 284
 - talk and die (delayed deterioration after TBI) 1000
 - tamoxifen, for osteoporosis 1212
 - tamsulosin 97
 - tap and wrap (for pseudomeningocele) 1746
 - tap test (for NPH) 443, 446
 - tapering steroids, see steroids - withdrawal
 - Tapia syndrome 103

- tapping a shunt, *see* shunts (CSF) - tapping
- target sign, with tuberculomas 359
- Tarlov cyst 1341, 1400
- tarsal tunnel 565
- TASC, *see* transverse area of the spinal cord
- Taylor-Haughton lines 61
- teardrop fracture 1184
- treatment 1185
- technetium pertechnetate 247
- tectal beaking 304
- tectal gliomas 697
- tectorial membrane 67
- TED Stockings® 177
- telangiectasia, capillary 1524
- teovelar approach to 4th ventricle 1744
- temozolamide, for invasive pituitary tumors 859
- temozolamide 627-628
- for grade 2 astrocytomas 672
- temporal arteritis, *see* giant cell arteritis
- temporal artery, *see* superficial temporal artery
- temporal bone fractures 1064
- temporal craniotomy 1751
- temporal horns, in hydrocephalus 432
- temporal lobe agenesis syndrome 260
- temporal lobe epilepsy 483
- surgery for 1893
- temporal lobectomy 1753
- for seizures 1893
- for trauma 1051
- temporary clipping, in aneurysm surgery 1465, 1467
- tenecteplase 1563
- TENS, *see* transcutaneous electrical nerve stimulation
- tension pneumocephalus, *see* pneumocephalus
- tentorial herniation, *see* central herniation
- teratoma 758, 831-832
- immature 833
- mature 832
- sacral 1680
- with somatic-type malignancy 833
- terazosin 97
- teriparatide 1211
- Terson syndrome 1419
- test dose radiation for pineal tumors 760
- tethered cord syndrome 290
- and scoliosis 291
- in myelomeningocele 283
- tetralogy of Fallot, and cerebral abscess 344
- thalamic hemorrhage 1614
- thalamic lesions
- differential diagnosis 1673
- surgical/therapeutic 1843
- thalamic subradiations 67
- thalamoperforating arteries 78, 81
- and basilar tip aneurysms 1484
- thalamotomy
- for Parkinson's disease 186, 1840
- for spasticity 1847
- thalassemia major 179
- thalidomide
- as a cause of peripheral neuropathy 573
- for Behçet's syndrome 208
- thallium, toxicology on the nervous system 573, 1703
- thermal diffusion flowmetry 1046
- thermography
- for low back problems 1236
- for reflex sympathetic dystrophy 526
- thiamine
- deficiency 214
- for ethanol withdrawal 214
- for Wernicke's encephalopathy 215
- in coma 320
- thiazide
- causing SIADH 116
- for diabetes insipidus (DI) 128
- thickened filum terminale
- definition 291
- in tethered cord 290
- thiopental 140
- coma 1057
- during aneurysm surgery 1465
- third nerve palsy, differential diagnosis 592
- third ventricle 62
- surgical approaches 1757
- tumors/lesions of 1668-1669
- third ventriculostomy
- for NPH 447
- indications 453
-- for pineal cysts 949
- technique 1828
- thoracic aortic aneurysms, in giant cell arteritis 204
- thoracic disc herniation 1271
- thoracic kyphosis (TK) 1314
- thoracic outlet syndrome 581
- scalenectomy 582
- thoracic spinal stenosis 1327
- thoracic spine fractures 1200
- thoracic stenosis, *see* spinal stenosis - thoracic
- thoracodorsal nerve 538
- thoracolumbar injury classification score (TLICS) 1206
- three phase bone scan 247
- three-column model of spine 1200
- thrombin 1719
- causing edema around hemorrhage 1615
- thrombocytopenia
- and Avitene® 1719
- and intracerebral hemorrhage 1609
- in DIC 176
- platelets transfusion for 161
- with heparin 172
- thromboembolism 176
- thrombolytic agents/therapy
- for evacuating intracerebral hemorrhages 1839
- for ischemic stroke 1563
- for vasospasm 1445
- preceding intracerebral hemorrhage 1611
- thrombophilia 1594
- thrombophlebitis, *see* deep-vein thrombosis
- thrombosis
- cavernous sinus 1595, 1691
- cerebral venous thrombosis 1594
- deep vein 176
- dural sinus 1594
- median artery 547
- of cerebral aneurysm 1454
- thumb innervation 533
- thunderclap headache 1418
- thyroid hormone
- evaluation of pituitary function 876
- replacement 158
-- precipitating adrenal crisis 886
- thyroid ophthalmopathy 1659
- thyroid transcription factor 1 (TTF1) 853
- thyrotoxicosis, *see* hyperthyroidism
- thyrotroph hyperplasia 878
- differential diagnosis 1653
- thyrotropin releasing hormone (TRH), stimulation test 876
- thyrotropin (TSH) 153
- endocrine evaluation 876
- thyrotropin-secreting PitNETs 863, 871
-- management 892
-- outcome 904
- TIA, *see* transient ischemic attack
- tiagabine 498
- tibial nerve entrapment 565
- tic convulsif 519, 1870, 1873
- tic douloureux, *see* trigeminal neuralgia
- TICI revascularization scale (modified) 1933
- tick paralysis 195
- tiger stripes (on MRI) 717
- tight high convexity (in iNPH) 441
- tight-fit hypothesis 1028
- tilt-table test 1685
- tiludronate 1364
- Timed Up & Go (TUG) test 443
- timing of intervention for ruptured aneurysm, practice guideline 1462
- timing of surgery
- aneurysms 1461
-- basilar bifurcation aneurysms 1482
- carotid endarterectomy after stroke 1566
- cauda equina syndrome 1255
- central cord syndrome 1134
- cranioplastic 1763
- decompressive craniectomy 1071
- depressed skull fracture 1063
- epidural hematoma 1074
- facial nerve injury 610
- herniated disc, emergent 1256
- myelomeningocele closure 282
- peripheral nerve injury 535
- posterior fossa masses 1090
- spinal cord injury 1149
- subdural hematoma 1078
- Tinel's sign 578
- in carpal tunnel syndrome 547
- in peroneal nerve palsy 564
- in tarsal tunnel 565
- reverse 547
- with ulnar nerve entrapment in Guyon's canal 558
- tinnitus
- differential diagnosis 1693
- following concussion 1111
- in idiopathic pseudotumor cerebri 958
- in Meniere disease 605
- tinzaparin 173, 178
- tirilazad mesylate
- for severe TBI 1055
- for spinal cord injury 1140
- tissue plasminogen activator
- contraindications 1563
- for cerebral venous thrombosis 1935
- for ischemic stroke 1563, 1918
- in stroke work-up 1543
- preceding intracerebral hemorrhage 1564, 1611-1612
- to lyse intracerebral hemorrhage 1839
- to lyse intraventricular hemorrhage 1626
- titubation 625
- TLICS, *see* thoracolumbar injury classification score
- TLIF, *see* transforaminal lumbar interbody fusion
- TLSO (brace) 1206
- tobramycin, for meningitis 340
- Todd's paralysis 480, 1684
- tolmetin 145

- Tolosa-Hunt syndrome 599–600
 tolterodine 96
 tomaculous changes in peripheral nerves 568
 tongue fasciculations in ALS 1301
 tonsillar herniation
 – acute 325
 – asymptomatic 298
 – from LP shunt 456
 – in Chiari malformation 296, 298
 – on MRI 298
 top o' the basilar embolism 1541
 topiramate 498
 toptotecan 628
 TORCH infections 1692
 torcula-lambdaoid inversion 270
 torcular herophili 85
 Torg ratio, see Pavlov's ratio
 Torkildsen shunt 436, 454
 torticollis 1844
 – congenital 267
 – differential diagnosis 1844
 – due to atlantoaxial subluxation 1158
 touch preparation 629
 Tourette syndrome, deep brain stimulation for 1842
 Towne's view 227
 toxic epidermal necrolysis, with lamotrigine 497
 toxicology, see neurotoxicology
 toxoplasmosis 354, 404
 – CT findings 355
 – treatment in AIDS 356
 TP53 tumor suppressor gene 550
 trace image on DWI MRI 243
 tracheostomy, timing of 1106
 traction
 – cervical 1148, 1169
 – causing atlantooccipital dislocation 1148
 – use in atlantoaxial rotatory subluxation 1160
 – use in atlantooccipital dislocation (cautions) 1155–1156
 – pelvic 1238
 train of four, and reversal of neuromuscular blockade 143
 tramadol 147
 – dosing forms 147
 – for neuropathic pain 519
 tram-tracking in Sturge-Weber 652
 tranexamic acid 1437, 1919
 transarticular facet screws, C1–2 1779
 transarticular screw fixation (cervical) 1786
 transcallosal approach 1758
 – for colloid cyst 947
 – for pineal region tumors 761
 transcortical approach to lateral ventricle 1762
 transcranial Doppler
 – for brain death evaluation 334
 – for laparoscopy in patient with VP shunt 466
 – for vasospasm 1443, 1446
 transcranial motor evoked potentials 252
 transcuteaneous electrical nerve stimulation
 – for back pain 1238
 – for occipital neuralgia 542
 transepndymal absorption of CSF 459
 – differential diagnosis 1670
 – in normal pressure hydrocephalus 441
 transepndymal flow of CSF 432
 transfacet pedicle screws 1805
 transfacet screw, C7 1786
 transfer of trauma patients 1001
 – gunshot wounds 1093
 – hyperemia following 1026, 1037, 1098
 – intracranial pressure
 – – indications to monitor 1038
 – – indications to treat 1047
 – – intracranial hypertension 1036
 – late complications 1111
 – nutrition 1106
 – outcome 1109
 – patients who talk and die 1000
 – pediatric 1098
 – penetrating, arrow 1096
 – penetrating non-missile 1096
 – postconcussive syndrome 1111
 – posttraumatic cerebral edema 1026
 – primary brain injury 1000
 – second impact syndrome 1025
 – secondary injury 1000
 – severe head injury 1001
 – transfer assessment 1001
 – spine 1118, 1140, 1215
 – – cervical 1194
 – – compression injuries 1183
 – – delayed instability 1221
 – – extension injuries 1191
 – – flexion injuries 1183
 – – in ankylosing spondylitis 1366
 – – lateral mass & facet fractures 1191
 – – pediatric 1121
 – – return to play guidelines 1126
 – – sports injuries 1125
 – – vertebral artery injuries 1032
 – gunshot wound 1219
 – incomplete spinal cord injury 1132
 – lumbar fractures 1200
 – pediatric 1121
 – penetrating non-missile 1219
 – radiographic evaluation 1141
 – surgical treatment 1194
 – – surgical treatment, timing of 1149
 – – thoracic fractures 1200
 – – stress doses of steroids for 155
 – trauma flap 1015
 traumatic aneurysms 1066, 1491
 traumatic cervical disc herniation 1280
 traumatic intracerebral hemorrhage, see hemorrhagic contusion
 traumatic iridoplegia 592
 traumatic mydriasis 592
 traumatic spondylolisthesis of the axis 1165
 traumatic subarachnoid hemorrhage 1008
 traumatic tap (LP) 1813
 trazodone 519
 tremor 1841
 Trendelenburg sign 1252
 triamcinolone, for severe TBI 1055
 triangular space of Parkinson 87
 tricalcium phosphate 1721
 triclette 452
 trickle feed 1107
 tricyclic antidepressants, see antidepressants
 trifurcation, middle cerebral artery 75
 trigeminal ganglion
 – lesioning 1861
 – location 76
 – tumor of 1859
 trigeminal neuralgia 1857
 – and multiple sclerosis 188, 1859
 – atypical 1857
 – bilateral 188, 1859
 – differential diagnosis 1859
 – due to aneurysm 1455

- due to tumors 1859
 - following treatment for vestibular schwannoma 788
 - from fibrous dysplasia 976
 - stereotactic radiosurgery for 1864, 1904
 - surgical therapy for 1861
 - with vestibular schwannoma 790
 - trigeminal neuroma 1647
 - trigeminal trophic syndrome 1863
 - trigger point injection, for low back pain 1239
 - triggered EMG (for pedicle screws) 1794
 - trigonocephaly 267
 - triphasic response of DI 125
 - triple flexor response 91
 - triple-H therapy for vasospasm 1447
 - triradiate cartilage closure (scoliosis bracing) 1321
 - triton tumors 798
 - triventricular hydrocephalus 273, 426
 - trocar insertion of peritoneal catheter 1826
 - trochanteric bursitis
 - vs. neurogenic claudication 1333
 - vs. radiculopathy 1701
 - trochlear nerve palsy 598
 - trochleitis 521
 - trophic feed 1107
 - tropical (spastic) paraparesis of AIDS 1699
 - tropicamide 593
 - trospium 97
 - TruFUSE® facet fusion 1806
 - trumpeting of the IAC 783
 - tryptophan, for pain 149
 - T-score (DEXA scan) 1209
 - for interspinous spacers 1346
 - tuber cinereum
 - for third ventriculostomy 1829
 - hamartomas of 277
 - tuberculoma (intracranial) 358
 - tuberculosis, CNS 357
 - tuberculous meningitis 1688
 - and ophthalmoplegia 600
 - and SIADH 116
 - tuberculous meningitis 360
 - tuberculous spondylitis, see Pott's disease
 - tuberculum sellae 809
 - meningiomas 809
 - tuberous sclerosis complex 644
 - TUG (Timed Up & Go) test 443
 - tumefactive demyelinating lesions 190
 - tumor, brain
 - frozen section 629
 - gross total resection 669
 - tumor embolization 1935
 - tumor filter, for CSF shunts 458
 - tumor headache 623
 - tumor markers 631
 - in pineal region tumors 832
 - Ki-67 660
 - Ki-67 proliferation index 632
 - MIB-1 632
 - neuroendocrine tumors 632
 - tumor necrosis factor alpha (TNF- α) inhibitors 1378
 - tumor TIA 624, 914, 1685
 - tumors
 - brain
 - and deep vein thrombosis 176
 - and headaches 623
 - astrocytoma 657
 - cerebellar (pilocytic) 693
 - pilocytic 689
 - central neurocytoma 719
 - cerebellar liponeurocytoma 721
 - congenital 622
 - glioma 657
 - neonatal 622
 - pediatric 621
 - pediatric-type diffuse low-grade gliomas 679
 - prophylactic antiepileptic medications for 626
 - surveillance mode 627
 - brainstem glioma 695
 - classification (WHO 2021) 616
 - foramen magnum 1649
 - glomus jugulare 941
 - immunohistochemical staining patterns 631
 - markers 631, 832
 - mesenchymal, non-meningothelial 820
 - metastases
 - of CNS tumors through CSF 908
 - of primary CNS tumors 909
 - to brain 908
 - to spine 921
 - of the 3rd ventricle 1668
 - of the lateral ventricle 1669
 - of the third ventricle 1757
 - pineal region tumors, differential diagnosis 758
 - posterior fossa 625
 - primary spinal 979
 - skull 972, 1661
 - spine 979, 989
 - and disc space involvement 1680
 - astrocytoma 985
 - axis vertebra 922
 - differential diagnosis 1678
 - causing sciatica 1701
 - dermoid/epidermoid 985
 - ependymoma 984
 - hemangioblastoma 986
 - in neurofibromatosis 640
 - intramedullary 984
 - intramedullary metastases 986
 - lipoma 986
 - lymphoma 979
 - meningiomas 981
 - multiple myeloma 928
 - primary 979
 - Tuohy needle 1818
 - Turcot syndrome 651
 - tussive headache 296
 - twenty-four month rule (for peripheral nerve repair) 535
 - Twining view of cervical spine 1145
 - Twining's line 62
 - twist drill craniotomy for chronic subdurals 1083
 - Tymlos™ 1211
 - pineal region tumors, differential diagnosis 758
 - posterior fossa 625
 - primary spinal 979
 - skull 972, 1661
 - spine 979, 989
 - and disc space involvement 1680
 - astrocytoma 985
 - axis vertebra 922
 - differential diagnosis 1678
 - causing sciatica 1701
 - dermoid/epidermoid 985
 - ependymoma 984
 - hemangioblastoma 986
 - in neurofibromatosis 640
 - intramedullary 984
 - intramedullary metastases 986
 - lipoma 986
 - lymphoma 979
 - meningiomas 981
 - multiple myeloma 928
 - primary 979
 - Tuohy needle 1818
 - Turcot syndrome 651
 - tussive headache 296
 - twenty-four month rule (for peripheral nerve repair) 535
 - Twining view of cervical spine 1145
 - Twining's line 62
 - twist drill craniotomy for chronic subdurals 1083
 - Tymlos™ 1211
 - unlar neuropathy at the elbow, electrodiagnostic criteria for 555
 - ultrasound (diagnostic)
 - for carotid stenosis 1545
 - for dural sinus thrombosis 1599
 - for neonatal intracerebral hemorrhage 1632, 1634
 - for ulnar neuropathy 556
 - intraoperative for spine fracture 1207
 - ultrasound (therapeutic), for low back pain 1238
 - umbilical cord clamping and PIVH 1632
 - uncal fits, see uncal seizures
 - uncal herniation 327
 - CT criteria 327
 - uncal seizures 483
 - differential diagnosis 1672
 - uncinate seizures, see uncal seizures
 - undershunting 460
 - unintended durotomy, see durotomy
 - unintended
 - unprovoked seizure 480
 - unruptured aneurysms 1486
 - upgaze palsy
 - differential diagnosis 101
 - with Parinaud's syndrome 101
 - upper cervical spine abnormalities 1308
 - upper lumbar disc herniation 1263
 - upper motor neuron paralysis 531
 - upper motor neurons 531
 - upward cerebellar herniation 325
 - urea, for hyponatremia 123
 - uremia, and pseudotumor cerebri 957
 - uremic encephalopathy, and delirium 182
 - uremic neuropathy 576
 - urinary 17-
 - hydroxycorticosteroids 880
 - urinary retention
 - differential diagnosis 95
 - in cauda equina syndrome 1254
 - postoperative 1260
 - urine free cortisol 876
 - urine osmolality 126
 - in diabetes insipidus (DI) 126
 - urine specific gravity 126
 - urodynamic testing 95
 - urokinase, for intracerebral hematoma 1839
 - urticaria 233
 - U-shaped sacral fracture 1216
 - uveyclitis, with CNS lymphoma 842
- ## U
- Uhthoff sign in MS 189
 - ulcers
 - antacids and H2 inhibitors for 134
 - Cushing's 134, 1050
 - prophylaxis 134
 - and pneumonia 135
 - steroid 156, 1050
 - stress 134, 1050
 - ulnar groove 554
 - ulnar nerve
 - entrapment 553
 - electrodiagnostic findings 555
 - treatment
 - decompression 556
 - non-surgical 556
 - submuscular transposition 557
 - surgical options 556
 - muscles innervated by 538
 - perioperative neuropathy 575
 - ulnar neuropathy, see ulnar nerve
- ## V
- V shaped pre-dens space 1161
 - VA shunt, see ventriculo-atrial shunt
 - vaccination for CSF leak 341
 - vacuum disc 1227
 - vagus nerve stimulation for seizures 1895
 - valacyclovir, for herpes zoster 523
 - valproate 492
 - and neural tube defects 313, 492
 - dosing forms 492
 - for geniculate neuralgia 1873
 - for myoclonic status epilepticus 514
 - vancomycin, for meningitis 340
 - varicella-zoster
 - leukoencephalitis 399
 - vascular claudication 1331
 - vascular malformations 1504
 - angiographically occult 1524
 - arteriovenous malformation (AVM) 1504
 - spinal 1395
 - vascular territories (cerebral) 74

- vasculitis, ANCA-associated 207
- vasculitis (cerebral) 203
- vasculopathy 203
 - following stereotactic radiosurgery 1909
 - TB 363
- vasoconstrictive substances, and reversible cerebral vasoconstrictive syndrome 1418
- vasodepressor syncope 1684
- vasogenic cerebral edema 90, 1055
- vasopressin 129
 - preparations 129
 - 8-arginine vasopressin (Pitressin®) 129
- vasospasm 1439
 - chemical spasmolysis 1925
 - diagnostic criteria 1443
 - endovascular treatment 1925
 - following pretruncal nonaneurysmal SAH 1496
 - hemodynamic augmentation for 1447
 - management (practice guideline) 1446
 - optimal hematocrit 1445
 - protocol 1446
 - risk factors after SAH 1441
 - syndromes 1440
 - tests for diagnosing 1443
 - time course 1441
 - treatment 1444
- vasovagal response
 - differential diagnosis 1684
 - from contrast media reaction 233
- VBI, see verteobasilar insufficiency
- vecuronium 142
 - reversal with sugammadex 143
- vein of Galen malformation/aneurysms 1505, 1518
- veins
 - basal vein of Rosenthal 85
 - cerebral venous anatomy 84–85
 - cortical vein sign 434
 - internal cerebral vein 85
 - internal jugular 84
 - supratentorial 84
 - vein of Galen 85
 - vein of Labbe 85
 - vein of Trolard 85
- venous angioma 1512
- venous infarction
 - following transcallosal surgery 1761
 - in cerebral venous thrombosis 1595
 - with cerebral venous thrombosis 1594
 - with subdural empyema 350
 - with superior sagittal sinus occlusion 1754
- venous lakes (of the skull) 1662
- venous malformation, see developmental venous anomaly (DVA)
- venous system, cerebral 84–85
- ventilation-perfusion scan (VQ scan) 179
- ventricles
 - fifth 1657
 - isolated fourth 436
 - lesions/tumors within 1667
 - slit 462
 - surface anatomy 62
 - third 62
- ventricular access device 1831
- ventricular catheterization 1820
 - See also ventricular tap
 - following SAH 1433
 - for brain relaxation during surgery 1464
 - infection of catheter 1039
 - insertion technique 1041, 1823
 - third ventriculostomy 453, 1828
 - to monitor ICP 1040
 - with intracerebral hemorrhage 1623
- ventricular needle 1728
- ventricular tap 1745
 - for neonatal intraventricular hemorrhage 1635
- ventriculitis 372, 1671
- ventriculo-atrial shunt 454, 456
 - insertion technique 1827
- ventriculo-gallbladder shunt 1825
- ventriculogallbladder shunts 1828
- ventriculoperitoneal shunt 454
 - insertion technique 1826
 - trocar peritoneal insertion 1826
- ventriculopleural shunt 454
 - insertion technique 1827
- ventriculoscope, for colloid cyst removal 947
- ventriculostomy, see ventricular catheterization
- ventriculus terminalis 1408
- verapamil
 - for cerebrovascular vasospasm 1919
 - for endovascular neurosurgery 1919
 - intra-arterial for vasospasm 1445
- Vernet's syndrome 102
 - with cerebral venous thrombosis 1595
- verocay bodies 777
- Verocay bodies 769
- vertebra plana 1679
 - differential diagnosis 1679
 - with Langerhans cell histiocytosis 980
- vertebra planum 1213
- vertebral artery
 - anatomy 80
 - dissection 1579
 - injury
 - from anterior cervical discectomy 1286
 - from C1–2 articular facet screws 1779
 - from C1–2 puncture 1820
 - from nonpenetrating cervical trauma 1032
 - from spinal manipulation therapy 1238
 - grading (Denver) 1029
 - segments 81
- vertebral bodies
 - abnormalities of 1677
 - fatty infiltrate 1678
 - scalloping 1679
- vertebral body augmentation 1212
- vertebral column resection (VCR) 1357
- vertebral confluents 81
- vertebral corpectomy
 - cervical 1195
 - thoracolumbar 1206
- vertebral hemangioma 992
 - treatment 994
- vertebral osteomyelitis 386
 - differential diagnosis 1679
 - work-up 389
- vertebrobasilar hypoplasia 1592, 1646
- vertebrobasilar insufficiency 1591
 - due to basilar artery migraine 184
 - due to blunt cervical trauma 1032
- vertebrojugular fistula, endovascular treatment 1930
- vertebroplasty/kyphoplasty 1212
 - for spinal metastases 926
- vertex 61
- vertical crest (of IAC) 63
- vertical nystagmus 586
- vertigo 603
 - differential diagnosis 603
 - due to Meniere disease 605
 - due to vestibular schwannoma 789
 - with basilar artery migraine 184
 - with glomus jugulare tumors 942
- vestibular dysfunction, following vestibular schwannoma surgery 797
- vestibular evoked myogenic potential 782
- vestibular neurectomy
 - following vestibular schwannoma surgery 798
 - for vertigo 603
- vestibular schwannoma 777
 - and hydrocephalus 779, 791
 - and trigeminal neuralgia 1859
 - and vertigo 789
 - bevacizumab (Avastin®) for 785
 - bilateral in neurofibromatosis 2, 642, 777
 - cranial nerve dysfunction post-op 797
 - differential diagnosis
 - of CPA lesion 1647
 - of tinnitus 1693
 - facial nerve palsy, following treatment 797
 - growth rate 785
 - hearing loss
 - following treatment 797
 - from tumor 778, 780
 - management 785
 - radiotherapy (conventional) for 798
 - recurrence following treatment 798
 - stereotactic radiosurgery for 1908
 - radiation dose 1908
 - treatment options 785
 - vs. meningioma 1648
- vestibular schwannoma, vestibular schwannoma 788
- vestibule (of semicircular canals), as route for CSF leak 796
- vidian artery
 - anatomy 77
 - as collateral 1537
- vigabatrin 498
- Villaret's syndrome 103
- viral encephalitis 397
- Virginia Radiosurgery AVM Scale 1906
- visual analogue scale 1228
- visual cortex 57
- visual fields 588
 - deficits 589
 - with ophthalmic artery aneurysm 1478
 - with pituitary tumor 875
 - with pseudotumor cerebri 961
 - visual loss, postoperative 1259
- Vitale checklist 253
- vitamin B12 1699
- vitamin B12 (cyanocobalamin) deficiency
 - and combined system disease (CSD) 1699
 - and pernicious anemia 1699
- vitamin D for osteoporosis 1211
- vitamin K, to reverse warfarin 165, 174
- vitreous hemorrhage
 - at high altitude 1028
 - following SAH 1419
- voiding cystourethrogram 96
- voiding trial 1260
- volume estimation on CT 1616
- von Hippel-Lindau disease 646
 - surveillance protocol 649

von Recklinghausen's neurofibromatosis, see neurofibromatosis - type 1
 von Willebrand's factor, cavernous malformation staining 1526
 VP shunt, see ventriculoperitoneal shunt
 VQ scan, see ventilation-perfusion scan
 vulnerable plaques in carotid stenosis 1543

W

Wackenheimer's clivus-canal line 229
 Wada test 1890, 1918
 - in mesial temporal-lobe epilepsy 483
 wake-up test (Stagnara) 254
 Wallenberg's syndrome, see lateral medullary syndrome
 wallerian degeneration 541, 564
 warfarin 165, 172
 - and intracerebral hemorrhage 1613
 - for atrial fibrillation 1591
 - for DVT treatment 178
 - holding for invasive procedures 164
 - reversal with FFP 174
 - reversal with vitamin K 174
 - risks of interrupting therapy 1622
 - use with lupus anticoagulant 175
 warning headache 1418
 Wartenberg's sign 554
 water deprivation test 127
 water-hammer theory of Gardner 1406
 Waterhouse-Friderichsen syndrome 340
 water-load test 119
 Water's view 227
 watershed infarct 1536
 watershed zone
 - and central cord syndrome 1133
 - in thoracic spinal cord 88
 WBC scan, see tagged WBC scan
 weakness
 - foot drop 1706
 - hemiparesis/hemiplegia 1703
 - paraplegia/quadruplegia 1702
 - proximal muscles 1688, 1700
 - upper extremity 1709
 - with cauda equina syndrome 1705
 Weber test 611

- in vestibular schwannoma 779
 Weber's syndrome 101, 1541
 Wegener's granulomatosis 207, 1674
 weight loss in pseudotumor cerebri 965
 Werdnig-Hoffmann disease 1702
 Wernicke's encephalopathy 214, 513
 Wernicke's speech area 57
 West syndrome 484
 Westphal's sign 1253
 WFNS, see World Federation of Neurosurgical Societies
 whiplash injuries 1119
 White and Panjabi
 - criteria of cervical spine stability 1182
 - definition of clinical spinal stability 1118
 white cord syndrome 1308
 white matter lesions - differential diagnosis 1652
 WHO CNS5 tumor classification 616
 whole blood transfusion 160
 wide-based gait 1686
 Wilbrand (knee of) 590
 - compression 875, 1478
 Wilson's disease 1673
 windshield wiper eyes 323
 winging of the scapula 538
 - in brachial plexitis 571
 winking owl sign 923
 Wolff's law 1305
 word recognition score 780
 work, time off and chronic low back pain 1241
 worker's compensation
 - and failed back surgery syndrome 1243
 - and outcome with herniated lumbar disc 1268
 - in history of low back problems 1229
 World Federation of Neurosurgical Societies grading scale 1424
 World Health Organization, classification of nervous system tumors 616
 wound infection 377
 - craniotomy 380
 - laminectomy 377
 wounded glioma syndrome 669
 wrapping aneurysms 1457
 wrist drop 559
 wrong way gaze 322
 wry neck 1844

X

xanthoastrocytoma, see pleomorphic xanthoastrocytoma
 xanthochromic CSF 1422, 1814
 Xarelto® (rivaroxaban) 166
 XLIF, see lateral lumbar interbody fusion
 X-linked hydrocephalus 434
 Xpert MTB/RIF assay (TB) 361
 X-rays 222
 - cervical spine
 -- in atlas fractures 1162
 -- in hangman's fractures 1167
 -- oblique views 1144
 --- for unilateral locked facets 1188
 -- pediatric 224
 - craniocervical junction, lateral view 222
 - lumbosacral spine 226, 1231
 - shunts 456
 - skull 227
 -- differential diagnosis of lesions 1661
 -- fractures 1062, 1104
 --- growing skull fracture 1100
 -- indications in E/R 1011
 - spine
 -- in E/R 1011
 -- with metastases 923-924
 X-Stop®, see interspinous spacer
 xylocaine, for endovascular neurosurgery 1920

Y

Yale brace 1124
 yellow ligament, see ligamentum flavum
 yolk sac tumor 835

Z

zalcitabine 574
 Zellballen 776
 zero profile interbody devices 1788
 zidovudine 574
 Zollinger-Ellison syndrome 136
 - and vitamin B12 deficiency 1699
 - in multiple endocrine adenomatosis 863
 zones of the neck 1220
 zonisamide 496
 - for postherpetic neuralgia 524
 zoster sine herpette 522
 Z-score (DEXA scan) 1209