

Definition

► Epidemiology

Most common (90–95%) of all branchiogenic malformations (cysts, fistulas) • Usually clinically silent in newborns • Often first recognized in adolescents and adults • Initial diagnosis usually made at 20–40 years of age.

► Etiology, pathophysiology, pathogenesis

Cyst in the lateral cervical triangle • Arises from the second (or occasionally the third) branchial arch • In the sixth week of embryonic development, the second branchial arch overgrows the third and fourth arches and the second through fourth branchial clefts • Persistent communication results in cysts and fistulas.

Imaging Signs

► Modality of choice

MRI, CT.

► CT findings

Cystic mass (10–25 HU) lateral to the neurovascular sheath (up to 10 cm in diameter) • Displaces the submandibular gland anteromedially, displaces the sternocleidomastoid muscle posterolaterally • Often located near the mandibular angle; occasionally parapharyngeal or anterior to neurovascular sheath • Septation and intracystic hemorrhage (density) are rare • Only infected cysts show enhancement of the thickened wall after contrast administration.

► MRI findings

T1-weighted signal intensity depends on protein and blood content (low = hypointense, high = hyperintense) • High T2-weighted signal intensity • Well-circumscribed, noninfiltrating mass • Intense enhancement of the wall after gadolinium enhancement is seen only in infected cysts.

► Pathognomonic findings

Nonenhancing smooth-bordered cyst located medial to the neurovascular sheath, anterior to the sternocleidomastoid muscle, and posterior to the submandibular gland.

Clinical Aspects

► Typical presentation

Soft, usually asymptomatic mass in the region of the mandibular angle or lateral neck • May become infected • Infection characterized by pain and lymph node swelling • Openings of sinus tracts on the skin surface are visible at birth • These may drain mucus.

► Treatment options

Complete cystectomy with adequate margins to remove any sinus tracts.

► Course and prognosis

Excellent prognosis after complete resection • Infection hampers surgical removal.



Fig. 9.1 Infected branchial cleft cyst. Postcontrast CT. A cyst at the level of the right mandibular angle shows central low density with a thickened, enhancing wall. The sternocleidomastoid muscle has been displaced posterolaterally and the neurovascular sheath medially.

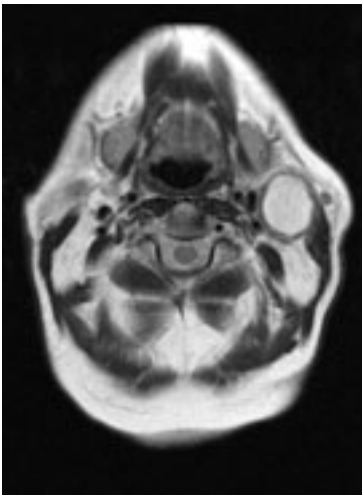


Fig. 9.2 Unenhanced T2-weighted MR image of a branchial cleft cyst in the left submandibular region. The center of the cyst is markedly hyperintense, and the cyst wall shows intermediate signal intensity. The sternocleidomastoid muscle has been displaced posterolaterally, the neurovascular sheath medially.

Differential Diagnosis

<i>Inflammatory or malignant lymph node enlargement</i>	<ul style="list-style-type: none"> – Central enhancement after contrast administration (in the absence of central necrosis) – Usually multiple, distributed along vessels
<i>Cystic hygroma</i>	<ul style="list-style-type: none"> – Usually multilocular – Often larger and septated – Most common in children younger than 2 years of age
<i>Abscess</i>	<ul style="list-style-type: none"> – Usually incites inflammatory reaction in surrounding tissue
<i>Hematoma</i>	<ul style="list-style-type: none"> – No enhancing wall – Signal changes
<i>Thymic cyst</i>	<ul style="list-style-type: none"> – Located at a more caudal level and within the neurovascular sheath – Cystic mass, sometimes with a spongelike appearance
<i>Cystic neurinoma</i>	<ul style="list-style-type: none"> – Lateral to the neurovascular sheath

Tips and Pitfalls

May be confused with abscess or hematoma • Differentiating feature: Relationship to neurovascular sheath.

Selected References

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