Chapter 18
The Scapular Skin Flap

The scapular cutaneous flap was one of the earliest free flaps to be clinically applied. The subscapular artery branches off the third part of the axillary artery, as we have already seen in the description of the latissimus dorsi and serratus anterior muscle flaps. It is one of the vessels with minimal, or practically no, variability of its consistent thoracodorsal and other arterial branches. Gilbert performed early cadaver dissections, isolating oblique skin territories based on the circumflex scapular arterial system, and later applied the knowledge clinically.[1] Others followed suit and delineated the characteristics of the cutaneous branches of the circumflex scapular artery more clearly, so that the territories of its two largest terminal branches were described.[2] This led to the formation of the transverse and oblique scapular cutaneous flaps, the latter also being called the "parascapular" flap. Further, other components, such as bone from the lateral border of the scapula[3] and deep fascia overlying the back muscles,[4] were added to the original cutaneous flap, making the scapular and parascapular flaps a more versatile option. Additionally, the scapular flaps offer the possibility of combining them with other muscular and bone flaps, all based on the subscapular vascular pool.

The scapular flap is a popular option among reconstructive surgeons, owing to its easy harvest, reliable and large caliber microvascular pedicle, as well as the availability of compound neighboring tissue blocks that may be raised with it.

Preparation

The scapular flap is advantageous for recipient defects located in the posterior parts of the body, since the patient is ideally placed in the prone position for the harvest of the scapular flap. This is also a disadvantage in reconstructing anteriorly located recipient sites, where patient repositioning will be necessary for scapular flap harvest. Thus in such situations, it appears logical, if possible, to choose other cutaneous flaps from the anterior body surface or the extremities. The vertically oriented scapular flap can also be raised with the patient in a lateral decubitus position. Preoperative Doppler examination of the triangular space will prove useful in locating the branches of the circumflex scapular vessels.

Neurovascular Anatomy

The harvestable cutaneous territory of the transverse scapular flap (~20 cm × 10 cm) is located between the angle and spine of the scapula, whereas the obliquely oriented parascapular flap (25 cm × 10 cm) is outlined, centered over the lateral border of the scapula. Both these territories are nourished by the two respective branches of the circumflex scapular artery that emerges to the suprafascial surface from the triangular space, bordered laterally by the long head of triceps and inferiorly by the teres major muscle belly and superiorly by the teres minor muscle (**Fig. 18.1**).

The triangular space should be included in the either of the above-mentioned flap geometries. The circumflex scapular artery may be traced to the subscapular artery, which in its turn arises from the third part of the axillary artery, lateral to the border of the subscapularis muscle. As the circumflex scapular artery curves around the lateral border of the scapula to "surface" through the triangular space, it gives off tiny branches to the teres major, teres minor, and infraspinatus muscles, as well as to the periosteal vessels of the scapular border, based on which a strip of bone may be raised with the flap. After emerging from the triangular space, the circumflex scapular artery takes a short caudal course (ca. 2–3 cm), after which it bifurcates into the transverse and vertical branches. Venous drainage of the flaps is through venae comitantes that accompany the arterial branches. Cutaneous nerves do not accompany the vessels. Sensory innervation of the flaps is achieved by segmental branches that run from medial to lateral and is usually

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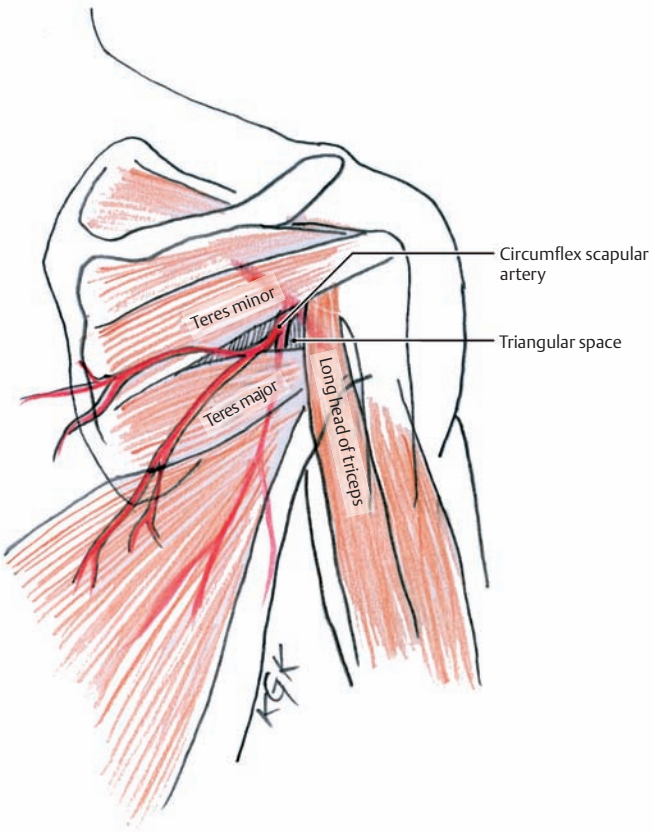

Fig. 18.1 The vascular anatomical basis of the scapular and parascapular flaps.

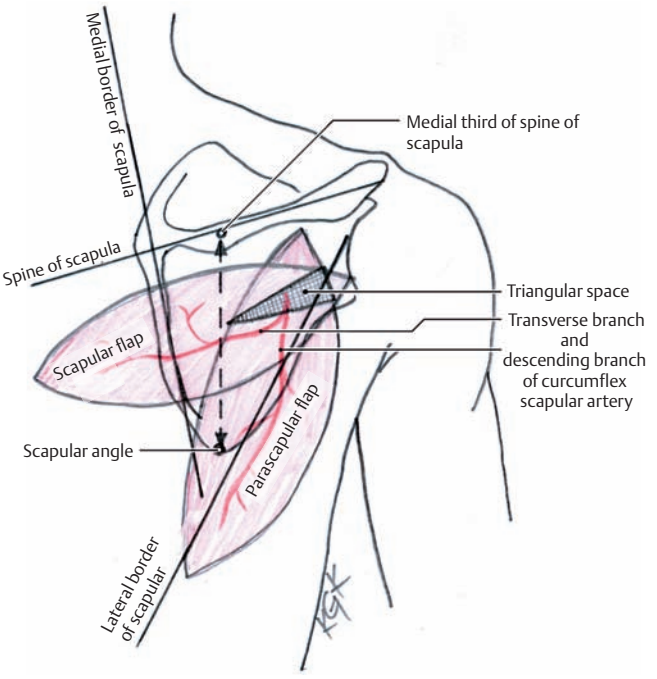

Fig. 18.2 Planning markings of the scapular and parascapular flaps.

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