FLAP TERRITORY

This is a composite flap that is situated over the scapula with various incisional arrangements. It can be harvested as a skin and subcutaneous tissue flap, or if required muscle and/or scapular bone can be included.

ANATOMY

The scapular/parascapular flap is based on the circumflex scapular artery (CSA), which is a branch of the subscapular artery. The CSA emerges through the triangular space formed by the teres major, teres minor and long head of triceps. **Figure 1**

The cutaneous branches of the CSA are fairly consistent, and give rise to the transverse and descending branches supplying the scapular and parascapular flaps respectively. **Figure 2, 3** The artery is normally accompanied by two venae comitantes.

The descending cutaneous branch also gives off numerous intramuscular branches that supply the lateral border of the scapular, enabling bone to be harvested concomitantly.

A longer section of bone can be harvested to include the scapular angle if the angular artery is also incorporated into the flap dissection. **Figure 4**

This descending cutaneous is a branch of the thoracodorsal artery, which therefore means a portion of the latissimus dorsi or serratus anterior muscle can also be harvested

Inclusion of the scapular angle means that future use of the latissimus dorsi muscle will be not be possible.
Figure 1
Triangular space and circumflex scapular artery (CSA)

Figure 2
Subscapular artery

Figure 3
Scapular and parascapular flaps
The patient is placed in the lateral decubitus position, with the respective arm extended. The borders of the scapula are marked after palpation with the triangular space marked using Doppler ultrasound.

Pre-operative design of the skin flap is based on either the use of the scapular or parascapular flap. Figure 3 Generally if a composite graft requiring muscle and bone is required, a parascapular flap is advised for ease of dissection. A skin island of up to 10cm x 30cm in dimension can be harvested; If the width of skin is more than 10cm, skin grafting is required.

Figure 4
Variation in blood supply to the scapular bone
Figure 5
Inclusion of latissimus dorsi muscle with the subscapular artery system

Figure 6
Circumflex scapular artery (indicated above) emerges through the triangular space

Figure 7
Site of osteotomy (indicated above)
The flap is raised superficial to the deep fascia overlying the muscles of shoulder. In the case of the scapular flap, the medial portion is raised first and dissection proceeds laterally. With the parascapular orientation, the flap is raised from inferior to superior.

Once the superior border of the teres major muscle is reached, care must be taken as the main pedicle emerges immediately superior.

The vessels are dissected as they emerge from the triangular space back to its subscapular artery origins. **Figure 6** A typical pedicle length of 6-10cm can be achieved.

If scapular bone is required then the lateral border is dissected leaving a layer of muscle attached to the bone to preserve the blood supply. 10-14cm of bone can be obtained with a width of 2–3cm. In doing so the teres major and minor muscles will be divided. **Figure 7**

As the main pedicle is traced deeper within the triangular space, the CSA is joined by the thoracodorsal artery, the other branch of the subscapular artery. If muscle is required, then the thoracodorsal vessels are traced to provide latissimus dorsi or serratus anterior muscles.

**Figure 8**
Osteocutaneous scapular and parascapular flap based on CSA
KEY POINTS

1. Flap consists of skin and subcutaneous tissue.
2. Scapular (transverse) and parascapular (descending) flaps can be harvested together.
3. Parascapular orientation is favoured if bone is required.
4. Incorporating the thoracodorsal vessels allows the latissimus dorsi and serratus anterior muscles to be harvested.