
LATERAL ARM FLAP

FLAP TERRITORY

This flap consists of the fasciocutaneous tissue over the lateral aspect of the arm between the insertion of the deltoid muscle and the elbow. It is thin, pliable and hairless and is suitable for use in reconstruction of the face and hand (classically, for preparation for tendon transfer). The short 5-6 cm pedicle is its main drawback.

VASCULAR ANATOMY

The flap is supplied by the perforators from the posterior radial collateral artery (PRCA) that arises from the profunda brachii artery. The PRCA runs along the lateral intermuscular septum (LIS) which separates the triceps posteriorly and the brachioradialis anteriorly and classically forms a network just above the elbow.

Figure 1

FLAP HARVEST

The patient is positioned supine with the arm on a table in a pronated position or by the side of the trunk.

The axis of the flap and the PRCA lie between the deltoid insertion (DI) and the lateral epicondyle (LE) that also marks the location of the LIS. **Figures 2, 3**

The proximal limit of the flap lies at the deltoid insertion whilst the distal limit of the flap is the LE (though extended variants have been described, reaching up to 8 cm beyond the LE).

Distal lateral arm flap (DLAF) includes the most distal perforator 4-5 cm above the LE with the flap centered on the LE/elbow. Distal skin tends to be thinner.

Dissection begins anteriorly in the subfascial plane towards the LIS until the perforators are seen. The elevation of the

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posterior flap is performed in a similar fashion to isolate the LIS which has an elongated attachment to the humerus. The tissues of the anterior flap tend to be more adherent and are difficult to dissect.

Figure 4

The vessels distal to the flap are identified and ligated and the flap is then dissected free by dividing the attachment of the septum to the humerus, from distal to proximal, deep to the level of the pedicle. The pedicle is traced as proximally as possible paying attention to avoid damage to the radial nerve. Fibres of the lateral head of triceps may be divided as necessary. **Figures 5, 6**

The lower lateral cutaneous nerve (LLCN) of the arm can be included with the flap but needs to be divided in any case.

The LLCN of the forearm runs through the flap and may have to be sacrificed, causing numbness of the lateral forearm.

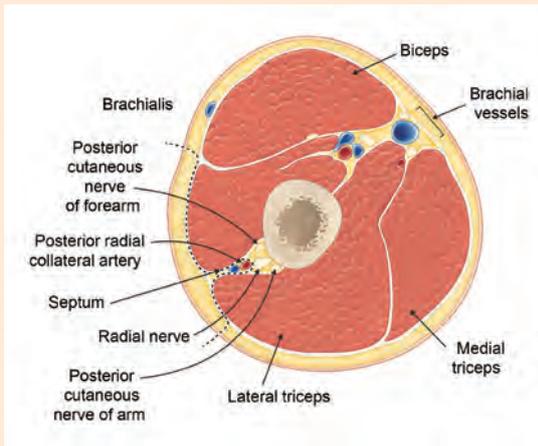


Figure 1

Cross section of the upper arm

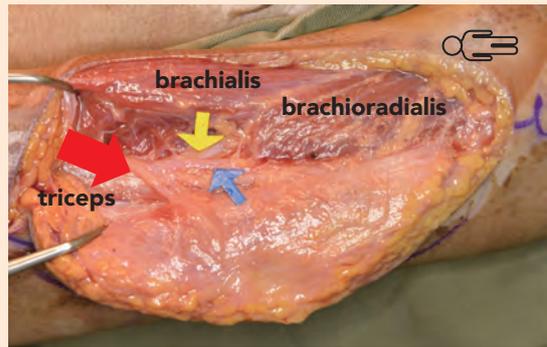


Figure 4

Identification of the pedicle (blue arrow), posterior cutaneous nerve of the arm (red arrow) and posterior cutaneous nerve of the forearm (yellow arrow)

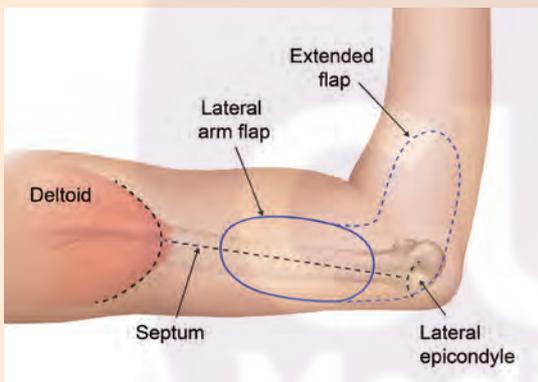


Figure 2

Design of the lateral arm flap and extended lateral arm flap

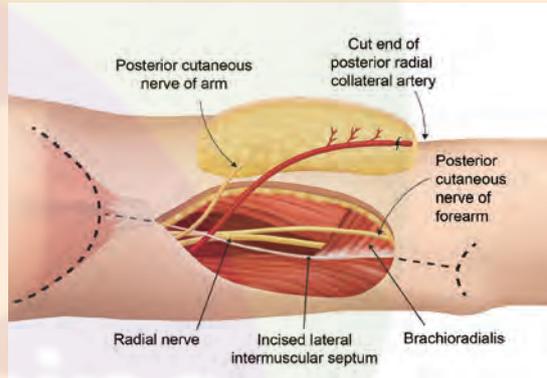


Figure 5

Schematic diagram of raised lateral arm flap



Figure 3

Design of the flap according to the axis of the humerus from the deltoid insertion (DI) to lateral epicondyle (LE)

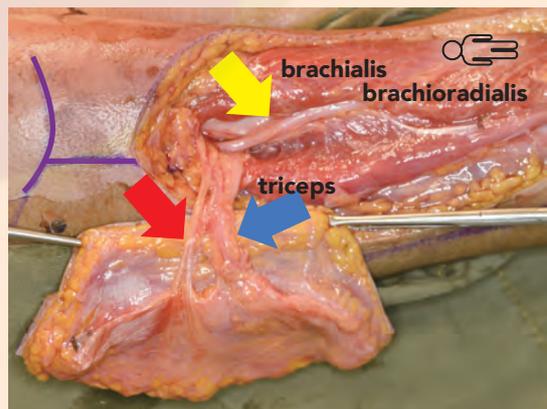


Figure 6

Isolated lateral arm flap with the cutaneous nerve to the arm (red arrow), pedicle (blue arrow) and cutaneous nerve of the forearm (yellow arrow)

KEY POINTS

1. Lateral arm flap is a thin, pliable and hairless fasciocutaneous flap.
2. The flap is supplied by the perforators from the posterior radial collateral artery (PRCA) which runs along the lateral intermuscular septum (LIS).
3. The axis of the flap and the PRCA lie between the deltoid insertion and the lateral epicondyle.
4. Dissection begins anteriorly in the subfascial plane towards the LIS until the perforators are seen.
5. The pedicle is traced as proximally as possible paying attention to avoid damage to the radial nerve.

