
ANTEROLATERAL THIGH FLAP

FLAP TERRITORY

This flap is composed of the skin and subcutaneous tissue of the lateral aspect of the anterior thigh centred on the septum between vastus lateralis (VL) and rectus femoris (RF).

VASCULAR ANATOMY

The flap is supplied in most cases by perforators from the descending branch of the lateral circumflex femoral artery (LCFA). These often pass through the VL muscle to reach the skin whereas in other cases they travel in the septum between the VL and RF.

The more proximal portion of the anterolateral thigh skin is often supplied by a vessel from the transverse branch of the LCFA. **Figure 1** This flap would necessarily have a shorter pedicle.

FLAP HARVEST

Mark a line from the anterior superior iliac spine (ASIS) to the lateral corner of the upper border of the patella bone (axis) and mark its halfway point. Most perforators reach the skin within 3 cm of this point, usually in the inferolateral quadrant.

Figures 2, 2.1

Mark an ellipse of a generous size centred on this axis and point. **Figures 3, 3.1**

Incise the medial edge of the flap down through the deep fascia to the muscle, usually RF or vastus medialis.

Gradually elevate the flap subfascially from medial to lateral until skin perforator vessels are visualized. **Figure 4**

To increase exposure, retract the RF muscle medially to expose the descending branch of the LCFA running from medial to lateral over the aponeurosis of the vastus intermedius.

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In clinical practice, it is best to trace the perforator in a retrograde manner from distal (skin side) to proximal (main pedicle), dividing the overlying muscle fibres in the manner of a facial nerve dissection during a superficial parotidectomy. **Figure 5**

For the purposes of this course, if you running out of time, you can estimate and incorporate the course of the vessel by taking a cuff of muscle on either side.

If there are no suitable perforators in the anterolateral thigh (ALT) territory, the flap can be converted to a tensor fascia lata (TFL) flap that lies more superiorly or an anteromedial thigh (AMT) flap medially. Both have shorter pedicles.

The lateral edge of the flap can be incised down to the muscle and elevated subfascially from lateral to medial, taking care to preserve the previously identified perforators. **Figure 6**

A straight or lazy S incision is made from the apex of the flap to the area of the femoral artery which is at the mid-inguinal point between ASIS and the pubic symphysis. The skin and subcutaneous tissue is divided up to the lateral border of the sartorius muscle. The pedicle can be traced to its origin from the profunda femoris.

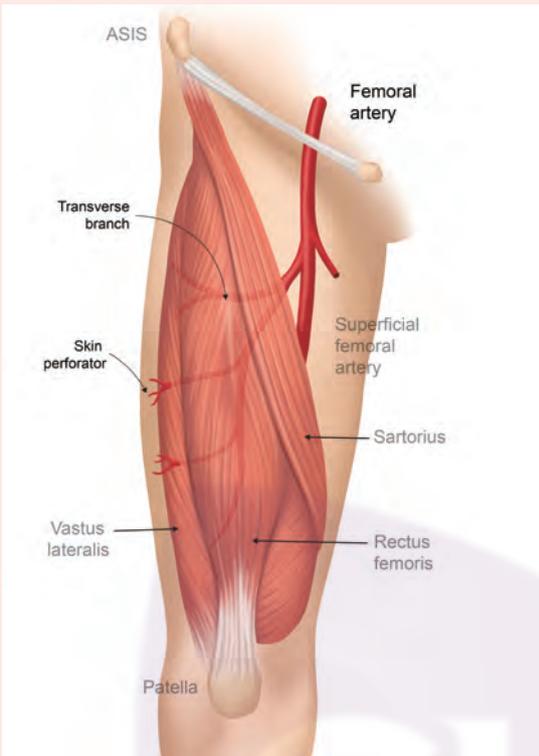


Figure 1
Vascular anatomy of ALT flap



Figure 2.1
Landmarks for locating perforators

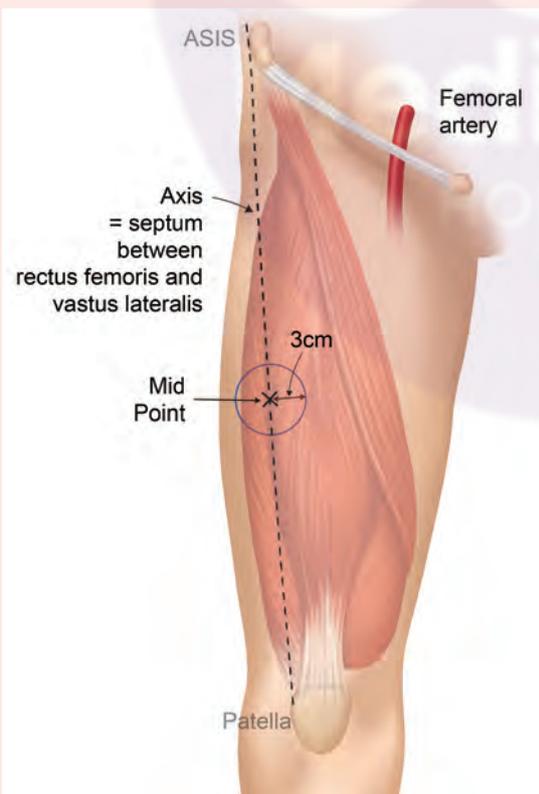


Figure 2
Landmarks for locating perforators

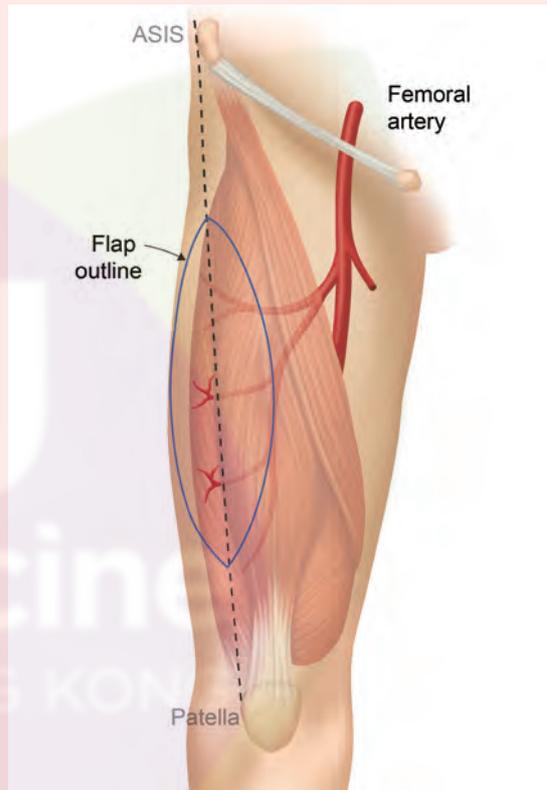


Figure 3.
Design of the flap with respect to the perforators



Figure 3.1
Design of the flap with respect to the perforators

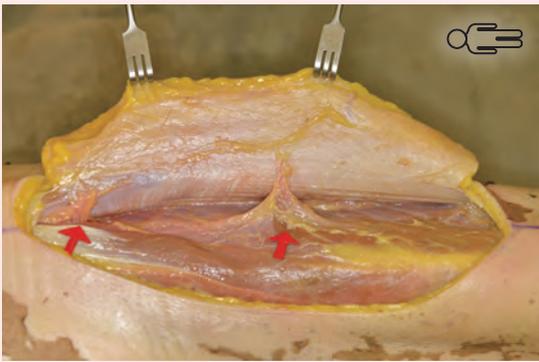


Figure 4
Perforators (red arrow)

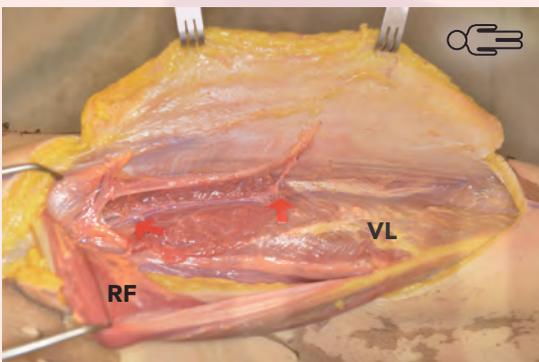


Figure 5
Descending branch of the LCFA (red arrow)

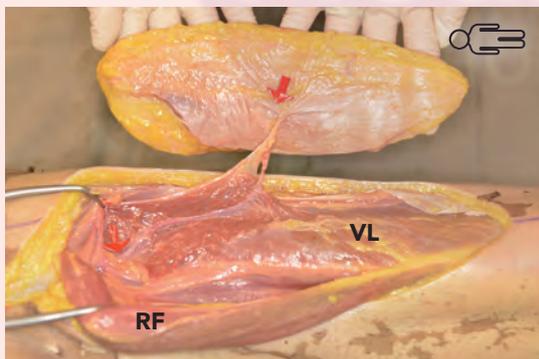


Figure 6
Descending branch of the LCFA and perforator (red arrow)

KEY POINTS

1. The flap is centered on the septum between vastus lateralis and rectus femoris.
2. The flap is supplied by perforators from the descending branch of the lateral circumflex femoral artery (LCFA).
3. Most perforators are located within 3 cm of the midpoint between a line from the ASIS and lateral upper corner of the patella bone.
4. Incise the medial edge of the flap first and perforators are then identified by elevating the flap subfascially from medial to lateral.
5. Retracting the rectus femoris medially facilitates the identification of the descending branch of LCFA.
6. The flap can be converted to a TFL flap or AMT flap if there are no suitable perforators in the ALT territory.