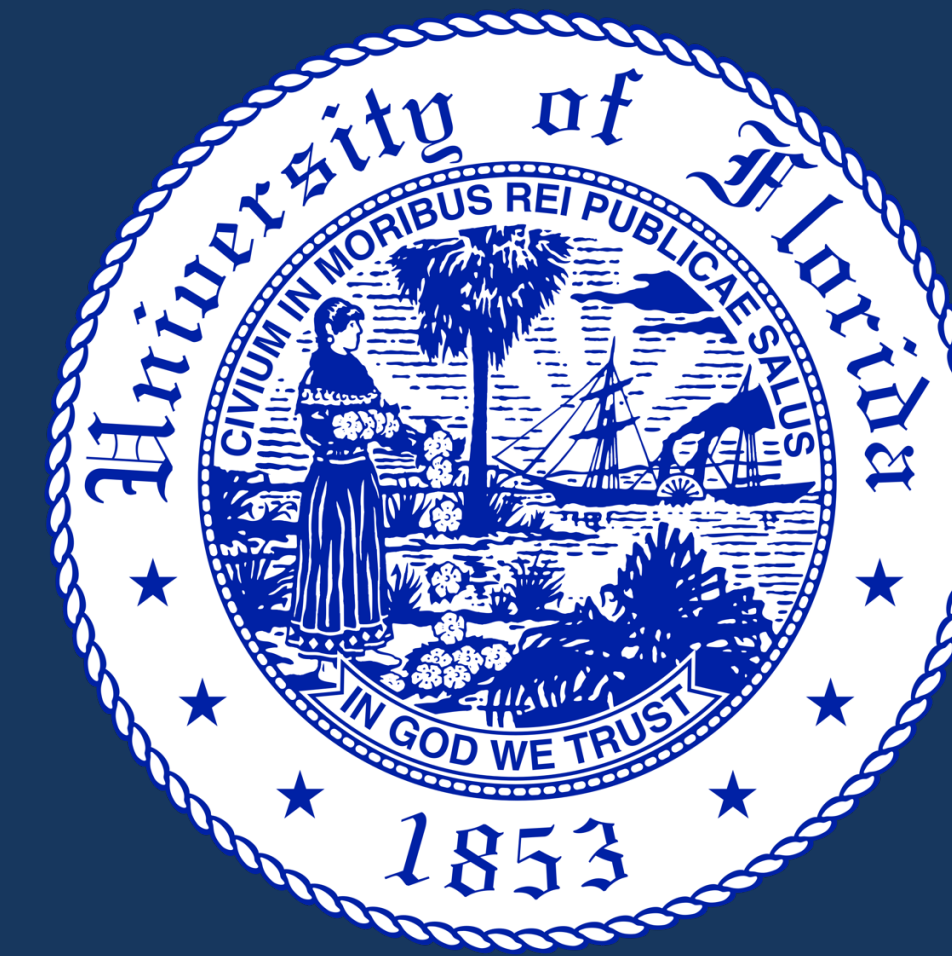




BACKGROUND

For coverage of extremity wounds, traditional subfascial profunda artery perforator (PAP) flap harvest results in a flap which is too thick.

The aim of this study were as follows:

- 1) To characterize the suprafascial perforator anatomy of profunda artery perforators on preoperative CT angiography.
- 2) To describe our approach and experience with the superthin PAP flap for extremity reconstruction.

METHODS

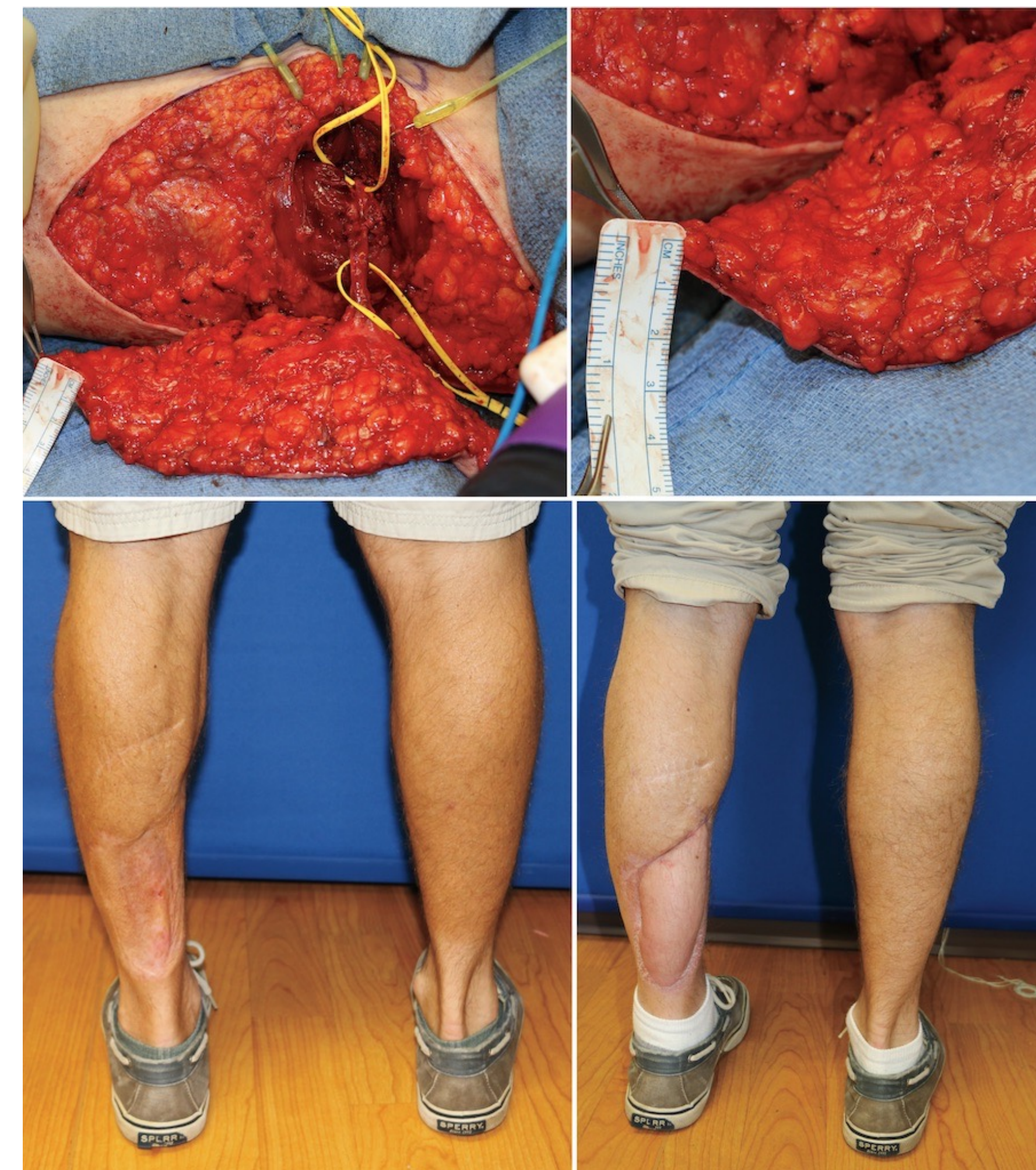
- Suprafascial profunda artery perforator anatomy was reviewed in CT angiograms in 159 thighs.
- We describe our experience with superthin PAP
- flaps using a single dominant perforator, for extremity reconstruction in 20 consecutive patients with representative cases.

RESULTS (CLINICAL)

- 13 “T” perforators
- 7 “Y” perforators
- Dominant “T” perforator: positive correlation with CT measured perforator bifurcation point and intraoperative superthin flap thickness
- Dominant “Y” perforator: no correlation

RESULTS (RADIOLOGICAL)

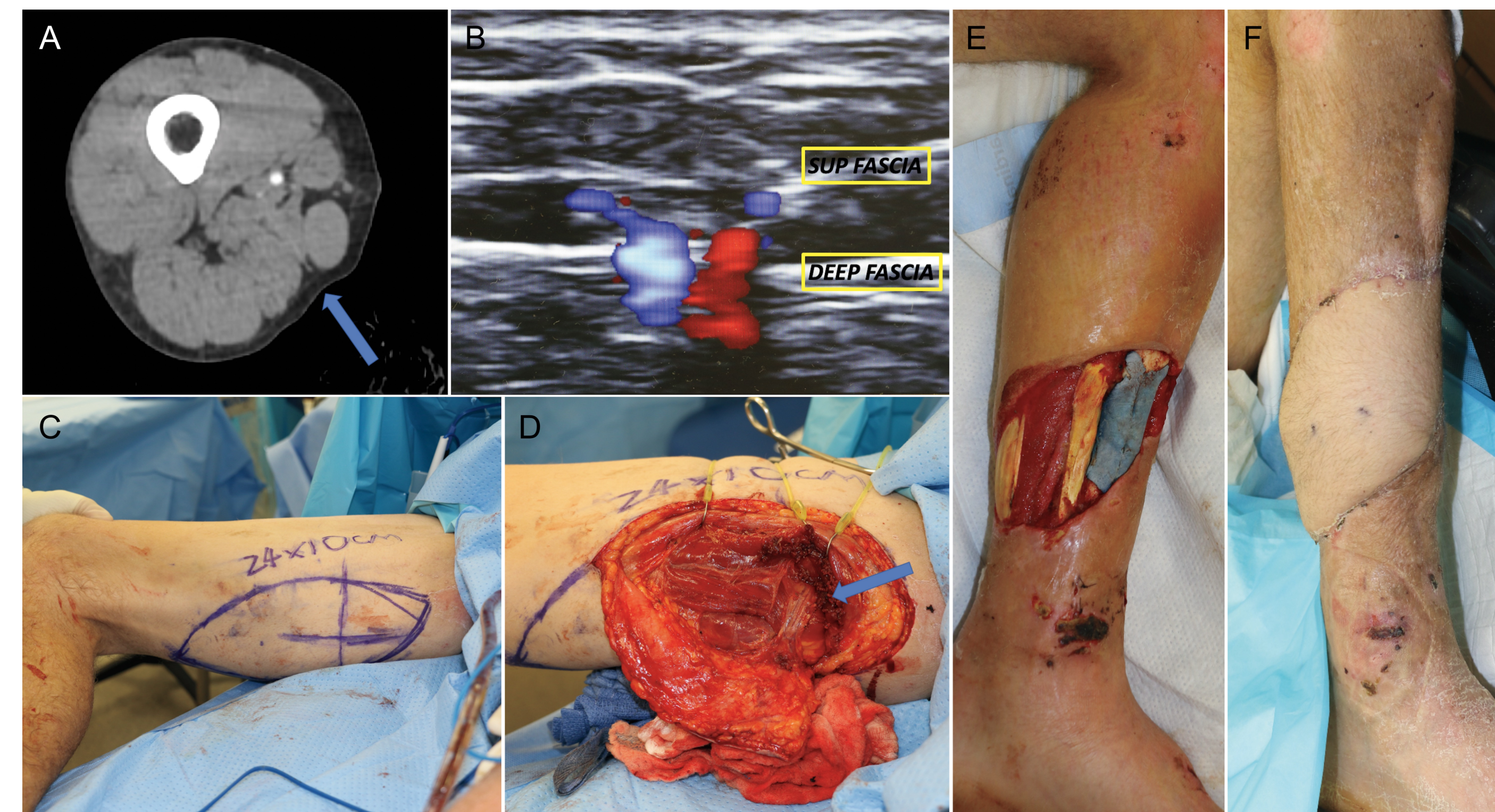
- Two main suprafascial perforator patterns, a “T” (superficial bifurcation) and “Y” (deeper bifurcation) were identified.
- The ratio between the total skin thickness and the distance from the skin to the perforator bifurcation point and the total skin thickness was higher in the “T” perforator pattern.
- A dominant “T” perforator (n=97) was more common than “Y” (n=62).
- A dominant “T” perforator was more common in women and with higher body mass index (BMI).



CASE 1



CASE 2



CASE 3

CASES

CASE 1:

- 64-year-old male with an unstable scar over the left posterior leg following a remote motorcycle collision and previous skin grafting. A thin profunda artery perforator flap has been elevated above the superficial fascia (*above, left*), leaving the deep fat in situ except for a small area directly around the perforator (yellow loop). The thinness of the flap can be appreciated (*above, right*). Preoperative (*below, left*) and 3.5 month postoperative (*below, right*) images showing a well-healed flap with good contour.

CASE 2:

- 15-year-old-female with right anterior and medial arm wound (A) following a high velocity gunshot injury. A thin profunda artery perforator flap has been elevated above the superficial fascia (B), leaving the deep fat in situ except for directly around the perforator (blue loop). (C) One-month postoperative images showing a well-healed flap with good contour. (D) The donor scar on the left thigh cannot be seen from the frontal view.

CASE 3:

- 41-year-old male with left distal medial leg wound following a motor vehicle accident, with a tibial bone gap and exposed antibiotic spacer. The dominant perforator (blue arrow) is located on the axial CT image (A) and can be seen exiting the deep fascia. (B) The location of the perforator on the thigh is confirmed with duplex ultrasound. (C) The flap is designed centered on the dominant perforator (marked with a cross). (D) The dominant perforator is musculocutaneous (blue arrow), corresponding to the location on the medial thigh marked preoperatively with CT and duplex ultrasound. (E) Preoperative and (F) 6 week postoperative images showing a well-healed flap with a good contour.