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A Rare Variant of Osteocutaneous Fibula Perforator from Posterior Tibial Artery

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The free fibula flap is one of the most versatile flaps with a skin paddle of variable blood supply. Here, we describe a rare anatomic variant of septocutaneous perforator and propose an addendum to the existing classification system to accommodate the variations of our case.

A 49-year-old gentleman with posttraumatic segmental defect of femur was planned for reconstruction with a vascularized free fibula flap. Intraoperatively, two perforators were identified, septocutaneous in the distal one-third and musculocutaneous in the middle one-third of the leg. Due to the long intramuscular course, the musculocutaneous perforator was ligated initially. After osteotomies, the septocutaneous perforator was dissected and was found to arise from posterior tibial artery (PTA), coursing between fibula and flexor hallucis longus (FHL) (►**Fig. 1**). The recipient site bony defect was reconstructed using 11-cm free vascularized fibula flap, fixed with plates, and anastomosed end-to-end with descending branch of lateral circumflex femoral artery.

To the best of our knowledge, this is the first report of a septocutaneous perforator in the distal half of the leg coursing through the posterior septum between the fibula and FHL and arising from the PTA. These variations require the surgeon to decide on the salvage options when encountered. In our case, as there was no skin defect, we decided to raise the flap as an osseous flap. The alternative option would have been a flow-through anastomosis in case skin paddle was required.

Yadav et al[1] proposed a classification system of the fibula skin vasculature which was based on the axial supply of the skin paddle into four types as follows: type A, supplied by peroneal vessels; type B, by peroneal vessels and posterior tibial vessels (PTV); type C, by PTV only; and type D, by popliteal artery only. This was further subcategorized by Parr et al[2] into subtypes A1, A2, A3, or B1, B2, B3, and C1, C2, and C3 based on the type of perforator (musculocutaneous and septocutaneous), source vessel of the skin paddle, and their variations and possible salvage measures.

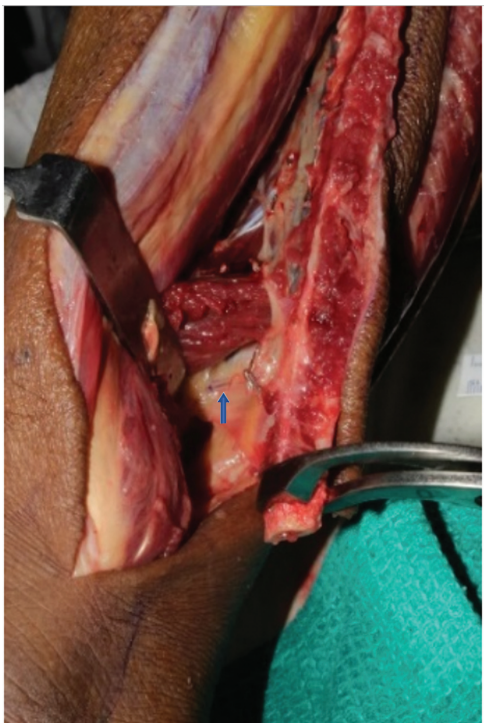

Fig. 1 Septocutaneous arising from the posterior tibial artery deep to FHL (blue arrow).

Our case is an uncommon variant of septocutaneous perforator arising from the PTA coursing between the fibula and FHL (►**Fig. 2**). Based on existing classification systems, we were not able to classify any of them. Hence, we propose a new addition

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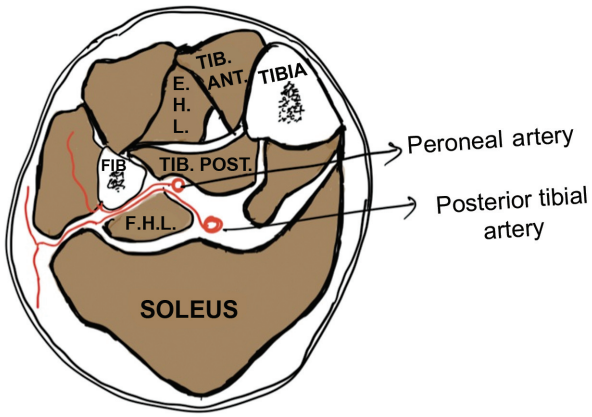

Fig. 2 Posterior tibial artery coursing between the fibula and FHL.

to the Parr classification of type C, subtype C4 as septocutaneous perforator running between fibula and FHL.

Posterior approach and awareness of all salvage options can help in avoiding a debacle.

Conflict of Interest

None declared.

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