

## **Lateral Sural Artery Perforators: A Cadaveric Dissection Study to Assess Perforator Surface Anatomy Variability and Average Pedicle Length for Flap Reconstruction**

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**Abstract :** The medial and lateral sural artery perforator flaps (MSAP and LSAP, respectively) are two recently described flaps that are less commonly used in lower limb trauma reconstructive surgeries compared to flaps such as the anterolateral thigh (ALT) flap or the gastrocnemius flap. The LSAP flap has several theoretical benefits over the MSAP, including the ability to be sensate and being more easily manoeuvred into position as a local flap for coverage of lateral knee or leg defects. It is less commonly used in part due to a lack of documented studies of the anatomical reliability of the perforator, and an unquantified average length of the pedicle used for microsurgical anastomosis (if used as a free flap) or flap rotation (if used as a pedicled flap). It has been shown to have significantly lower donor site morbidity compared to other flaps such as the ALT, due to the decreased need for intramuscular dissection and resulting in less muscle loss at the donor site. 11 cadaveric lower limbs were dissected, with a mean of 1.6 perforators per leg, with an average pedicle length of 45mm to the sural artery and 70mm to the popliteal artery. While the majority of perforating arteries lay close to the midline (average of 19mm lateral to the midline), there were patients whose artery was significantly lateral and would have been likely injured by the initial incision during an operation. Adding to the literature base of documented LSAP dissections provides a greater understanding of the anatomical basis of these perforator flaps, and the authors hope this will establish them as a more commonly used and discussed option when managing complicated lower limb trauma requiring soft tissue reconstruction.

**Keywords :** cadaveric, dissection, lateral, perforator flap, sural artery, surface anatomy

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