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VIEWPOINT

A Possible Distal End for Perforasome of the Superficial Circumflex Iliac Artery Perforator Flap

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Flaps from the groin region have been attracting renewed interest since the advent of a superficial circumflex iliac artery (SCIA) perforator (SCIP) flap, which was recently nominated as one of the "best new flaps" by Brown et al.[1] Its benefits include thinness of tissue, the capability of chimerization involving the muscle and bone, and minimal donor-site morbidity. However, reports on the usefulness of a SCIP flap have been limited to reconstructions of small- to medium-size defects.[1] With a view to expanding the application of an SCIP flap for use on larger defects, a prime question is to what extent such a flap can be enlarged. Few reports have described the perfusion area (ie, perforasome) of an SCIP,[2] and the limits of the distal border of the perforasome at which a flap may be expected to survive have yet to be determined. Herein, we propose a hypothesis regarding the location of the distal boarder of an SCIP perforasome by comparing 2 clinical cases with and without vascular supercharging.

Case 1 was a 26-year-old man with scrotal lymphorrhea due to congenital lymphangioma, treated with resurfacing of the scrotum with a pedicled SCIP flap.[3] To cover the scrotal defect with one unilateral flap, the SCIP flap was designed beyond the costal arch. It was elevated from above the deep fascia, including both the deep and superficial branches of the SCIA, and introduced to the scrotum subcutaneously with its distal tip located in the caudal part of the defect. However, postoperatively, full-thickness necrosis developed in the distal portion of the flap with a clear demarcation line identical to that of the costal arch.

Case 2 was a 61-year-old male with scrotal lymphorrhea after chemoradiation therapy for anal cancer. He also underwent scrotal resurfacing with a unilateral pedicled SCIP flap spanned beyond the costal arch (Fig. 1). The flap was elevated as described in Case 1, and the intercostal artery perforator was also included at the rostral end of the flap.[4,5] In this case, the intercostal artery perforator was anastomosed to a scrotal branch of the internal pudendal artery identified at the defect (Fig. 2). With intraoperative indocyanine green

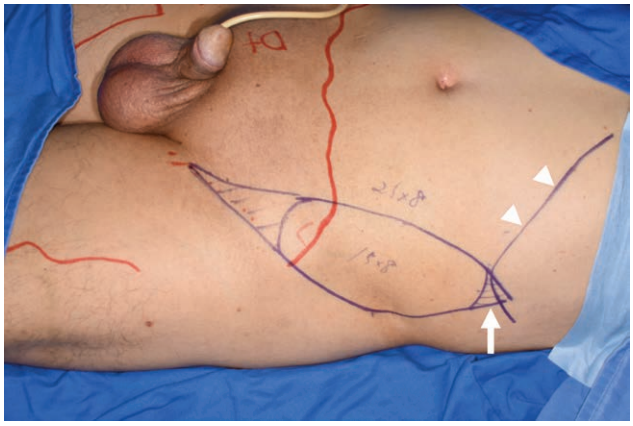

Fig. 1. Design of rostrally-extended SCIA perforator flap for Case 2. The distal end of the flap was spanned beyond the costal arch. Arrow: Distal portion of the flap beyond the costal arch; Arrowheads: Costal arch.

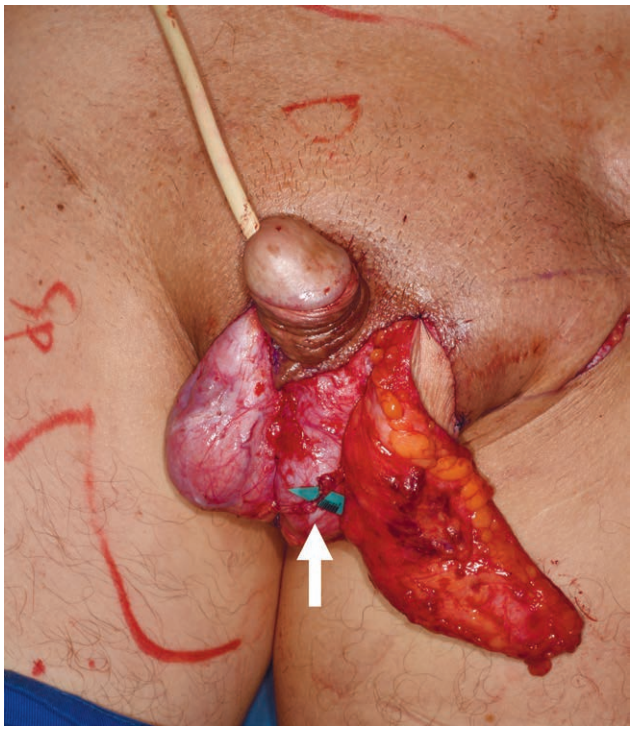

Fig. 2. Vascular supercharging for the pedicled SCIA perforator flap of Case 2. The flap was introduced subcutaneously to the scrotal defect. The intercostal artery perforator (included at the distal part of the flap) was anastomosed to a scrotal branch of the internal pudendal artery found at the defect (arrow).

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fluorescence imaging, the distal part of the flap harvested beyond the costal arch was not visible before anastomosis. (**See figure, Supplemental Digital Content 1,** which displays intraoperative indocyanine green fluorescence imaging of the pedicled superficial circumflex iliac artery perforator flap of Case 2 before vascular supercharging. The flap orients distally to the left side of the pictures. The distal portion of the flap beyond the costal arch did not fluoresce before anastomosis. **http://links.lww.com/PRSGO/B662.**) Following anastomosis, however, the distal portion was visible. The flap was completely viable postoperatively.

While limited to 2 cases, these results suggest that the distal boarder of the SCIP perforasome locates near the costal arch, hence vascular supercharging with the use of the intercostal artery perforator may be recommended when a larger/longer flap is needed. These findings may help open the door to application of an SCIP flap for larger or more remote defects and offer clues in overcoming size limitations.

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DISCLOSURE

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