

while the sarcoma was being resected. This resulted in a shorter operative time, less blood loss, and a faster postoperative recovery.

Finally, the arc of rotation of the ORAM flap was preferable to that of the ALT flap, which would have required a 'U-turn' to project the flap into the scrotum.

It is critical to repair the fascial defect at and around the deep and superficial ring of the inguinal canal, as this fascia layer reduces the risk of future inguinal hernias. After measuring the fascial defect over the deep inguinal ring (5 × 3 cm), we harvested equal dimensions of the left anterior rectus sheath as part of the myocutaneous flap. This anterior rectus sheath was then used after tunneling the flap to close the fascial defect over the deep inguinal ring, replacing like with like. This avoided the use of a synthetic mesh, which would have carried a risk of implant infection as well as being more expensive. Instead of using a mesh to close inguinal fascial defects of this type, it would be more prudent to make use of the fascial component of the flap to reconstruct such defects.

In conclusion, the contralateral pedicled ORAM flap is an attractive reconstructive option after the radical excision of a spermatic cord liposarcoma.

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## Technical Considerations to Avoid Microvascular Complications during Groin Lymph Node Free Flap Transfer

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Groin lymph node free flap (G-LNF) transfer is a well-known technique for the treatment of lymphedema. Despite promising early and long-term results, concerns regarding postoperative donor site lymphedema and adequacy of the G-LNF vessels have limited the popularity of G-LNF transfer amongst microsurgeons.

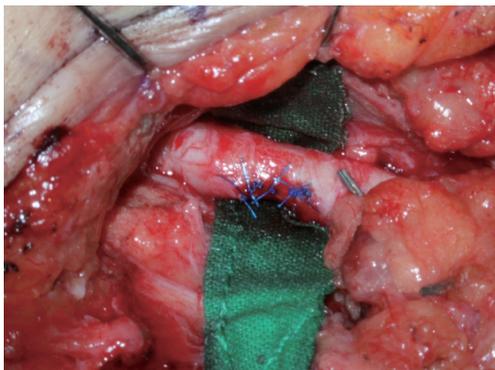
G-LNF can be based either on the superficial circumflex iliac artery (SCIA), the superficial inferior epigastric artery (SIEA), or a small, unnamed medial branch of the femoral artery (MBFA) [1].



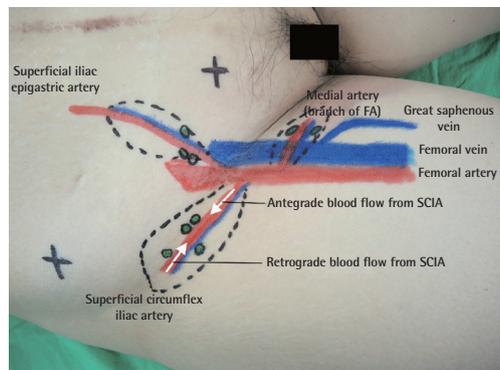
**Fig. 1.**

A patch of the femoral artery was harvested to increase the caliber of the superficial circumflex iliac artery (SCIA).

We have observed some pitfalls with the use of the microsurgical G-LNF that can jeopardize the success rate of this flap. Herein, we share some of the technical considerations that we have found useful in overcoming these problems. They can be summarized as follows: (1) Size discrepancy of artery: The SCIA is well known for having a small diameter and a short pedicle, both of which can cause problems during anastomosis. The sudden change of caliber at the anastomosis site may cause turbulent blood flow, which can predispose the patient to platelet aggregation [2]. This altered vascularity may compromise the functioning of the fine lymphatic structures and lymph nodes of the G-LNF. A number of microsurgical techniques have been developed to address the problem of anastomotic size discrepancy [2]. Our method is to include a small “cuff”



**Fig. 2.** Femoral artery repaired.



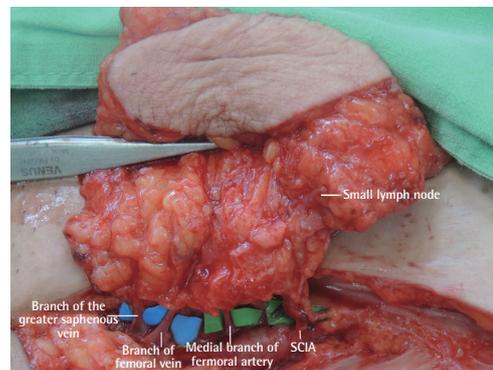
**Fig. 3.** The anatomical landmark shows options in the groin area for the discrepancy in the vascular diameter during groin lymph node free flap transfer. Note also that the vascularized groin lymph node flap could be harvested with retrograde arterial flow and antegrade venous return. FA, femoral artery; SCIA, superficial circumflex iliac artery.

measuring 1–1.2 mm from the femoral artery at the origin of SCIA. This cuff allows us to perform the anastomosis more easily and improves the patency rate of the anastomosis (Fig. 1). The femoral artery is repaired with 5-0 Prolene (Fig. 2).

(2) Alternatives to SCIA: In cases where the SCIA has been found to be unsuitable for microvascular anastomosis, the flap should be re-designed on the basis of the SIEA or MBFA (Fig. 3). It is well established that the groin area has different sub-groups of lymph nodes, and studies have already provided useful anatomical information about the lymph nodes that need to be targeted for vascularized lymph node transfer [3-5]. Therefore, when using the MBFA, care should be taken to avoid harvesting the sentinel lymph nodes in the leg, thereby preserving the lymphatic drainage and avoiding iatrogenic lymphedema, as reported by previous authors [5]. When using the G-LNF, surgeons should take into account the findings of studies conducted on the position of the sentinel nodes draining the lower limb present in this region [4,5].

(3) Retrograde vascularization of SCIA: The lateral part of the SCIA can be used in certain circumstances to vascularize the flap in a retrograde manner. This is particularly useful when the lymph nodes are adjacent to the femoral artery, causing the vascular stump to be too short for anastomosis. It can also be used in the rare situation where the caliber of the SCIA decreases towards its origin from the femoral artery (Fig. 4).

(4) Venous discrepancy: In cases of venous discrepancy, the dissection can be extended to include a branch of the greater saphenous vein or another suitable cutaneous vein with a larger caliber, which can then be used for venous anastomosis.



**Fig. 4.** Different options for the vascular pedicle of the flap on the basis of Fig. 3. SCIA, superficial circumflex iliac artery.

(5) Recipient vein: With respect to the choice of recipient vein(s), we recommend the use of the deep venous system, which is unlikely to be affected during secondary debulking procedures.

The senior author has used the techniques described above, over a 25-year period (1990–2015), with good results and without any problems at the donor site. On the basis of our experience and the findings of the currently available anatomical studies, surgeons can expect to achieve low complication rates and improved outcomes with the use of the groin lymph node free flap.

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## Breakthrough Technique for Free Tissue Transfer of Poorly Vascularized Lower Extremity: Arteriovenous Loop Revisited

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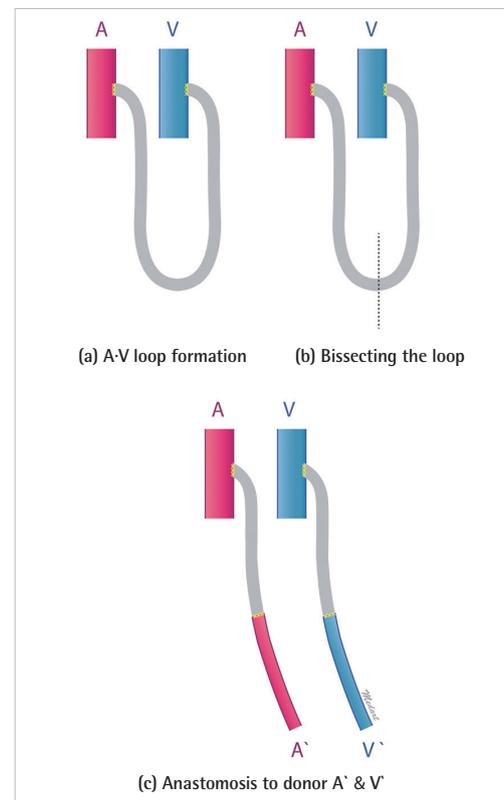
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Severely damaged lower extremities with poor vessels are challenging situations for reconstructive surgeons. Patients with such extremities may have problems resulting from an inadequacy of recipient vessels caused by factors such as arterial occlusive disease or



**Fig. 1.** Schematic representation of an arteriovenous loop (A-V loop).