# Rectus femoris muscle flap based on proximal insertion mobilization to cover a groin infected vascular graft

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**The rectus femoris (RF) muscle flap, which is widely used to cover groin infected vascular grafts, is usually harvested through distal tendon division and an extensive muscle elevation and transposition into the groin wound defect. A case of a vascular prosthetic graft infection in the groin was successfully controlled after coverage with an RF flap that was harvested based on proximal portion mobilization instead of the conventional distal one. This case suggests that the RF muscle flap based on proximal insertion mobilization is a feasible, effective, technically simpler, and less invasive alternative to cover infected vascular grafts in the groin. (J Vasc Surg 2015;62:1064-7.)**

The vascularized rectus femoris (RF) muscle flap has been proved to be effective to cover infected vascular grafts in the groin,[1,2] with a reported graft salvage rate of nearly 80%.[2] The technique of harvesting of this flap is well established and involves distal tendon division, through a separate midanterior incision extending over the distal two thirds of the thigh, and muscle mobilization toward the proximal insertion to ensure that the descending branch of the lateral circumflex femoral artery, the flap's dominant blood supply, is preserved.[2] Such a procedure requires almost complete muscle mobilization and is inherently an extensive reconstruction, with a large donor area, that can reduce knee extensor strength up to 20%.[3,4]

We present a case of a vascular graft infection in the groin that was successfully controlled after coverage with an RF flap harvested after proximal portion mobilization instead of the conventional distal one.

## CASE REPORT

A 74-year-old man, with a history of arterial hypertension and tobacco smoking, was admitted with necrosis of the fourth and fifth right toes and rest pain of the left foot because of bilateral diffuse aortoiliac and femoropopliteal arterial occlusive disease. On the following day, he underwent an aortobifemoral bypass with a bifurcated Dacron graft. The proximal anastomosis was performed on the supraceliac aorta because heavy calcification of the infrarenal aorta precluded safe cross-clamping at that level, whereas distal anastomoses were both located on the proximal segment of the profunda femoris artery. Simultaneously, a bypass from the right distal prosthetic limb to the below-knee popliteal artery was performed with a reversed ipsilateral great saphenous vein graft, which was tunneled subsartorially. Amputation of the fourth and fifth right toes was also accomplished, and the resulting wound was left open for secondary intention healing. Perioperatively, the patient was empirically medicated with piperacillin/tazobactam, which was maintained for 14 days. He remained hospitalized, without fever or other signs of infection, and both surgical incisions and the right foot wound were healing uneventfully.

One month after surgery, a growing lymphocele developed in the right groin and was initially drained with a syringe and needle in a sterile fashion; it subsequently became infected, coursing with cellulitis and purulent drainage. Bacterial culture confirmed infection by *Staphylococcus aureus* sensitive to methicillin. The purulent collection was immediately drained, irrigation with povidone-iodine solution was performed on a daily basis, and broad-spectrum antibiotic therapy was started with intravenous meropenem, daptomycin, and rifampicin. Computed tomography scanning excluded any collection surrounding the intra-abdominal portion of the graft.

One week later, the right groin was still draining purulent fluid (Fig 1, *A*) and was surgically revised. A longitudinal incision revealed a prosthetic graft that was unincorporated in the groin, although both the proximal part of the graft, as it entered below the inguinal ligament, and the distal part, which included the distal anastomosis on the profunda femoris artery and the proximal anastomosis of the femoropopliteal venous graft on the distal prosthetic limb, were incorporated (Fig 1, *B*). The sartorius muscle was not identified because it had been damaged during the previous

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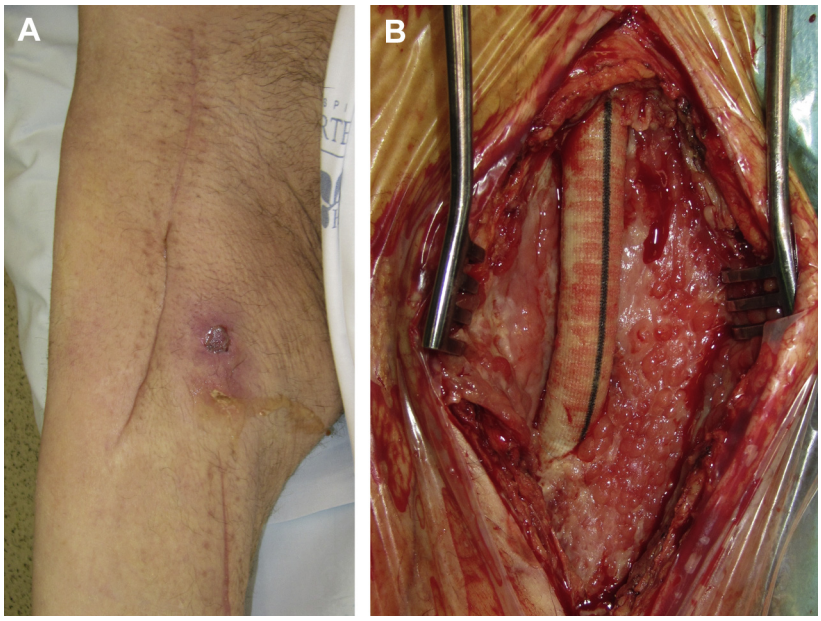


**Fig 1. A,** Graft infection in the right groin with purulent drainage. The upper scar corresponds to the femoral artery bifurcation exposure incision; the lower one results from ipsilateral great saphenous vein harvesting. **B,** After skin incision, the prosthetic graft was found to be unincorporated, without anastomosis exposure.

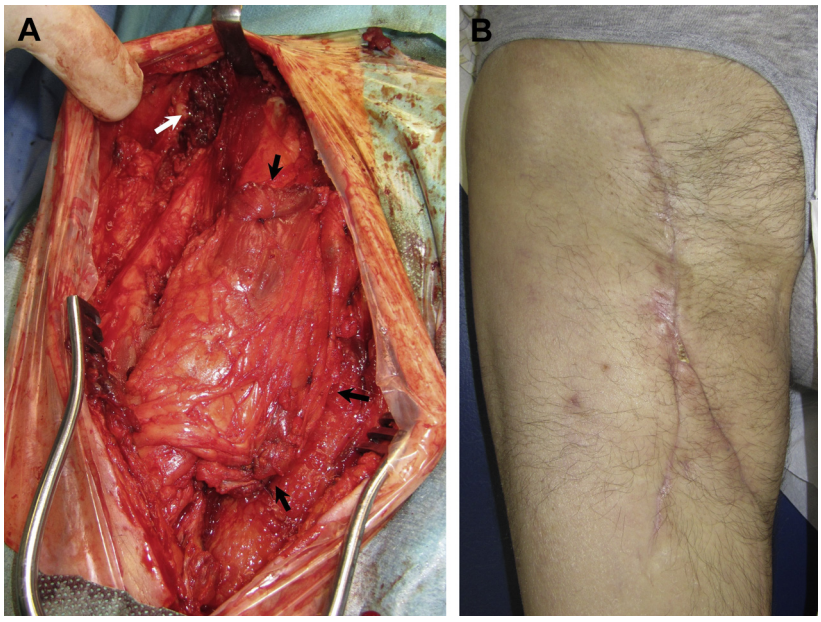


**Fig 2. A,** After rectus femoris (RF) proximal insertion division (*white arrow*), the upper portion of the muscle was medially rotated and secured over the vascular prosthetic graft (*black arrows*). **B,** Healed groin wound 2 months after the operation.

procedure and by the infectious process. After wound débridement (including removal of a pseudosheath around the prosthesis) and irrigation with diluted rifampicin, the proximal segment of the RF muscle was exposed, through the same incision, and its insertion on the anterior inferior iliac spine was divided. The upper part of the muscle was then dissected, rotated medially over the vascular graft, and secured with separate stitches to the underlying inguinal ligament and adductor muscles, covering the entire segment of exposed graft (Fig 2, *A*). The main vascular pedicle of the muscle was observed, preserved, and left without tension.