

CASE REPORT

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## VRAM-pedicled island flap for the coverage of an exposed prosthetic vascular graft in the suprapubic area

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### ABSTRACT

The exposure of prosthetic vascular graft is a dangerous complication in revascularization procedures. In this case report, we describe a successful coverage of an exposed prosthetic femorofemoral vascular graft in the suprapubic area, with a vertical rectus abdominis myocutaneous (VRAM) island flap.

### ARTICLE HISTORY

Received 8 February 2016  
Accepted 29 June 2016

### KEYWORDS

VRAM flap; suprapubic defect; femorofemoral bypass

Among the various complications that have been described in vascular surgery, the exposure of prosthetic vascular graft is a complication, which is a very well-known sequela of allplastic vascular reconstructions which can lead to failure of the revascularization procedure.

Since the exposure is often related to infection of the prosthetic device, surgical treatment should aim to the limb salvage through maintaining blood perfusion in combination with the treatment of the infection and coverage of the exposed device with healthy tissues.

Muscular and myocutaneous flaps have been considered the gold standard in the treatment of infected nonhealing wounds because their use increases blood supply, antibiotics delivery and oxygenation at the wound site.

In this case report, we describe a successful coverage of an exposed prosthetic vascular graft in the suprapubic area with a vertical rectus abdominis myocutaneous (VRAM)-pedicled island flap.

A 90-year-old male suffering from obstructive vascular disease associated with hepatitis C, atrial fibrillation, chronic renal failure, hypertension and dyslipidemia was admitted to vascular surgery unit for a revascularization procedure of the right lower limb consisting in femorofemoral bypass with prosthetic vascular graft (Figure 1).

One year later, the same patient was admitted again to the vascular surgery unit with an open wound in the suprapubic area exposing the prosthetic vascular device.

A swab was performed on the wound and came back positive for *Staphylococcus aureus*.

Antibiotics were administered and patient was put on the list for surgical debridement and direct closure of the wound. Because of the poor general conditions of the patient, replacement of the prosthetic vascular graft was not a feasible option.

Five days after the surgery, patient was discharged and postoperative course was uneventful.

The surgical wound was completely healed in two weeks time.

Two months later, the wound in the suprapubic area recurred larger than before and a larger portion of the prosthetic vascular graft was exposed.

The patient was admitted to the ward and swab on the wound was taken again but no pathogens were isolated.

Since it was not possible to close the defects directly, the patient was referred to the plastic surgery unit.

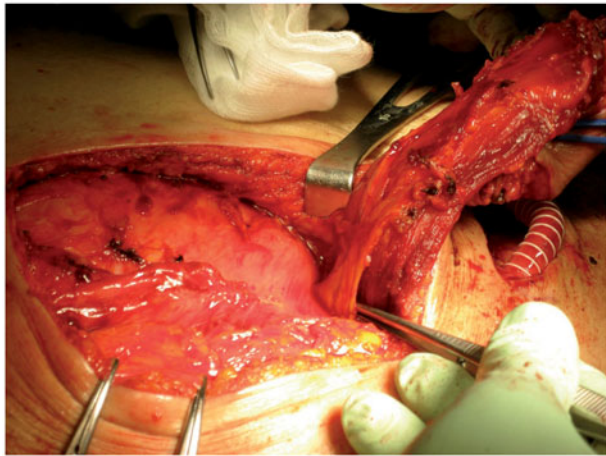
Relying on the fact that there was no active infection, the recurrence of the wound should have been due to the decubitus of the device on the overlying tissues.

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**Figure 1.** Suprapubic wound with the exposed prosthetic vascular graft and preoperative markings of the flap.

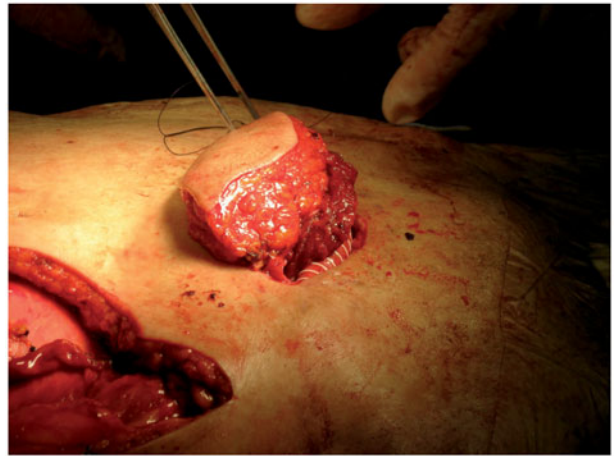


**Figure 2.** The VRAM pedicled island flap is completely harvested.

The aim of the surgical procedure consisted in repairing of the defect and providing a better coverage to the prosthetic vascular device.

We performed a radical debridement of devitalized tissues, and then, we designed a vertical rectus abdominis myocutaneous-pedicled island flap, based on the right deep inferior epigastric vessels, whose patency was investigated intraoperatively. Once the flap was harvested, it was transposed through a skin tunnel into the defect (Figure 2).

The whole wound, including the prosthetic vascular device, was covered by the flap (Figure 3).



**Figure 3.** A subcutaneous tunnel is created and the flap is then transposed to the wound site.



**Figure 4.** One month after surgery, wounds are completely healed with a good aesthetic result.

Postoperative healing and course were uneventful with no recurrence of the wound and good aesthetic result (Figure 4).

The incidence of postoperative surgical site complications after lower extremity revascularization procedures involving a groin incision is quite high and is significantly associated with many factors, such as diabetes, haematoma, seroma, dyslipidemia.[1]

Despite the exposure of a vascular graft in the groin has been widely described, we did not find any reference about the same complication in the suprapubic area, as a result of a femoro-femoral bypass surgery.

The VRAM flap is considered a workhorse in pelvic and perineal reconstructive surgery because of its thickness, its vascularization and its resistance to radiotherapy.[2–6]

The use of VRAM flap has already been successfully described for the coverage of exposed prosthetic vascular graft in the groin, but its employ for the

coverage of the same devices in the suprapubic area is not mentioned in literature.[7]

In this case report, we used a vertical rectus abdominis myocutaneous (VRAM) island flap to cover an exposed prosthetic vascular graft, previously positioned for a femorofemoral bypass, in the suprapubic area.

The choice of this type of flap within the reconstructive ladder is based on at least two reasons.

The first benefit is due to the fact that the VRAM flap is very thick and gives the possibility to obliterate dead space, reducing risk of fluid collection and post-operative herniation of abdominal content.

In this particular patient, the exposure of the prosthetic device was due to a lack of thickness in the overlying tissues rather than to an infection.

For that reason, VRAM flap could be folded around the prosthetic vascular graft in order to protect both the surrounding tissues and the device itself.

The second benefit is due to its high intrinsic vascularization that can improve the blood supply to the recipient area and the delivery of antimicrobial drugs.

### Disclosure statement

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

### References

1. Kuy S, Dua A, Desai S, et al. Surgical site infections after lower extremity revascularization procedures involving groin incisions. *Ann Vasc Surg.* 2014;28: 53–58.
2. Berger JL, Westin SN, Fellman B, et al. Modified vertical rectus abdominis myocutaneous flap vaginal reconstruction: an analysis of surgical outcomes. *Gynecol Oncol.* 2012;125:252–255.
3. Di Benedetto G, Siquini W, Bertani A, et al. Vulvo-perineal reconstruction with a reverse sensitive rectus abdominis salvage flap in a multirecurrent anal carcinoma. *J Plast Reconstr Aesthet Surg.* 2010;63: e127–e129.
4. Creagh TA, Dixon L, Frizelle FA. Reconstruction with vertical rectus abdominis myocutaneous flap in advanced pelvic malignancy. *J Plast Reconstr Aesthet Surg.* 2012;65:791–797.
5. Horch RE, Hohenberger W, Eweida A, et al. A hundred patients with vertical rectus abdominis myocutaneous (VRAM) flap for pelvic reconstruction after total pelvic exenteration. *Int J Colorectal Dis.* 2014;29:813–823.
6. Nigriny JF, Wu P, Butler CE. Perineal reconstruction with an extrapelvic vertical rectus abdominis myocutaneous flap. *Int J Gynecol Cancer.* 2010;20: 1609–1612.
7. Horch R1, Stark GB. Prosthetic vascular graft infection–defect covering with delayed vertical rectus abdominis muscular flap (VRAM) and rectus femoris flap. *Vasa.* 1994;23:52–56.