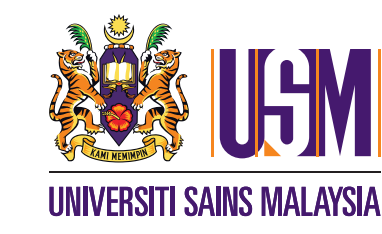




The Pedicled Vastus Lateralis Myocutaneous Flap, An Ideal Alternative For Posterior Upper Thigh Reconstruction; A Case Report

Ilyasak Hussin ^{1,2}, M. Ali M. Zain ², Kathleen Chang ¹

¹ Reconstructive Sciences Unit, Hospital Universiti Sains Malaysia, Kubang Kerian
² Department of Plastic & Reconstructive Surgery, Hospital Kuala Lumpur



Introduction

Lower limb reconstruction remains a challenge for reconstructive surgeons requiring surgical techniques such as skin grafting and flaps. One of the workhorse flap utilized is the anterolateral thigh flap (ALT). Using it as a pedicled flap is well established for reconstruction in lower extremities, groin, genitoperineal region and pelvis. However, a deeper cavity and larger defect might necessitate a larger bulk of tissue to protect pressure area like the ischial tuberosity. Therefore, the anterolateral thigh and vastus lateralis myocutaneous flap is a reliable option. We share our experience using the pedicled ALT with vastus lateralis myocutaneous flap for a posterior thigh defect.

Case Report

We present a case of squamous cell carcinoma involving the right posterior upper thigh in a 55 year old lady. She presented with 6 months history of gradually increasing lesion which had contact bleeding and ulceration. The lesion, measuring 10 x 15 cm had previous histopathological examination which confirmed well differentiated squamous cell carcinoma. She underwent wide resection of the tumor with right inguinal node dissection and reconstruction with a pedicled vastus lateralis myocutaneous flap. Flap donor site was covered with split skin grafting. Postoperatively, there was minimal necrosis at the superior edge of the flap which was treated conservatively and did not require further surgical intervention.



Figure 1
Preoperative markings and flap design

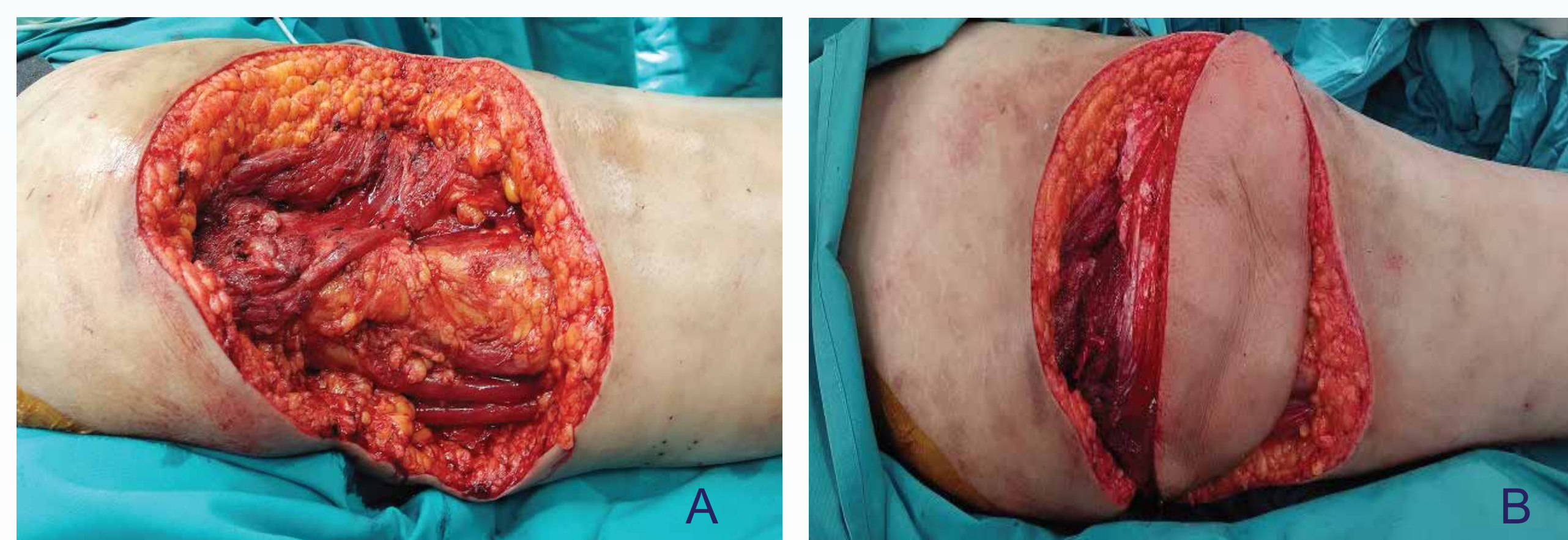


Figure 2

- A The posterior upper thigh defect measuring 20cm x 15 cm exposing partially resected gluteus maximus muscle. Sciatic nerve or major vessels were not exposed. Base of the defect were mainly muscle and fascia leaving the ischial tuberosity unprotected requiring soft tissue padding.
- B ALT flap based on the lateral circumflex femoral vessels with vastus lateralis muscle tunneled subcutaneously and transposed for insertion to provide soft tissue padding for the exposed sitting bone.



Figure 3
Final flap inset over the upper posterior thigh without tension and full coverage of the defect. Flap bulk appears adequate and contour is acceptable.



Figure 6
Tip necrosis over the superolateral aspect of the flap which was treated conservatively.



Figure 4
Donor site was closed with split skin graft harvested from contralateral thigh.



Figure 7
Flap donor site healed without complications. Standard postoperative scar management applied.



Figure 8, 9 & 10
Postoperative 2 months images.

Discussion

In our patient, tumor resection left a large defect with a deep cavity to ensure no compromise in the surgical margins. Therefore, soft tissue coverage with adequate bulk to fill up dead space, adequate padding and good contour resurfacing is necessary.

We performed a pedicled ALT and vastus lateralis myocutaneous flap for defect coverage. Incorporating the vastus lateralis muscle provides bulk and padding of the ischial tuberosity whereas a fasciocutaneous ALT flap might not have been adequate to address the deep cavity due to the small built of our patient.

In view of the defect location at the posterior thigh, a pure muscle flap would require skin grafting. Skin graft take in this region tend to be poor and unsatisfactory which may subject to prolonged recovery and hospital stay. Difficulty to immobilize the posterior thigh region after skin grafting will subject to sheering and skin graft loss, delaying further oncology treatment.

Planning the pedicled ALT flap has been previously described where a few ways of dissection can provide different flaps (1). In this patient, we raised the skin paddle, over the middle third of the vastus lateralis muscle as the skin perforators are the most constant and reliable in this region. The vastus lateralis muscle is raised together with the skin paddle and we tunneled subcutaneously for flap inset.

Wong et al described utilising the anterolateral thigh vastus lateralis conjoint flap to provide both skin and muscle components independently based on different vascular branches from the same pedicle source vessel. It increases the surface area available for coverage of bigger defects. Due to the independence of the skin paddle and vastus lateralis muscle, it allows better positioning of the different components to optimise defect coverage i.e. soft-tissue volume replacement as well as for dead space obliteration. (2)

The ALT flap has gain much popularity as a free tissue transfer in past decades. The same cannot be said about the pedicled variant, with or without muscular component. Previous reports have described the versatility of the pedicled ALT and vastus lateralis myocutaneous flap in the reconstruction of complex wounds involving many regions of the body.

With a versatile pedicle and wide arc of rotation up to 180 degrees in relation to the muscle, the pedicled ALT flap can reach the abdomen, pelvis, perineum, genitoscrotal area, the medial and the lateral thigh, as well as the trochanter and ischium. It can also reach the knee and the proximal lower leg.

The pedicled ALT and vastus lateralis myocutaneous flap proved to be a useful technique in posterior thigh defect closure. The bulk has been somewhat maintained even though muscle atrophy is unavoidable however no objective measurement was made. There has not been any functional deficit in our patient. Despite the color mismatch, she was satisfied with the outcome due to the well-hidden location.

Conclusion

The pedicled vastus lateralis myocutaneous flap proves to be a reliable and versatile flap. With its wide arc of rotation and substantial bulk, it is preferred for reconstruction of loco regional defect involving a deep cavity and subsequently suitable for further oncologic intervention if required.

References

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