

## Case Report

# Bipedicled transverse abdominal flap for coverage of exposed iliac crest due to post traumatic tissue loss in left inguinal region

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**Received:** 06 January 2016

**Revised:** 17 February 2016

**Accepted:** 18 February 2016

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## ABSTRACT

It is a surgical challenge for any plastic surgeon to choose the type of flap in the case of large inguinal canal tissue loss with exposed crest of ilium. Most repair methods provide inadequate closure of the defect for the large tissue loss over the inguinal region with exposure of the iliac crest. There are very few cases reported in the literature about transverse bipedicled abdominal flap for tissue defect over the inguinal region with exposure of the iliac crest bone and upper part of the thigh. In this case, by taking advantage of the large, loose, and lax nature of the abdominal skin, systematic primary closure of the donor as well as recipient site has been successfully achieved.

**Keywords:** Bipedicled abdominal flap, Exposed iliac crest, Post traumatic tissue loss, Pedicled flap

## INTRODUCTION

Avulsion injuries are uncommon events and are caused mainly by accidents.<sup>1</sup> Exposed bone with loss of skin cover is a clinically challenging injury which requires expert planning, appropriate selection and execution of flaps. Unless managed aggressively, such injuries are known to cause significant morbidity, prolonged hospitalization and disturbance in patient's day to day life. The survey of cases of traumatic skin loss suggests that specialty of orthopaedic, plastic surgery and/or general surgery should combine in the treatment of these injuries.<sup>2</sup> Reconstruction may be performed in steps to achieve satisfactory esthetic result.<sup>1</sup> We are presenting a case of fractures associated with loss of skin cover over iliac crest. The initial surgery for fracture fixation with skin closure failed because of poor vascularity, infection and also probably because of suturing under tension. This was a correct opportunity for use of transverse abdominal bipedicled flap which has resulted in complete cure of the patient in 3 weeks.

## CASE REPORT

A 30 year old male patient had presented with history of trauma to left leg resulting in fracture of left femur, large left inguinal region full thickness skin loss, exposure of the iliac crest and upper part of the thigh, and damage to the ipsilateral inferior epigastric artery. The fracture neck of left femur was operated by an orthopaedic surgeon. Primary closure of the inguinal region wound was attempted by undermining the surrounding skin with residual tissue defect in the inguinal region. There was profuse serosanguinous discharge from the sutured inguinal wound. At the end of 3 weeks, there was little improvement in the status of the wound and the iliac crest bone was exposed. Therefore the patient was scheduled for reconstructive surgery to cover the tissue defect over the left inguinal region. After debridement of the wound, the bipedicled transverse abdominal flap was advanced over the iliac crest to achieve complete closure of the primary defect. There was a large oval shaped tissue defect above the bipedicled flap at the donor site. To

cover this defect without the skin graft, the upper abdominal skin flap was mobilized till subcostal region and tucked as low down as possible to relieve any possible tension over the bipediced flap after primary closure of the donor site. The wound was closed with a suction drain. The patient was advised to maintain the hip and knee joint in flexion for 3 weeks to avoid excess tension on the sutured edges of the flap. The flap served the purpose of surgery.



**Figure 1: Tissue loss over inguinal canal with exposed iliac crest bone.**



**Figure 2: Operated transverse bipediced flap with primary closure of donor site defect.**

## DISCUSSION

The choice of flap surgery for large inguinal canal defect with exposed iliac crest and upper part of thigh with damaged ipsilateral inferior epigastric artery are horizontal pedicled/free Tram flap based on opposite nonaffected inferior epigastric artery and bipediced transverse abdominal flap and reverse latissimus dorsi musculocutaneous flap.<sup>3</sup> The inguinal canal tissue defects with exposed iliac crest bone are covered by ipsilateral/contralateral inferior epigastric artery based pedicled flaps or by bipediced transverse abdominal flap or by reverse latissimus musculocutaneous flap. The choice & type of flap for any tissue defect on the body with exposed vital structures like nerve, tendon, vessel &

bone depends on the site and nature of injury to the patient, available non-injured vascular pedicle, surgical experience of the surgeon and available facilities at the hospital. The transverse bipediced fasciocutaneous abdominal flap is based on the lateral cutaneous branches of the lower intercostal arteries and can be used to cover any tissue defect due to trauma or post excision of benign or malignant tumour over the abdomen, lower thorax, iliac crest and inguinal region.<sup>4,5</sup> In view of scar of recent surgery of operated fracture neck femur on lateral aspect of thigh, the ipsilateral inferior epigastric artery being cut and there being contusion over the pubic symphysis region due to trauma, it was decided to raise the transverse bipediced abdominal flap based on lower intercostal arteries with lateral extension to give adequate tissue cover to the large tissue defect over the inguinal canal region extending over the exposed iliac crest bone.<sup>6</sup> This case also illustrates that definitive reconstruction can be successfully undertaken, thereby negating the need for large areas of skin grafting which can lead to contractures with consequent functional impairment and suboptimal aesthetic results.<sup>7</sup>

## CONCLUSION

Closure of post-traumatic tissue loss with exposed iliac crest in inguinal region is a surgical challenge for any plastic surgeon. In this case, complete healing of the defect could be achieved by optimum utilisation of loose upper lateral abdominal skin fashioned into a transverse bipediced flap. In well selected cases, the appropriate use of such flaps is definitely recommended to reduce healing time and morbidity of the patient.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: Not required*

## REFERENCES

1. Zenettini LA, Fachinelli A, Fonseca GP. Traumatic Degloving Lesion of Penile and Scrotal Skin. *Int Braz J Urol*. 2005;31(3):262-3.
2. Saad MN. The problems of traumatic skin loss of the lower limbs, especially when associated with skeletal injury. *Br J Surg*. 1970;57:601-15.
3. Hayashida K, Endo Y. Case report reconstruction of exposed ilium with reverse turnover latissimus dorsi muscle flap. *Eplasty*. 2011;11:e17.
4. Auda SP, Sindelar WFM. Bipedicicle transverse abdominal cutaneous flap for reconstruction of lower thoracic wall defects. *J of Surg Onc*. 1980;15(2):195-9.
5. Sullivan SR, Engray LH, Anaya DA, Bulger EM, Foy HM. Bilateral anterior abdominal bipedicicle flap with permanent prosthesis for the massive abdominal skin grafted hernia. *Am J Surg*. 2007;193(5):651-5.

6. Zama M, Gallo S, Santecchia L, Bertozzi E, Zaccara A, Trucchi A. Early reconstruction of the abdominal wall in giant omphalocele. *Br J Plast Surg.* 2004;57(8):749-53.
7. Hughes T, Yu JTS, Wong KY, Malata CM. Emergency definitive reconstruction of a necrotizing fascitis thigh debridement defect

with a pedicled TRAM flap. *Int J of Surg.* 2013;4(5):453-5.

**Cite this article as:** Naik NG, Karandikar S. Bipedicled transverse abdominal flap for coverage of exposed iliac crest due to post traumatic tissue loss in left inguinal region. *Int J Res Med Sci* 2016;4:963-5.