



PEDICLED ANTEROLATETRAL THIGH (ALT) FLAP IN THE RECONSTRUCTION OF DEFECT CAUSED BY PRESSURE SORES

Plastic Surgery

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ABSTRACT

Background: Reconstructing pressure sore has been a difficult task for surgeons. The pressure sore defects range from erythema only to full thickness defects including skin, soft tissue and muscles. Treatment options available include dressings, infection control, nutritional support, position change to surgical debridement and flap cover. **Methods:** This retrospective study done between 2021 and 2023 where 15 patients were operated for grade 4 pressure sore using Pedicled ALT flap in the Department of Plastic and Reconstructive Surgery, Sawai Man Singh Hospital, Jaipur, Rajasthan, India. **Results:** The study consisted of total 15 patients, 11 males and 4 females. 14 patients had history of trauma and one of them was quadriplegic. Mean age of patients was 41 years (range from 24 to 62 years). Mean defect size was 5.6cm × 10.2 cm (7 cm/5cm to 15cm/10cm). Mean operative time was 80 minutes (range from 60 minutes to 100 minutes). Postoperative hospital stay ranged from 7 days to 14 days (mean- 12 days). **Conclusions:** The pedicled ALT flap is a safe and reliable option for reconstructing pressure sores. An appropriate flap design and a good choice of the tunneling method are crucial for successful flap transposition.

KEYWORDS

Anterolateral Thigh Flap / Trochanteric Pressure Sores / Reconstruction

INTRODUCTION

Pressure sores frequently occur as a complication in long-term bedridden patients. The surgical management of pressure sores requires thorough debridement proper flap selection; in particular, the flap should offer well-vascularized tissue with significant muscle bulk to obliterate the ulcer dead space, as well as providing easy transposition for tension-free closure [1].

Although the tensor fascia lata (TFL) flap remains the work-horse flap for trochanteric region reconstruction due to its reliability and ease of harvest [2], it has significant shortcomings. In recent years, the pedicled anterolateral thigh (ALT) flap has become more popular, and it now has an established role in reconstruction of defects in the perineum, groin, anterior abdominal wall, and thigh [3-7]. However, few case series in the literature have reported utilizing the pedicled ALT flap for trochanteric pressure sore reconstruction [8-11].

The aim of our study is to establish the role of pedicled ALT for the reconstruction of the pressure sore employing safe tunnelling technique to maximize the flap reach and safe flap transfer.

Pedicled ALT flap was first used by Kimata et al. [12], for an abdominal reconstruction following which it has been widely used [13-14]. It derives its blood supply from the descending branch of the lateral circumflex femoral artery (branch of profunda femoris artery) [12]. Pedicled ALT flap has following advantages: the flap can reach various locations such as gluteal region, groin, perineum and lower abdomen as the pedicle length ranges from 4 to 20 cm and it has a wide arc of reach. It has no functional deficit and donor site can be primarily closed for a maximum size of 21 × 9 cm [13]. [Downloaded from wjps.ir on 2022-11-16] The pedicled ALT flap can be harvested as fasciocutaneous or myocutaneous flap. In addition, tensor fascia lata, vastus lateralis or rectus femoris can be harvested with the flap depending on the requirements. In our study, we discuss the use of pedicled ALT flap in pressure sore and assess the outcome.

MATERIALS AND METHODS

This retrospective study was conducted between 2021 and 2023 where 15 patients were operated for grade 4 pressure sore using Pedicled ALT flap in the Department of Plastic and Reconstructive Surgery, Sawai Man Singh Hospital, Jaipur, Rajasthan, India. The study has been evaluated by the institutional Ethics Committee and an approval was obtained to carry it out. A written and informed consent was obtained from the patients participating in the study. Indications included grade 4 pressure sore with defect size 7 cm/5cm to 15cm/10cm.

Surgical technique: anterior superior iliac spine and superior-lateral border of patella are marked and a line joining both the points is drawn. A circle of 3 cm radius is drawn on the midpoint of this line and it is divided into 4 compartments. Using hand held Doppler, perforators

were marked in this circle. Most of the perforators lie in inferior-lateral compartment of the circle. The flap is designed according to the defect of Pressure sore keeping the perforator in the centre. Incision is given over the medial border of the marked flap and deepened to the subfascial layer. The pedicle is dissected between the rectus femoris and vastus lateralis muscle and perforators marked are carefully visualized and isolated with the pedicle. The tensor fascia lata lying laterally to the vastus lateralis muscle is included in the flap along the lateral markings of the flap. After elevation of the flap, a subcutaneous tunnel is created in 11 patients and for rest of the patients the path was laid open and flap was transposed to the defect and inset was done. Donor site is also closed primarily if possible or skin grafted.

RESULTS

The study consisted of total 15 patients, 11 males and 4 females. 14 patients had history of trauma and one of them was quadriplegic. Mean age of patients was 41 years (range from 24 to 62 years). Mean defect size was 5.6cm × 10.2 cm (7 cm/5cm to 15cm/10cm). Mean operative time was 80 minutes (range from 60 minutes to 100 minutes). Postoperative hospital stay ranged from 7 days to 14 days (mean- 12 days). Out of 15 patients, pedicles were tunnelled subcutaneously in 11 patients and the path was laid open in 4 patients. One patient developed wound infection in postoperative period and was treated with dressing and antibiotics.

DISCUSSION

Pressure sores constitute a major cause of morbidity in bedridden patients. For advanced-stage pressure sores, the mainstay of management is surgery, which involves wound debridement followed by soft tissue coverage.

Until recently, the TFL flap has been considered the gold standard technique for the management of trochanteric pressure sores. However, its original design has many disadvantages; for instance, the most poorly vascularized distal portion is usually placed into the bed of the sore, along with meaning an associated dog-ear deformity, which led surgeons to propose new modifications [15-18]. Despite these successful alternatives, some problems remain, including limited flap size that would provide insufficient tissue for a large defect [9], a lack of adequate muscle bulk to fill up the potential dead space, and limited flap mobility with excessive tension during closure.

We suggest that the pedicled ALT flap can overcome the previously mentioned shortcomings, and should therefore be considered as an excellent choice for reconstructing trochanteric pressure sores. However, few studies have reported the use of the pedicled ALT flap for this purpose. In 2007, Chang [8] described an alternative method for trochanteric pressure sore reconstruction by utilizing an island pedicled ALT musculocutaneous flap in a male paraplegic patient. In 2008, Tzeng et al. [10] reported the use of an ALT fasciocutaneous flap

for trochanteric pressure sore coverage in a limited sample of four patients. In 2011, Wang et al. [9] demonstrated a modified design of the pedicled ALT myocutaneous flap for trochanteric pressure sore reconstruction in a large case series of 21 patients, which provided a reliable method for easy flap harvesting.

The pedicled ALT flap is a safe and reliable option for reconstructing pressure sores. Appropriate flap design and a suitable choice of the tunneling method are essential for successful transposition of the flap for reconstruction of the pressure sore, specially in the trochanteric region. We need to identify the factors that affect the selection of the open technique and to clarify whether this choice is related only to patients' body habitus or body mass index, or other factors such as pedicle length, which may be shorter in overweight patients.

CONCLUSIONS

The pedicled ALT flap is a safe and reliable option for reconstructing pressure sores. An appropriate flap design and a good choice of the tunneling method are crucial for successful flap transposition.

PHOTOGRAPHS:



1A-SHOWING 34 YR,FEMALE PRE OPERATION PICTURES OF GRADE 4 LEFT SIDED TROCHANTERIC SORES



1B-SHOWING 34 YR,FEMALE PRE OPERATION PICTURES OF GRADE 4 LEFT SIDED TROCHANTERIC SORES



1C-34 YR FEMALE POST OPERATION PICTURE WHERE PEDICLEDALT WAS DONE



1D- 34 YR FEMALE POST OPERATION PICTURE WHERE PEDICLEDALT WAS DONE



2A-SHOWING 24 YR, MALE PRE OPERATION PICTURES OF GRADE 4 ,RIGHT SIDED TROCHANTERIC SORES AND ASACRAL SORE



2B –SHOWING 24 YR,MALE PRE OPERATION PICTURES OF GRADE 4 RIGHT SIDED TROCHANTERIC SORES



2C- 24 YR MALE POST OPERATION PICTURE WHERE PEDICLED ALT WAS DONE



2D- 24 YR MALE POST OPERATION PICTURE WHERE PEDICLED ALT WAS DONE

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