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Pedicled Anterolateral Thigh Myocutaneous Flap for Trochanteric Pressure Sore Reconstruction: Case Report

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Abstract

Background: Reconstruction of pressure sores still present a major challenge in plastic surgery due to high rates of wound dehiscence and pressure sore recurrence. Trochanteric sores are generally closed with tensor fascia lata flaps, however with high recurrence rates.

Case report: We illustrated a case of trochanteric pressure sore with osteomyelitis of the femoral head treated with an alternative reconstructive option, Girdlestone procedure and a pedicled anterolateral thigh myocutaneous flap. Wide debridement of infected tissues and filling of dead space are of paramount importance in the treatment of pressure sores. In the presented case, with a one-stage surgery and prolonged antibiotherapy, the infection was resolved, and the postoperative period was uneventful. We were able to reconstruct the pressure sore with well vascularized tissue, without tension and padded by the vastus lateralis muscle cuff included. Also, the aesthetic result was superior to the tensor fascia lata flap, without dog ear deformity and no donor site skin grafting.

Conclusion: The Girdlestone procedure with an ALT myocutaneous flap is a good reconstructive option for trochanteric pressure sores.

Keywords: Trochanteric sore • Anterolateral thigh flap • Tensor fascia lata flap • Pressure sore • Girdlestone procedure

Introduction

Reconstruction of pressure sores still present a major challenge in plastic surgery due to high rates of wound dehiscence and pressure sore recurrence [1]. Trochanteric sores are generally closed with Tensor Fascia Lata (TFL) flaps, however with high recurrence rates [2]. When associated with osteomyelitis, trochanteric sores require a wide debridement of infected tissues, leaving a wide and deep defect to be reconstructed. In this instance, we report an alternative reconstructive option that includes a pedicled Anterolateral Thigh (ALT) myocutaneous flap to fill the defect with a durable and well-perfused flap. Although it is a well-known flap, reports of its applicability for reconstruction of pressure sores are scarce [3-6].

Case Report

A 53-year-old man with paraplegia presented with a left trochanteric pressure sore (figure 1) and fever. On physical examination the pressure sore was of limited dimensions with purulent exudate. He was initially treated with local wound care and started empiric antibiotic therapy. Although the fever has resolved with the instituted measures, on magnetic resonance imaging he presented osteomyelitis of the femoral head. It was planned a one stage approach of debridement and reconstruction. Through a vertical incision, all macroscopically unviable soft tissues were removed, including femoral head in a Girdlestone procedure. Specimens of soft and bone tissue were microbiologically analyzed to determine the postoperative antibiotic treatment. A pedicled ALT myocutaneous flap was elevated for reconstruction (Figure 1).

Operative technique

For perforator location, a line was delineated from the anterosuperior iliac spine to the superolateral aspect of the patella. In the midpoint of this line, a circle with a 3 cm radius was drawn. Perforators are preferentially located in the distal posterior quadrant of this circle (Figure 2) [7]. To increase flap reach, the flap was marked with the selected perforator centered in the upper third and 20% larger than the defect. The flap was elevated with a muscle cuff larger than the skin island (Figure 3) and inset through a subcutaneous tunnel. Antibiotic therapy was continued until completed 6 weeks. The postoperative period was uneventful, and no recurrence occurred in 12-month follow-up. Primarily closure of the donor site allowed a good aesthetic result (Figures 2-5).

Results and Discussion

Pressure sores are a common condition in bedridden patients. They require a multimodal approach with control of the underlying pathology, correct and alternate positioning to reduce pressure, shear e friction forces, aggravated in cases of spasticity, nutritional optimization, infection control, wound care and, if adequate, surgical reconstruction. Good nursing care is essential in the postoperative period as well as patient instruction and collaboration when possible. Nevertheless, overall complication rates of 58.7% have been reported in flap reconstructions, with wound dehiscence being the most common, followed by pressure sore recurrence [1].

Since introduced by Nahai F, et al. [8] TFL flap became the workhorse flap for trochanteric defects. However, dehiscence and partial flap necrosis are common findings and recurrence rates of up to 80% have been described [2]. Problems with the original transposition flap, such as tip necrosis and unpleasant aesthetic result due to significant dog ear deformity and donor site skin grafting, led to new designs of the flap [3,4]. The hatchet-shaped flap overcome these disadvantages, reducing dog ear deformity, providing vascularized muscle into the defect and increasing the chance of primary closure of the donor site.

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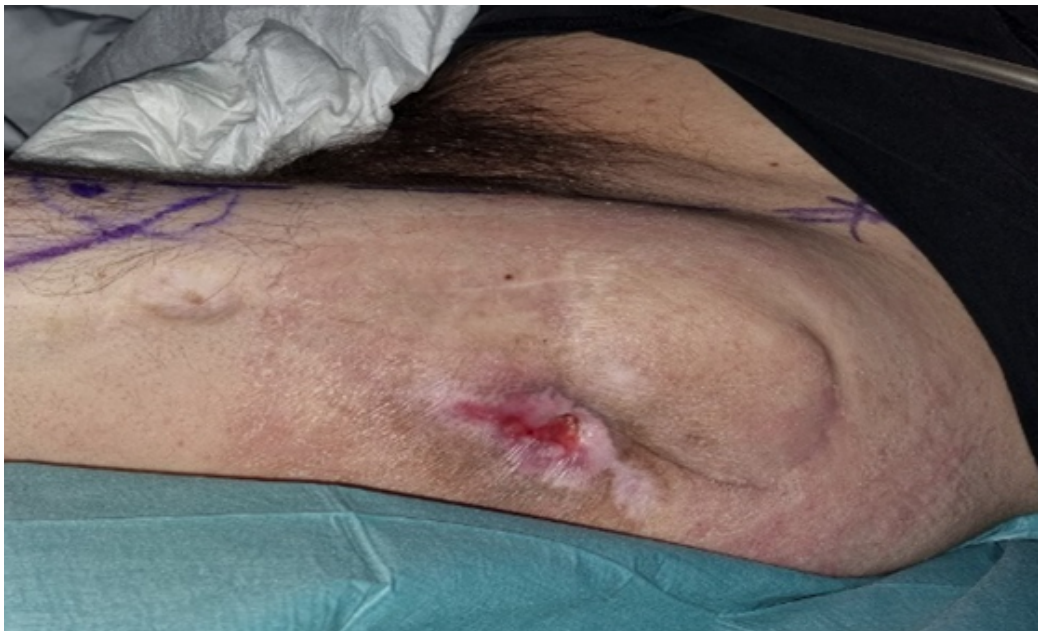

Figure 1. Left trochanteric pressure sore.

Figure 2. Perforator found in the distal posterior quadrant of the circle.

Figure 3. Flap elevated with a muscle cuff.

Figure 4. Linear scar on the donor area.

Figure 5. Postoperative result.

The free ALT flap is a workhorse flap for soft tissue reconstruction. As a pedicled flap, the long pedicle enabled the ALT flap to be used for abdominal, groin and perineal reconstruction. Wang CH, et al. were the first to introduce the pedicled myocutaneous ALT flap for trochanteric pressure sore reconstruction in 2011 [4]. This simplified version of the flap includes part of the vastus lateralis muscle not requiring skeletonization of the perforator, allowing a much faster harvesting.

Compared with the TFL flap, the pedicled ALT myocutaneous flap enables a tension-free reconstruction of trochanteric pressure sores. The vastus lateralis muscle cuff provides padding and fills dead space and may even be harvested to a greater extent than the skin island if necessary, limiting the formation of seroma. Besides, the muscle portion delivers robust vascularity to treat an infected wound bed [9]. In a retrospective analysis of 48 patients, the complication rate and the pressure sore recurrence rate were higher in the TFL group *vs*. ALT group [3]. When raising the flap, the ascending branch of the lateral circumflex femoris artery should not be injured to preserve TFL flap in case of recurrence. If the pedicle is compressed after tunnelization, a segment of vastus lateralis can be excised. For fasciocutaneous ALT flaps, direct closure of the donor site is possible with flaps up to 7-9cm wide [7]. In the setting of myocutaneous flap, muscle bulk reduction enhances the chance of primary closure, enabling good aesthetic results.

Conclusion

The composite ALT myocutaneous flap is a good reconstructive option for trochanteric pressure sores because it provides a tension-free closure with well vascularized tissue, good padding over the great trochanter, fills the dead space, the donor area can be closed primarily, and the operative time is short because there is no need to skeletonize de perforator.

Conflict of Interest

None.

Acknowledgement

None.

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