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Reconstruction of trochanteric pressure sores with pedicled anterolateral thigh myocutaneous flaps

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KEYWORDS

Anterolateral thigh flap;
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Summary *Background:* To provide an alternative choice for covering trochanteric pressure sores, we report on a modified pedicle anterolateral thigh (ALT) myocutaneous flap based on the descending branch of the lateral circumflex femoral artery.

Methods: From August 2007 to January 2010, 20 consecutive patients (10 men and 10 women) underwent 21 pedicled ALT myocutaneous flaps for reconstruction of trochanteric pressure sores. The flap was designed and elevated, resembling the ALT perforator flap including part of the vastus lateralis muscle but without skeletonisation of the perforators.

Results: The mean age of patients was 79.4 years (range: 46–103). The mean follow-up period was 13.9 months (range: 3–32). The flaps were 8–21 cm long and 5–11 cm wide. All flaps healed without major complications. All donor sites were closed primarily without skin grafting and showed good aesthetic results. No recurrence was observed.

Conclusions: This modified design of pedicled ALT myocutaneous flap without skeletonisation of perforators is a reliable and easily harvested flap for reconstruction of trochanteric pressure sores with limited morbidity.

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Pressure sores are common conditions with an estimated prevalence of 3–10% among hospitalised patients, and up to 25–33% in nursing homes. The principles of treatment of

pressure ulcers include control of the underlying causes, reducing pressure, friction and shear forces, correcting nutritional deficits, managing bacterial contamination, optimising local wound care and surgical reconstruction. Trochanteric pressure sores develop in patients who lie in the lateral position, especially in those with significant flexion contracture. Kimata et al.¹ first described the use of the anterolateral thigh (ALT) flap as a pedicled flap for perineal reconstruction. In our institute, Chen and Tzeng² have applied the proximal pedicled ALT thigh flap in the

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reconstruction of trochanteric defects, including trauma and osteomyelitis. We found that it is a reliable and versatile flap but that the perforator dissection is tedious and time consuming. We now have modified and simplified the pedicled ALT perforator flap into a myocutaneous flap for covering trochanteric pressure sores. Myocutaneous flaps provide good blood supply and bulky padding, and are effective in treating infected wounds. It contains the cutaneous portion of ALT and part of the vastus lateralis muscle and does not require the skeletonisation of perforators. The advantage of this method is that it allows quick and easy harvesting of the ALT flap and maintains the tensor fasciae latae (TFL) as a reserve in case the pressure sore recurs.

Patients and methods

Twenty-one pedicled ALT myocutaneous flaps were harvested for reconstructing trochanteric pressure sores in 20 consecutive patients (10 men and 10 women) between August 2007 and January 2010 in Tri-Service General Hospital, Taiwan. The mean age was 79.4 years (range: 46–103). The flaps ranged from 5 to 11 cm in width and 8 to 21 cm in length. The average follow-up period was 13.9 months (range 3–32 months). Detailed patient information is given in Table 1.

Operative technique

The patient was placed in a supine position with a pad under the buttock ipsilateral to the pressure sore. The pressure sore was excised radically down to healthy tissue; the bony prominences of the greater trochanter were trimmed smoothly. A line was drawn between the anterosuperior iliac spine and the superolateral corner of the patella. The midpoint of this line was identified and was named point B.³ We marked two points approximately 5 cm above and below B and these were named points A (most proximal) and C (most distal). A 15-cm-long longitudinal incision, about 2 cm medial to the aforementioned line, was made down to the fascia over the rectus femoris muscle (Figure 1). The subfascial dissection proceeded laterally towards the intermuscular space between the rectus femoris and vastus lateralis muscles. Perforators distal to point B were then identified and adjacent tissue was preserved. The intermuscular septum of the rectus femoris and vastus lateralis muscles was dissected to explore the descending branch of the lateral circumflex femoris artery. The pedicle was dissected to the origin of the descending branch, proximally to distally, and then isolated around the anterior margins of the desired perforators. The desired size of the flap, based primarily on the extent of the trochanteric pressure sores, was then

Table 1 Patient Data.

| Case | Age /Gender | Underlying disease | Site | Ulcer size (cm) | Flap size (cm) | Perforators | Follow-up (months) | Complication |
|------|-------------|--|-------|-----------------|----------------|-------------|--------------------|--|
| 1 | 87/M | Previous CVA with left hemiplegia | Left | 8 × 8 | 10 × 8 | MC | 32 | None |
| 2 | 78/F | Thoracic spine injury | Right | 7 × 6 | 8 × 6.5 | MC | 29 | None |
| 3 | 78/F | Alzheimer's disease | Left | 9 × 7 | 10 × 7 | MC | 28 | None |
| 4 | 88/M | Senile dementia | Right | 9 × 7 | 11 × 7 | MC | 27 | None |
| 5 | 82/F | Hypertensive cardiovascular disease, coronary artery disease, Parkinsonism | Right | 10 × 8 | 12 × 9 | MC | 2 weeks | Aspiration pneumonia ^a |
| 6 | 67/M | Rupture of the right vertebral artery aneurysm s/p V–P shunt with long-term immobilisation | Left | 11 × 10 | 12 × 10 | MC | 2 weeks | Acute hemorrhagic gastritis ^b |
| 7 | 82/M | Previous CVA with right hemiplegia | Left | 9 × 7 | 10 × 7 | MC | 17 | Haematoma (use of Plavix) |
| 8 | 46/M | Generalised encephalopathy | Right | 8 × 7 | 10 × 8 | MC | 14 | None |
| 9 | 52/F | Carcinoma of the lung | Right | 7 × 5 | 9 × 5 | MC | 14 | None |
| 10 | 83/F | Alzheimer's disease | Right | 9 × 6 | 10 × 6 | MC | 12 | None |
| 11 | 89/F | Senile dementia and Alzheimer's disease | Right | 9 × 7 | 12 × 9 | MC | 11 | None |
| 12 | 97/M | Senile dementia | Left | 7 × 6 | 9 × 7 | MC | 11 | None |
| 13 | 81/M | Previous CVA with left hemiplegia | Left | 11 × 8 | 13 × 9 | MC | 10 | None |
| 14 | 87/F | Senile dementia | Right | 12 × 11 | 15 × 11 | MC | 10 | None |
| 15 | 73/M | Senile dementia | Right | 7 × 6 | 10 × 6 | MC | 10 | None |
| 16 | 73/M | Senile dementia | Right | 8 × 8 | 11 × 7 | MC | 9 | None |
| 17 | 64/F | Previous CVA with left hemiparesis | Right | 7 × 6 | 9 × 6 | MC | 9 | None |
| 18 | 76/F | Previous CVA with left hemiparesis | Left | 10 × 7 | 11 × 8 | MC | 8 | None |
| 19 | 88/M | Parkinson's disease | Left | 9 × 8 | 10 × 8 | MC | 7 | None |
| 20 | 103/F | Senile dementia | Right | 11 × 6; 7 × 5 | 19 × 7 | MC | 4 | None |
| 21 | 87/M | Previous CVA with left hemiparesis | Left | 10 × 7; 9 × 8 | 21 × 8 | MC | 3 | None |

CVA, cerebral vascular disease; MC, musculocutaneous; Bil, bilateral.

^a Died from aspiration pneumonia with septic shock.

^b Died from acute hemorrhagic gastritis with hemorrhagic shock.

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