The frequency of pressure sores is found to increase based on age, presence of multisystem disorders, and trauma. Many procedures have been proposed for the surgical treatment of pressure sores. Perforator-based flaps have revolutionized the practice of flap coverage, with the goal of muscle sparing and minimal functional morbidity from the harvest of skin. There is no statistically significant difference in the relapse rates between the use of musculocutaneous and fasciocutaneous flaps.

A 50-year-old paraplegic man with a grade III/IV ischiatic pressure sore (European Pressure Ulcer Advisory Panel-National Pressure Ulcer Advisory Panel (EPUAP-NPUAP) classification) was treated with a propeller flap based on the first perforator of the profunda femoris artery. Our aim was to surgically reconstruct an ischiatic pressure sore in a patient with ankylosis using a fasciocutaneous perforator propeller flap obtained from the posterior region of the thigh. Our decision to perform a profunda femoris artery perforator propeller flap reconstruction was mainly due to the anatomical contiguity of the flap with the site of the lesion and the good quality of the skin harvested from the posterior region of the thigh. The use of the perforator fasciocutaneous flap represents a muscle-sparing technique, providing a better long-term result in surgical reconstruction. The choice of the 180-degree propeller flap was due to its ability to provide a good repair of the pressure ulcer and to pass over the ischiatic prominence in the patient in the forced decubitus position. The operative course did not present any kind of complication. Using this reconstructive treatment, we have obtained complete coverage of the ischiatic pressure sore. (Plast Reconstr Surg Glob Open 2015;3:e487; doi: 10.1097/GOX.0000000000000432; Published online 21 August 2015.)

CASE REPORT

In February 2012, a 50-year-old paraplegic man presented to the Department of Plastic and Reconstructive Surgery–Ospedali Riuniti of Ancona with a grade III/IV ischiatic pressure sore (EPUAP–NPUAP classification) that had manifested 28 months earlier. In 1988, he had reported a traumatic flaccid paraplegia (motor level D12-L1) associated with anal and bladder sphincter atony.

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Periodic advanced dressings were performed according to the Tissue, Infection or Inflammation, Moisture Imbalance, and Epidermal Margin algorithms. The treatments did not accomplish healing, but we noticed an improvement in the lesional bottom. In April 2012, the patient underwent a reconstructive surgical treatment in our department. He was positioned on an antidecubitus air mattress, according to Associazione Infermieristica per lo Studio delle Lesioni Cutanee’s antidecubitus mattress Consensus Conference 2001 (Italian National Guidelines). To create an optimal wound microenvironment, a swab was taken for cultural examination. Following antibiogram results, an appropriate preoperative antibiotic therapy was started. The patient was fed with a high-protein diet. Radiography of the hip did not show any signs of osteomyelitis.

The ankylosis of the patient’s coxofemoral articulation implied a fixed decubitus position consisting in adduction, flexion, and intrarotation of the left thigh. We opted for a reconstructive surgical treatment using a fasciocutaneous perforator propeller flap from the posterior region of the thigh. We checked the vascular flow identifying the perforators of the PFA by an audible Doppler signal, and the first perforator seemed to be the most reliable one. On the day before surgery, bowel preparation with SELG Esse 1000 (Promefarm, Sigmar, Italy) was performed, and a bladder catheter was positioned.

After 1 day from admission, the patient underwent surgical treatment. In our preoperative planning, the lateral border of the flap began at the point of insertion of the gluteus maximus muscle into the iliobial tract and passed posteroinferiorly to cross the lateral intermuscular septum. The medial border extended as far as a curvilinear line drawn from the ischial tuberosity to the lateral border of the flap, as far distally as two thirds of the distance down the posterior thigh. The posterior-inferior skin incision was made first. The incision was deepened down to the muscle fascia, which was incised and tagged to the dermis of the skin flap with absorbable sutures, leaving the ends long for ease of identification and retraction. The deep plane to the muscle fascia was quickly developed by blunt dissection. The undersurface of the fascia was turned over to identify the perforators. Once the first and second perforators were identified, the first one was chosen according to the diameter of the vessel and the distance from the localization of the pressure sore. We completed the skin incision through the fascia all around the flap until the flap was completely raised and rotated by 180 degrees, with a propeller mechanism, into the defect. The operatory course did not present any kind of complication (Fig. 2). Using this reconstructive treatment with profunda femoris artery perforator propeller (PFAP-P) flap, we obtained complete coverage of the ischiatric pressure sore after 22 days. The patient was followed up at 3, 6, 9, and 12 months, and there were no complications.

**DISCUSSION**

Pressure sores lead to many complications, which result in long-term, frequent, and multiple hospital admissions. The high rate of recurrences represents an important challenge for reconstructive surgery. The incidence of pressure ulceration among those with spinal cord injuries has been reported up to 39%. The possibility of future reconstructions should be considered during flap selection, according to the kind of lesion, anatomic site, and life expectancy of the patient, because of the high rate of complications and recurrence. Our decision to perform a PFAP-P flap reconstruction was mainly due to 3 reasons.
First, the anatomical contiguity of the flap with the site of the lesion and the good quality and quantity of the skin harvested from the posterior region of the thigh. Second, the use of the perforator fasciocutaneous flap is expected to provide a better long-term result in surgical reconstruction of pressure sores than the myocutaneous or muscle flap—thanks to its versatility.\(^5\) Fasciocutaneous flaps are free from complications such as denervation atrophy and ischemia/reperfusion injury. Last, the choice of a perforator propeller flap was due to its ability to provide a good coverage of the pressure ulcer and to pass over the ischiatic prominence.

The patient, in fixed decubitus position, consisting in adduction, flexion, and intrarotation of the thigh, did not allow us to use the non-propeller flap-type alternative reconstructive procedure. Therefore, the 180-degree perforator propeller flap was able to cover the distance between the donor site and the defect, which was found to be wider because of the forced decubitus position (Fig. 3). The proximal donor area was partially covered with the distal part of the flap, and the remaining part was primarily closed. A wide dissection to free the vessels is mandatory to avoid kinking when the flap rotates and to obtain the maximum possible length of the pedicle.

The PFAP-P flap represents a muscle-sparing technique that does not entail damages to the gluteal region, and it has been proven to be efficacious in case of lack of other local donor sites. It is a valid and reliable alternative for coverage of complex, large, late-grade ischiatic pressure sores because of its possibility to rotate as a propeller and its vascular safeness, using the posterior region of the thigh as the donor site, which is a suitable area for its vascular and integumentary aspects.

**SUMMARY**

Recently, perforator-based flaps have revolutionized the practice of flap coverage, with the goal of muscle sparing and minimal functional morbidity from the harvest of skin. We report the case of a 50-year-old paraplegic man affected by a grade III/IV left ischiatic pressure sore (EPUAP–NPUAP) treated with the propeller flap based on the first perforator of the PFA. The ankylosis of the patient’s coxofemoral articulation implied a fixed decubitus. Thus, we opted for a reconstructive surgical treatment using a fasciocutaneous perforator propeller flap obtained from the posterior region of the thigh. In the intraoperative time, we chose the first perforator according to the diameter of the vessel and the distance from the localization of the pressure sore. At this point, we completed the skin incision through the fascia all around the flap until the flap was completely raised and then rotated by 180 degrees, with a propeller mechanism, into the defect.

Our decision to perform a PFAP-P flap reconstruction based on the first perforator was mainly due to 3 reasons:

1. First, the anatomical contiguity of the flap with the site of the lesion and the good quality and quantity of the skin harvested from the posterior region of the thigh.
2. Second, the use of the perforator fasciocutaneous flap represents a muscle-sparing technique, providing a better long-term result in surgical reconstruction.
3. Last, the choice of the 180-degree perforator propeller flap was due to its ability to provide a good repair of the pressure ulcer and to pass over the ischiatic prominence in a patient in the forced decubitus position.

The patient in the fixed decubitus position did not allow us to use the non-propeller flap-type alternative reconstructive procedure.
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