TREATMENT OF PRESSURE SORES IN PARAPLEGIC PATIENTS WITH GLUTEAL PERFORATOR BASED FLAP

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ABSTRACT:

Between 1993 and 1995, eleven paraplegic patients with sacral pressure sores were operated in Ege University Medical Faculty, Department of Orthopaedics. Avarage age during the operation was 34 (min. 18-max. 46) years. Nine patients were male and 2 were female. In all patients cause of paraplegia was thoraco-lumbar vertebra fractures. Postoperatively, there were no problem of flap viability and the donor sites were closed primarily without any tension and no recurrence of any pressure sore and infection were observed in follow-up examinations was average 15 (ranged from 7 to 22) months. As a result, this flap is usefull in lumbar and sacral pressure sores of paraplegic patients and gives excellent results.

Key words: *Pressure sore, Gluteal Flap, Paraplegia*

INTRODUCTION

Vertebral fractures which cause total or incomplete paraplegies, are usually treated with surgical methods. Postoperative treatment of these patients still have many problems. One of the main problems in paraplegic patients, after spinal injuries are pressure sores, especially occurs sacral and lumbar regions (3, 4). Lumbar defects are generally an extension of sacral defects. These pressure sores occur because of unsatisfactory patient care and anesthesia of the skin. Especially on lumbar and sacral region, pressure of the bones to the skin causes big sores. Many kinds of medicines, local dressing materials and treatment methods have been used for the treatment. But results are unsatisfactory. It is necessary to close them with a good soft tissue. Coverage of pressure sores with good soft tissue is still problem, because of common enfection rate. Primary closure, skin grafting, local randomly designed rotation and transposition flaps were used in the literature (5). Musculocutaneous flap is gluteal perforator-based flap which was first used by Koshima in 1991. Gluteal perforator based flap included gluteus maximus perforators located around the sacrum (3). For this reason, we used this flap in our paraplegic patients who had lumbar or sacral pressure sores.

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MATERIAL and METHOD

Between 1993 and 1995 years, in 11 patients we performed gluteal perforator based flap for pressure sores in paraplegic patients. Eight pressure sores were sacral, two were ischial and one was in lumbosacral region (Table 1). Average of the age was 34 (ranged from 18 to 46) years. Nine patients were male and 2 were female. In all patients cause of paraplegia was thorocolumbar vertebra fractures. The follow-up period was 15 (ranged from 7 to 22) months. The average area of the defects 16x10 cm (ranged from 8x10 to 10x20 cm).

Operative technique: In preoperative examination the locations of the perforators were determined with ultrasound audimeter. Gluteal perforator based flap included gluteus maximus and its perforator arteries originating from the internal pudental and lateral sacral arteries.

After debridement and irrigation, identification and preservation of the perforator arteries under the outlied flap was performed. The first incision was made through the superior border of flap. An inferior incision was made through the flap, and gluteal perforator-based island flap was raised carefully above the gluteal muscle from the distal to proximal side. The donor defect was closed directly. There are no need to skin greft for closing of donor area. Because, advancement of donor area flaps, as V-Y advancement manner can be easily achieved by dissection of subcutaneous fatty tissue.

Table 1. Ages of the patients, region and size of the defects.

AGES OF THE PATİENTS	REGION	SIZES OF DEFECTS
29 years, paraplegic	sacral	14x8 cm.
43 years, paraplegic	sacral	17x8 cm.
33 years, paraplegic	sacral	18x10 cm.
40 years, paraplegic	sacral	14x9 cm.
31 years, paraplegic	sacral	19x10 cm.
36 years, paraplegic	ischial	17x8 cm.
18 years, paraplegic	ischial	14x10 cm.
33 years, paraplegic	sacral + trochanteric	17x5 cm. – 4x7 cm.
46 years, paraplegic	lumbosacral	10x20 cm.
29 years, paraplegic	sacral	8x10 cm.
36 years, paraplegic	sacral + trochanteric	16x5 cm. – 4x5 cm.

RESULTS

All the patients except one who died 2 months after the operation because of paralitic ileus, evaluated during the postoperative period and the follow-up period average 17 months (Min. 8-max. 26 months). There were no postoperative complications, such as flap necrosis and wound infection, with the exception of fistula formation in one case. Also the donor sites which were closed primarly had no problems (Picture 1-2). In three patients who had incomplete paraplegies, there were no loss on the gluteus maximus muscle. They can used their orthosis during the rehabilitation programs and having no problem in the final controls.

DISCUSSION

Sacral and lumbar pressure sores have been treated by a variety of surgical methods. Primary closure, skin grafting, local randomly designed rotation or transposition flaps may be indicated in occasional cases. It has been found that perforator based flaps have a significant amount of blood flow through them, and territories of these flaps can cover almost the same area as myocutaneous flaps elevated from the same regions (2). We found that these flaps can be nourished even with only one presacral perforator.

Perforator-based flaps based on these perforators can be easily elevated from anywhere in the gluteal region and rotated without any problems with the pedicle vessels. The superolateral gluteal region was supplied by the superior gluteal artery and the lumbar artery.

The inferior gluteal region was the domain of the inferior gluteal artery (1). The inferior parasacral and the superior parasacral region were supplied by the internal pudental artery and the lateral sacral artery (1, 2). Therefore, these two arterial systems can be considered to be very useful for the treatment of sacral decubitus.

To confirm the location of the perforators, a preoperative examination using an ultrasound audimeter is required. This suggests that a larger flap with a parasacral perforator should be designed transversely and one with a superior perforator should be designed vertically. The advantages of the gluteal perforator based flaps are the reliable blood flow of the perforator, preservation of the gluteus maximus muscle, no additional need for a skin graft for the donor defects, and the large skin territory covered by a single perforator.

The disadvantages of the gluteal perforator based are the anatomical variation in the location of perforators and the need for the technically carefull dissection of the perforators during flap elevation.

As a result it is not difficult to close such defects, but instead of this it is better to protect patients from the formation of pressure sores with good paraplegic patient care.

Fig. 1A:

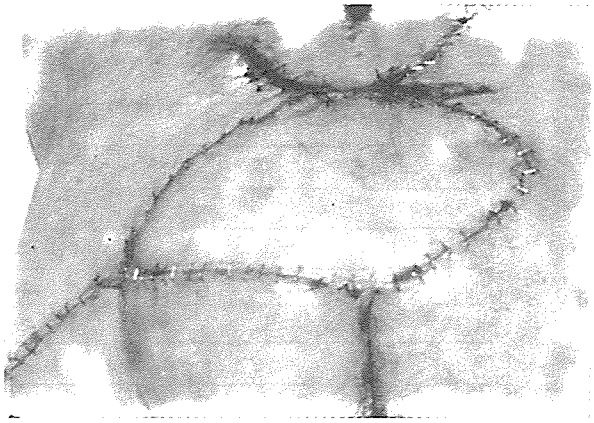

Fig. 1B:

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