OUTCOME COMPARISON BETWEEN MUSCULOCUTANEOUS AND FASCIOCUTANEOUS FLAPS FOR RECONSTRUCTION OF SACRAL PRESSURE SORES

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ABSTRACT

Background: Musculocutaneous flaps were defined as the flaps of 1st choice for repair of sacral pressure sore, this study compares the outcomes of musculocutaneous and fasciocut-aneous flaps for reconstruction of sacral pressure sores. **Methods:** Between 2005 and 2009, the authors operated on 30patients, 18 men and 12 women, The patients were randomly divided into two groups according to the use of bilateral v-y gluteal myocutaneous flap or superior gluteal artery fasciocuta-neous flap. The ages of the patients ranged from 23 to 66 years. all had sacral pressure sores extending to the bone. No co morbidities were found in the sample. **Results:** Twenty eight lesions were closed successfully. After follow-up of 9 to 12 months,27 patients never required repeated surgery after wound complications. Two patients had infection and partial dehiscence of the wound in group A; and one patient had partial flap necrosis in group B. So, there were no significant difference in early complication and the recurrence rate were equal in the two groups. **Conclusion** : There was no superiority of musculocutaneous flaps over fasciocutaneous in reconstruction of sacral pressure sores.

INTRODUCTION

Sacral sores are a challenge to medical and nursing staff because they are reluctant to heal, prone to recurrence, difficult to operate upon, and costly (1-3).

Gluteus flaps have been used in treating sacral sores since 1970, as originally described by Ger (4). There are different types of gluteus flaps, which can be based on the method of transfer of the flap, such as island flaps, V-Yplasty, rotational flaps and they can be based on the types of tissue included, such as fasciocut-aneous flaps or myocutaneous flaps (5).The accepted surgical treatment of pressure sores consists of adequate debridment of the wound, including the affected bone, followed by tissue transfer to provide adequate dead space filling and healthy skin coverage (6).Over the past decades, musculocutaneous flaps have become the first choice in the surgical repair of pressure ulcers but the indications for including the muscle in the transferred flaps still remains poorly defined (7).The purpose of this study is to investigate the necessity of including the muscle in the covering flap through the comparison between the fasciocutaneous or perforators flap (superior gluteal artery flap) and musculocutaneous flaps(v-y gluteal myocutaneous flap)according to early and late complications.

PATIENTS AND METHODS

Thirty four patients with sacral bed sores were operated at the plastic surgery unit of Zagazig university hospitals from January 2005 to January 2009.Patients with large sacral defects reaching the bone were included in the study while those who were immunocomprimized , had a short life expectancy, or those with previous surgery were excluded.Four patients were excluded as they escaped follow up.

SURGICAL TECHNIQUE

After 24 hour targeted antibiotic coverage, the patients were placed in the prone position after receiving general, or regional anaethsia or even sedation,a temporary tampon were used to the anal region to prevent faecal contamination.A tuemescent solution containing epinephrine 1:200,000 was used. The basic principles of surgical repair of bedsores were strictly followed in all cases. First, the ulcer was excised

including the surrounding scar, underlying bursa and bony prominence.Finally, the resulting defect was covered with bilateral v-y gluteus maximus myocutaneous flap(groupA) or superior gluteal artery fasciocuta-neous flap (goupB).Suction drain were used in all cases and removed when the daily discharge was less than 10cc per day. All patients were followed up for 9-12 months.

Fig. (1 a, b) Sacral bed sore before and after coverage by bilateral v-y myocutaneous flap

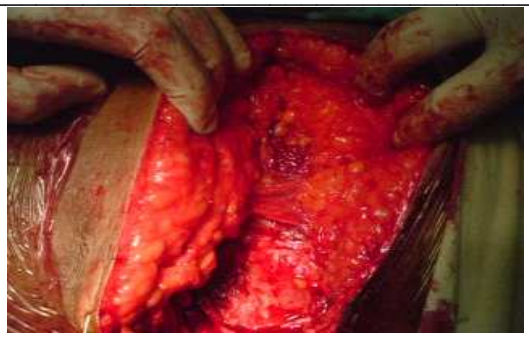

Fig (2 a,b,c,d) Sacral bed sore before and after surgery by superior gluteal artery fasciocutaneous flap

RESULTS

Thirty patients were included in the study,18men and12 women. The age of them ranged from23years to 66years(mean 42years and the median body mass index 21kg/m).The time that elapsed between the development of the ulcer and surgery ranged from 5-38 months.

The sacral ulcer diameter ranged from 9 to 20cm in the longer diameter and from 3 to 15cm in the lesser diameter.

-The drains were removed after 5-10 DAYS

-wound dehiscence was present in one patient of group A and another patient developed wound infection.

-Partial flap necrosis occurred in one patient of group B and needed debridment..

-Three patient developed recurrent ulcer ,and, two patients developed another bedsores 1 years after surgery.

Table 1: Comparing Group A & B patients according pre and post operative data

	Group A	**Group B**
No of patients	15	15
Male –female ratio	2-1	8-7
Age	25-66	23-60
Reason for bed ridden		
Cerebrovascular accident	6	5
Traumatic brain disorder	3	2
Cervical spine disorder	6	8
Sacral ulcer diameter		
Longer diameter	9-19	11-20
Shorter diameter	5-12	3-15
Operative time (MINUTES)	80-100	70-95
Time of drain removal (DAYS)	6-10	5-8
Healed sores	13	14
Healing time(DAYS)	14-18	12-15
Recurrence of sore	1	1
Complications		
Wound dehiscence	1	0
Wound infection	1	0
Partial flap necrosis	0	1

DISCUSSION

Pressure sore surgery has a high success rate with acceptable number of explained complications, but the long term results are disappointing. Recurrence rate as low as 3-6%(8) and as high as 33-100% (9) have been reported. This variability may be explained by many factors, including the location of the ulcer, level of the spinal cord injury, history of prior ulcer, ampulatory state, daily habits, educational state, motivational level and associated medical problems. Another important factor is the type of the flap used for reconstruction but in the literature there are just few studies comparing the long term outcome of different surgical techniques (10).

The theoretical advantages of including the muscle in the repair of pressure sores include the bulk to eliminate the dead space, a carrier of blood supply to the overlying soft tissue, a mass for cushioning tissue over pressure –bearing area that will serve to distribute pressure and superiority in infection control and eradication. Although the reported surgical results appear to improve by using the muscuocutaneous flaps, it has been shown that the transferred muscle becomes atrophic, loses its dynamic function, overtime no longer functions as a cushion to absorb pressure, and by using muscle tissue as first line reconstruction we

diminish the future reconstructive possibilities with fasciocutaneous flaps(11)

During the past years, with the advent of perforator flaps, Kroll(12) published for the first time in 1988 the use of perforator flaps for coverage of low midline defects and Koshima et al (13)confirmed the reliability of the blood supply and the advantages for the use of fasciocutan-eous flap based on parasacral perforators of the superior gluteal artery .His study concluded that the use of the fasciocutaneous and perforator flaps to cover pressure sores are well suited to the surgical principles of treatment of these ulcers as they provide enough tissue to cover the dead space, they are well vascularized and they generally allow tension free closure

In our study, we found no superiority of musculocutaneous over fasciocu-taneous flaps in relation to infection, haematoma, dehiscence, and need for secondary proceures. The observa-tions in our study are supported by recent publications comparing these flaps in pressure sores (14) and lower extremity defects(11). Moreover and in accordance with other studies, patients who had fasciocutaneous flap did not seem to be at higher risk of wound breakdown ,flap failure, or ulcer recurrence than musculocut-aneous flaps. Unfortunately, some variables such as surgical simplicity, surgeon preference were not evaluated. The surgeon may choose the technique according to his experience. and so pressure sore surgery outcome is dependent on a multitude of factors other than flap selection.

CONCLUSION

Our study confirms that the sore healing rate and time, as well as the complication rate using both fasciocutaneous flaps and myocutan-eous flaps were good, and that they were statistically comparable. In addition to the nature of the flap, we believe that proper patient selection, adequate debridement, dressing and antibiotic coverage can provide a base without infection for healing of the flap.

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