

AN EXPERIENCE WITH THE SURGICAL MANAGEMENT OF PRESSURE ULCERS AROUND PELVIS AT BAHAWAL VICTORIA HOSPITAL, BAHAWALPUR

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ABSTRACT

Background: Pressure ulcers remains a major problem in bed ridden patients, due to many diseases. **Objective:** To determine the outcome of surgery in the management of pressure ulcers in paralyzed patients. **Patients and Methods:** Study design: This was a cross-sectional study. Duration and place of study: The study was conducted from 1st June 2007 to 30th June 2013 in the Department of Plastic and Reconstructive Surgery, Bahawal Victoria Hospital, Bahawalpur. After following inclusion and exclusion criteria patients were admitted. Their serum chemistry was sent. Patients with uncontrolled diabetes, anemia and improper care were excluded. Patients and their attendants were educated about the proper care of patient and send to home for a month. After one month they were called for follow-up and patients who followed directions were selected for surgery. After surgery, the outcome was measured in terms of recurrent infection. The data was entered and analyzed by using SPSS version 10. **Results:** Twenty-three patients were selected for surgical management. Most common pressure ulcers were sacral sores (47.8%) followed by ischial (34%) and trochanteric ulcers (17%). Ischial Ulcers were most difficult one to treat with 37% recurrence. Pressure ulcers have high overall recurrence rate of 26%. Different types of musculocutaneous flaps were used. **Conclusion:** All types of flaps used for reconstruction have comparable results.

Key words: Pressure ulcer, Sacral, Trochanteric, Ischial, Flaps

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INTRODUCTION

Pressure ulcer, also known as decubitus ulcer or bed sore, is a localized injury to skin or underlying tissue over a bony prominence due to pressure or pressure in combination with shear.¹ Despite of improvement in management of paraplegic patients, bedsores remain a major complication causing a high rate of hospitalization.² Majority of patients with spinal cord injury have at least one pressure ulcer during their lifetime,² and suffer from multiple ulcer.² Bed sores have very expensive treatment.³ Prevention is cheaper than cure.⁴ People who are immobile are at highest risk of developing pressure ulcer.¹ Major causes of bedsores are pressure, shearing, unwanted moisture, and wrinkled sheets or hard objects left in bed. The most common site of pressure ulcers are around pelvis as up to 75% of all pressure ulcers are around pelvis.⁵ Other common sites are back of head, shoulders and heel.

In managing a bedsore, caring for the patient involves more than addressing the wound.⁵ There are no clear criteria for selecting patients with pressure ulcers for surgery.³ Superficial stage I and

II ulcers should be treated conservatively by eliminating conditions that interfere with healing.³ Deep ulcers of stage III and IV may be candidates for surgery.³ However, they usually have other comorbid illnesses which make the management of whole patient extremely important. Pre-operatively nutritional condition of patient must be evaluated. There should be no infection. Avoid any further progression of sore by relieving the source of pressure. Diabetes must be controlled. Proper counseling of patient and attendants must be done regarding care of patient and merits and demerits of procedure. The closure of pressure ulcer sore can be done by primary closure or flaps and then proper nursing care should be provided post-operatively as careful nursing care is critical to post-operative success. Post-operative bacteremia and infection must be controlled by broad-spectrum antibiotics. No pressure should be allowed at surgical site for 2 to 3 weeks. After 3 weeks most patients progressed enough to allow weight-bearing starting for 15 to 30 minutes interval and progress to two hours after six weeks.^{3,5}

Patients with paraplegia have greater tendency to develop bedsores around pelvis. We decided to conduct a study regarding our experience for management of pressure ulcer around pelvis in our department.

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PATIENTS AND METHODS

This was a cross-sectional study carried out from 1st June 2007 to 30th June 2013, in the Department of Plastic and Reconstructive Surgery, Bahawal Victoria Hospital, Bahawalpur. Twenty three patients were included in the study, after following inclusion and exclusion criteria.

Inclusion criteria:

1. Age > 50 years
2. No co-morbidity
3. Good nutritional status
4. Serum profile normal
5. Motivated patients
6. Motivated attendants/caregivers

Exclusion criteria:

Following patients were not included in our study:

1. Poor nutritional status
2. Neglected patient
3. Recurrence likely to occur

After admitting patient of bed sore his complete history was taken and examination was done. All blood chemistry was sent and any metabolic derangement was corrected if present. His nutritional evaluation was done. Wound was examined and if any infection was present, culture and sensitivity was sent and patient was started on antibiotics.

Patient and attendants were counselled about care of the patient and their motivation for surgery was assessed. They were discharged and called for follow-up after one month. When patient came back after one month it was assured that the instructions were followed or not. Patient was re-admitted if instructions were followed or not planning for reconstruction was done. Wound was debrided if needed and prepared for surgery. Patient and attendants were counseled about merits and demerits of procedure.

After proper education and informed consent surgery was done. In post-operative period posture of patient was maintained in such a way that there was no pressure on surgical site, infection was controlled by broad-spectrum antibiotics and proper nursing care was provided.

Weight bearing was started after 3 weeks for 15 to 20 minutes interval and then patient was discharged. Patient was called for follow-up every week for two months and then after every fifteen days for six months and then every month for another six months. Frequency of bed sore based

on site, type of flap used and wound dehiscence was assessed during study. The statistical analysis was done with the help of computer programme SPSS version 10.

RESULTS

After proper evaluation twenty-three patients were selected for surgery. Frequency of pressure ulcer at different sites around pelvis is shown in Table I.

Table I: Frequency of bed sore according to site

Site of pressure ulcer	No. of patients	Percentage
Sacral area	11	47.8%
Ischial	8	34.7%
Trochanteric	4	17.4%

Different types of flaps were used for covering the defect. The choice of musculocutaneous flap depended on the condition of muscle and the site of bed sore. The flaps used for closure of ulcer are shown in Table II. Comparison of wound dehiscence and recurrence rate in different types of flaps is shown in Figure I. Total three patients have wound dehiscence (13.04%) due to infection and poor healing for which grafting was done and wound was healed with secondary intention.

Six patients have recurrence (26.08%) due to negligence of directions, infection, and no proper nursing care. Our study also showed that ischial sores were most difficult one to treat as showed in table III; that they have high recurrence rate (37%).

Four out of six recurrence cases (66.66%) have infection due to unhygienic condition of patient and not using the proper antibiotics for the said period. Three of the patients (50%) develop metabolic derangements. Two patients (33%) did not follow the instruction for proper positioning.

Table II: Types of flaps used to cover sores.

Method (flap) used	No. of cases	Percentage
G.M. perforator based V-Y advancement flap	7	23.33%
G.M. rotational flap	3	13.08%
Pedicated island tensor Fasciae latae flap	4	17.39%
Pedicated island anterolateral thigh flap	2	8.69%
Islanded V-Y thigh flap	4	17.39%
Posterior thigh flap	3	13.08%

Table III: Recurrence of pressure ulcers after swelling.

Site of ulcer	No. of patients with recurrence	Percentage
Ischial	3	37.50%
Sacral	2	18.18%
Trochanteric	1	25%

Figure I: Comparison of results of different flaps

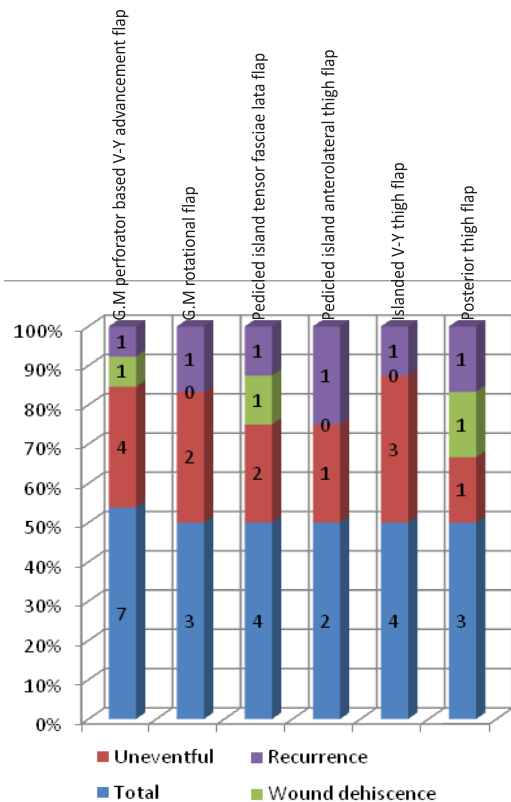


Figure II: (a). Sacral bed sore gluteus maximus perforator based V-Y advancement flap (b). Ischial bed sore covered by gluteus maximus rotational flap

Figure IIa



Figure IIb



Figure III: Trochanteric sore treated with pedicated island tensor fasciae latae flap



DISCUSSION

Surgical management of patients with bed sores is difficult, justifying a therapeutic strategy involving multidisciplinary collaboration.² It is proved that surgery done as early as possible provides better results than secondary healing.⁶ Direct closure is a simple, yet rarely indicated method in pressure ulcer surgery.³ Skin grafting is effective but a split-thickness skin graft is thin and unpliant and therefore erodes easily when subjected to pressure and friction.³ A full-thickness skin graft has better mechanical properties but it is more susceptible to mechanical strain than a flap, that's why a flap is often preferred to a graft.³ Sacral bed sores are treated most commonly with musculocutaneous flaps based on gluteus maximus muscle which is usually a rotational flap.⁵ For trochanteric defects tensor fasciae latae flaps are used.⁵ In the surgery of ischial ulcers multiple types of flaps can be used but their recurrence rate is very high, 75% to 77%, regardless of the method used for them.⁵ Recurrence in current study was low (26%) as compared to that study.

In a study, carried out in The Copenhagen Wound Healing Center it was concluded that in general, pressure ulcer patients should be treated locally. Debridement can be performed by the local surgeons. Only in cases where special interventions are required the patient will be examined by specialists. If surgical treatment is needed, the plastic surgeons who will perform the reconstructive procedures should also be involved.³

In a study conducted, by Ichioka and et al, it was shown that collagen matrix substitute dermis or artificial dermis is desirable to achieve effective treatment with fewer invasions in sacral bed sores.⁶ A study conducted at Department of Plastic Surgery of Rennes University Hospital, it was shown that ischial sores are the most difficult one to treat with greater chances of recurrence and complication.⁷ This is comparable to our study.

A study concluded that timely surgical intervention should be done for early and effective recovery. If the flaps are chosen carefully, they are very effective for rehabilitation of the paraplegic patients.^{8,9}

We have selected only those patients for surgical management of pressure ulcers who are highly motivated, got good nursing care at home and highly vigilant and enthusiastic attendants/caregivers, because management of pressure ulcer is not just the management of ulcer but management of whole patient himself. The literature about pressure ulcers showed that proper care is the main point in the management of pressure ulcers.^{10,11} It is the starting point as well as the ending point of their management. Surgery can fill the defect but if we want that pressure ulcers do not come again or do not develop at all then nursing care is necessary. After getting patient ready for surgery next step is selection of flap.¹² The site of the bed sore has a great impact on our selection of flaps. Sacral bed sores near the edges of the gluteus maximus make the gluteus maximus flaps our first choice. For ischial sores gluteus maximus rotational flap were our first choice but in some cases where gluteus maximus was atrophied we used posterior thigh flap and islanded V-Y thigh flap. In patients with trochanteric sores pedicled island tensor fascia lata flap preferred but pedicled anterolateral thigh flap was also done in patients where fascia lata was damaged with bed sore. There is no fixed type of

flap that we can use for any type of bed sore. We observed that we have to decide on the site of sore and condition of muscle that which type of flap we have to use. We have noticed that ischial sores were very difficult to treat and have high recurrence rate, that whatever the procedure was used for closure of bed sore, recurrence rate was high in bed-ridden patients and in the patients with improper care. Success of flap depends solely on the care of patient. There should be no pressure on flap post-operatively. Patient should lie prone for the period of two to three weeks. If patient is diabetic, try to control his serum glucose level as close to normal as possible. Infection must be controlled with broad spectrum antibiotics. Recurrence rate of bed sores is high and the reason is negligence of directions or advice given to patient and attendants, uncontrolled diabetes, anemia and infection.

CONCLUSION

Surgery is not the substitute of care rather a proper care is a pre-requisite for reconstructive surgery of pressure sore. Recurrence rate of pressure ulcers is very high. Post-operative treatment should be just like prevention of bed sore. All types of flaps used to reconstruct bed sore have comparable results.

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