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OUTCOME OF RHOMBOID FLAP IN BED SORE: A CASE STUDY

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ABSTRACT

Bedsores, or pressure ulcers, are a common challenge in immobile patients, leading to significant morbidity. Surgical intervention is often necessary for advanced-stage ulcers. Among the various reconstructive techniques, the rhomboid (Limberg) flap is a reliable option. This study evaluates the outcomes of rhomboid flap reconstruction in the management of bedsores.[1] A case study of patient who underwent this procedure was conducted, assessing wound healing, complications, and recurrence rates. The findings suggest that the rhomboid flap provides excellent wound coverage, reduces recurrence rates, and facilitates faster recovery with minimal complications. Bedsores are injuries to the skin and the tissue below the skin that are due to pressure on the skin for a long time. Bedsores most often arise on skin that covers bony areas of the body, such as the heels, ankles, hips and tailbone. Bedsores also are called pressure ulcers, pressure injuries and decubitus ulcers.[1]

***KEYWORDS*:** Bed sores, Rhomboid flap, Pressure ulcers, Surgical reconstruction, Wound healing.

INTRODUCTION

Bedsores are injuries to the skin and the tissue below the skin that are due to pressure on the skin for a long time. Bedsores most often arise on skin that covers bony areas of the body, such as the heels, ankles, hips and tailbone.[2] Bedsores also are called pressure ulcers, pressure injuries and decubitus ulcers. The people who are most at risk of bedsores have

medical conditions that keep them from changing positions or moving. Or they spend most of their time in a bed or a chair.

Bedsores can arise over hours or days. Most sores heal with treatment, but some never heal completely. You can take steps to put a stop to bedsores and help them heal.

Causes

Pressure against the skin that limits blood flow to the skin causes bedsores. Limited movement can make skin prone to damage and cause bedsores.

The three main things that lead to bedsores are[3]

Pressure:- Constant pressure on any part of the body can lessen the blood flow to tissues. Blood flow is essential to deliver oxygen and other nutrients to tissues. Without these key nutrients, skin and nearby tissues are damaged and might die over time. Limited movement can make skin prone to the damage that the pressure causes. For people with limited mobility, pressure tends to happen in areas that aren't well padded with muscle or fat and that lie over a bone. These areas include the spine, tailbone, shoulder blades, hips, heels and elbows.

Friction:- Friction occurs when the skin rubs against clothing or bedding. It can make fragile skin more vulnerable to injury, especially if the skin also is moist.

Shear:- Shear occurs when two surfaces move in the opposite direction. For example, when a bed is raised at the head, a person can slide down in bed. As the tailbone moves down, the skin over the bone might stay in place, pulling in the opposite direction.

Several reconstructive techniques have been employed for the surgical management of bedsores, including skin grafts, local flaps, and musculocutaneous flaps. The rhomboid (Limberg) flap is one of the most effective methods, offering tension-free closure, robust vascularity, and a high success rate.

CASE REPORT

This is a case of a 68 yr old female patient having a complaint of bed sore present over the sacral region and came to SSAM and H for management.

Cheif complaints

Non-healing wound in the sacral region since 4 months

Pain and discomfort at the ulcer site since 4 months

Redness and swelling around the ulcer with serous discharge since 4 months

Difficulty sitting and lying down since 4 months

History of present Illness

A[68]-year-old [female] patient with a history of chronic immobility due to stroke presents with a progressively enlarging ulcer over the sacral region for the past 4 months. The ulcer initially started as a small erythematous area, which gradually worsened, leading to skin breakdown and ulcer formation. with pain and discomfort in sitting and lying down, serous discharge. So the management of above complaint she came to OPD of Shalyatantra department of SSAM and H.

Past history

History of brain stroke 5 months ago

She had no history of diabetes mellitus, hypertension, bronchial asthama and hypothyroidism or hyperthyroidism.

She had no any surgical history. She had no any allergic history.

Family history

No any family History

Personal history

Name –XYZ Age-68 year/female

Marital status- Married

Occupation- House wife

Addiction – No

Bowel –Regular

Appetite –Good

General examination

Blood pressure-110/70 mm hg.

Pulse- 78/min.

Peripheral oxygen saturation (SpO2)- 96% on room atmosphere.

Respiratory rate – 22/min.

Temp.-98.2°F

Pallor/icterus-No

Weight -58kg

Height -5.2ft.

Systemic examination

Respiratory system- Air entry bilateral equal (AE=BE)

Cardiovascular system – S1 S2 normal, No murmur

Central nervous system – Patient is conscious and well oriented to time, place and person

Abdominal examination- Soft and non- tender.

Local examination

Location: Sacral region

Size: 12 cm × 8 cm

Depth: Stage IV with exposed fascia, no active infection

Peripheral Skin Condition: Surrounding erythema, minimal serous discharge

Investigation

HB%	10.7 gm %
WBC	8500/mm3
Platelet count	3.07lacs/mm3
BSL Fasting	94 mg/dl
Post prandial	118 mg/dl
Serum Creatinine	0.8 mg/dl
HIV(1 and 2)	Non-reactive
HBsAg	Non-reactive
Bleeding Time	1 min.5sec.
Clotting Time	4 min.15sec.

Preoperative optimization

Nutritional support

Physical fitness

Informed written consent

Xylocaine 2% sensitivity test done

Inj TT 0.5 CC IM stat given

Surgical procedure

AAP painting and drapping done

Patient under spinal anaesthetia

Removal of all the dead, necrotic tissue was done with superficial wound debridement.
Rhomboid (Limberg) flap designed adjacent to the defect
Flap mobilization and primary closure done
Drain placed dressing done. Postoperative Care in a Patient Undergoing Rhomboid Flap Surgery for Sacral Bed Sore

1. Immediate Postoperative Period (0–24 hours)

Vital sign monitoring: Regular assessment of blood pressure, pulse, oxygen saturation, and temperature.
IV Medications
Inj Ceftriaxone 1gm IV BD
Inj Pan 40mg IV BD
Inj Emset 4mg IV BD
Inj Tramadol 100mg IV BD
IVF NS 500 ml
DNS 500ml
RL 500ml
IV fluid- 60 ml/hr

Positioning & Pressure Offloading: Patient in a lateral or semi-prone position to avoid direct pressure on the flap.
Pressure-relieving air mattress.

2. Early Postoperative Phase (Day 1–7)

Wound care: surgical site clean and dry
Drain care: Monitor and record drain output.
Nutritional support: high-protein diet with adequate hydration to promote wound healing.
Mobilization: gradual mobilization with physiotherapy
Strictly avoid prolonged sitting or pressure on the operated area.

Monitor for complications
Flap necrosis, dehiscence, hematoma, or infection.
Systemic signs of sepsis such as fever and leukocytosis.

3. Late Postoperative Phase (After 1 Week – 6 Weeks)

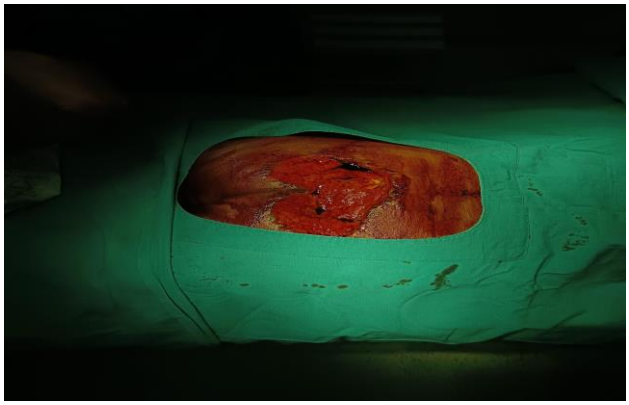
Dressing done on alternative 5th days

Drain remove on 7th day done

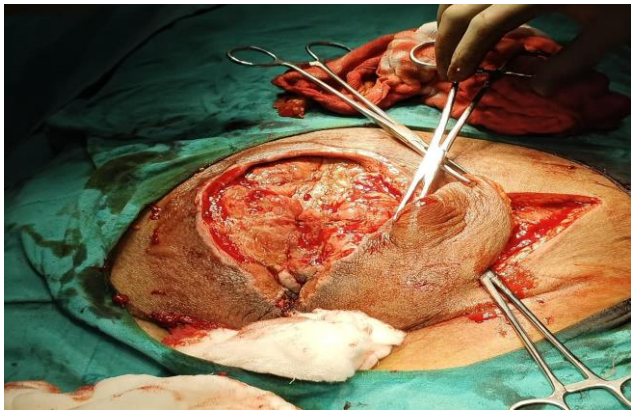
Suture Removal: on 16th day

OBSERVATION AND RESULT

Preoperative



Operative



Post operative

5th day

10 th day

15 th day

20 th day

25 th day

30 th day

DISCUSSION

The rhomboid flap has been used successfully in repairing the cutaneous defect due to bed sore, Pilonidal sinus and traumatic ulcers as evidence by past studies.

In our study as well we have used rhomboid flap for similar cases. We have used rhomboid flap to cover the cutaneous defect by creating a similar shaped flap of equal size by mobilizing the lax skin of same texture and skin colour.

RESULT

The rhomboid flap has shown promising results in the reconstruction of sacral bed sores.

Reduced wound tension, leading to improved healing and lower rates of dehiscence.

Better tissue perfusion, minimizing the risk of flap necrosis.

Faster recovery times compared to primary closure or skin grafting.

Lower recurrence rates of pressure ulcers due to enhanced tissue redistribution.

Satisfactory aesthetic and functional outcomes with reduced postoperative complications.

CONCLUSION

The rhomboid flap remains a fundamental technique in reconstructive surgery due to its versatility and reliability. In the management of sacral bed sores, it provides an effective means of wound closure with reduced tension, promoting better healing outcomes. Its ability to redistribute local tissue with a reliable blood supply makes it a preferred choice for sacral pressure ulcer reconstruction, minimizing complications such as flap necrosis and wound dehiscence.

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