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# TREATMENT OF MODALITIES FOR RECONSTRUCTION OF PILONIDAL SINUS DEFECTS

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**ABSTRACT**

***Objective:*** To determine outcome of reconstruction of pilonidal sinus with different treatment modalities following excision at Liaquat University Hospital.
***Methods:*** A prospective descriptive study conducted from March 2006 to February 2010 at Department of Surgery & Department of Plastic Surgery, Liaquat University of Medical & Health Sciences, Jamshoro. A total of 22 male patients with primary pilonidal sinus were admitted in Department of Surgery and Department of Plastic & Reconstructive Surgery, LUMHS Jamshoro were included in the study.
***Results:*** All patients were male with median age of 25 years. Majority of patients i.e. 14 (63.63%) were between age 20-29 years. Primary closure was performed in 3 cases (13.63%); double opposing rhomboid flap was performed in only one case (4.54%). Local advancement flap was performed in 4 cases (18.18%). Rhomboid flap was done in majority of cases i.e. 12 cases (54.54%). Bi-lobed flap was done in 2 cases (9.09%) only. No flap necrosis was observed. Wound infection was found in 3 cases (13.63%). Seroma was observed in one patient (4.54%). Hematoma formation was observed in 2 cases (9.09%). Recurrence of pilonidal sinus was observed in 3 cases (13.63%).
***Conclusion:*** Lesions heal faster with primary closure than with open healing in pilonidal surgery but risk of recurrence is increased. Rhomboid flap & double opposing rhomboid flap were found to be a good choice for moderate sized wounds.

***Keywords:*** pilonidal sinus, rhomboid flap, bilobed flap, double opposing rhomboid flap, recurrence

## INTRODUCTION:

Pilonidal sinus is an acquired disease of young adults characterized by infected sinus in the natal cleft associate with tuft of hairs. [1] Exact etiology is unknown but some factors are deep natal cleft, prolong sitting, travelling or driving, excessive body hairs, folliculitis and obesity and poor local hygiene.[2] Pilonidal sinus disease (PSD) was first described by Mayo in 1833. As cited by Hull and Wu,[3] Anderson described the treatment of the disease for the first time in 1847. Since then no single treatment option available for symptomatic pilonidal disease is entirely satisfactory.[4]

The Pathophysiology is dead hairs being pushed into skin abrasion by movement of buttocks which cause a foreign body reaction within presacral subcutaneous tissue which results into acute and chronic abscess formation. [5, 6] Pilonidal sinuses typically appears as an abscess or a persistently discharging, tender sinus tract.[7] Irrespective of the mode of appearance the painful character of the disease causes noteworthy morbidity[8], often with a prolonged loss of regular activity. The best treatment would be a rapid one that permits patients to resume early their normal daily life activity, with least morbidity and a low risk of complications.[9-11]

The treatment of chronic pilonidal disease is variable, debatable, and challenging.[12] Principles of management need eradication of the sinus tract; complete healing of the overlying skin, and prevention of reappearance.[13]

**TABLE I**

**CHARACTERISTICS OF SUBJECTS**

| | Number | Percentage % |
|---|---|---|
| Two openings at midline | 3 | 13.63 |
| single opening at midline | 2 | 9.09 |
| Chronic discharging sinus | 18 | 81.81 |
| Protruding granulation tissue | 8 | 36.36 |
| Presence of Hairs | 22 | 100 |

**TABLE II**

**TREATMENT MODALITIES**

| PROCEDURE | NUMBER OF PATIENTS | (PERCENTAGE %) |
|---|---|---|
| Primary closure | 3 | 11.11 |
| Rhomboid flap | 12 | 33.33 |
| Local advancement flap | 4 | 18.18 |
| Bi-lobed flap | 2 | 9.09 |
| Double opposing rhomboid flap | 1 | 4.54 |

Different modalities of management are there, in acute stage, incision & drainage under local anesthesia followed by secondary intention granulation healing.[14] Another method described is chemical phenolization with injection of phenolic acid in the incised abscess. [15] In chronic stage limited excision of skin and subcutaneous tissue and the wound is left open to heal by secondary healing known as Lord Millar procedure. [16]

In open method wide excision of cutaneous and subcutaneous tissue is done and wound is left to heal with secondary intension which may take up to 6 months.[17,18] In closed method excision with primary closure or closure with rotation flap is done, healing time is about 2 weeks.[19] Excision of pilonidal tract followed by primary closure offer the advantages of quicker healing time, fewer post-operative visits and shorter time off work, if the defect size is large enough to close primarily various local flaps can be used to close the defect. [20]

## MATERIAL & METHODS:

A prospective descriptive study of 22 cases of pilonidal sinus excision and reconstruction done at Department of Plastic & Reconstructive surgery and General Surgery, Liaquat University of Medical & Health Sciences, Jamshoro. The data was collected through a pre designed proforma during above mentioned period. Patients were included in the study after obtaining informed consent. Patients having co-morbidities were excluded from this study. The statistical analysis was done on SPSS 17.

## RESULTS:

During the study period i.e. from March 2006 to February 2010, 22 patients were operated for primary pilonidal sinuses, all were male. Median age was 25 years, majority of patients i.e. 14 (63.63%) were between age 20-29 years. Three patients (13.63%) have 2 opening at midline. Two patients (9.09%) has single opening in midline while other had lateral to natal cleft i.e. in 17 (77.27%). Eighteen (81.81%) had chronic discharging sinus and 8 patients (36.36%) had protruding granulation tissue. Hairs were present in all cases. Table I

Eight patients (36.36%) were operated under local anesthesia, while 10 (45.45%) were operated under spinal anesthesia out of which 5 complained of post spinal headache. Four patients (18.18%) were operated under general anesthesia. Redivac drain was placed in all cases which were later removed after two to five days.

Mean duration of postoperative hospital stay in this series was 5 days, ranged from 4-12 days. Mean healing time for surgery was 12 days, ranged 9-18 days. Mean period off work was 16 days, ranged from 14-33 days. Redivac drain was placed in all cases and was removed in mean 3 days, ranged 2-5 days.

Primary closure was performed in 3 cases (13.63%); double opposing rhomboid flap was performed in only one case (4.54%) Figure I (a). Local advancement flap was performed in 4 cases (18.18%) Figure I (b). Rhomboid flap was done in majority of cases i.e. 12 cases (54.54%). Bi-lobed flap was done in 2 cases (9.09%) only. No flap necrosis was observed. Table II.

Wound infection was observed during postoperative dressings in 3 cases (13.63%) which were treated with culture advised intravenous antibiotics. Seroma was observed in one patient (4.54%) on first post operative dressing. Hematoma formation was observed in 2 cases (9.09%). Recurrence of pilonidal sinus was observed in 3 cases (13.63%).

## DISCUSSION:

This study includes a series of 22 patients who were operated for chronic pilonidal sinus over 4 year's period. Open method is a good option for small primary sinuses, but for larger wounds defect are closed primarily or with local flaps like rhomboid, various transposition or advancement flaps. Flaps raising starts by excising all the sinuses up to the pre-sacral fascia, a fasciocutaneous rhomboid or transposition flap from gluteal region is then designed and transposed into the defect and sutured. Tensionless reconstruction of the defect with flaps also flattens the natal cleft with a huge and healthy nourished pedicle. To avoid the recurrence or breakdown any midline dead space is removed and a midline scar is avoided to prevent any contracture formation.[21] It is generally a helpful method for multifaceted sinuses with numerous pits and extensive tracts where deep-seated excision leaves a huge defect. The substitute of healing with secondary intention would necessitate extended supervised wound care. These procedures are also appropriate for cases where open method resulted into non healing wound.[21]

In this study the wound complication rate was found to be 11%, there was one recurrent sinus (4.54 %). Our results with the Limberg flap are therefore comparable with Kapan M et al who have shown wound complication and recurrence rates of 4.5 % and 3.5% respectively.[8]

Seroma or hematoma formation is a recognized postoperative complication of flap reconstruction.[22] Wound breakdown causing relapse can occur due to hematoma in the absence of a drain. This if untreated can led to wound infection and subsequent dehiscence, therefore suction drainage or simply putting a Redivac drain is advised.[23]

The significance of the post-operative wound care was also stressed to patients. The resident surgeons & consultant surgeon followed these patients and gave advice on wound care issues. Patients

were advised to mobilize soon after the procedure. Hair removal of wound edges is also compulsory till the wound heals but preferably this practice should be continued on a long term basis.[24]

The aim & objective of surgeries ought to be to reduce both the financial cost to the society and the patient in terms of time off job, multiple post operative antiseptic dressings and post-operative follow-up visits, complications and recurrences. It was observed that rhomboid flap for medium size defects and local transposition flaps from gluteal region for larger wound closure after pilonidal sinus excision meet these measures.[25] Nevertheless, it is vital to have a open conversation with patients when offering them the different surgical alternatives & different procedures, as these procedures have a fewer complications which can produce long term morbidity or can demand a second procedure in a small number of patients.

## CONCLUSION:

Excision and rotation of local skin flaps presents a useful and well-designed substitute to the more classic operations for pilonidal sinus as it cause less postoperative pain and short hospital stay. The rhomoaid flap & local advancement flaps are simple and useful treatment modalities. Patient comfort, fast healing time, early resume to daily life routine and low complication and recurrence rates are the vital advantages of this method.

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