Excision with Z-Plasty in Pilonidal Sinus

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ABSTRACT

Objective — *To measure the outcome of the pilonidal sinus exicision with Z-plasty in terms of postoperative hospital stay, recurrence, wound infection and patient's time off work.*

Study design — *Cross sectional study.*

Place & Duration of study — *Department of General Surgery, Ward-26, Jinnah Postgraduate Medical Centre Karachi, from January 2008 to January 2009.*

Methodology — *Patients with pilonidal sinus above 12 years of age were included in this study. They were diagnosed clinically. T*hose with abscesses and recurrence of disease were excluded.

Results — A total of 40 patients were operated. There were 28 (72%) males and 12 (28%) females. Majority were in the age group of 21 – 30 years (64%). The operating time ranged between 30-45 minutes (mean 35 + 2). Mean postoperative stay was 3.5 days (2- 5 days) and return to work was between 7–18 days (mean 12.5 days). *Three patients (7.5%) patients developed wound dehiscence, 6 (15%) had wound infection and recurrence occurred in 2 (5%).* 95% confidence interval(C.I) of overall complication was 13.4-40.1.

Conclusion — *Excision of pilonidal sinus followed by primary closure with Z-plasty technique had the advantage of early wound healing, short postoperative stay and low risk of recurrence.*

Key words — *Pilonidal sinus, Z-plasty, Exicision.*

INTRODUCTION:

Pilonidal sinus is a chronic, recurring problem more among young, hairy and fatty persons. It has an incidence of 26/100,000.[1] Pilonidal sinus "means appertaining to the nest of hairs" originating from Latin word Pilus - Hair, Nidus - Nest.[2] It is characterized by a single or multiple openings in the midline. The most important factors for the development of pilonidal sinus are the combination of buttock friction and shearing forces in that area allowing shed hair or broken hair collected there, to drill through the midline skin, or infection in relation to a hair follicle which allows hair to enter the skin by the suction created by the movement of the buttocks.[3] Thus for treatment and prevention, these causative factors must be eliminated.[3]

Treatment of pilonidal disease is challenging to surgeon. Postoperative course is lengthy, painful and patients are often unsatisfied. Several treatment modalities have been tried for pilonidal disease, including shaving, incision and drainage, cryosurgery, excision with primary closure, excision with open packing, excision with marsupialization, and recently flap surgery.[4-6] Management of the resultant defect in the tense sacral region appears to be the most important issue in the surgical treatment of pilonidal disease because this step is closely related to postoperative morbidity, recurrence and high infection rate.

Despite the controversy about the best surgical techniques for the treatment of pilonidal sinus, an ideal operation should be simple, must not need prolong hospital stay, have a low recurrence rate, and should be associated with minimal pain and decrease patient's time off work.[7] Single Z-plasty is one such procedures used to treat chronic pilonidal sinus. The objective of this study was to measure the outcome of pilonidal sinus excision with Z-plasty technique in terms of postoperative hospital stay, rate of recurrence, wound infection and patient's time off work.

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METHODOLOGY:

This cross-sectional study was carried out in the Department of General Surgery, Ward-26, Jinnah Postgraduate Medical Centre Karachi, from January 2008 to January 2009. All patients who presented with pilonidal disease above the age of 12 years were included while those with abscesses and recurrence of disease were excluded.

Patients were diagnosed clinically and admitted through outpatient department after preoperative assessment. Written informed consent was taken and surgery was performed by the same surgical team. Patients were discharged on 2nd to 5th postoperative day and followed in outpatient department on 12th postoperative day for removal of stitches. Subsequent visits were scheduled at 1, 3 and 6 months for recurrence.

All patients were operated under general anesthesia in Jack-knife position with buttocks / natal cleft separated. A Z-incision was made with the vertical limb in natal cleft and two horizontal limbs cranially and caudally that made the 60^0 angle with vertical limb (Fig I). The excision was carried out till the presacral fascia. The subcutaneous layers were approximated with polyglycolic 2/0 interrupted sutures and a vacuum drain placed in some cases where cavity was deep and skin was closed with 2/0 polypropylene interrupted sutures (Fig II). Drains were removed when suction output was less than 50ml and patients discharged after changing the dressing. Stitches were removed on 12th postoperative day.

RESULTS:

A total of 40 patients were operated. There were 28 (72%) males and 12 (28%) females. Majority were in the age group of 21 – 30 years (64%). The operating time ranged between 30-45 minutes (mean 35 + 2). Mean postoperative stay was 3.5 days (2-5 days) and return to work was between 7 – 18 days (Mean 12.5 days).

Complications observed in 11 (27.5%) cases. Six of them (15%) had superficial wound infection which was treated conservatively. Three (7.5%) patients had complete wound dehiscence and in two (5%) recurrence occurred after 4 months of surgery. 95% confidence interval of overall complication was 13.4-40.1 (table I).

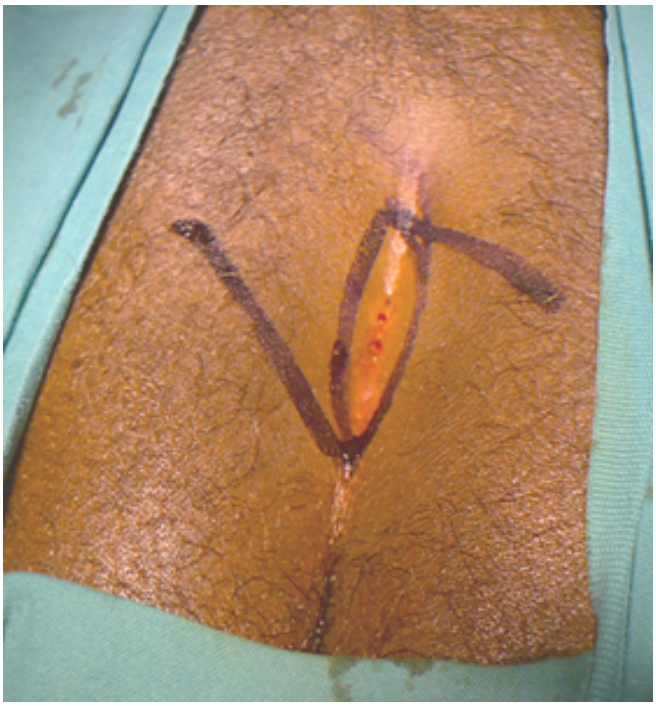

Fig I: Marking of Z-Shaped incision

DISCUSSION:

Sacrococcygeal pilonidal disease occurs in the midline. Increased depth of the intergluteal sulcus leads to an anaerobic media and increased anaerobic bacterial content.[8,9] Although many surgical and non-surgical treatments have been described, the ideal treatment method has not yet been established for pilonidal disease. It is recommended to excise the midline pits with lateral open drainage of any associated abscess.[2] Karydakis used an asymmetric excision and primary closure to prevent hair penetration into the natal cleft.[10,11]

Table I: Distribution of Complications

Complications	No. of Patients	Percentage	95% CI
Wound infection	6	15%	6.3-28.6
Wound dehiscence	3	7.5%	1.9-19.0
Recurrence	2	5%	0-11.0
Total	11	25%	13.4-40.1

Fig II: Wound closure following excision of pilonidal sinus.

Open excision technique needs long hospitalization and daily wound dressings. Wound dehiscence is another disadvantage caused by premature closure of skin edges before complete wound healing.[12] The high incidence of pilonidal disease in 3rd decade with male preponderance, in this study correspond with other reports.[13-15] Z-plasty techniques have been associated with lower infection and recurrence rates and shorter hospital stay because with this technique the suture line placed away from midline,[16] which alters scar direction, disrupts scar linearity and lengthens scar contracture. This study has also supported these suggestions. The higher morbidity of surgical techniques was naturally reflected by hospital stay and time off work. In this study, the hospital stay for patients treated with Z-plasty was 3.5 days which was shorter than 5.7 days as reported by Singh et al for adipofasciocutaneous flap.[17]

In our study 15% of patients developed wound infection and 7.5% developed wound dehiscence. This compares well with the results of another study (12%).[18] In this study recurrence was observed in 5% cases as compared to 15.3% in an open technique and 7.69% in closed technique.[19] Patients treated with flaps were found to walk and sit on toilet earlier than patients where wound was left open. In this study the average healing time was 12.5 days with recurrence of 5% which correlates well with the reported healing time of 14.5 days and 10% recurrence in close technique and 10 weeks of healing time with 5.5% recurrence rate in open technique.[20]

The extremely low complication rate following Z-plasty for pilonidal sinus results from the fact that operation was planned with true pathophysiology of the disease in mind, that it is the deep intergluteal fold which predisposes to pilonidal sinuses and this architecture is materially altered with Z-plasty. In pilonidal disease, the Z-plasty eliminates the deep natal cleft by bringing healthy, lateral skin and subcutaneous tissue into the midline. Excision and Z-plasty together can lead to a low recurrence rate with rapid healing.[21-25]

Z-plasty excises the inflammed area as well as converts the deep natal cleft into a plateau. It is known that pilonidal sinus does not occur on a flat or a convex surface. Also the directions of the hairs are altered away from the midline. It leaves no midline scar, largely prevents maceration, reduces suction effects in the soft tissues of the buttocks, and minimizes friction between two adjacent surfaces.[24,25]

CONCLUSIONS:

Shorter hospital stay, earlier healing, shorter time off work, lower rates of recurrence, and lower pain perception are the main advantages of flap techniques. The use of Z-plasty is thus recommended because it makes the natal cleft shallow and reduces sweat and hair accummulation resulting in perfect balance between conservatism and radicalism.

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