



ELLIPTICAL EXCISION WITH MIDLINE PRIMARY CLOSURE VERSUS RHOMBOID EXCISION WITH LIMBERG FLAP RECONSTRUCTION IN SACROCOCCYGEAL PILONIDAL DISEASE

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ABSTRACT

Aim: To compare elliptical excision with primary midline closure and rhomboid excision with limberg flap reconstruction techniques for the sacrococcygeal pilonidal sinus.

Materials methods: This is a prospective study carried out at Patna medical college & hospital, Patna over 60 patients of sacrococcygeal pilonidal sinus during the period of February 2016 to January 2018. the patients were assigned randomly into two groups group A patients (30/60) were operated by using rhomboid excision with limberg flap reconstruction whereas group B patients (30/60) were operated by using elliptical excision with primary midline closure. Data was taken and compared with respect to operative time taken, immediate post-op complication, post-operative pain (Vas Scale) recurrence rate.

Results & conclusion: Length of hospital stay and postoperative complications in two groups were compared. Duration of hospital stay ($P < 0.001$) and time to resumption of work ($P < 0.001$) was less for group B, and postoperative complications were fewer in group B ($P < 0.05$), during the follow up over 2 years period none had recurrence in group B while 2 patients developed recurrence in group A. It was found that rhomboid excision with limberg flap reconstruction is better than elliptical excision with primary closure.

KEYWORDS : Sacrococcygeal pilonidal disease, limberg flap, Elliptical excision, primary closure

INTRODUCTION

A pilonidal sinus (PNS) is a small hole or tunnel in the skin of natal cleft up to the pre-sacral fascia. It may fill with fluid or pus, causing the formation of a cyst or abscess. It occurs in the cleft at the top of the buttocks. A pilonidal cyst usually contains hair, dirt, and debris. It can cause severe pain and can often become infected. The exact cause of this condition isn't known, but its cause is believed to be a combination of changing hormones (because it occurs after puberty), hair growth, and friction from clothes or from spending a long time sitting (bus n truck drivers). Activities that cause friction, like sitting, can force the hair growing in the area to burrow back under the skin. The body considers this hair foreign and launches an immune response against it, similar to how it would react when dealing with a splinter. This immune response forms the cyst around hair. Sometimes a person may have multiple sinuses that connect under the skin.

For more than hundred years, surgeons have been treating this disease by various treatment modalities, including simple incision and drainage, lying open, marsupialization, excision and primary closure, or rhomboid excision with Limberg flap procedure.

There have been many studies reporting a recurrence rate of 7–42 % following excision and primary closure; however, a recurrence rate of about 3 % has been reported following Limberg flap repair.

MATERIALS AND METHODS

This study was carried out at Patna medical college & hospital, Patna over 60 patients of sacrococcygeal pilonidal sinus during the period of February 2016 to January 2018.

Exclusion criteria:

Patients with recurrent disease and purulent discharge were excluded from the study.

After informed consent from the patients, a surgical procedure of "elliptical excision with primary midline closure" was applied to 30 patients, while "rhomboid excision with Limberg flap reconstruction" was used in other 30 patients of the study.

Patients were randomly assigned to one of the surgical groups, and all patients were operated electively in prone position under spinal anaesthesia. Methylene blue dye was used intra-operatively to stain the sinus.

The debridement was adequate and comparable in both the groups, and further the defect sizes in both treatment groups were more or less comparable and there was no difficulty in primary closure of the defects. Suction drain was routinely used in both groups.

In group A

Vertical elliptical incision was made that was deepened to reach up to the sacrococcygeal fascia and the lesion was excised. After achieving haemostasis, a suction drain was put in and wound was closed primary using Ethilone (2,0)

In group B

The skin was marked by a marker pen and after methylene blue injection; the involved area was excised by a rhomboid-shaped incision, with each side equal in length, around the mouth of the sinus. The incision was deepened and the lesion was excised. The rhomboid flap was then rotated from the gluteal fascia to the excised area without tension. Using interrupted sutures, the subcutaneous tissue and the skin were sutured.

Operative period was recorded from the time of incision to the completion of wound closure.

Postoperatively, pain was evaluated by visual analog scale and the number of analgesic doses (oral diclofenac sodium) required. Postoperative hospital stay was noted with the day of surgery being day zero. Wound care was taken routinely. On 10th post-op day stitch was removed.

follow-up was done after 1, 2, and 4 weeks and 3, 6, and 12 months for the first year after surgery. After the first year, patients were followed for another 1 year at interval of 6 months.

Data was collected, compiled and compared. Unpaired Student's-t test was used to determine the significance of the difference between two independent groups among continuous variables. For qualitative data, Chi square test was used to see the significant difference in proportion between two groups. A *p* value of <0.05 was considered significant.

RESULT

The study consisted of 60 patients with 55 male (91.66%) & 5 female (8.33%) patients with age range between 16-46 years (mean age 28 years)

Elliptical excision with primary closure done in 30 patients (male 27, female-3) patients and rhomboid excision with Limberg flap reconstruction was performed in the other 30 patients (28 males and 2 females).

The mean duration of symptoms was 12.4 months (range 2–24 months) The operative time (minutes) and hospital stay (days) for the primary closure group were 44.50±10.50 and 2.30±1.56 whereas the corresponding values for the Limberg flap group were 50.52±9.50 and 1.55±1.30, respectively, with *p* values of <0.001 between two groups for both the parameters.

The VAS scores for the primary closure group were 4.25 (day 1), 2.11 (day 2) against 3.66 (day 1), 1.76 (day 2) for the Limberg flap group with insignificant *p* values of >0.05. Diclofenac sodium (mg) required for the primary closure group was 175 (mean), while the requirement for the Limberg flap group was 105 with a *p* value of 0.238.

Wound infection in group A was 4(13.33%) while in group B it was 1(0.33%) The work off period (days) for the primary closure group was 12.52±1.87 against 10.80±3.25 for the Limberg flap group (*p*=0.0048).

Recurrence was detected in 3 patients (10%) in group A, with time to recurrence between 5 and 12 months. No recurrences were identified in patients in group B.

Table 1 comparison of procedure outcome

Data to be compared	Elliptical excision With primary closure(n=30)	Rhomboid excision with Limberg flap(n=30)	P value
Operative time(mins)	44.50±10.50	48.52±9.50	<0.001
Wound infection	4(13.33%)	1(0.33%)	
Wound dehiscence	1(10%)	0	
Total hospital stay	2.30±1.56	1.55±1.30	<0.001
Duration of inability to work	12.52±1.87	10.80±3.25	=0.048
Recurrence	2(15%)	0	0

DISCUSSION

The best surgical procedure for treatment of pilonidal sinus is still a matter of debate Muzi et al. studied 260 patients with sacrococcygeal pilonidal disease who were assigned randomly to undergo Limberg flap procedure or tension-free primary closure and concluded that there was no clear benefit for surgical management by Limberg flap over primary closure. Limberg flap showed less convalescence and wound infection, while the technique of tension-free primary closure was a day case procedure, less painful, and shorter than Limberg flap.

In the present study although operation time was longer in and rhomboid excision with limberg flap reconstruction techniques but the hospital stay, inability to return to work, wound-related

complications, and disease recurrence were significantly less compared to primary closure group.

Akca et al in his study on randomized clinical trial comparing primary closure with the Limberg flap in the treatment of primary sacrococcygeal pilonidal disease found similar result.

Akin et al. studied the records of 411 patients with pilonidal sinus disease, who underwent rhomboid excision and Limberg flap, and concluded that the Limberg flap procedure is effective and has a low complication rate, short time for returning to normal activity, and short hospitalization.

Literature has documented a recurrence rate of 0–3% for Limberg flap against a significantly high recurrence of 7–42% for primary closure.

In various study a hospital stay of 1–5 days and 2–4 days for the primary midline closure and Limberg flap techniques, respectively has been documented. In our study hospital stay (days) for the elliptical excision with primary closure group 2.30 ± 1.56 whereas the corresponding values for the Limberg flap group 1.55 ± 1.30..

In our study we found that wound infection, wound dehiscence, post-operative pain n hospital stay was more in group A as compared to group B

Petersen S, Koch R, Stelzner S, et al. Primary closure techniques in chronic pilonidal sinus: a survey of results of different surgical approaches. Dis Colon Rectum. 2002 found a wound infection rate and a wound disruption rate of up to 12.4% and 5–10.

In or study in group A where elliptical excision with primary closure was done we observed Recurrence in 2 patients (8.3 %) while with time to recurrence between 5 and 12 months In group B, No recurrences were identified.

CONCLUSION

From our study Elliptical excision with midline primary closure versus rhomboid excision with limberg flap reconstruction in sacrococcygeal pilonidal disease we conclude that rhomboid excision with limberg flap reconstruction is a better procedure of choice for treatment of sacrococcygeal pilonidal disease.

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