



Limberg Flap Repair: Our Experience

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Abstract

Background: *There are numbers of surgical methods have been devised over a year for treatment of pilonidal sinus but none have been accepted as procedure of choice. Plastic reconstruction procedures have advantage of early recovery, less pain, early return to work & low recurrence. Limberg repair is our procedure of choice which we present here as our experience.*

Method: *From August 2013 to Jan 2017, 57 patients were treated with Limberg flap repair under regional anaesthesia in a Govt. Medical College Kota & associated hospitals.*

Results: *No major anaesthetic complication or wound infection developed.*

One patient (2 percent) had a seroma (with negative culture) and two patients (3.7 percent) had flap necrosis. Patients returned to full activity on the 10th to 15th postoperative day. Patients were followed from 6 to 42 months. There was not a single case of recurrence had been reported.

Conclusion: *Excision & Limberg flap repair is an easy and effective technique with short learning curve. Patient comfort, early healing, early return to activity, and least complications and recurrence rates are the advantages of this procedure.*

Keywords: *Pilonidal sinus; Limberg flap; Rhomboid excision.*

Introduction

Sacrococcygeal pilonidal sinus is a common acquired benign disease of the young age group, especially male population, causing significant morbidity from both disease and surgery. It is manifested by midline pits in the natal cleft that are associated with hair. The underlying pathophysiological feature is dead hairs being pushed into skin abrasions by movement of the buttocks, which causes a foreign-body reaction within the presacral subcutaneous tissue and development of subsequent acute and chronic abscess.^{1,2}

It usually present in cleavage between the buttocks and diagnosis is made by identifying the epithelialized follicle opening (i.e., sinus). The name pilonidal is taken from Latin word 'pilus' meaning "nest of hairs." The estimated incidence is 26 per 1, 00,000 people^{1,2} & presentation is a cyst, abscess, or sinus tracts with or without discharge³. Men affected more often than women¹, hairy young men & hersuit women are usually affected⁴. Etiologically it is well accepted that they are caused by local trauma,

poor hygiene, excessive hairiness, and presence of deep natal cleft⁵.

Several surgical options have been developed over the years for this disorder has been but none was found satisfactory because of a high risk of failure and complications. The main concern for the treatment to the patient is the recurrence that is mainly attributed to leaving behind some tracts, sutures in midline causing more trauma with repeated infection accumulation of perspiration, and friction with tendency of the hair getting incorporated into the wound⁶. We have been impressed with the good results of Limberg flap repair reported in the literature, which was first described for the treatment of pilonidal sinus disease by Azab *et al*⁷. Literature suggested that Limberg flap reconstruction following excision of the sinus was superior to primary closure⁸ and other flap procedures⁷ and a safe and reliable method in pilonidal sinus disease with low complication and recurrence rates. Hence, this study was performed a tertiary care centre to evaluate the usefulness of Limberg flap procedure in Sacrococcygeal pilonidal sinus, patient compliance, complications, and recurrence rates following the procedure. In this article, we present our experience of treating 57 patients with the Limberg flap repair.

Material and Methods

The study involves 57 patients, from July 2015 to July 2017. Most of the patients were males (51) of those 6 were females. Average age was 24 years—the oldest was 42 years and the youngest was 16 years. Nine out of 57 were patients were patient with recurrent pilonidal disease. Six of the recurrent pilonidal were previously operated with excision & primary closure while three were treated with excision & lay open. The length of symptoms ranged from two months to two years. Patients with acute inflammation or abscess formation waited until the infection subsided before undergoing surgery.

Surgical Technique

All operations were performed under regional anaesthesia (spinal). Anaesthesia was given by the same anaesthesiologist and operations were performed by two surgeons. Patients were placed in the prone jack knife position with buttock retracted laterally with adhesive plaster (Fig1). A rhombic area of skin is marked over pilonidal sinus involving all midline pits and lateral extension if any. (Fig.2) Injection Lignocaine 2% with adrenaline was injected at the base of the sinus for haemostasis. Opening of the sinus was dilated and injected with methylene blue dye to delineate all the tracts. The rhombus was excised down to the presacral fascia (Fig. 3) and the fasciocutaneous flap was prepared from the right buttock (Fig. 4) The flap was completely mobilized from the gluteus maximus muscle to prevent tension (Fig. 5). Haemostasis was achieved using monopolar electrocautery. Closed suction drain fr.16 was placed in the cavity. Flaps were closed using nylon 3-0 rc. The operation produces a tension-free flap of with unscarred skin in the midline (Fig.6). Patient was advised to remain in prone position & was allowed only liquid diet for 48 hrs. Parenteral antibiotics were given for 5days initially intravenously, then orally. Suction drain was removed usually on 4th post operative day (POD). Patient was discharged on 5th POD & advised to come on 14th POD for suture removal. Patient was also advised to use western toilet and to avoid squatting for 3 weeks. Patients are followed up initially 2 weekly interval, then bimonthly for next 1 year. Two patients had complications—one had flap necrosis and the other had serous discharge (seroma) from the wound. It took 3 weeks to heal completely with aseptic dressing and usage of antibiotics. One had persistent discharge at the tip which took 4 weeks to settle down, since she was a case of recurrent pilonidal with primary repair. All other patients wound healed nicely with minimal scarring, with very less postoperative pain, with no recurrence so far. None needed readmission due to pilonidal sinus, and most patients returned to work after 3 weeks.

Fig.1



Fig.2



Fig.3



Fig.4



Fig.5



Fig.6



Discussion

Sacrococcygeal pilonidal sinus is blind epithelial tract situated in the skin of the natal cleft, close to anal verge, generally containing hair. The etiology it was initially thought to be of congenital origin but later was found acquired in origin. The underlying cause for development of sinus were shallow natal cleft, hersuitism, male gender, repeated trauma to the region & occupationally in drivers. It is now more commonly seen in students as in our study most of the patients belong to this category.

Surgical treatment of pilonidal sinus is a matter of debate for years. A number of methods have been developed over the years but none is proven satisfactorily optimum. Surgical management includes complete excision of sinus tract after delineation of all tracts which is of utmost importance as far as recurrence of the sinus is concerned. Different plastic procedures have been described in literature for thus created large defect. Patient compliance, postoperative pain, infection, recurrence rates, hospital stay, frequent wound dressings, and early return to work are the factors which make a procedure ideal for the situation.

Limberg flap repair has all the above said advantages as it is easy to perform and design, and it flattens the natal cleft with large vascularised pedicle, sutured without tension. It also avoid midline scar & prevent maceration hereby preventing recurrence.

In our study a total of 57 patients were included out of which 51 were male & 6 were female. The demographic distribution of the disease was similar to the previous studies reported in the literature. As far as mean age distribution was concerned, the mean age in our study was 24.7 ± 3.2 yrs which is younger than avg^{9,10}. age reported in literature. This is because the majority of the disease population belongs to coaching students which sits for hours with poor hygiene.

Mean operative time was 47.7 ± 2.5 min which is also comparable to previous studies reported in literature. Surgeries were performed by two competent surgeons. Mean hospital stay was 5.6

days as most of the patients were discharged on 5th post operative day after removal of drain^{11,12}.

As far as recurrence is concerned not a single case of recurrent pilonidal sinus was reported till date with shortest follow up of 6 months & longest being two years which is superior to other studies reported in literature. Sutures were removed on 14th post op. day & patient is allowed to his daily routine work on 15th post operative day^{13,14}.

Conclusion

Sacrococcygeal pilonidal sinus is burden in terms of severe morbidity to patient. The treating surgeon is also seems to be bad dream since its repeated infection, persistent pain with discharge, and high recurrence rates with regular procedures. Following Limberg flap reconstruction after excision of the pilonidal sinus, the patient got relieved of symptoms without dressing & cured of disease in 2 weeks. The technique is easy to perform in quick time, useful in both primary and recurrent diseases, with very low complication and recurrence rates, which further can be reduced by meticulous skin closure. Other advantages are quick healing time, short hospital stay, and early return to daily life.

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