

Comparison of Limberg Flap Versus Secondary Wound Healing after Excision of Sacrococcygeal Pilonidal Sinus: A Retrospective Study

Viral Laxmikant Makwana¹, Chetan Jayantilal Prajapati²

¹Assistant Professor, Dept. of General Surgery, ²Senior Registrar, Dept. of Plastic Surgery, Dr MK Shah Medical College & Research Centre, Ahmedabad, Gujarat 382424, India.

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Abstract

Introduction: Pilonidal Sinus disease is considered to be a male dominate disease which affects near about 0.7% of world young adult population. Although many treatment options are available but surgical intervention is still remained a gold standard treatment option for this disease. This study is aimed to find out better surgical procedure in terms of less complication and recurrence rate.

Methods: This was a retrospective study which was carried out at Department of General Surgery, Dr M K Shah Medical College and Research Centre, Ahmedabad. Total 100 patients of which 50 patients who underwent Limberg flap procedure whereas 50 patients who underwent Secondary wound healing procedure are analyzed.

Results: In present study we have found that operative time in secondary healing procedure was significantly shorter in duration but Limberg flap procedure cures with less pain, lower rate of wound infection, less hospital stay, early returning to normal activity and low rate of recurrence of the disease.

Conclusion: As a results obtained from this study we are concluding that Limberg Flap Method has shown optimal post operative outcomes as compared to Secondary healing procedure in terms of less

post operative pain, low rate of wound infection, lesser days of hospitalization and low reoccurrence rate and early returning to normal daily activities. Open procedure is required lesser operative time as compared to Limberg Flap Procedure.

Keywords: Pilonidal Sinus; Limberg Flap Procedure; Secondary wound healing procedure.

Introduction

Pilonidal Sinus disease is considered to be a male dominate disease which affects near about 0.7% of world young adult population. In 1833, Herbert Mayo introduced this disorder whereas Hodges termed as Pilonidal in 1880¹. The incidence rate of pilonidal sinus disorder is 26 per 100,000 individuals². Some of the research studies indicate that male gender, obesity, individuals with excessive hair, poor hygiene, prolonged sitting related occupation like drivers and positive family history are most common cause of the pilonidal sinus³.

Although many treatment options are available but surgical intervention is still remained a gold standard treatment option for this disease and is aimed at a simplified procedure with minimal post-operative pain, minimal wound care, rapid wound healing, shorter hospital stay, early return to daily activities and low recurrence rate.^{1,2} Several surgical methods were outlined like Primary closure Procedure, Secondary healing Procedure, Limberg Flap Procedure and Karydakias Flap Procedure.

In our study we have compared outcome of Limberg flap versus Secondary wound healing

Corresponding Author: Viral Laxmikant Makwana, Assistant Professor, Dept. of General Surgery, Dr MK Shah Medical College & Research Centre, Ahmedabad, Gujarat 382424, India.

E-mail: shivamhospital11@yahoo.co.in

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method after excision of sacrococcygeal pilonidal sinus surgery. This study is aimed to find out better surgical procedure in terms of less complication and recurrence rate.

Materials and Methods

This was a retrospective study which was carried out at Department of General Surgery, Dr MK Shah Medical College and Research Centre, Ahmedabad. In this study we have analyzed data of the patients who were admitted with sacrococcygeal pilonidal sinus from June 2016 to June 2018. Total 100 patients of which 50 patients who underwent Limberg flap procedure whereas 50 patients who underwent Secondary wound healing procedure are analyzed.

We have included only those patient's data that has age between 18 years to 45 years and fulfilling the diagnostic criteria of Chronic discharging sinus/sinuses in natal cleft with or without surrounding tissue inflammation and associated with pain and bleeding on clinical evaluation. Patients' data were followed up at post operative 1st week, 1 months, 2 months and 1 year.

Following data were recorded;

- Age, Gender and BMI of the patient.
- Operation duration.
- Hospital stay time.
- post operative infection.
- Duration of inability to work in days.
- Recurrence.

Statistical Methods

Student's *t*-test (independent sample *t*-test) as a parametrical test was used to find significant mean difference between both the study group. In comparing categorical variables, cross-table statistics were used (χ^2 -Fisher's exact test). Significance limit of statistics was set at $p < 0.05$.

Results

Table 1: Demography

Variable	Limberg Flap Procedure	Secondary healing procedure	<i>p</i> - value
Age (Years) mean \pm SD	29.14 \pm 6.74	28.47 \pm 8.88	>0.05
Gender (Male/Female)	47/3	45/5	>0.05
BMI (Kg/m ²) mean \pm SD	26.63 \pm 7.54	26.78 \pm 6.98	>0.05

In both groups it was found that male were significantly higher as compared to female patients. We did not find any significant demographic difference between both the groups (Table 1).

Table 2: Procedure Outcome

Variable	Limberg Flap Procedure	Secondary healing Procedure	<i>p</i> value
Operation Time (min)	78.43 \pm 10.74	60.23 \pm 7.19	0.0001
Post Operative Infection	1	7	0.0269
Hospital Stay	1.89 \pm 0.38	4.69 \pm 2.59	0.0001
Days required Return to work	10.83 \pm 3.61	22.17 \pm 3.58	0.0001
Reoccurrence	1	4	0.1686

From our data it was found that operating time was significantly higher in Limberg Flap procedure group as compared to Secondary Healing Procedure (78.43 \pm 10.74 min vs. 60.23 \pm 7.19) with *p* value 0.0001. In Secondary healing Procedure post operative infection was found in 14.00% of the patients as compared to 2.00% in Limberg Flap Procedure. The mean duration of hospital stay was longer in Secondary Healing procedure group as compare to Limberg Flap Procedure Group ($p < 0.001$). Similarly mean days required return to work was significantly less in Limberg Flap Procedure Group as compared to Secondary Healing procedure group (*p* value 0.0001). Reoccurrence was observed in 4 patients who underwent Secondary Healing Procedure whereas in Limberg Flap Procedure reoccurrence was observed in only 1 patient (Table 2).

Discussion

The best surgical technique for sacrococcygeal pilonidal disease is still controversial. The treatment for sacrococcygeal pilonidal disease aims to provide cure but with a low rate of complications and recurrence and further to avoid prolonged hospitalization and ensure early return to work.⁴

In present study we have found that operative time in secondary healing procedure was significantly shorter in duration but Limberg flap procedure cures with less pain, lower rate of wound infection, less hospital stay, early returning to normal activity and low rate of recurrence of the disease. Limberg Flap procedure fulfilled all our study objectives with significant difference over secondary healing procedure.

In Parvez Khan *et al.*⁴ study they have found that operation time was longer in Limberg flap group

whereas the hospital stay, days required return to work, post operative infection, and reoccurrence rate were significantly less which is consistent with our study.

In Siddhartha Priyadarshini *et al.*⁵ study reoccurrence rate was found 5.88% whereas in present study it was found that 8.00% which is consistent with our study.

Akin *et al.* studied the records of 411 patients with pilonidal sinus disease concluded that the Limberg flap procedure is effective and has a low complication rate, short time for returning to normal activity, and short hospitalization⁶.

Conclusion

As a results obtained from this study we are concluding that Limberg Flap Method has shown optimal post operative outcomes as compared to Secondary healing procedure in terms of less post operative pain, low rate of wound infection, lesser days of hospitalization and low reoccurrence rate and early returning to normal daily activities. Open procedure is required lesser operative time as compared to Limberg Flap Procedure.

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