

Limberg Flap Versus Open Procedure in Treatment of Chronic Pilonidal Sinus

NAEEM GHAFFAR¹, NADIA FAROOQ², MUHAMMAD SHAHID HUSSAIN³

^{1,2}Department of Surgery Sir Ganga Ram Hospital / Fatima Jinnah Medical University, Lahore

³Medical Officer THQ Shakargarh

Correspondence to: Dr. Naeem Ghaffar, Cell: 03324276972

ABSTRACT

Objective: The main purpose of the study is to compare the outcomes of Limberg flap and open procedure to treat the chronic pilonidal sinus. Pilonidal sinus is a disorder of the sacrococcygeal region mostly found in younger folk. Its treatment consists of several methods but in this study, we will go through Limberg flap and open procedure to compare the outcomes of both methods.

Study design: Comparative study.

Material & Methods: This study was conducted from January 2020 to December 2022. 84 patients included 59 males and 25 females having age between 18 to 40 years were part of the study. All the selected patients were diagnosed with chronic pilonidal sinus and recommended for surgery at surgery Unit1 sir Ganga Ram Hospital Lahore, Pakistan. A total of 84 patients were divided into two groups, group1 consists of 42 patients treated for the Limberg flap technique. Group 2 also contains 42 patients treated for an open procedure. The patients who were suffering from the chronic pilonidal sinus were part of the study while patients who had acute inflammation of the sinus, history of previous treatment of pilonidal sinus were omitted from the study.

Results: Out of 84 patients 42 were part of group 1 and the remaining 42 were in group 2. In group1, the mean \pm SD age of patients was 26 ± 2.00 , 30 (71.4%) males and 12 (28.5%) females. While in group2 the mean \pm SD age was 25 ± 3.00 , 29 (69%) were males and 13 (30.9%) females were part of this group. The measured p-value for both groups was <0.05 . General characteristics of patients show that high percentage of males were affected from pilonidal sinus disease. In group1 patients who had a 2 days stay at the hospital, recurrence was reported in 10 (23.8%) patients with P-value >0.05 , irregular scar formation was observed in 16 (38%) patients, the pain was reported in 18 (42.8%) patients, and wound healing after 2 weeks was noted in 20 (47%) patients. In group 2, patients had 6 days stay at the hospital, recurrence was reported in 13 (30.9%) patients with value >0.05 , irregular scar formation was observed in 26 (61%) patients, the pain was reported in 34 (80%) patients and wound healing after 2 weeks was noted in 12 (28.57%) patients. p-value was measured <0.05 for all the parameters.

Conclusion: Eventually, we concluded significant results of the Limberg flap than the open procedure. A high percentage of complications were measured in patients treated with the open procedure in comparison to the Limberg flap.

Keywords: Chronic pilonidal sinus, Limberg flap, open procedure.

INTRODUCTION

Chronic Pilonidal sinus disease is one of the diseases that affect young people of age 30 years.¹ Pilonidal disease pathology was reported in 13332 and is known as an acquired disorder with undefined etiopathology.³ A study demonstrated the 0.07% incidence rate measured in the American population especially in males of age between 15 to 30 years.⁹ The emergence of pilonidal sinus from the sacrococcygeal region and from the other portions such as the axilla, above knee amputation stump, and hands.¹⁴ These are eminent health problems that directly affect routine work. The management is quite challenging for surgeons because of infection, slow wound healing as well as higher chances of recurrences.

Surgery is the chief treatment method used to treat the chronic pilonidal sinus. The optimum surgical method should be associated with a short hospital stay and the minimum rate of recurrence.⁵ Various surgical procedures are used to treat the chronic pilonidal sinus but the simplest techniques include incision and drainage.⁶ Open excision, excision and primary closures are common methods. The complex surgical techniques included Limberg flap, Karydakakis, Bascom techniques. As compared to complex methods, simple techniques are more associated with morbidity and recurrence because of the natal cleft. The purpose of this study is to compare Limberg flap and open procedure to find the best treatment method to treat the chronic pilonidal sinus.

MATERIALS AND METHODS

This study was conducted from January 2020 to December 2022 at surgery unit 1 Sir Ganga Ram Hospital Lahore. 84 patients included 59 males and 25 females having age between 18 to 40 years were part of the study. All the selected patients were diagnosed with chronic pilonidal sinus and recommended for surgery. A total of 84 patients were divided into two groups, group 1 consists of 42

patients treated for the Limberg flap technique. Group 2 also contains 42 patients treated for an open procedure.

Inclusion and Exclusion Method: In this comparative study, patients who were suffering from the chronic pilonidal sinus were part of the study, while patients who had acute inflammation of the sinus, history of previous treatment of pilonidal sinus were omitted from the study. Pregnant women and people of age above 40 were also excluded. Furthermore diabetics and immunocompromised patients were also excluded from study. Written consent was signed by the entire participants before the surgical treatment.

Statistical Analysis: All the collected data were carried through statistical analysis using SPSS version 23. Comparison between the Limberg flap and open procedure was performed by applying the t-test. Moreover, p-value <0.05 was considered significant.

RESULTS

Out of 84 patients 42 were part of group 1 and the remaining 42 were in group 2. In group1, the mean \pm SD age of patients was 26 ± 2.00 , 30 (71.4%) males and 12 (28.5%) females. While in group 2, the mean \pm SD age was 25 ± 3.00 , 29 (69%) were males and 13 (30.9%) females were part of this group. The measured p-value for both groups was <0.05 . General characteristics of patients show that a high percentage of males were affected by pilonidal sinus disease (table 1).

Table 2 Shows the results of different parameters for both groups. In group1 patients had 2 days stay at the hospital, recurrence was reported in 10 (23.8%) patients with

P-value >0.05 , irregular scar formation was observed in 16 (38%) patients, the pain was reported in 18 (42.8%) patients, and wound healing after 2 weeks was noted in 20 (47%) patients.

In group 2, patients had a 6 days stay at the hospital, recurrence was reported in 13 (30.9%) patients with value >0.05 , irregular scar formation was observed in 26 (61%) patients, the

pain was reported in 34 (80%) patients, and wound healing after 2 weeks was noted in 12 (28.57%) patients. p-value was measured <0.05 for all the parameters.

Comparison of outcomes both groups shows the better wound healing of Limberg flap treatment and its recurrence percentage was reported lower than an open procedure. Irregular scar formation and pain were also observed less in group1(Limberg flap) than group2 (open procedure).

Table 1: Characteristics of 84 patients of both groups

Characteristics	Group 1, n=42	Group 2, n=42	P-value
Age (mean ±SD)	26 ± 2.00	25 ± 3.00	<0.05
Gender			
Male	30 (71.4%)	29 (69%)	<0.05
Female	12 (28.5%)	13 (30.9%)	<0.05

Table 2: Post treatment outcomes and complications of group 1 and group 2

Parameters	Group 1, n=42	Group 2, n=42	P-value
Hospital stay (day)	2	6	<0.05
Recurrence	10 (23.8%)	13 (30.9%)	>0.05
Irregular scar formation	16 (38%)	26 (61%)	<0.05
Pain	18 (42.8%)	34 (80%)	<0.05
Wound healing after 2 weeks	20 (47%)	12 (28.57%)	<0.05

DISCUSSION

The management of chronic pilonidal sinus disease is concerned with lesser discomfort and lower chances of recurrence is the basic purpose. Surgery should have minimum stay time in the hospital. Surgical treatment needed intense care of wound especially in case of open surgical procedure.¹⁶ Although, best and ideal surgical technique is still debatable that provide possible minimum stay time and quick recovery. Wound healing is also considered the main issue of chronic pilonidal sinus surgery because it is highly associated with routine activity. If the patients have lower wound healing then their routine activity completely ceased that may cause the stressed condition for that patient.^{18,19} In the current study wound healing was high (47%) in Limberg flap case while 28% in case of open surgical procedure. Complications were lower in group 1 patients than group 2 patients.

Chronic pilonidal sinus may lead to developing more severe conditions such as formation of carcinomas. However, in most cases, it is not associated with the formation of cancerous cells. A randomized control trial about the Limberg flap method and secondary wound healing were conducted for 102 patients. End results of the study concluded the Limberg flap had no significant benefit over the secondary wound healing.¹² Another randomized control study about the open excision and rhomboid excision with the Limberg flap technique demonstrated that the Limberg flap method had more advantages as compared to the open procedure.¹⁴ Similarly in this study, we come to end with the better response of the Limberg flap method as compared to the open surgical procedure. A study reported the problem associated with the Limberg flap method such as the formation of seroma. However, it can be overcome through the insertion of the suction drain. There is no noticeable difference reported with the use of suction drain and without the suction drain for the Limberg flap rotation.

CONCLUSION

The obtained results of this study show the significant difference between the Limberg flap method and the open procedure. Both

the procedures are substantially comparable for chronic pilonidal sinus treatment. The high percentage of complications was measured in patients treated with the open procedure in comparison to the Limberg flap.

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