IJIMM, Volume 2, Issue 5, 2024 ISSN: 2995-5319
http://medicaljournals.eu/index.php/IJIMM

INTERNATIONAL JOURNAL OF INTEGRATIVE AND MODERN MEDICINE

Limberg's Flap is Recommended Option for Primary and Recurrent Surgery of Natal Cleft Pilonidal Disease

Dr. Heider Kereem Al-Khafaji
MBChB, DGS, FICMS, General Surgeon-Immam Ali Hospital, Babylon, Iraq

Abstract

Introduction: This study was designed to evaluate the Limberg's flap for primary and recurrent surgery of natal cleft pilonidal disease. This research comprised 60 people who had pilonidal sinus surgery between January 2021 and December 2022. Local ethics committee permission and individual patient informed consent papers were acquired. Participants were split into two groups, each group contains 30 persons, one receiving excision and primary closure (group I) and the other receiving a Limberg flap (group II). Retrospective analysis of patient medical records. Telephone calls were made to the patients. The surgical procedures were compared in terms of operating time, postop pain relief, ease of using the restroom, and speed with which patients could return to work. Patients who had had pilonidal sinus surgery before, experienced a recurrence, could not be contacted, or were treated with other surgical approaches were not included in the analysis. We used a scale from 1 (extremely unsatisfactory) to 3 (very satisfied) to gauge how satisfied our patients were with our services. The average age of the 60 research participants was 26.6. There were five men for every one woman (84.3%). There were 32 patients in Group 1, or 53.3%, and 28 in Group 2, or 46.7%. Group 1 was followed for a mean of 57 9.4 months, whereas group 2 was followed for a mean of 35.7 8.3 months. Group 1 had a mean age of 26.3 2.4 years, whereas group 2 had a mean age of 27.1 1.6 years; this age difference was not statistically significant (P = 0.43). Group 1 had an average operating duration of 29.7 4.2 minutes, whereas group 2 averaged 59.1 6.8 minutes (P 0.001). There was no statistically significant difference between the two groups for the average length of hospital stay (3.3 0.2 vs 2.1 0.8 days; P = 0.649). There was no statistically significant difference between the two groups in terms of the incidence of minor complications including wound site infection, seroma, and wound opening (16.7% in group 1 and 15.9% in group 2) (P = 1.000). The recurrence rate was 9.7% in group 1 and 7.2% in group 2. However, the difference between the two groups in terms of recurrence rate was not statistically significant (P = 1.000).

In conclusion, the research found that when compared to excision and primary closure, the Limberg flap procedure yielded superior results. Therefore, Limberg flap should be considered for pilonidal sinus condition therapy.

Keywords: Limberg flap, primary, natal cleft, pilonidal disease.

Introduction:

Pilonidal sinus (PS) is a frequent condition that affects the sacrococcygeal area of the natal cleft and causes thin hair to accumulate in the hair follicles. It may be chronic or experience sudden

exacerbations, 1, 2. PS affects young males and has a prevalence of around 26/100,000. It is a benign disease,3,4.

Thought to be associated to a buildup of weak and lifeless hair in the intergluteal area, the etiology and pathophysiology of PS remain unclear. A foreign body response develops over time, leading to sinus development and abscess formation. PS,2,5 is often linked to obesity, trauma, local irritation, and a sedentary lifestyle.

Although there are various well-defined conservative and surgical treatments for pilonidal sinus, recurrence rates are still high 6. Successful healing may result by complete excision of the pilonidal sinus or sinuses and suitable restoration. 7. The structure of the intergluteal region affects how the dead hair is collected, and other risk factors may result in ineffective treatment and eventual recurrence.6,8.

There are many ways to treat the sacrococcygeal pilonidal sinus, but none of them is commonly recognized [8]. Options include shaving the region with excellent hygiene, extensive excision, and newer flap operations. The surgical approaches recommended for the therapy include excision and packing, excision and primary closure, marsupialization, and flap techniques.]9[

Recurrence is the key issue for the patient's therapy; the literature analysis indicated that it might occur anywhere between 20 and 40% of the time [10]. Recurrence was linked to a variety of factors, such as the presence of residual tracts, sutures in the midline that increased stress, recurring infection, buildup of sweat, and friction with a propensity for the hair to get ingested into the wound [11].

Limberg created the Limberg rhombus flap for the sacrococcygeal pilonidal sinus in 1946 [12]. He also developed a method for using a transposition flap to close a defect that was 60 degrees rhombus-shaped. This flap was simple to produce; sutures placed away from the midline resulted in a tension-free flap of unscarred skin in the midline. This flap aids in maintaining excellent hygiene by preventing sweat maceration, erosions, and scarring.

According to a review of the literature, Limberg flap reconstruction after rhomboid excision of the sinus region was superior to primary closure and other flap techniques [13] and a safe and effective treatment in sacrococcygeal pilonidal sinus illness with low complication and recurrence rates.

This study was designed to evaluate the Limberg's flap for primary and recurrent surgery of natal cleft pilonidal disease.

Materials and Methods:

This research comprised 60 people who had pilonidal sinus surgery between January 2021 and December 2022. Local ethics committee permission and individual patient informed consent papers were acquired. Participants were split into two groups, each group contains 30 persons, one receiving excision and primary closure (group I) and the other receiving a Limberg flap (group II). Retrospective analysis of patient medical records. Telephone calls were made to the patients. The surgical procedures were compared in terms of operating time, post-op pain relief, ease of using the restroom, and speed with which patients could return to work. Patients who had had pilonidal sinus surgery before, experienced a recurrence, could not be contacted, or were treated with other surgical approaches were not included in the analysis. We used a scale from 1 (extremely unsatisfactory) to 3 (very satisfied) to gauge how satisfied our patients were with our services [3].

Statistical analysis was done by using SPSS version 23.

Results and Discussions:

The average age of the 60 research participants was 26.6. There were five men for every one woman (84.3%). There were 32 patients in Group 1, or 53.3%, and 28 in Group 2, or 46.7%. Group 1 was followed for a mean of 57 9.4 months, whereas group 2 was followed for a mean of 35.7 8.3 months. Group 1 had a mean age of 26.3 2.4 years, whereas group 2 had a mean age of 27.1 1.6 years; this age

difference was not statistically significant (P = 0.43). Group 1 had an average operating duration of 29.7 4.2 minutes, whereas group 2 averaged 59.1 6.8 minutes (P 0.001). There was no statistically significant difference between the two groups for the average length of hospital stay (3.3 0.2 vs 2.1 0.8 days; P = 0.649). There was no statistically significant difference between the two groups in terms of the incidence of minor complications including wound site infection, seroma, and wound opening (16.7% in group 1 and 15.9% in group 2) (P = 1.000). The recurrence rate was 9.7% in group 1 and 7.2% in group 2. However, the difference between the two groups in terms of recurrence rate was not statistically significant (P = 1.000) (Table 1).

Table 1. Patients' demographic and health data were compared between study groups.

Variable		Group1	Group2	P-value
Age (years)		26.3±2.4	27.1±1.6	0.43
Gender	**Male (48)**	25	23	
	Female (12)	7	5	
Period for operation (Min.)		29.7±4.2	59.1±6.8	≤0.001
Staying in hospital (day)		3.3±0.2	2.1±0.8	0.649
Follow up time (Month)		57±9.4	35.7±8.3	≤0.001
Minor complications %		16.7	15.9%	1.000
Recurrence %		9.7	7.2	1.000

There has been continued disagreement over the optimum approach to pilonidal sinus surgery despite the availability of several viable options. Complications, recurrence, and aesthetic outcomes are key issues with the currently outlined procedures [3]. In the event of difficulties, the healing process will take longer, delaying the patient's return to their regular routine. Therefore, the incidence of complications and recurrence after surgery for pilonidal sinus is an important indicator of the success of the procedure. Al-Khayat et al. [4] and Polat et al. [5] both reported a rate of mild problems after surgery of 11.7% and 11%, respectively. The literature offers widely varying figures for the recurrence rate after surgical surgery. One research found that the Limberg flap procedure had a mean infection incidence of 7.6% and a mean recurrence rate of 1.5% [6]. A recurrence rate of about 20% was reported by Holmebakk and Nesbakken [7] after excision and primary closure and rhomboid flap, while a recurrence rate of 3.84% was reported after Limberg flap and 0% was reported after excision and primary closure [3]. But Ertan et al. [8] found a 2% recurrence rate in the Limberg flap method and a 12% recurrence rate in the primary closure method, and they concluded that the Limberg method produced a better outcome in terms of recurrence, complications, wound healing time, time to return to work, and general health. The benefits of the Limberg flap approach were also highlighted by Akca et al. [9]. Flap techniques have been shown to be more effective in the treatment of complicated and variable deformities after excision [10-13]. However, a study by Nursal et al. [13] found no statistically significant differences between V-Y advancement flap and excision and primary closure in terms of postoperative complications, recurrence, or patient satisfaction. Furthermore, when comparing flap techniques, it is believed that Karydakis and Limberg flap techniques are comparable in terms of post-operative hospitalization time, complications, and recurrence [14].

The length of time spent in the hospital, the recovery time needed before the patient can return to work and normal activities, and the level of cosmetic satisfaction achieved after surgery for pilonidal sinus are other significant factors. With this in mind, the current study found no statistically significant

difference in hospitalization duration between groups; however, the Limberg flap method required a significantly shorter time to return to daily activities like walking without pain after surgery, sitting on the toilet, and returning to work. Muzi et al. [3], in a retrospective study of 260 cases comparing the Limberg flap and primary closure, found that postoperative pain was lower in the excision and primary closure group, while there was no significant difference in the time required to return to work between the two groups. In a similar vein, Ersoy et al. [15] found that the Limberg flap and primary closure had equivalent recovery times. However, research by Leventoglu et al. [16] showed that the Limberg flap technique is preferable to excision and primary closure in terms of hospital stay and time away from work. Patient satisfaction with the results of the operation in terms of their appearance is another important indicator of success. Patients undergoing pilonidal sinus surgery, particularly those who undergo the procedure using flap procedures, may experience difficulty due to cosmetic concerns. Aesthetic satisfaction was higher among patients who had primary repair after excision, according to the present research. However, research by Akca et al. [9] shows that the Limberg flap approach is preferable in terms of postoperative quality of life. Comparing the complication and recurrence rates between the primary closure and Limberg flap approaches in the surgical treatment of pilonidal sinus yields comparable results. Although excision and primary closure reduces surgical time, it is not as effective as the flap approach in other regards, such as postoperative discomfort or delay in return to work. Patients seem to be more pleased with the cosmetic results of the excision and primary closure technique.

In conclusion, the research found that when compared to excision and primary closure, the Limberg flap procedure yielded superior results. Therefore, Limberg flap should be considered for pilonidal sinus condition therapy.

Reference

1. Petersen S, Aumann, Kramer A, Doll D, Sailer M, Hellmich G. Short-term results of Karydakis flap for pilonidal sinus disease. *Tech Coloproctol.* 2007;11((3)):235–40. doi: 10.1007/s10151-007-0357-7.
2. Sondenaa K, Andersen E, Nesvik I, Søreide JA. Patient characteristics and symptoms in chronic pilonidal sinus disease. *Int J Colorectal Dis.* 1995;10((1)):39–42. doi: 10.1007/BF00337585.
3. McCallum IJ, King PM, Bruce J. Healing by primary closure versus open healing after surgery for pilonidal sinus: systematic review and metaanalysis. *BMJ.* 2008;336((7649)):868–71. doi: 10.1136/bmj.39517.808160.BE.
4. Akinci O F, Kurt M, Terzi A, Atak I, Subasi IE, Akbilgic O. Natal Cleft Deeper in Patients with Pilonidal Sinus: Implications for Choice of Surgical Procedure. *Dis Colon Rectum.* 2009;52((5)):1000–2. doi: 10.1007/DCR.0b013e31819f6189.
5. Kosaka M, Kida M, Mori M, Kamiishi H. Pilonidal cyst of the scalp due to single minor trauma. *Dermatol Surg.* 2007;33((4)):505–7.
6. Urhan MK, Kücükel F, Topgul K, Ozer I, Sari S. Rhomboid excision and Limberg flap for managing pilonidal sinus: results of 102 cases. *Dis Colon Rectum.* 2002;45((5)):656–9. doi: 10.1007/s10350-004-6263-4.
7. Yildiz M K, Ozkan E, Odaba M, Kaya B, Eriş C, Abuoğlu HH, et al. Karydakis Flap Procedure in Patients with Sacrococcygeal Pilonidal Sinus Disease: Experience of a Single Centre in Istanbul. *ScientificWorldJournal.* 2013:807027.
8. Karydakis GE. Easy and successful treatment of pilonidal sinus after explanation of its causative process. *Aust N Z J Surg.* 1992;62((5)):385–9. doi: 10.1111/ans.1992.62.issue-5.

9. Akca T, Colak T, Ustunsoy B, Kanik A, Aydin S. Randomized clinical trial comparing primary closure with the Limberg flap in the treatment of primary sacrococcygeal pilonidal disease. *Br J Surg.* 2005;92:1081–1084.
10. Katsoulis IE, Hibberts F, Carapeti EA. Outcome of treatment of primary and recurrent pilonidal sinuses with the Limberg flap. *Surgeon.* 2006;4:7–10.
11. Eryilmaz R, Sahin M, Alimoglu O, Dasiran F. Surgical treatment of sacrococcygeal pilonidal sinus with the Limberg transposition flap. *Surgery*. 2003;134:745–749.
12. Bendewald FP, Cima RR. Pilonidal disease. *Clin Colon Rectal Surg.* 2007;20:86– 95.
13. Nursal TZ, Ezer A, Caliskan K, Torer N, Belli S, Moray G. Prospective randomized controlled trial comparing V-Y advancement flap with primary suture methods in pilonidal disease. *Am J Surg.* 2010;199:170–177.
14. Can MF, Sevinc MM, Hancerliogullari O, Yilmaz M, Yagci G. Multicenter prospective randomized trial comparing modified Limberg flap transposition and Karydakis flap reconstruction in patients with sacrococcygeal pilonidal disease. *Am J Surg.* 2010;200:318–327.
15. Ersoy OF, Karaca S, Kayaoglu HA, Ozkan N, Celik A, Ozum T. Comparison of different surgical options in the treatment of pilonidal disease: retrospective analysis of 175 patients. *Kaohsiung J Med Sci.* 2007;23:67–70.
16. Leventoglu S, Ozdemir S, Ozgay N, Ege B, Mentes B, Oguz M, et al. Comparison of primary closure with Limberg flap in the treatment of pilonidal disease. *Kolon Rektum Hast Derg.* 2008;19:90–92.