



General Surgery

THE KARYDAKIS FLAP VERSUS THE LIMBERG FLAP IN THE TREATMENT OF PILONIDAL SINUS DISEASE IN RURAL AREA OF THODUPUZZHA

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ABSTRACT

Background: The aim of this study was to analyze and compare the results of the modified Limberg flap (MLF) and modified Karydakias flap (MKF) techniques which were performed for the treatment of pilonidal sinus disease (PSD). **Methods:** The patients who were operated for PSD by the same surgeon between December 2021 and June 2023 in Department of General Surgery AlAzhar Medical College were retrospectively analyzed. 20 patients were enrolled in this interventional comparative clinical study and were divided into two equal groups. Group (1) were operated on via the the karydakias flap and group (2) via the limberg flap. **Results:** The mean operative time was shorter with the Karydakias group (41.7 ± 4.22 minutes) than with the Limberg group (51.5 ± 4.17 minutes). There was no significant difference between both groups regarding overall complication rate. The mean time off work was shorter with the Karydakias procedure (14.6 ± 2.46 days). The healing time was significantly shorter with the Karydakias group than with the Limberg group (18 ± 3.05 vs 21.6 ± 3.41 days, $P=0.023$). The visual analogue score for the cosmetic satisfaction of patients in the Karydakias group was 7.8 ± 1.03 , whereas it was 4.2 ± 0.92 in the Limberg group with a p value (<0.001). Only one patient (10%) from each group developed recurrence. **Conclusion:** Karydakias Flap has shorter operation time than Modified Limberg flap, however both techniques have a similar complication and recurrence rate. In conclusion MLF and MKF procedures can be safely used as a surgical treatment of PSD.

KEYWORDS : Pilonidal sinus disease, Surgery, Modified Limberg flap, Modified Karydakias flap

INTRODUCTION

Pilonidal sinus disease (PSD), which mostly occurs in sacrococcygeal region is a common chronic health problem usually affecting young adults.1 Congenital and acquired factors are described previously but its etiology is still not clear. Several non-surgical and surgical modalities have been proposed for the treatment of PSD but there is still no optimal treatment modality. The main principle of the surgical treatment is completely excision of the sinus tract. Following the excision there are numerous surgical options such as open packing, marsupialization, primary closure and flap procedures.2-Different types of flap procedures have been described for the treatment of PSD and nowadays these techniques have been preferred due to the low complication and recurrence rates. Classical Limberg flap (CLF) is efficient method for PSD and mostly performed for the surgical management of the disease worldwide.5 The disadvantage of the CLF is the lower part of the suture line is located at the intergluteal sulcus and at the postoperative period skin maceration and recurrence can occur at this location. To minimize this complication, modified Limberg flap (MLF) was described to lateralize the suture line.5The Karydakias procedure was described in 1973 is an asymmetric flap technique used in the treatment of PSD.6 Bessa modified the technique and reported that local defenses against hair insertion could be maximized by decreasing or neutralizing the force factor as well by his modified Karydakias flap (MKF) technique.7 The aim of this present study was to analyze and compare the results of the MLF and MKF techniques which were performed by the same surgeon in a rural hospital.

METHODS

The patients who were operated for PSD by the same surgeon between December 2021 and June 2023 in Department of General Surgery AlAzhar Medical College were retrospectively analyzed.

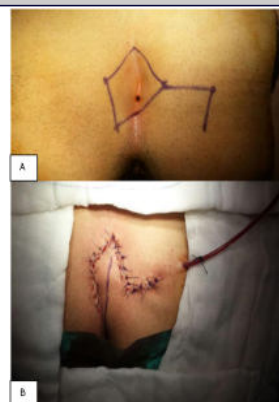
20 cases were included during the study period as a comprehensive sample.

Group (1): were operated on via the the Karydakias flap technique.

Group (2): were operated on via the Limberg flap technique.

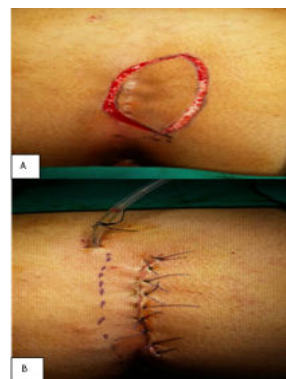
Surgical Procedure:

All operations were performed under spinal anesthesia. After positioning the patient in the Jack-knife. Methylene blue was injected through the sinus pits and all of the sinus tracts were resected totally till the sacral fascia. A suction drain was placed on the postsacral fascia in all operations.



Group 1: Modified Limberg Flap

Modified Limberg flap (MLF) was performed according to the technique reported by Menten et al.5 A wide rhomboid excision was made asymmetrically to place the inferior part of the flap 1 cm lateral to the midline. Fasiocutaneous Limberg flap which was elevated from the contralateral side of the asymmetric corner, was transposed medially to fill the rhomboid defect. A suction drain was placed on the postsacral fascia. Flap was fixed to the postsacral fascia with interrupted 0/0 vicryl sutures, subcutaneous tissue was approximated with 3/0 vicryl interrupted sutures, skin was closed with 3/0 polypropylenE sutures (Figure 1).



Group 2: Modified Karydakias Flap

Modified Karydakís flap (MKF) was performed according to the technique described by Bessa. 7 An

The suction drain was removed after the drainage was less than 25 ml per 24 h. Patients were discharged on the day of the drain removed. The oral form of second generation of cephalosporine and metronidazole was given for 7 days postoperatively. If there was no complication, skin sutures were removed postoperative 14 days.

Statistical Analysis

The statistical analyses were performed by using SPSS 16 (SPSS Inc., Chicago, IL, USA). The demographic data were compared with student's t test. Pearson's 2 analysis was used to evaluate the complications and recurrence between two groups. Operation, hospitalization and drain removal time, were compared between two groups.

RESULTS

The mean operative time was significantly shorter with the Karydakís group (41.7 ± 4.22 minutes) than with the Limberg group (51.5 ± 4.17 minutes) as shown in table(1). There was no significant difference between both groups regarding overall complication rate. The mean time off work with patients operated with Karydakís procedure (14.6 ± 2.46 days) was less than the time with the Limberg group (16.8 ± 2.39 days) as illustrated in table(2). The healing time was significantly shorter with the Karydakís group than with the Limberg group (18 ± 3.05 vs 21.6 ± 3.41 days, $P = 0.023$) as in table(3). The visual analogue score for the cosmetic satisfaction of patients in the Karydakís group was 7.8 ± 1.03 , whereas it was 4.2 ± 0.92 in the Limberg group with a p value (< 0.001) as shown in table(4). Only one patient (10%) from each group developed recurrence.

Table 1: Demographic Data Of The Groups.

Characteristics	MLF (n=20)	SD	MKF (n=20)	SD	P value
Age	28.80	± 10.14	25.30	± 7.12	0.097
Female/male		5/52		9/40	
Operation time	44.40	± 5.88	33.30	± 4.75	$< 0.001^*$
Hospitalization day	3.07	± 0.75	2.97	± 0.72	0.499
Follow-up period (month)	34.33	± 7.66	36.30	± 8.43	0.274
Mann-Whitney U test	*p<0.05				

Table 2: Comparison Of The Results.

MLF (n=20)	%	MKF (n=20)	%	P value	
Complication	6	10.5	6	12.2	0.781
Maceration	3	5.3	4	8.2	0.549
Wound infection	1	1.8	2	4.1	0.471
Seroma 2	3.5	2	4.1	0.877	
Hematoma	1	1.8	0	0	0.352
Recurrence	1	1.8	2	4.1	0.471

Chi-square test.

REFERENCES

- Chintapatla S, Safarani N, Kumar S, Haboubi N. Sacrococcygeal pilonidal sinus: historical review, pathological insight and surgical options. Tech Coloproctol. 2003;7(1):3-8.
- Füzün M, Bakir H, Soylu M, Tansuğ T, Kaymak E, Hafmancioğlu O. Which technique for treatment of pilonidal sinus--open or closed? Dis Colon Rectum. 1994;37(11):1148-50.
- Rashidian N, Vahedian-Ardakani J, Baghai-Wadji M, Keramati MR, Sarace A, Ansari K, et al. How to repair the surgical defect after excision of sacrococcygeal pilonidal sinus: a dilemma. J Wound Care. 2014;23(12):630-3.
- Karakayali F, Karagülle E, Karabulut Z, Oksuz E, Moray G, Haberal M. Unroofing and marsupialization vs. rhomboid excision and Limberg flap in pilonidal disease: a prospective, randomized, clinical trial. Dis Colon Rectum. 2009;52(3):496-502.
- Tokac M, Dumlu EG, Aydın MS, Yalcın A, Kilic M. Comparison of modified Limberg flap and Karydakís flap operations in pilonidal sinus surgery: prospective randomized study. International Surgery. 2015 May;100(5):870-7.
- Bali I, Aziret M, Sözen S, Emir S, Erdem H, Çetinköner S, İrkörücü O. Effectiveness of Limberg and flap Karydakís in recurrent pilonidal sinus disease. Clinics. 2015 May;70(5):350-5.
- Bahar MM, Akbarian MA, Azadmard A. Investigating the effect of autologous platelet-rich plasma on pain in patients with pilonidal abscess treated with surgical removal of extensive tissue. Iranian Red Crescent Medical Journal. 2013 Nov;15(11):10-13.
- Gavrilidis P, Bota E. Limberg flap versus Karydakís flap for treating pilonidal sinus disease: a systematic review and meta-analysis. Canadian Journal of Surgery. 2019 Apr;62(2):131. pp. 1-8. doi: 10.1503/cjcs.003018.
- Ates M, Dirican A, Sarac M, Aslan A, Colak C. Short and long-term results of the Karydakís flap versus the Limberg flap for treating pilonidal sinus disease: a prospective randomized study. The American Journal of Surgery. 2011 Nov 1;202(5):568-73.
- Prassas D, Rolfs TM, Schumacher FJ, Krieg A. Karydakís flap reconstruction versus Limberg flap for Pilonidal sinus disease: a meta-analysis of randomized controlled trials. Langenbeck's archives of Surgery. 2018 Aug 1;403(5):547-54.
- Karaca T, Yoldaş Ö, Bilgin BÇ, Özer S, Yoldaş S, Karaca NG. Comparison of short-term results of modified Karydakís flap and modified Limberg flap for pilonidal sinus surgery. International Journal of Surgery. 2012 Jan 1;10(10):601-6.