

Outcome of modified limberg flap with karydakis flap in treatment of pilonidal diseases.

Muhammad Naeem Ashraf¹, Muhammad Azhar², Naeem Akhtar², Kamran Afzal³

ABSTRACT

Objective: To compare outcome of modified Limberg flap versus Karydakis flap in treatment of Pilonidal Sinus in terms of operative time, hospital stay, rate of infection and recurrence.

Study Design: Quasi experimental study.

Study Place and Duration: Department of General Surgery POF(Pakistan ordinance factory) Hospital Wah Cantt from 1st January 2006 till 31st December 2018.

Methodology: Patients presenting with pilonidal sinus to surgical OPD divided into two equal groups through non-probability consecutive sampling. Group A underwent Limberg flap and group B Karydakis flap. Both groups were compared for operative time, hospital stay, rate of infection and recurrence.

Results: Patients were included divided into two equal groups of 50 patients. In limberg flap (A) and karydakis(B) group mean duration of stay was 3.7 and 3.4 days, recurrence occurs in 4(8%) and 10(20%) cases, infection occurs in 2(4%) and 11(22%) cases and means operative time was 51.42 and 41.82 minutes respectively.

Conclusion: Modified Limberg flap give better result than karydakis flap technique in treatment of pilonidal diseases.

Keywords: Pilonidal sinus, Limberg flap, Karydakis flap, Outcome, Recurrence, Infection, Hospital stay

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INTRODUCTION

Pilonidal sinus is a recurrent diseases .There are several etiology factors responsible for this diseases, which are also responsible for its recurrence, deep natal cleft with large buttocks, occupations involving prolong sitting. folliculitis, and poor hygiene^{1,2}

There is no standardization in treatment for pilonidal diseases and high recurrence rate after surgery makes the studies on pilonidal sinus of high value. Many techniques have been described in literature for pilonidal disease, including: excision

with or without reconstruction or repair, marsupialization, cryotherapy, laser treatment, oblique and asymmetrical excision and primary repair, Limberg flap, Z-plasty, Karydakis flap and V-Y plasty. None of these procedures are ideal.

Wide local excision with primary closure or leaving the wound open, results in higher incidence of recurrence. Formation of deep scar in the midline cause more accumulation of hair, which was the primary cause of the pilonidal sinus. Flap closure had best result as compare to any other type of treatment. Modified Limberg flap was described by Menten et al. The lower end of the flap was shifted laterally to prevent the inferomedial recurrence as seen in classical Limberg flap. Many studies had reported low recurrence and complication rate with modified Limberg flap.

Type of flap closure is still controversial; some studies show that limberg flap closures for pilonidal disease are better option³⁻⁶. Other studies suggest karydakis flap is better^{7,8}. Some studies and meta-analysis suggest that there is no difference^{9,10}. There is no consensus on ideal surgical treatment of this disease. An ideal surgical procedure should have short hospitalization time, patients return to work early, minimum wound care, low postoperative complication (infection, seroma formation and wound dehiscence), and cosmetically acceptable, minimum wound discomfort and low recurrence rates¹¹. Flap rotation is the most promising surgical treatment of pilonidal sinus¹².

As type of flap is still controversial rational and justification of this study is to asses which type of flap is better in treatment of

1. Professor of Surgery
2. Assistant Professor of surgery

Wah Medical College Wah Cantt

3. Medical Officer, POF Hospital Wah Cantt.

Correspondence:

Dr Muhammad Naeem Ashraf
Professor of Surgery, Wah Medical College Wah Cantt.
Email: ashrafmuhammadnaeem64@gmail.com

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pilonidal sinus? Objective of this study is to compare the outcome of modified Limberg flap versus Karydakis flap for treatment of Pilonidal Sinus in terms of operative time, hospital stay, rate of wound infection and recurrence.

METHODOLOGY

This Quasi experimental study was carried out in General Surgery Department POF Hospital Wah Cantt from 1st January 2006 till 31st December 2018, after approval from ethics committee. Patients presenting with pilonidal sinus disease to Surgical OPD were included after informed consent and divided into two equal groups by non-probability consecutive sampling. Patients between ages of 18-60 years of both genders were included in the study. All patients with recurrent pilonidal sinus disease, pilonidal abscess, pathological sinus i.e. tuberculosis and history of chronic disease i.e. diabetes mellitus, ischemic heart diseases, asthma and chronic renal disease were excluded from study.

Initial data about age, contact number and date of admission was taken on predesigned Performa. Detailed history taken and complete clinical examination of patient was done by consultant surgeon. The patients were randomized to group A (Modified Limberg flap group) and group B (Karydakis flap group) by lottery method. Surgery is performed by same consultant surgeon on both groups.

Duration of surgery and hospital stay was recorded for all patients on predesigned Performa. Patients were followed up in outpatient department for sign of infection (redness over wound pus discharge and wound dehiscence) for 1 month and for recurrence (formation of sinus) for 6 month.

Data Analysis: The data was entered into the SPSS (version 20). Descriptive statistics were used to calculate means ± standard deviation for quantitative variables i.e. age, operative time and duration of hospital stay. Frequencies with percentage were calculated for qualitative variables i.e. gender. Independent sample T test was used to compare means of operative time, duration of hospital stay. Chi-square test was applied to compare rate of infection and recurrence rate in both groups. P-value < 0.05 was considered significant.

RESULTS

Total of 100 patients were included in the study with pilonidal sinus and randomized into two groups A and B. group A underwent modified limberg flap and group B karydakis flap. In modified Limberg flap group minimum age of the patient was 25.00 years maximum was 56.00 years; mean age was 30.36 years with STD of 5.9. In Karydakis flap group minimum age of the patients was 22.00 years maximum was 55.00 years; mean age was 30.32 years with STD of 6.5 out of 50 patients. In modified limberg group; 07(14%) patients were females and 43(86%) were males. In karydakis group out of 50 patients; 06(12%) patients were females and 44(88%) were males. The mean duration of hospital stay in modified limberg flap group was 3.7 days with STD of 0.71, in karydakis group the mean

duration of stay in hospital was 3.4 days with STD of 0.73. P-value is insignificant. The mean operative time of limberg flap was 51.42 minutes with STD of 5.89, and the mean operative time for in karydakis flap was 41.82 minutes with STD of 3.89. P-value is significant. (Table-I)

Both groups were compared on basis of recurrence of disease. In modified limberg flap group; 04(8%) patients had recurrence of disease while in karydakis group; 10(20%) patients had recurrence of disease (Table I). Infection occurred in 02(4%) patients in modified limberg flap group while in karydakis group 11(22%) patients had infection of wound. (Table-I)

Table-I: Comparison of Duration of Hospital Stay, Operative time, Infection and Recurrence in Both Groups (N = 50)

Parameters	Group of patients	Mean	Std. Deviation	Std. Error Mean	p-Value
Duration of Hospital Stay	Limberg Flap Group(A) N=50	3.7000	.70711	.10000	0.39
	Karydakis Flap group(B) N=50	3.4000	.72843	.10302	
Operative time of patients	Limberg Flap Group(A) N=50	51.4200	5.89739	.83402	0.0001
	Karydakis Flap group(B) N=50	41.8200	3.89500	.55084	
			Yes [n(%)]	No [n(%)]	
Recurrence	Limberg Flap Group(A) N=50	04(8%)		46(92%)	0.084
	Karydakis Flap group(B) N=50	10(20%)		40(80%)	
			Yes [n(%)]	No [n(%)]	
Infection	Limberg Flap Group(A) N=50	02(4%)		48(96%)	0.007
	Karydakis Flap group(B) N=50	11(22%)		39(78%)	

DISCUSSION

In pilonidal surgery post operative infection and recurrence are two major causes of morbidity in young individual. Comparing infection rate with other study published, Our study shows infection rate of 4% in modified limberg flap and 22% in karydakis flap (p;0.039). Karaca et al shows no wound infection in modified limberg flap and 5.7% in karydakis flap¹³. In modified limberg flap there is no case of wound dehiscence but in karydakis flap dehiscence occur in 11.4% of cases (p; 0.016)¹³. Another study by Madhusudhan and colleagues demonstrate infection rate of 23.5% in karydakis flap and 15.4% in limberg flap¹⁴. Whereas the Alvandipour et al observe wound infection in 3.7% cases of modified limberg flap 8.1% in karydakis flap group¹⁵. Bali I et al observe wound infection in 10.8% cases of modified limberg flap and in 23.5% cases of karydakis flap¹⁶. Tokac M and colleagues reported no difference in wound infection in both groups 6.6% in modified limberg group and 6.5% in karydakis group¹⁷. Shabbir F et al shows infection rate of 7% in modified limberg flap and 26.6% in primary closure (p<0.038)¹⁸. Another study shows infection rate of 4% in

karydakias group¹⁹. Comparison of these study concluded that modified limberg flap had low rate of infection then karydakias flap, modified limberg flap is preferred procedure for pilonidal sinus.

Comparing recurrence with other studies, in our study we observe recurrence rate of 8 % in limberg flap and 20% in karydakias flap. Karaca et al in their study observe no (0%) recurrence in modified limberg flap group and 5.7% in karydakias group¹³. Madhusudhan and colleagues shows no recurrence in karydakias flap and 1(7.7%) in limberg flap¹⁴. Alvandipour et al observe no recurrence in limberg flap group and 1(2.7%) in karydakias group¹⁵. Tokac and colleague show no recurrence in both groups¹⁷. The result of our study and Karaca et al shows more recurrence in karydakias as compare to limberg flap but the statistical difference is not that much. In conclusion limberg flap is better then karydakias flap for pilonidal sinus.

Comparing the operative time, our study shows mean operative time of 51.42 for limberg flap and 41.82 min for karydakias flap (P: 0.001). Karaca et al observe mean operative time of 33.5 min in karydakias flap and 45.3min in limberg flap (p: 0.0001)¹³. Alvandipour et al shows mean operative time of 23.03 min in karydakias flap and 29.15 min in limberg flap (p;0.001)¹⁵. Bali I et al observe operative time of 54 min in limberg flap and 48 min in karydakias (p; 0.001)¹⁶. Tokac and colleague observe no difference in mean operative time, for limberg flap it was 44.57 min and 42.98 for karydakias flap¹⁷. In conclusion operative time for karydakias flap was less then limberg flap.

Comparing hospital stay, our study shows mean hospital stay of 3.7 days in limberg flap and 3.4 days in karydakias flap. Alvandipour et al observe mean hospital stay of 1.48 days for limberg flap and 1.41 for karydakias flap (P; 0.5)¹⁵. Bali et al shows mean hospital stay of 1.44 days for limberg flap and 3 days for karydakias flap p(0.001)¹⁶. Tokac and colleague shows mean hospital stay of 1.06 days for limberg flap and 1.03 days for karydakias flap(p;0.5)¹⁷. Only one study shows short hospital stay for limberg flap rest shows no difference. In conclusion there is no difference in hospital stay.

In conclusion modified limberg flap is has low infection rate and recurrence rate as compare to karydakias. Both low wound infection and recurrence rate made modified limberg flap much better procedure for pilonidal sinus. The only drawback of modified limberg flap is prolong operative time but it doesn't add any morbidity to patient or have long term effects.

CONCLUSION

Modified Limberg flap give better result than karydakias flap technique in treatment of pilonidal diseases

AUTHOR'S CONTRIBUTION

Ashraf MN: Conceived idea and manuscript final reading and approval.

Azhar M: Designed research methodology, Literature search, Literature review

Akhtar N: Manuscript writing, Literature review

Afzal K: Data collection, Data interpretation, Statistical analysis

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