



## LIMBERG FLAP RECONSTRUCTION VS WIDE EXCISION IN TREATING PILONIDAL SINUS, IN TERMS OF POST-OPERATIVE MORBIDITY AND RECURRENCE.

### General Surgery

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### ABSTRACT

**OBJECTIVE** - Pilonidal sinus, a disorder of the sacrococcygeal region which affects predominantly younger individuals with a higher hair and weight distribution. Various surgical modalities are available for the treatment. Open procedure and Limberg Flap are two commonly performed surgical procedures. In our study we have compared the recurrence and associated morbidity with both the procedures.

**METHOD** - The study is conducted over a period of 1 year, at a tertiary health centre, Kolkata, West Bengal, India. Strictly adhering to the inclusion and exclusion criteria. Sample size 60 randomly allocated into 2 groups 'A' and 'B'. Data collected and analysed using SPSS version 20.

**RESULTS** - Our results showed that both procedures are comparable in terms of wound infection with no statistical significance in the incidence of post-operative infections, between the two surgeries.

### KEYWORDS

Infection, Limberg, Necrosis, Pilonidal sinus, Seroma

### INTRODUCTION

Pilonidal sinus consists of a spectrum of disease entities ranging from asymptomatic hair containing cysts and sinuses to a large abscess. It is seen more common in men than in women. It has an estimated incidence of 26/100,000 in the general population<sup>[1]</sup>. The condition, was first described by Mayo in 1833 who suggested it likely of congenital origin because of remnant epithelial lined tract<sup>[2]</sup>. However now it is believed that, it is acquired with aetiology as: local trauma, poor hygiene, excessive hair, or presence of a deep natal cleft<sup>[3,4,5]</sup>. In some population incidence may be high about 1.1%<sup>[6]</sup>. Anaerobic organisms are predominantly obtained from aspirate of pus from infected pilonidal sinus disease. Predominant anaerobic bacteria are Bacteroides and Enterococci<sup>[7]</sup>. It is not a life-threatening disease and malignant change is relatively rare but may occur in very few longstanding cases<sup>[8]</sup>, with most common malignancy being Squamous cell carcinoma. The Prognosis is worse than other DiNovo cutaneous malignancies. Various Surgical options are available for treatment of chronic pilonidal disease are like wide excision with or without primary closure and various flap reconstruction. Despite of this, there is still no ideal treatment for pilonidal sinus.

In Primary closure wound may take 2 to 7 weeks to heal with high recurrence rate (11% to 29%)<sup>[9]</sup>. With flap closure there are chances of flap necrosis and recurrence rate is 5% of cases.

### AIMS AND OBJECTIVES

The study is designed to compare the recurrence rate between both the procedures and to study and compare the rate of Seroma formation, Necrosis, Infection.

### METHODS

The study is conducted over a period of 1 year, at a tertiary health centre, Kolkata, West Bengal, India. The sample size is 60 as calculated by WHO sample size calculator with 90% of statistical power and type I error of 5% levels, at 95% confidence interval. The patients are randomly allocated in 2 groups - 'Group A' being Limberg Flap (n = 30) and 'Group B' being wide excision and healing by secondary intention (n = 30).

### INCLUSION CRITERIA:

All patients aged more than 14 years symptomatic for pilonidal sinus.

### EXCLUSION CRITERIA:

Osteomyelitis of sacrum  
Fistula in ano  
Perianal abscess  
Hidradenitis suppurativa  
Malignancy

### Operative procedure

**Anaesthesia** - spinal anaesthesia

**Position** - prone jack knife position.

**Limberg's Flap** - Rhomboid skin incision is placed on the sacrococcygeal region with the pits in the center. The whole of cyst along with complete sinus tract and surrounding tissue is excised deep till presacral fascia. Skin Incision is extended to form skin flap. Incision is deepened till gluteus maximus fascia. A closed negative suction surgical drain was placed by another stab wound in the cavity for aspiration purposes and closure done.

**Wide excision**- wide excision of whole of cyst along with complete sinus tract and surrounding tissue is done. Healing is by secondary intention.

### Post-operative management:

Wound inspection was done after 48 hours to look for swelling, redness, discharge at surgical site and dressing was changed depending on soakage / discharge. Subsequently daily dressing was done. Pain assessment done using visual analogue scale (VAS). All the patients were advised to come for follow up on 7th, 14th, 30th post-operative day and 6th month and 1 year post-operatively and stitches were removed on 14<sup>th</sup> post-operative day and follow up is done.

Data collection done and analysed using SPSS version 20.

**Statistical test used:** Chi square and Fishers exact test P value.

### RESULTS

In this study the score for pain was significantly less with p value of <0.0001 in Limberg's Flap (Group A) as compared to Wide Excision with healing by secondary intention (Group B) {Table 1}.

The incidence of seroma was 16.67% in Group A in comparison to 0% in Group B. But incidence of seroma is not statistically significant with p value of 0.0617 {Table 2}.

The mean duration hospital stay was 5.77 ± 1.30 days in Group A while in Group B it was 7.60 ± 1.61 days. Mean duration of hospital stay is significantly less in Limberg's Flap (Group A) with P value <0.0001. {Table 3}.

The incidence of necrosis was 6.67% in Limberg's flap repair group in comparison to 0% in wide excision and secondary healing group, with p value of 0.4717 {Table 4}.

The recurrence rate of 3.33 % is seen with Limberg flap, which is less than that of healing by secondary intention which is 6.67% {Table 5}.

**CONCLUSION**

As per the results obtained in our study, it can be concluded that both Limberg Flap and wide excision with secondary healing are comparable surgical options in terms of post-operative wound seroma, infection, necrosis. The result of are almost similar, and no statistically significant difference exists between both.

However, the recurrence rate and mean hospital stay is less in limberg flap than wide excision and so while selecting the surgical procedure all the above must be considered and discussed with the patient.

**Tables****Table 1: - Comparison of post-operative pain (Visual analogue scale-VAS) score between two groups**

Time after operation	Limberg's flap(n=30)	Wide excision with secondary healing (n=30)	t cal	DF	p-value
	(Mean ± SD)	(Mean ± SD)			
6 hr.	2.93 ± 0.25	3.83 ± 0.38	12.046	58	<0.0001
24 hr.	2.50 ± 0.51	4.10 ± 0.31	14.684	58	<0.0001
48 hr.	2.07 ± 0.25	2.90 ± 0.31	11.415	58	<0.0001

**Table 2: - Comparison of Seroma in both groups**

Seroma	Limberg's flap (n=30)		Wide excision with healing by secondary intention (n=30)	
	Number	Percentage	Number	Percentage
Yes	5	16.67%	0	0%
No	25	83.33%	30	100%

**Table 3: - Comparison of hospital stays between two groups Hospital Stay**

	Limberg's flap (n=30)	Wide excision with secondary healing (n=30)
mean ± standard deviation	5.77 ± 1.30 days	7.60 ± 1.61 days

**Table 4: - Comparison of Necrosis in both groups**

	Limberg's flap (n=30)		secondary healing (n=30)	
	No.	Percentage	No.	Percentage
Yes	2	6.67%	0	0%
No	28	93.33%	30	100%

**Table 5: - Comparison of recurrence rate**

	Limberg's flap (n=30)		Wide excision with secondary healing (n=30)	
	number	Percentage	number	percentage
yes	1	3.33	2	6.67
no	29	97.67	28	93.33

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