



PROSPECTIVE INTERVENTIONAL STUDY ON OUTCOME OF LIMBERG FLAP IN SACROCOCCYGEAL PILONIDAL SINUS

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KEYWORDS :

INTRODUCTION

- Chronic pilonidal sinus is common disease and is usually found in the midline of the sacrococcygeal region of young hirsute men.
- Men affected more often than women,
- Rare both before puberty and after the age of 40 years.¹
- The etiology of the pilonidal sinus is a matter of debate.

Congenital theory :

secondary to a remnant of an epithelial lined tract from post coccygeal epidermal cell rests.

Acquired theory :

based on the observations that congenital tracts do not contain hair and are lined by cuboidal epithelium.²

Karydakis proposed three main factors causing the disease, namely

- high quantity of hair,
- extreme force,
- vulnerability to infection.

Other risk factors :

- Presence of hair in gluteal cleft.
- Deep natal cleft (favourable for environment for sweating, maceration, bacterial contamination and penetration of hairs)
- Obesity
- Local trauma or irritation
- Sedentary life style
- Excessive hairyness
- Poor hygiene
- Diagnosis is generally clinical and patient may present with a chronic inflammation or a sinus with persistent discharge or acutely there may be an abscess or multiple subcutaneous tracts.
- Although pilonidal sinus can be treated using several defined conservative and surgical methods, recurrence rates remain high.³
- Complete removal of the pilonidal sinus or sinuses and appropriate reconstruction can lead to successful recovery.⁴
- Among different surgical modalities for treatment of sacrococcygeal pilonidal sinus, flap reconstruction techniques eradicate the aetiology of the disease by flattening the inter gluteal sulcus with much less hairy fasciocutaneous flaps and less perspiration.⁵
- Among them, the most commonly used is the rhomboid excision with the Limberg flap. With this technique of flattening the natal cleft, a tension-free repair is made using a wide, well-vascularized flap.
- It is reported as one of the best treatment methods, with a few surgical area-related complication and low rates of recurrence.⁶
- This article evaluates the use of Limberg flap, which is based on the superior gluteal and sacral perforators for reconstruction of the sacrococcygeal region after excision of pilonidal sinus

AIMS & OBJECTIVES

The present study aims at outcome of efficacy and complications of limberg flap in sacro coccygeal pilonidal sinus disease

PATIENTS & METHODS

- TYPE OF STUDY : PROSPECTIVE
- PERIOD OF STUDY : Aug 2020 to july 2022
- Mean Followup period : 5 months

- NO. OF PATIENTS : 10
- INSTITUTION : GOVT. GENERAL HOSPITAL, KAKINADA, A.P

Inclusion Criteria :

- AGE LESS THAN 60 YEARS

Exclusion Criteria :

- FISTUAL IN ANO
- PERIANAL ABSCESS
- SEBACEOUS CYST
- DERMOID CYST
- HYDRADINITIS
- TUBERCULOUS AND SYPHILITIC GRANULOMA
- OSTEOMYELITIS OF UNDERLYING BONE

Study Details

All patients were subjected to complete history taking and routine clinical, local examination and laboratory investigations. Written consent was obtained from all patients after explanation of the procedure and expected results of the flap in this area. The main outcome of this study was to evaluate the surgical procedure with respect to the surgical area related complications and recurrence rates

RESULTS

- A total of 10 patients with pilonidal sinus, from Aug 2020 to july 2022, underwent Limberg flap surgery under spinal anaesthesia.
- The mean operative time : 60 minutes (range 50 to 80 minutes).
- All the patients were male .
- Mean Age : 26 years (18 – 36 yrs).
- Mean duration of symptoms : 10.6 months (6 -18 m).
- Average stay in hospital : 10 days ,
- Returned to work : after 21 days ,
- Complications : 20%

It took nearly 6 days for seroma to resolve and two weeks for the surgical site infection to subside

S/ no	complication	No of cases	Rate of complication
1	Wound infection	1	5%
2	seroma	1	5%
3	Wound gaping (required secondary suturing)	0	0%
4	Flap necrosis	0	0%
5	recurrence	0	0%

S no	Study (no of cases)	Complication No. of cases / %	Recurrence No. of cases / %
1	Our study (20)	4 / 20%	0
2	Singh PK et al. 2017 ⁷ (32)	4 / 12.5%	0
3	Katsoulis IE, Hibberts F, Carapeti EA. 2006 ⁸ (25)	16 / 64.0%	0
4	Aslam M, Choudhry A. 2009 ⁹ (110)	5 / 4.54%	1 / 0.9%
5	Urhan MK, Kuckel F, Topgul K, Ozer I, Sari S. 2002 ¹⁰ (32)	4 / 12.5%	0
6	Mentes BB, Leventoglu S, Cihan A, Tattlioglu E, Akin M, Oguz M. 2004 ¹¹ (238)	2 / 0.8%	3 / 1.26%

DISCUSSION

- Sacrococcygeal pilonidal sinus disease is notorious for prolonged morbidity and recurrence and the ideal treatment should ensure low pain, short hospitalization period, low risk of complications, rapid return to normal activities, better cosmesis, and should have a low recurrence rate.
- There has been increased realisation of the importance that the midline natal cleft should be avoided for suture placement as it is the site for recurrence.
- To minimise the recurrence, the emphasis should not only be on flattening the natal cleft but also of achieving an off-midline closure of the resultant defect in order to minimize wound-related complications and recurrence.¹²
- Flap reconstructions having a midline lower edge or suture line on intergluteal sulcus are more likely to increase recurrence rates, wound dehiscence and wound infection risk.
- Advantages of Limberg flap reconstruction :
 - easy to perform and design.
 - off-midline closure and ensures flattening of the natal cleft with large vascularized pedicle.
 - sutured without tension.
 - maintains good hygiene, reducing the friction, preventing maceration, and avoiding scar in the midline.
- This flap procedure is found better than simple excision and closure, marsupialization, other flap procedures such as Bescom and Karydakis.^{13,14}

CONCLUSION

- Limberg flap for reconstruction of the defect after excision of recurrent sacrococcygeal pilonidal sinus is an effective and reliable technique, easily performed, subjectively high patient satisfaction, associated with complete cure and low incidence of post-operative complications

REFERENCES

1. Clothier PR, Haywood IR. The natural history of the post anal pilonidal sinus. *Ann R College Surg England.* 61984;6(3):201-3.
2. Brearley R. Pilonidal sinus: a new theory of origin. *Br J Surg.* 1955;43:62-8.
3. Urhan MK, Kucukel 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
4. Yildiz MK, Ozkan E, Odaba M, Kaya B, Eris C, Abuoglu HH, et al. Karydakis flap procedure in patients with sacrococcygeal pilonidal sinus disease: experience of a single centre in Istanbul. *Scientific World J.* 2013.
5. 4. Khatri VP, Espinosa MH, Amin AK. Management of recurrent pilonidal sinus by simple V-Y fasciocutaneous flap. *Dis Colon Rectum.* 1994;37:1232e-5.
6. Topgul K. Surgical treatment of sacrococcygeal pilonidal sinus with rhomboid flap. *J Eur Acad Dermatol Venereol.* 2010;24:7e-12.
7. Singh PK, Gohil RK, Saxena N. Limberg flap procedure for sacrococcygeal pilonidal sinus: a prospective study. *Int Surg J* 2017;4:2238-42.
8. Katsoulis IE, Hibberts F, Carapeti EA. Outcome of treatment of primary and recurrent pilonidal sinus with Limberg flap. *Surgeon.* 2006;4(1):7-10.
9. Aslam M, Choudhry A. Use of Limberg flap for pilonidal sinus-a viable option. *J Ayub Med Coll Abbottabad.* 2009;21(4):31.
10. Urhan MK, Kuckel F, Topgul K, Ozer I, Sari S. Rhomboid excision and Limber flap for managing pilonidal sinus: results of 102 cases. *Dis Colon Rectum.* 2002;45:656-9.
11. Menten O, Bagci M, Biglin T, Ozgul O, Ozdemir M. Limberg flap procedure for pilonidal sinus diseased: results of 353 patients. *Langenbecks Arch Surg.* 2008;393(2):185-9.
12. Petersen S, Koch R, Stelzner S, Wendlandt TP, Ludwig K. Primary closure techniques in chronic pilonidal sinus: a survey of the results of different surgical approaches. *Dis Colon Rectum.* 2002;45(11):1458-67.
13. Akca T, Colak T. Primary closure with Limberg flap in treatment of pilonidal sinus-randomized clinical trial. *BJS.* 2005;5074:1081-4.
14. Azab AS, Kamal MS, Saad RA, About AL, Atta KA, Ali NA. Radical cure of pilonidal sinus by a transposition rhomboid flap. *BJS* 1984;71(2):154-5.
15. Menten O, Bagci M, Biglin T, Ozgul O, Ozdemir M. Limberg flap procedure for pilonidal sinus diseased: results of 353 patients. *Langenbecks Arch Surg.* 2008;393(2):185-9.