



LIMBERG'S FLAP PROCEDURE FOR SACROCOCCYGEAL PILONIDAL DISEASE IN A TERTIARY CARE CENTRE – A RETROSPECTIVE STUDY

General Surgery

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ABSTRACT

Background: Sacrococcygeal pilonidal sinus disease is a condition found in the natal cleft overlying the coccyx, consisting of one or more, usually non-infected, midline openings, which communicate with a fibrous track lined by granulation tissue and containing hair lying loosely within the lumen. Management strategies for the disease includes conservative practices that follow the natural course of regression of the disease or surgical methods. Surgical procedures include excision and lay open of tracks, Bascombe procedure, Karaydakias procedure and the Limberg flap procedure. Limberg's procedure involves the closure of a 60° rhombus shaped defect with a transposition flap. It is associated with lesser recurrence rates and faster healing time. This technique is emerging to be one with best cosmetic outcomes and thereby better acceptability among patients. We were able to identify it as a surgical approach with very minimal risk of complications such as seroma formation, wound dehiscence or recurrence of disease.

Aim: To determine the safety and effectiveness of Limberg's procedure in management of sacrococcygeal pilonidal disease.

Materials and Methods: A cross-sectional study including 25 patients who underwent Limberg's flap procedure for sacrococcygeal pilonidal sinus by a single experienced surgeon during the time period from 2015-2020. This is a case record based cross-sectional study. The case sheets of patients who underwent Limberg's procedure were collected from Medical records Department and data analyzed using appropriate statistical software.

Results: $n = Z \alpha^2 p^* q$ d^2 $n = 4 p^* q d^2$
 Z alpha: 95% CI: 1.96 $P = 2.7\%$ $q = 93$

Out of the 25 patients studied, one developed seroma, one had an infection at the surgical site and 3 cases of recurrence were reported, all 3 of which could be managed effectively with a conservative approach.

Conclusion: The proposed technique is found to be effective and safe in the management of sacrococcygeal pilonidal disease and has been found to reduce the incidence of seroma formation, infection and recurrence of the disease

KEYWORDS

Pilonidal sinus, Limberg flap, Karydaki's procedure, Bascombe operation, Recurrence, Seroma

INTRODUCTION

Sacrococcygeal Pilonidal sinus disease presents with intermittent pain, swelling and discharge at the base of the spine. There may be a history of repeated abscesses that have burst spontaneously or which have been incised and drained. The primary sinus may have one or many openings, usually lying in the midline between the level of the sacrococcygeal joint and the tip of the coccyx. The name *pilonidal* is taken from Latin meaning "nest of hairs" [1].

Although the etiology is unknown, it is speculated that the cleft creates a suction that draws hair into the midline pits when a patient sits. These ingrown hairs may then become infected and present acutely as an abscess in the sacrococcygeal region. Once an acute episode has resolved, recurrence is common [2]. The estimated incidence is 26 per 1,00,000 people [3].

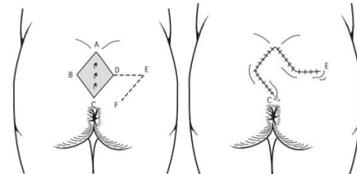
The main strategy behind treatment involves unroofing the tract, curetting the base, and marsupializing the wound. The wound must then be kept clean and free of hair until healing is complete. Alternatively, a small lateral incision can be created and the pit excised. This is the mainstay of treatment of primary sinus. In case of more complex or recurrent sinuses, more extensive resection and closure with a Z-plasty, advancement flap, or rotational flap may be necessary.

Although several surgical approaches and methods have been described, the Limberg's flap procedure offers the best prognosis and outcome as shown by the reduction in incidence of seroma, infection and recurrence of the disease.

Limberg's flap procedure involves the excision of a rhombic area of skin and subcutaneous fat, including both the midline pits and lateral sinus extensions or tracks if any. This includes deeper tissue as well, upto and not including the deep fascia. A flap consisting of skin, subcutaneous fat and the fascia overlying the gluteus maximus is created. This is then rotated to cover the midline rhomboid defect, and

the defect produced as a result of this rotation is closed in a linear manner. A vacuum drain is applied. The end result is a tension – free flap of unscarred skin in the midline.

The patient is placed in prone position. A rhombic area of skin and subcutaneous fat is excised. This is done such that the long axis of the rhombus is in the midline and its shape is based on the angles of 60 degrees at A and C and 120 degrees at B and D. Prior to the skin incision itself, the rhombus should be marked and angles measured. First AC is drawn and its length measured. C should ideally be adjacent to the perianal skin and A is placed in a manner as to include all the diseased tissue in the rhombus. The line BD has to transect the midpoint of AC at 90 degree and is 60 percent of the length of AC. The accuracy in shape of the rhombus lies in the ratio of these lengths. The flap is now fashioned such that DE is a direct continuation of BD and is equal to BA in length. EF is parallel to DC and of same length. After rotation, it is sutured to AD. The skin and subcutaneous tissue is excised, preferably with scalpel. The rotation of flap is done and the wound is closed with deep absorbable sutures and a vacuum drain is placed.



Objective : To determine the safety and effectiveness of Limberg's procedure in sacrococcygeal pilonidal disease.

Study Setting: Department of general surgery, Pushpagiri Institute Of Medical Science, Thiruvalla.

Study Population: Patients who underwent Limberg's flap procedure for treatment of Sacrococcygeal pilonidal sinus disease at PMCH, Thiruvalla.

Study Period: . January 2015-December 2020

Inclusion Criteria:

All patients who underwent Limberg's Flap Procedure as treatment of Sacrococcygeal Pilonidal Sinus Disease

Exclusion Criteria:

Patients lost to follow up upto 1 year post surgery.

METHODOLOGY

This is a case record based cross-sectional study. The case sheets of patients who underwent Limberg's procedure were collected from Medical records Department and data analysed using appropriate statistical software. All patients who underwent Limberg's procedure in this institution during the time period from 2015-2020 were included and those who were lost to follow up upto 1 year post surgery were excluded from the study.

Work Up

Proforma:

1. Patient Details:

1. Age
2. Sex
3. Hospital ID
4. Comorbidities if any
5. Duration of hospital stay
6. Sutures removed on POD .?

2. Complications:

1. Infection
2. Seroma formation
3. Reccurence

3. Recurrence within 1 year – Y/N ?

RESULTS

SEX					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	11	44.0	44.0	44.0
	1	14	56.0	56.0	100.0
	Total	25	100.0	100.0	

SEROMA					
		Frequency	Percent	Valid	Cumulative
Valid	0	24	96.0	96.0	96.0
	1	1	4	4.0	100.0
	Total	25	100.0	100.0	

RECCURENCE					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	22	88.0	88.0	88.0
	1	3	12.0	12.0	100.0
	Total	25	100.0	100.0	

INFECTION					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	24	96.0	96.0	96.0
	1	1	4.0	4.0	100.0
	Total	25	100.0	100.0	

Statistics					
AGE					
Mean					22.80
Std. Deviation					5.859

CONCLUSION

From this study, it can be stated that the Limberg's flap procedure is a safe and effective surgical method in the treatment of sacrococcygeal pilonidal sinus disease and offers good outcomes in terms of reduction in the incidence of seroma, infection and recurrence of the disease.

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