

## Original Research Article

# Comparative study between excision with lay open and excision with primary closure in treatment of pilonidal sinus

B. N. Anandaravi, Aswath Viswanathan\*

Department of General Surgery, Mysore Medical College, Mysore, Karnataka, India

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### \*Correspondence:

Dr. Aswath Viswanathan,  
E-mail: [aswathv@gmail.com](mailto:aswathv@gmail.com)

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## ABSTRACT

**Background:** Pilonidal sinus is a common anorectal condition affecting young adults with various etiological factors. Various surgical methods have been described, but treatment failure and recurrence are frequent, causing considerable morbidity. This study was undertaken to study the different surgical methods in treatment of pilonidal sinus.

**Methods:** This study was done between January 2017 and June 2018. 20 cases underwent excision with open healing and 10 cases underwent excision with primary closure. The surgeries for primary closure included Limberg flap, Karydakis technique and Z plasty. Patients were analyzed with respect to post operative complications, duration of hospital stay, duration of getting back to work and duration of wound healing.

**Results:** Spectrum of clinical presentation included pain, discharge, sinus and swelling. No recurrences were observed in the present study. Wound infection occurred in only three cases. Duration of wound healing was found to be an average of 51.6 days in Excision with open healing method and 14.2 days in excision with primary closure method. The average length of hospital stay in excision and lay open group was 4.35 days and 5.4 days in the excision and primary closure group. The average duration to return to work was 34 days in excision and lay open group, while it was 8 days in excision and primary closure group.

**Conclusions:** Excision with primary closure is a better modality than excision with lay open technique in treatment of pilonidal sinus.

**Keywords:** Pilonidal sinus, Recurrence, Excision, Limberg flap

## INTRODUCTION

A.W. Anderson's letter to the editor that appeared in an issue of the Boston Medical Surgical Journal of 1847, entitled "Hair Extracted from an Ulcer," is believed to be the first documented case of pilonidal sinus.<sup>1</sup> In 1880, Hodges coined the term "pilonidal sinus" (pilus, meaning hair, and nidus, meaning nest) to describe the chronic sinus containing hair and found between the buttocks.<sup>2</sup> He believed the condition was congenital in origin, representing an imperfect union of the lateral halves of the body and involving the integument only. Buie called it "jeep disease" because of the frequent

reactivation of the quiescent sacrococcygeal sinuses among military personnel.

The term *pilonidal* is derived from the Latin words for hair (pilas) and nest (nidus).<sup>3</sup> Pilonidal sinus is a chronic subcutaneous abscess in the natal cleft, which spontaneously drains through the openings.

Sacrococcygeal pilonidal disease occurs predominantly in young males at a ratio of 3:1.<sup>4,5</sup> The estimated incidence is 26 cases per 100,000 people.<sup>5</sup> The peak incidence is between 15 and 24 years of age. Symptoms rarely present before 15 years of age or after the age of 40.

The main feature of a pilonidal sinus is the subcutaneous fibrous tract that may be lined with squamous epithelium. This subcutaneous tract extends for a variable distance, usually 2 to 5 cm. A small abscess cavity and branching tracts may come off the primary tract. Often hairs that are usually disconnected from the surrounding skin are seen entering the midline pit. As a rule, hair follicles are not identified. The secondary openings have a different appearance from the primary midline ones in that they are marked by elevations of granulation tissue and discharge of seropurulent material. Hairs, if seen, sticking out of the secondary opening are in the abscess cavity that the body tries to spit out. Most sinus tracts (93%) run cephalad; the rest (7%) run caudal and may be confused with a fistula-in-ano or with hidradenitis suppurativa.

The management of chronic pilonidal disease is variable, contentious, and problematic. Principles of treatment require eradication of the sinus tract; complete healing of the overlying skin, and prevention of recurrence.

The multitude of surgical procedures advocated to eradicate pilonidal disease, combined with the lack of prospective trials, attests to the lack of overall superiority of one method over the others. Time spent off work and perceived recurrence rates, influence the choice of method, which includes the laying open of all tracks with or without marsupialisation, the excision of all tracks with or without primary closure, and the excision of all tracks and then closure by some other means designed to avoid a midline wound.

Over the years, because of confusion as to the etiology of pilonidal disease, surgeons have approached this condition in various ways, from the most conservative treatments to extensive resection and plastic surgical procedures.

Hence this study is done to compare between different surgical modalities in treatment of pilonidal sinus, so as to choose the better procedure more suited for the patients suffering from this condition.

## METHODS

**Period of study:** 1<sup>st</sup> January 2017 to 30<sup>th</sup> June 2018.

**Place of study**

K.R. Hospital attached to Mysore Medical College and Research Institute, Mysore.

**Type of study:** Descriptive cross sectional study.

**Sample size**

30 cases (included all cases of pilonidal sinus that were admitted in Department of General surgery during the period between 1<sup>st</sup> January 2017 and 30<sup>th</sup> June 2018).

## Inclusion criteria

All cases of pilonidal sinus admitted in the Department of General Surgery in K.R. Hospital during the period between 1<sup>st</sup> January 2017 and 30<sup>th</sup> June 2018.

## Exclusion criteria

Cases with incomplete data and those lost to follow up, Patients who are not willing to give written informed consent, pregnant women and pediatric age group, osteomyelitis of underlying bone.

## Data collection

All cases of pilonidal sinus, that were admitted between 1<sup>st</sup> January 2017 and 30<sup>th</sup> June 2018 in various surgical units of K R Hospital were included in the study

Detailed history of the patients was obtained including the age, sex, and duration of sinus, discharge, pain and other associated problems.

General physical examination was done with emphasis on presence of hair and obesity

Local examination included the site; number of sinuses, tenderness, any hair protruding from the sinuses, condition of the skin surrounding the sinus was noted.

Per Rectal Examination was done to rule out fistula-in-ano.

## Case selection for primary closure

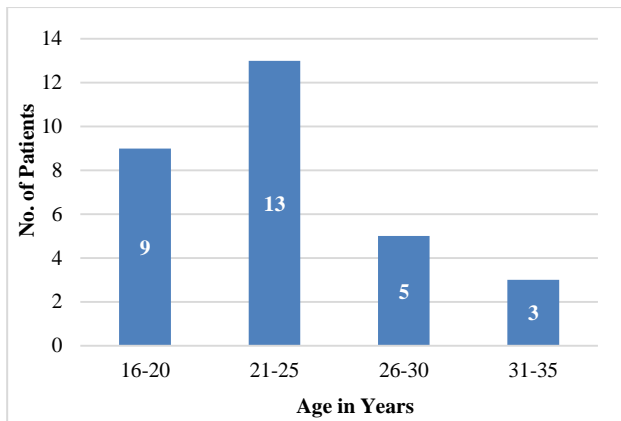
- Midline single sinus
- Minimal or no discharge
- Surrounding skin is normal

Intraoperatively when there is no wide ramification of secondary track when injecting methylene blue in the sinus track.

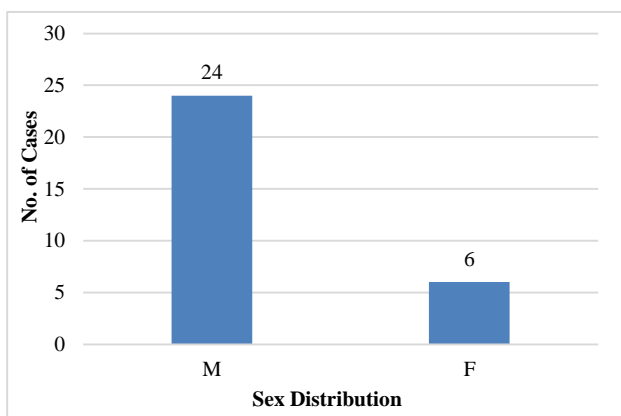
## RESULTS

The age of the patients on this study ranged between 16 and 35 years. Most of the cases were in the age group of 21-25 years (43.33%). The reason that higher frequency exists in puberty and lower frequency exists for those over 40 years of age could be explained by the effect of more active sex hormones during puberty on pilosebaceous glands.

The study included thirty patients, which included 24 males and 6 females. Sex Ratio is Male: Female is 4:1.. Among the patients in the present study, average age of onset in males is 23.7 years of 26.9 years, while females displayed an average age of onset of 23.5 years.

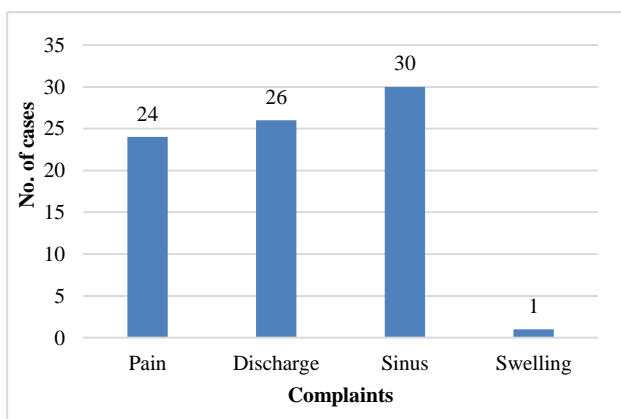


**Figure 1: Age distribution.**



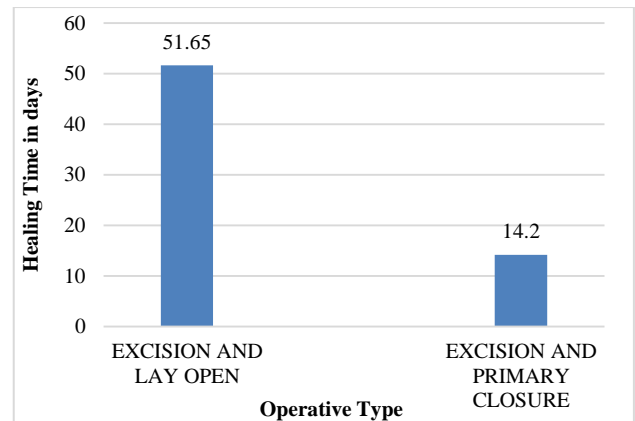
**Figure 2: Sex distribution.**

The common complaints with which patients presented include pain, discharge and sinus.



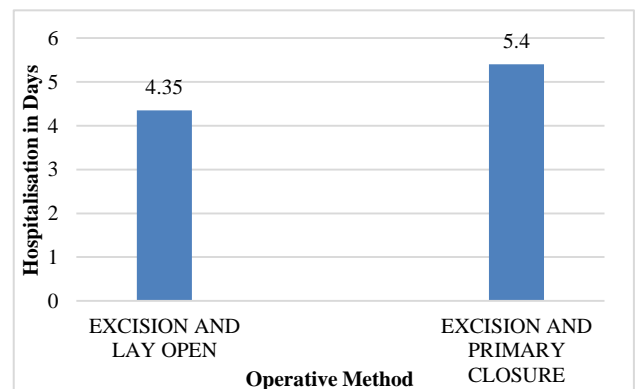
**Figure 3: Common presenting complaints in pilonidal sinus.**

The average time taken for wound healing in excision and lay open technique was 51.65 days and excision and primary closure was 14.2 days. The difference in time taken for wound healing between the two groups is statistically significant ( $p < 0.05$ ) indicating that excision with primary closure is a more suited technique.



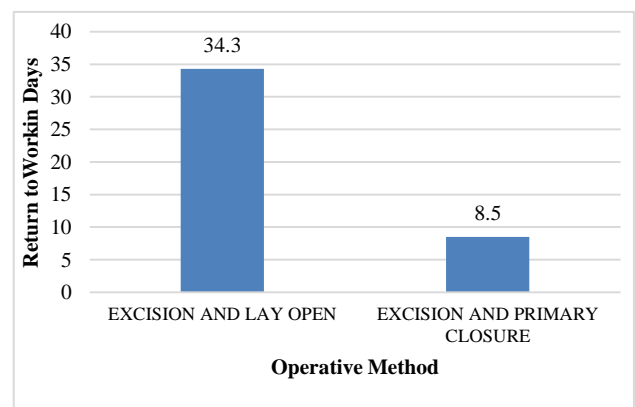
**Figure 4: Average time of wound healing.**

The average duration of hospitalization following excision and lay open technique was 4.35 days and following excision and primary closure was 5.4 days. The difference in the duration of hospital stay was not found to be statistically significant.



**Figure 5: Average duration of hospitalization.**

The average duration of return to work in excision and lay open was 34.3 days and excision with primary closure was 8.5 days. The difference in time taken to return to work is statistically significant.



**Figure 6: Average duration of return to work.**

## DISCUSSION

The commonest age of presentation is between 21 and 25 (43.3%). This result is consistent with observations made by Onder et al.<sup>6</sup> According to the study by Onder et al at Dicle University Medical Faculty, the average age of presentation of pilonidal disease was 20-25.

The male to female ratio in the study is 4:1. This result is consistent with the observations made by Onder et al who found that the disease was 4.1 to 8.1 times more in males than in females.<sup>6</sup> This is also consistent with the observations made by Osmanoglu et al.<sup>7</sup>

Spectrum of clinical presentation included pain, discharge, sinus and swelling. Most of the patients presented with discharge from sinus tract and pain.

In the present study, out of the 30 cases operated, 20 patients underwent excision of pilonidal sinus with laying open of tract. 10 patients underwent excision and primary closure.

No recurrences were observed in the patients in the present study. In the study by Yoldas et al, recurrence rates for excision with primary closure was 9% and recurrence rate in excision and lay open technique was observed to be 10%. Study by Almajid et al, showed a recurrence rate of 7.2%.<sup>8,9</sup>

Wound infection as a postoperative complication was seen in 3 cases; two cases treated by excision and primary closure and in one case treated by excision and lay open technique. Study by Gencosmanoglu et al reported that wound infection was higher in excision and primary closure when compared to excision and lay open technique.<sup>10</sup> Study by Fuzun et al reported that infection rates of 3.6% were seen in excision with primary closure group in comparison to infection rates of 1.8% in excision and lay open group.<sup>11</sup> The results of the present study are consistent with the studies by Gencosmanoglu et al and Fuzun et al.<sup>10,11</sup>

Duration of wound healing was found to be an average of 51.64 days for excision with lay open and 14.2 days for excision with primary closure. This is consistent with the statistics of other studies. In the study by Al-Hassan et al, the mean time for wound healing in excision and lay open group was 91 days and 10.3 days in excision and primary closure group.<sup>12</sup>

The average length of hospital stay in excision and lay open group was 4.35 days and 5.4 days in the excision and primary closure group. Fazeli et al had reported that duration of hospital stay was 1.76 days in excision and lay open group when compared to 2.86 days in excision and primary closure group.<sup>13</sup> Similar results were reported by Mohamed et al, who observed that the duration of hospital stay is higher in excision with primary closure group.<sup>14</sup> However, the difference in

duration of hospital stay between the two groups is not statistically significant.

The average duration to return to work was 34 days in excision and lay open group, while it was 8 days in excision and primary closure group. This is similar to results of other studies. Testini et al in his study has reported that average duration for return to work is 25.7 days for excision and lay open group and 10.4 days for primary closure group.<sup>15</sup>

## CONCLUSION

The surgical methods for treatment of pilonidal sinus include two types of surgeries- excision of pilonidal sinus and lay open for secondary healing and excision of pilonidal sinus followed by primary closure.

The ideal surgery should be easy to perform with no wound infection or recurrence and should have short duration of hospital stay and help in early return to work.

Excision and lay open method has a low recurrence rate. The incidence of wound infection is as well comparatively lower. However, the duration of hospital stay is long and patients take a longer time to return to work. Excision and primary closure on the other hand has a shorter hospital stay with a faster recovery. Patient can return to their daily activities much earlier. Although chances of recurrence and wound infection are higher, it is not frequent.

With these benefits, excision with primary closure is a better modality than excision with lay open technique for treatment for pilonidal sinus.

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