

Comparison of Outcome after Open Pilonidal Sinus Treatment Versus Endoscopic Pilonidal Sinus Treatment (EPSIT)

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ABSTRACT

Objective: To compare the complications among open pilonidal sinus treatment versus endoscopic pilonidal sinus treatment (EPSIT).

Study Design: Comparative Cross-sectional Study.

Place and Duration of Study: Department of Surgery, Combined Military Hospital, Rawalpindi Pakistan, from Feb to Nov 2021.

Methodology: The study was conducted on 150 patients who underwent pilonidal sinus treatment at our surgical unit. Patients were randomly divided into two groups. Group-A underwent open pilonidal sinus surgery, while Group-B underwent endoscopic pilonidal sinus treatment (EPSIT). Recurrence, bleeding, seroma formation and occurrence of wound infection were compared in both groups.

Results: All of the 150 patients included in the final analysis were males. The mean age of patients who underwent surgery for pilonidal sinus in our study was 41.22 ± 9.34 years. 79(43%) patients underwent the open surgical method, while 71(57%) underwent the endoscopic one. All the complications were found statistically significant (p -value <0.05) in patients who underwent open surgical procedures for pilonidal sinuses compared to those who underwent endoscopic surgical methods.

Conclusion: Endoscopic pilonidal surgery emerged as a better option than open pilonidal surgery. Patients undergoing open pilonidal surgery were more at risk of bleeding, recurrence, developing seroma and wound infections.

Keywords: Complications, Endoscopic pilonidal surgery, Open pilonidal surgery.

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INTRODUCTION

Endoscopic method of perianal surgeries has replaced open methods in many surgical centres of the world but still, there are many indications in which open methods are preferred and still in practice.^{1,2} Epidemiological data across the globe suggests that patients with pilonidal sinuses have been commonly encountered by surgeons all around the world.³ Few centres may have trained perineal surgeons, but general surgeons have dealt with this condition in most developing countries.^{4,5} There could be multiple methods which could be used to manage the patients of pilonidal sinuses, but none of them has been free of complications and have their own merits and demerits.⁶ Surgical pilonidal sinus treatment methods have been constantly evolving in the last two decades.⁷

General surgeons bear most of the burden of perineal surgeries in our part of the world. Modern techniques have been available in a few units of big cities, but still, there is a wide gap in this context.^{8,9} A local study published in 2014 compared modified

Limberg's flap versus primary closure for treatment of pilonidal sinus disease and concluded that infection rate and recurrence were significantly lower in patients managed with Limberg's flap.¹⁰ Limited local data has been available regarding endoscopic management of pilonidal sinuses and their comparison with other methods. This study was planned to compare the complications among open pilonidal sinus treatment versus endoscopic pilonidal sinus treatment for patients managed at our tertiary care surgical unit.

METHODOLOGY

The comparative cross-sectional study was conducted at the Surgical Department of the Combined Military Hospital, Rawalpindi Pakistan, from February to November 2021. Ethical approval was sought from the Committee (letter no. 233/12/21). The sample size was calculated using the WHO sample size calculator taking proportion of complications in pilonidal sinus surgery as 5%.¹¹ Non probability Consecutive sampling technique was used to gather the sample.

Inclusion Criteria: Patients of either gender, aged 18-65 years diagnosed with single or multiple pilonidal sinuses were recruited for the analysis. Referrals from other primary or secondary care units for definitive

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management of pilonidal sinuses were also included in the study.

Exclusion Criteria: Patients with poorly controlled DM, hypertension, or any other physical illness, neoplastic conditions of the lower GI tract or any other malignant conditions were not included. Those undergoing redo surgeries due to recurrence or those with abscess formations were also part of the exclusion criteria in this study.

The research team recruited the patients after applying inclusion/exclusion criteria. The lottery method randomly allocated the patients into two treatment groups before the surgery. Group-A underwent endoscopic management, while Group-B underwent open surgical procedures to manage pilonidal sinuses. A consultant surgeon did endoscopic and open surgical management (Karydakis flap procedure),^{12,13} as per set protocols. Antibiotics and painkillers were administered to the patients on the advice of a consultant who operated on the patients and did post-operative rounds. Post-operative complications were recorded till 12 weeks of surgery by the treating surgeon on a proforma designed for this study. A consultant surgeon diagnosed complications like bleeding, seroma formation, recurrence and infection through detailed clinical evaluation supported by relevant laboratory or radiological investigations.¹⁴

Statistical Package for Social Sciences (SPSS) version 25.0 was used for the data analysis. Quantitative variables were expressed as Mean±SD and qualitative variables were expressed as frequency and percentages. Chi-square test was applied to explore the inferential statistics. The *p*-value of ≤0.05 was set as the cut-off value for significance.

RESULTS

All 150 patients included in the final analysis were male. The mean age of patients who underwent surgery for pilonidal sinus in our study was 41.22±9.34 years (Table-I). About of 79(43%) patients underwent the open surgical method, while 71(57%) underwent the endoscopic one. All the patients included in the study were male. 99(66%) patients had single sinuses, while 51(44%) had multiple sinuses. About of 26(17.3%) had recurrence, 20(13.3%) had bleeding, 29(19.3%) had seroma formation and 22(14.7%) had wound infection. It was that recurrence (*p*-value-0.001), bleeding (*p*-value<0.001), seroma formation (*p*-value-0.001) and wound infection (*p*-value-0.001) were found statistically significantly more in patients who underwent open surgical procedure for pilonidal

sinuses as compared to those who underwent endoscopic surgical method (Table-II).

Table-I: Characteristics of Patients undergoing Pilonidal Sinus Surgery (n=150)

| Study Parameters | n(%) |
|--------------------------|-------------------|
| Age (years) | |
| Mean±SD | 41.22±9.34 years |
| Range (min-max) | 20 years-64 years |
| Gender | |
| Male | 150(100%) |
| Female | 0(0%) |
| Number of sinuses | |
| Single | 99(66%) |
| Multiple | 51(44%) |
| Type of Surgery | |
| Open | 79(52.7%) |
| Endoscopic | 71(47.3%) |
| Complications | |
| Recurrence | 26(17.3%) |
| Bleeding | 20(13.3%) |
| Seroma formation | 29(19.3%) |
| Wound infection | 22(14.7%) |

Table-II: Comparison of various Complications among Study Groups (n=150)

| Complications | Endoscopic surgery | Open surgery | <i>p</i> -value |
|-------------------------|--------------------|--------------|-----------------|
| Recurrence | | | |
| No | 66(92.9%) | 58(73.4%) | 0.001 |
| Yes | 05(7.1%) | 21(26.6%) | |
| Wound Infection | | | |
| No | 68(95.7%) | 60(75.9%) | <0.001 |
| Yes | 03(4.3%) | 19(24.1%) | |
| Bleeding | | | |
| No | 68(95.7%) | 62(78.4%) | 0.001 |
| Yes | 03(4.3%) | 17(21.6%) | |
| Seroma Formation | | | |
| No | 65(91.5%) | 56(70.8%) | 0.001 |
| Yes | 06(8.5%) | 23(29.2%) | |

DISCUSSION

The endoscopic surgical method emerged to be better than the conventional open method, as fewer post-operative complications were observed via the endoscopic method.¹⁴ Though convincing data exist worldwide for the safety of endoscopic methods, guidelines still need to be set for using endoscopic methods for pilonidal sinus disease. The endoscopic method also has some adverse effects, and trained professionals are limited. Our study tried to compare the complications among open pilonidal sinus treatment versus endoscopic pilonidal sinus treatment (EPSIT) at Combined Military Hospital Rawalpindi.

Doll *et al.*¹⁵ revealed that follow-up time and type of procedure play an important role in determining

recurrence among patients suffering from pilonidal sinus disease. They also concluded that the geographic location of the patients also determines the recurrence rate. The recurrence rate was 0.3% for Karydakias/Bascom approaches in their patients. Our study showed that the recurrence rate at 3-month follow-up was quite high and higher in patients operated on via the Karydakias approach compared to those managed via the endoscopic method. Single-centre case series with long-term results of endoscopic pilonidal sinus treatment were published by Foti *et al.*¹⁶ They studied 46 procedures on patients suffering from pilonidal sinus disease and found that the recurrence rate was around 10%, and infection and seroma formation occurred in around 2.3% of patients. Ours was a comparative study analyzing the difference in complication rate of the open and endoscopic methods, and the endoscopic method emerged as a better option in terms of complication rate.

Demircan *et al.*¹⁷ conducted a randomized controlled trial comparing the Karydakias flap reconstruction technique with two sessions of laser epilation in addition to Karydakias flap reconstruction. They concluded that surgical site infection, wound separation and abscess formation were not statistically significantly different in both groups. Only short-term pain scores were better in patients who underwent laser epilation in addition to Karydakias flap reconstruction. We compared Karydakias flap reconstruction with the endoscopic method. We discovered that seroma formation, surgical site infection, bleeding and recurrence were all found more in patients who underwent Karydakias flap reconstruction. Tien *et al.*¹⁸ concluded that EPSiT has good complete healing rates and low recurrence rates. Their main problem was a need for comparative studies; therefore, our work is one step ahead of what has already been done and published. The recurrence rate and all other complications were all found to be significantly less in patients who underwent EPSiT than those who underwent Karydakias flap reconstruction.

LIMITATIONS OF STUDY

We studied short-term complications in a small set of patients. This makes use of our data set very limited for generalization to the local population. No data was generated regarding difficult open or endoscopic surgeries or the cost-effectiveness of methods. Large studies with better design may generate more generalizable results.

CONCLUSION

Endoscopic pilonidal surgery emerged as a better option than open pilonidal surgery. Patients undergoing

open pilonidal surgery were more at risk of bleeding, recurrence, developing seroma and wound infections.

Conflict of Interest: None.

Author's Contribution

Following authors have made substantial contributions to the manuscript as under:

TK & KS: Data acquisition, data analysis, data interpretation, critical review, approval of the final version to be published.

FUN & AJK: Study design, drafting the manuscript, data interpretation, critical review, approval of the final version to be published.

AUA & REZA: Critical review, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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Open Pilonidal Sinus Treatment Verses EPSiT

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