

# Retrospective Analysis of Surgical Management of Pilonidal Sinus Diseases among Patients Visited in Tertiary Health Care Centre.

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## ABSTRACT

**Background:** Pilonidal sinus disease (PSD) is an acquired chronic disorder located in the natal cleft, with its etiology based on the presence of hair follicles in the gluteal crease. The objectives for treating PS disease are minimal tissue loss, minimal postoperative morbidity, rapid return to daily activities and work, acceptable cosmetic results, minimal recurrence rate, and low cost. Aim of the study: To retrospectively analyze surgical management of pilonidal sinus disease among patients visited in tertiary healthcare center. **Methods:** The study was conducted in the Department of General Surgery, Mahatma Gandhi Hospital Bhilwara, Rajasthan, India. For the study we analyzed the records of 50 patients treated at the Surgical Department. Postoperative follow-up of all patients were done. The surgical treatment options, complication rates, hospitalization, and work-off periods were analyzed. **Results:** A total of 50 patients were included in the study. Marsupialization was done in 23 patients, unroofing done in 8 patients, primary closure in 7 patients and Limberg flap transposition in 12 patients. Table 1 shows mean hospitalization periods and mean work off day period in different surgical procedures. Maximum mean hospitalization period was seen with Limberg flap transposition (4.12 days) followed by Unroofing (3.02). **Conclusion:** Physicians treating pilonidal disease should have adequate knowledge of the advantages and disadvantages of the different surgical techniques. Preoperative decision making should be based on the patient's expectations, and cooperation with the patient about possible postoperative complications, and outcomes.

**Keywords:** Pilonidal Sinus; Hospitalization Postoperative Complications.

## INTRODUCTION

Pilonidal sinus disease (PSD) is an acquired chronic disorder located in the natal cleft, with its etiology based on the presence of hair follicles in the gluteal crease.<sup>[1,2]</sup> Accumulation of hair over time, along with dirt and sweating of the area, leads to the creation of a subcutaneous cyst in the intergluteal region. Natural progression of the disease leads to the formation of a sinus, as the cyst tries to exude itself.<sup>[3,4]</sup> The objectives for treating PS disease are minimal tissue loss, minimal postoperative morbidity, rapid return to daily activities and work, acceptable cosmetic results, minimal recurrence rate, and low cost. Although many surgical and nonsurgical techniques have been reported, no ideal treatment that provides all of these positive results is known. There are many approaches for treatment of the disease, including several surgical methods such

as limited or large excision, primary closure, or flap techniques, and many other nonsurgical methods. However, no consensus has been reached regarding the ideal treatment method.<sup>[5]</sup> An ideal surgical treatment reduces recurrence and complication rates, and allows for minimal hospitalization and rapid return to daily activities. Among patients treated using the limited excision and primary closure method, the presence of a natal cleft is associated with higher morbidity, resulting in recurrence rates of 7%–42%. For techniques that use the flap approach, this rate decreases to 0%–3%. In patients undergoing the Rhomboid excision and Limberg flap techniques, which require a larger surgical area compared to the limited excision and primary closure methods, complication rates are lower, and length of hospital-stay and time to return to work are reduced.<sup>[6,7]</sup> Hence, we planned the study to retrospectively analyze surgical management of pilonidal sinus disease among patients visited in tertiary healthcare center.

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## MATERIALS AND METHODS

The study was conducted in the Department of General Surgery, Mahatma Gandhi Hospital

Bhilwara, Rajasthan, India. The ethical clearance for the study was obtained from the ethical board of the institute prior to commencement of the study. For the study we analyzed the records of 50 patients treated at the Surgical Department. Postoperative follow-up of all patients were done. The surgical treatment options, complication rates, hospitalization, and work-off periods were analyzed. Patients were admitted a day before the surgery, and laboratory tests were obtained. They took a bath the night before the surgery, and the operative field was shaved carefully. The operative field was draped and prepared with Betadine. Most operations were performed under spinal anesthesia with the patient placed in prone position. General or local anesthesia was used for medical indications or owing to patient's choice. The tracts were excised with a narrow elliptic segment of skin. The incision was next deepened to remove the whole of the natal raphe and to reach the aponeurosis over the erector spinae at the back of the sacrum. If there was any residual deep area of granulation tissue, after removing the sinus tract, it was excised. The length of the primary wound was 2–6 cm. Postoperatively, patients were given opioid analgesia for 24 h. The dressing was changed 24 h after operation, and patients were discharged with Diclofenac tablets (one every 12 h) for pain relief.

The statistical analysis of the data was done using SPSS version 20.0 for windows. The Student's t-test and Chi-square test were used to check the significance of the data. The p-value less than 0.05 was predetermined as statistically significant.

## RESULTS

**Table 1: Mean hospitalization periods and mean work off day period in different surgical procedures**

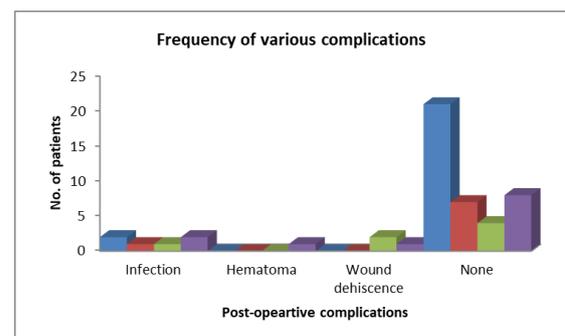
Methods	No. of patients	Mean hospitalization period (d)	Mean work off period (d)
Marsupialization	23	1.78	21.22
Unroofing	8	3.02	14.12
Primary closure	7	1.35	11.26
Limberg flap transposition	12	4.12	14.28
Total	50	2.56	15.22

A total of 50 patients were included in the study. Marsupialization was done in 23 patients, unroofing done in 8 patients, primary closure in 7 patients and Limberg flap transposition in 12 patients. [Table 1] shows mean hospitalization periods and mean work off day period in different surgical procedures. Maximum mean hospitalization period was seen with Limberg flap transposition (4.12 days) followed by Unroofing (3.02). Maximum mean work off period was seen with marsupialization (21.22 days) followed by Limberg flap transposition (14.28 days). [Table 2] shows frequency of various complications

observed in the study group. Few cases of post-operative infection were seen in all the surgical procedures. Overall 6 cases of infection were observed. Only one case of hematoma was seen and that only with Limberg flap transposition. 2 cases of wound dehiscence were seen with primary closure. 40 cases did not have any post-operative complications. [Figure 1]

**Table 2: Frequency of various complications observed in the study group.**

Methods	No. of patients	Infection	Hematoma	Wound dehiscence	None
Marsupialization	23	2	0	0	21
Unroofing	8	1	0	0	7
Primary closure	7	1	0	2	4
Limberg flap transposition	12	2	1	1	8
Total	50	6	1	3	40



**Figure 1: Frequency of various complications observed in the study group**

## DISCUSSION

In the present study we retrospective analyzed surgical management of pilonidal sinus disease among patients visited in tertiary healthcare center. We observed that 80 % cases did not have any postoperative complication. Few cases of post-operative infection were seen in all the surgical procedures. Overall 6 cases of infection were observed. Only one case of hematoma was seen and that only with Limberg flap transposition. 2 cases of wound dehiscence were seen with primary closure. But the results were statistically significant. The results were compared with previous studies and results were consistent with previous studies. Ersoy OF et al retrospectively analyzed patients who have undergone different surgical treatment methods due to pilonidal disease. The medical records of 175 patients who were operated on between 2002 and 2005 at the General Surgery Departments of Gaziosmanpasa University Medical School and Bartin State Hospital for pilonidal disease were reviewed for treatment option, postoperative

complications, hospitalization time, work-off periods, and recurrence rates. The patients consisted of 150 (85.3%) males with a mean age of 26.47 +/- 7.78 years. Marsupialization was applied to 82 (46.9%), unroofing to 20 (14.7%), primary closure to 29 (16.6%), and Limberg flap to 44 (25.1%) patients. The longest hospitalization period of 3.61 +/- 1.08 days was observed in the Limberg flap group. The longest return to work period (20.12 +/- 5.1 days) was observed in the marsupialization group. Both differences were significant. The highest complication rate was observed among the primary closure group (31%) followed by the patients treated by Limberg flap technique (15.8%). In the primary closure group, infection was detected in five (17.2%) and wound dehiscence in four (13.8%) individuals. The highest complication rates (31.03%) and recurrences (13.8%) were observed in the primary closure group. Various operative methods utilized in the treatment of pilonidal disease are associated with a number of advantages and disadvantages. Postoperative complication rates of unroofing and marsupialization are low, but require long wound care. In our study, we did not observe any recurrence among the patients treated by unroofing, but experienced a high recurrence ratio among subjects treated by marsupialization. In addition, there were high complication rates in the primary closure and Limberg flap groups. So, the best option is to explain the advantages and disadvantages of the available surgical methods and respect the patient's decision. Girgin M et al hypothesized that the addition of laser depilation to crystallized phenol treatment of pilonidal disease might increase the rate of success, and conducted study aimed to determine if the hypothesis was true. Patients who were treated with crystallized phenol and 755-nm alexandrite laser depilation were retrospectively analyzed. In total, 42 (31 male and 11 female) patients were treated with crystallized phenol and alexandrite laser depilation and were followed up between January 2009 and January 2012. In all, 38 patients (90.5%) had chronic disease and 4 (9.5%) had recurrent disease. Among the patients, 26 (61.9%) recovered following 1 crystallized phenol treatment, and the remaining patients had complete remission following repeated treatment. Some patients needed multiple treatments, even up to 8 times. None of the patients had a recurrence during a mean 24 months (range, 6–30 months) of follow-up. Whatever method of treatment is used for pilonidal disease, hair cleaning positively affects treatment outcome. The present results support the hypothesis that the addition of laser depilation (which provides more permanent and effective depilation than other methods) to crystallized phenol treatment (a non-radical, minimally invasive method associated with very good cosmetic results) can increase the effectiveness

of the treatment and also reduce the recurrence rate of the disease.<sup>[8,9]</sup>

Sekmenli T et al investigated optimal surgical management of pilonidal sinus (PS) in pre-adolescent and adolescent periods in which it is less common. A retrospective study based on 25 adolescent patients with PS disease that were treated at the Department of Pediatric Surgery, Selcuk University, Konya, Turkey, between 2010 and 2013 was conducted. Among 25 patients with PS disease 17 (68%) were males and eight (32%) females, with a mean age of 16.08 ± 1.2 years. According to the body mass index (BMI), 17 (68%) of the cases were in the normal range, 4 four (16%) of each were overweight, and obese, respectively. Twenty cases (80%) were managed with total excision and primary closure, while five (20%) cases underwent Limberg flap repair. Four patients were managed with the Limberg procedure due to very large sinuses, while a single patient underwent the procedure due to a recurrence following primary repair. They concluded that the factors that predispose patients to developing PS include an above average BMI, significant body hair, and prolonged time in a seated position. Uçar AD et al analyzed patients with recurrent pilonidal sinus to determine their predisposing features for recurrence and the outcomes of the preferred surgical methods. From 2007 to 2012, out of 95 recurrent pilonidal sinus disease (rPSD) patients, 62 operated cases were included and examined retrospectively. Their retrospective data were examined for demographics, 1st and 2nd operation types, patient satisfaction and pain scores. For cases with insufficient preoperative or postoperative data, phone call and interviews were done to obtain data. Some were kindly invited to the outpatient examination. Total of 62 rPSD patients were examined. Male:female ratio was 2.9:1. The mean age after 1st and 2nd operations were 24.7 and 28.1 years, respectively. One and five-year recurrence rates were 33.9% and 66.1%, respectively. The mean interval between the 1st and 2nd operations was 45.6 months. Excision and midline closure was the most frequent type of operation followed by flap reconstructions and excision-lay open procedures. The 1st operation types of rPSD cases were different from that of 2nd operations. Pain perception and satisfaction scores were better in flap reconstruction groups. They concluded that reoperative surgery of rPSD is satisfactory with certain precautions. Relapses after flap reconstruction procedures with a well-being period should be referred as second primary disease.<sup>[10,11]</sup>

## CONCLUSION

Within the limitations of the study we conclude that physicians treating pilonidal disease should have adequate knowledge of the advantages and

disadvantages of the different surgical techniques. Preoperative decision making should be based on the patient's expectations, and cooperation with the patient about possible postoperative complications, and outcomes.

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