

Original Research Article

Pilonidal sinus: excision and primary closure over suction drain and its outcome

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ABSTRACT

Background: Pilonidal sinus is a chronic inflammatory disease predominantly involving Sacrococcygeal region. Despite advances in medical sciences, management of pilonidal disease is still not well defined. Treatment varies from simple techniques to more sophisticated surgeries with their own pros and cons.

Methods: This prospective observational study comprised of forty-two patients who underwent the surgery for pilonidal sinus as per the procedure described. This study was carried from 1 May 2019 till 30 November 2022. Median age of the patients was 24.5 years, ranging between 19-32 years. Sinus discharge was the predominant symptom of our study population with 34 patients (80.94%) complaining of same.

Results: Mean operative time was 54 minutes with a range of 45-78 minutes. Average hospital stay was 1.8 days though it ranged from 1 to 3 days. Five patients (11.90%) developed seroma while four patients (9.52%) had superficial wound site infection. We had two recurrences (4.76%) over the follow-up period of 1 year.

Conclusions: Excision and primary closure of the pilonidal disease is effective with comparable complication rates and shorter time off work. The surgery can be easily performed.

Keywords: Pilonidal sinus, Primary closure, Suction drain

INTRODUCTION

Pilonidal sinus (PNS) is a chronic inflammatory disease first described by Anderson in 1847 and later named pilonidal sinus by Hodges in 1880.¹ The word pilonidal derives from the Latin words pilus ("hair") and nidus ("nest"). While Mayo hypothesised it as a lesion of congenital origin, Hodges described it as an acquired pathology.^{2,3} Sacrococcygeal pilonidal sinus is seen in people aged 15-30 years, with a 3:1 male-to-female ratio. The onset of pilonidal disease is rare in people older than 40 years.⁴ Despite advances in medical sciences, management of pilonidal disease is still not well defined. Acceptable treatment must decrease soreness, provide a

shorter hospital stay, reduce complications and rate of recurrence, and show quick healing and return to normal life.⁵ Surgeons have tried different methods varying from simple procedures such as shaving and personal hygiene and passing through sophisticated techniques such as flap reconstruction and recently endoscopic and laser ablation.^{2,3,6,7}

Aim and objectives

Aim of our study was to examine the feasibility of the procedure and its efficacy to reduce operating period, time of healing and duration of hospital stay, postoperative complications and recurrence rate.

METHODS

This prospective observational study was conducted at GMC Doda from 1 May 2019 till 30 November 2022 and the study population comprised of forty-two patients who underwent the surgery for pilonidal sinus as per the procedure described here. Patients completing one year of follow up by 30 November 2022 were included in the study which meant that all patients included in the study were operated before 30 November 2021. Proper written consent was obtained from all the patients and also ethical committee approval was sought from ethical committee of our institution.

Surgical procedure

Simple excision and tension-free primary closure was performed in all cases. All procedures were done under Spinal Anaesthesia and in Jack-Knife position with buttocks pulled apart by adhesive tape adhered to operation table sides. All patients received pre-operative antibiotics at the time of anaesthesia in the form of Ceftriaxone and Metrogyl according to recommended dosage. Local area was prepared with povidone iodine 10% solution and draped. An elliptical incision was given to incorporate the major openings of the sinus as well as any side branches identified by prior examination on table. The sinus was excised completely deep up to pre-sacral fascia. To avoid closure of the defect under tension, bilateral side flaps including skin layers and subcutaneous tissues were dissected and cut 2-3 cm from the edge of the

elliptical wound down to the posterior sacral fascia with meticulous haemostasis. The residual cavity was obliterated by Prolene sutures which were taken through the skin, subcutaneous tissue and post sacral fascia over a suction drain of 10F calibre brought out laterally as shown in (Figure 1). Post-operatively, the patients nursed were advised to sleep on one side and encouraged to mobilize early. The suction drains were removed after 3-7 days postoperatively depending on the amount of drainage, which must be less than 10 ml during the last 24 hours. Antibiotics were given postoperatively for 5 days in the form of Metronidazole and Ceftriaxone. Sutures were removed after 14 days.

Statistical analysis

Statistical Package for the Social Sciences program (SPSS) ver. 26 for Windows 10 computer software was used for statistical analysis. Data were described in the form of frequency, mean, median, percentage (%) and average.

RESULTS

Our study included 42 Patients with male predominance (male=95.24%). Median age of the patients was 24.5 years, ranging between 19-32 years. Thirty patients (71.42%) in our study had normal BMI while only 4 patients (9.53%) were obese according to the classification of the world health organization of obesity.⁸

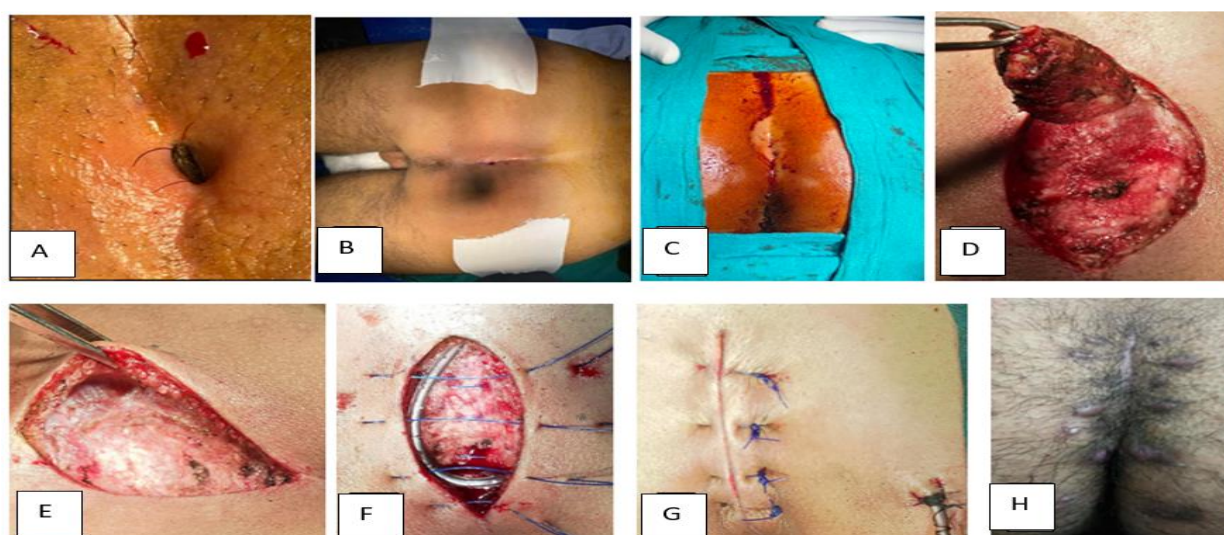


Figure 1: A) Pilonidal sinus on examination, B) Separating the buttocks with adhesive tape, C) Drapping, D) Elliptical incision down to the posterior sacral fascia, E) Raising skin flaps for easy cover, F) Prolene sutures through the skin, subcutaneous tissue and post sacral fascia, G) Final closure, H) Healed surgical incision.

Sinus discharge was the predominant symptom of our study population with 34 patients (80.94%) complaining

of same. Other presentations include pain in 26 patients (61.9%) and abscess formation in 10 patients (23.81%).

Table 1: Pre-operative patient characteristics and presentation (n=42).

Characteristic	N (%)
Age (years); median (range)	24.5 (19-32)
Gender	Male 40 (95.24)
	Female 2 (4.76)
Obesity (as per WHO Classification)	Obese 4 (9.53)
	Overweight 8 (19.05)
	Normal 30 (71.42)
Pain	26 (61.9)
Discharge	34 (80.95)
Abscess/Lump	10 (23.81)

Pre-operative patient characteristics and presentation are shown in (Table 1). Our mean operative time was 54 minutes with a range of 45-78 minutes. Average hospital stay was 1.8 days though it ranged from 1 to 3 days. Intra-operative variables studied are shown in (Table 2). All the patients were followed up for one year without any dropouts. Five patients (11.90%) developed seroma while four patients (9.52%) had superficial wound site infection.

All these patients were managed conservatively. We had two recurrences (4.76%) over the follow-up period of 1 year. Post-operative outcome in terms of complications is described in (Table 3).

Table 2: Operative data.

Parameters	Observation
Operative time (minutes)	54 (45-78)
Drain removal (days)	4.8 (3-7)
Suture removal (days)	14
Hospital stay (days)	1.8 (1-3)

Table 3: Post-operative complications and follow-up (n=42).

Complication	N (%)
Wound Seroma	5 (11.90)
Wound Site Infection	4 (9.52)
Disruption	1 (2.38)
Follow up (1 year)	42 (100)
Recurrence (1 year)	2 (4.76)

Table 4: Comparison of our study with other studies.

Patients (N)	Surgical procedure	Hospital stay (days)	Complication (%)	Recurrence (%)	References
110	Excision and Limberg flap	3.7	5.88	4.9	Urhan et al ²⁹
238	Excision with a Limberg transposition flap	2.1 (1-3)*	0.8	1.26	Mentes et al ³¹
411	Excision and Limberg flap	3.2 (1-10)***	16.78	2.91	Akin et al ³³
229	Excision and primary closure	2.1 (2-5)*	9.1	4.4	Toccaceli et al ³⁴
60	Rhomboid flap closure	6 (5-11)*	15	10	el-Khadrawy et al ³⁶

* Mean (range), ** Median, ***Average, (%) percentage.

DISCUSSION

Pilonidal disease is described as an infection of the skin and subcutaneous tissue in the midline of the upper part of the natal cleft of the buttocks.⁹ Robert Browning wrote 'less is more' in his poem 'the faultless painter,' which was published in 1855.¹⁰ This phrase became a concept that was expanded to cover many participants. The minimalist concept in surgery raised the era of minimal invasive surgery. Soll et al used this proverb for the first time to describe their novel sinusectomy technique in treating pilonidal sinus.¹¹

The mainstay of operative management for chronic or persistent disease is eradication of all pilonidal sinus tracts. This involves enbloc excision of the entire pilonidal sinus and epithelialized tracts down to the sacrococcygeal fascial level, keeping normal tissue intact as much as possible.^{12,13} There are several surgical methods used in the treatment and control of sacrococcygeal pilonidal sinus, however postoperative morbidity could not be reduced by those methods and there is no agreement on the

best gold standard method of surgical treatment.¹⁴ Any procedure should stress well on other parameters than postoperative morbidity and recurrence, such as simple technique, length of hospital stay, and length of absence from work.^{13,15} Many studies comparing various procedures have documented the relative superiority of one over the other. For simple, non-recurrent pilonidal sinus, less invasive surgery with excision and primary closure could be enough.¹⁴ Primary closure technique is associated with earlier wound healing (complete epithelialization) and a faster return to daily work, but a delayed (open) closure is associated with a lower likelihood of pilonidal disease recurrence.^{9,16} We achieved primary closure in all the patients (100%) with recurrence of 4.76% (2 patients) over one year of follow-up. We had no dropouts to follow-up as our institution being the only hospital in this mountainous region. Most of the complications seen by us were in coherence to those reported across the globe in other studies as shown in (Table 4). Low morbidity rate of certain surgery techniques is also naturally reflected by hospitalization time and time off work. In some papers reported for tension free primary closure, hospital stay is short and less

than 5.5 days as reported by Rossi et al for Limberg flap and 5.7 days as reported by Singh et al for adipose fasciocutaneous flap.¹⁷⁻¹⁹ Hospital stay in this study was shorter than 3 days and time off work was not more than three weeks. A total of 11 trial studies (n= 1729 patients) have included data for work return time, where nine studies have reported a faster return time to work following primary closure.²⁰ The largest study including 144 patients has found that patients undergoing a primary repair have a significantly faster rate of return to work as compared to those with open wounds (11.9 versus 17.5 days, respectively).²⁰ Post-operative wound importance in this study was considered. Any exercise or sitting down on the wound was avoided for 3 weeks, and the patient was advised to return as slowly as possible to his/her normal activities. In this study, during follow-up of 12 months, only two recurrences (4.76%) in obese, hairy male patients were seen, which is in agreement with the study by Akinci et al stating that pilonidal sinus is an acquired disease, penetration of hair is the main cause, and understanding the causes help prevent the disease.²¹ Time of healing was shorter after excision and closure, but recurrences occurred more as compared with excision alone. In addition, primary closure has been reported to result in a higher initial primary rate of healing with shorter and a reduced duration of hospital stay.¹⁵

Limitations

The limitation of current study is that it is a small series, and none of our patients had history of previous surgery.

CONCLUSION

Excision and primary closure of the pilonidal disease is effective with comparable complication rates and shorter time off work. The surgery can be easily performed. It is now clearly shown that there is better patient satisfaction with primary wound closure rather than leaving it open.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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