

Original research article

Different surgical management of pilonidal sinus in a tertiary care hospital

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Abstract

Pilonidal sinus disease often presents as a chronic problem in otherwise healthy hirsute men. A range of conservative techniques to surgical flaps have been employed to treat this condition. We review the literature on surgical management of pilonidal sinus disease, current evidence, off-midline repair is now considered the standard of care; however, no statistically significant difference has been noted between primary versus secondary closure or between the Karydakias flap and Limberg flap. Treatment should be tailored to the individual, considering recurrent disease, recovery time, and the surgeon's comfort with the procedure.

Keywords: Pilonidal Sinus, Surgical Management, Limberg Flap, Karydakias Flap

Intoduction

Pilonidal disease was originally described by Herbert Mayo in 1833 as a congenital condition with the term 'pilonidal', derived from the Latin 'nest of hairs', being coined by Richard Hodges in 1880. Pilonidal disease is a common anorectal problem affecting young people, typically in their late 20's with reported incidence of 26 cases per 1 lakh people. The condition is more common in Caucasians due to hair characteristics and growth patterns.

This disorder is characterized by a characteristic epithelial lined track situated short distance behind the anus caused by shed hair drawn into the natal cleft through the skin into subcutaneous tissue by motion from the buttocks [1,5].

It forms granuloma/ unhealthy granulation tissue in the deeper planes it is of infective origin and occurs in sacral region, between buttocks, umbilicus, and axilla.

Hence, the name 'pilonidal' is given, which is derived from Latin literally meaning 'nest of hairs. During the Second World War, the condition was common in jeep drivers, which led to it being known as 'jeep disease'.

Risk Factors

1. Male gender
2. Hirsutism
3. Prolonged sitting
4. Obesity
5. Caucasian race
6. Prolonged sitting
7. Family predisposition

An acute pilonidal cyst typically presents with pain, tenderness, and swelling, like the presentation of a superficial abscess in other locations; however, a clue to the diagnosis is the presence of cutaneous pits along the midline of the gluteal cleft. Chronic pilonidal disease varies based on the extent of inflammation and scarring; the underlying cavity communicates with the overlying skin through sinuses and often drains with pressure.

Investigations

- Routine blood investigations
- Culture & sensitivity of discharge
- Radiological investigations like CXR, sinogram, MR Fistulogram

Treatment

Phenol injection

Mild to moderate pilonidal cysts have been treated with liquid or crystalline phenol injections. Curettage is used to remove extra particles and phenol is injected through the external opening. The phenol stays within the sinus for one to three minutes. Phenol injections have a failure rate of 30% to 40%, especially with multiple sinuses and suppurative disease.

Incision and drainage

Simple incision and drainage as a crucial role in the treatment of acute pilonidal disease to decrease pain and relieve tension. Off midline incisions have been recommended because the resulting closures fared better against sheer forces applied by the gluteal muscles on the cleft.

Excision and unroofing

There are 2 techniques of excision and unroofing.

1. Wide
 2. Limited
- The wide technique consists of an inwardly slanted excision that is deepest in the centre of the cavity. The inward sloping angle of the incision aids in healing because it allows granulation to progress evenly from the base of the wound upward. The depth of the incision should spare the fascia and leave as much fatty tissue as possible while still resecting the entire cavity and associated pits.
 - Limited incision techniques aim to shorten the healing period by making smaller incisions into the sinuses, pits, and secondary tracts, and they are frequently supplemented with curettage.

Flaps

Several flaps have been developed for pilonidal sinus; these include.

Karydakias flap, Modified Limberg flap, Keystoneflap, V-Y advancement flap, Z- palsty

Karydakias flap

- Consists of an oblique elliptical excision of diseased tissue with fixation of the flap base to the sacral fascia
- The flap is closed by suturing the flap edge off-midline.

Modified Limbergflap

- Midline rhomboid incision to the presacral fascia including the sinus is done.
- The flap is mobilised by extending the excision lateral to fascia of gluteus maximus muscle.
- This procedure lateralizes the midline sutures and flattens the intergluteal sulcus.

Advancement flaps

- Most commonly performed advancement flaps are V-Y advancement flap & Z plasty.
- V-Y advancement flap creates a full thickness V- shaped incision down to gluteal fascia and that is closed to form a post closure suture line in shape of Y.
- Z palsty is performed by excision of the sinus and recruitment of lateral flaps incised down to fascia level
- The lateral edges are transposed to increase the transverse length.

Complications of flap surgeries

- Superficial wound infection
- Epidermal necrosis of flap edges
- Seroma formation
- Hematoma
- Wound dehiscence

Laser therapy

Lasers are emerging as primary and adjuvant treatment options for pilonidal sinuses. Depilation with alexandrite, diode, and Nd: YAG lasers has demonstrated the most consistent evidence. The firm texture and quality of the hair is proposed to incite an inflammatory response with sinus formation; therefore, using a laser to permanently remove this factor may help prevent future disease.

Methodology

Study Design: Prospective study

Study Conducted At: Government General Hospital Kurnool, Kurnool.

Study Duration: 1year

Sample Size: 20

Inclusion Criteria

1. All Patients with chronic pilonidal sinus without any acute infection.
2. All patients with recurrent pilonidal sinus.

Exclusion Criteria

Patients with pilonidal sinus with acute infection and abscess.

Results

A total of 20 patients were included in this study. Of this, 18 patients were male and 2 were female. Most common age group among males is 18-35 years and 25-30 years in female patients. Among the 20 patients included in the surgery, all were primary pilonidal sinuses. No significant variations were seen among the study population in terms of age, BMI etc.

Following the excision of the sinus, 3 cases underwent Limberg flap, 3 cases underwent karydakis flap transposition, marsupialisation was done in 4 patients, 3 cases underwent keystone flap procedure, V-Y plasty for 2 individuals, incision and drainage in 2 individuals and excision and & deroofing done in 3 cases.

Table 1: Comparison in length of hospital stay, wound healing time, complications encountered are tabulated below

| S. No. | Procedure performed | No of cases | Hospital stay | Wound healing | Complications |
|--------|--|-------------|---------------|---------------|---|
| 1 | Excision of sinus & deroofing (Lay open technique) | 3 cases | 4 days | 35 days | No recurrence or Wound infection |
| 2 | Limberg flap (Rhomboid flap) | 3 cases | 5 days | 15 days | Wound gaping noted in single case. Managed conservatively and secondary suturing done |
| 3 | Karydakis flap | 3 cases | 5 days | 16 days | Nil |
| 4 | Marsupialisation | 4 cases | 3 days | 20 days | Nil |
| 5 | Key stone flap | 3 cases | 5 days | 15 days | Seroma formation seen in one case |
| 6 | V-Y plasty | 2 cases | 3 days | 14 days | Recurrence seen in one case |
| 7 | Incision and drainage for abscess | 2 cases | 3 days | 30 days | Nil |

Discussion

The debate over the treatment of pilonidal sinus remains unsettled to date. However, maintenance of adequate hygiene and removal of the hair in the related region are accepted as prerequisites for its treatment. Wound care following pilonidal sinus surgery is a difficult process requiring close monitoring. Various methods have been described for the treatment of patients with pilonidal sinus, but high recurrence rates continue to be an important problem. Secondary infections have been implicated as the cause of early recurrence, whereas an inability to eliminate the physiopathological process that has caused the disease has been associated with late recurrence. Poor wound care, an inability to completely remove the cyst or draining tract, recurrent hair follicle infection and midline scars are considered the most important causes of recurrence [6, 10]. Healing with granulation being more susceptible to hair penetration and flattening of the large natal cleft are factors that cause recurrence following treatment with the lay open technique. The most important causes of morbidity during the early postoperative period include wound site infections, seroma, wound dehiscence, and flap necrosis [11, 17]. Their prevalence rates vary depending on the surgical method used. An ideal method should reduce these complications while providing early recovery, early return to work and good cosmetic outcomes and have a low recurrence rate. The patients in the present study underwent Limberg flap transposition, Karydakis' flap transposition, V-Y plasty and marsupialisation followed by allowing wound healing by secondary intention after performing total excision.

Among the 20 cases, 2 cases developed post-operative complications,

- One case had seroma formation following keystone flap (5%).
- Wound dehiscence seen in one case following Limbert flap (5%).
- Recurrence rate 5% one case had recurrence following V-Y plasty after 6 months.

All the patients were followed for 1 year, in this duration, 55% (1 case) had recurrence. Healing of wound for flaps is shorter than the lay open method, return to work is earlier in flap cases when compared to lay open cases. Average duration of wound healing in lay open, methods is 30-35 days, whereas 15-20 days in case of flap technique groups

Conclusion

With mild pilonidal disease, more conservative measures can be employed; however, in cases of recurrent or suppurative disease or extensive scarring, excision with flap closure typically is required. Although no single surgical procedure has been identified as superior, one review demonstrated that off-midline procedures are statistically superior to midline closure in healing time, surgical site infection, and recurrence rate. Novel techniques continue to emerge in the management of pilonidal disease, including laser therapy. This modality shows promise as either a primary or adjuvant treatment; however, large randomized controlled trials are needed to confirm early findings.

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