

Research Article

Study of clinicopathological factors, surgical approaches and their outcome in 20 cases of pilonidal sinus

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ABSTRACT

Background: Aim of the study was to study the age, incidence, occupational factor, history of presenting illness, hospital stay before and after surgery, various types of surgical approaches and their outcome in the form of cosmetic outcome and recurrence rate in 20 cases of pilonidal sinus done in 2012-13 in SIMS - Shivamogga Institute of Medical Sciences.

Methods: Primary closure, healing by secondary contracture.

Results: Out of the 20 cases operated for pilonidal sinus, 12 were male and 8 were female out of which 5 belonged to 10-20 year age group; 12 belonged to the 20-30 year age group; while 3 belonged to 30-40 year age group.

Conclusion: Most common age group involved is 20-30 years, suggesting it is more common in physically active age group and since most of them are manual laborers it doesn't show any preference to sedentary workers or those who sit for long hours. Also it is more common in males than in females.

Keywords: Pilonidal sinus, Pilus, Sinus, Jeep driver's bottom

INTRODUCTION

The term pilonidal sinus describes a condition where nest of hair which is derived from Latin word for hair (pilus) and nest (nidus)² forms a sinus track. The condition was first described by Herbert Mayo in 1833.^{3,4} Hodges was the first to use the pilonidal cyst to describe the condition in 1880.^{5,6}

It is a condition found in the intergluteal cleft overlying the coccyx, consisting of one or more usually non-infected, midline openings, which communicate with a fibrous tract lined by granulation tissue and containing hair lying loosely within the lumen. As it is a common affliction amongst the people with occupation involving

prolonged sitting such as a deep driver, it has been referred to as "Jeep disease" / "Jeep driver's bottom".

METHODS

An extensive search of literature was performed in Medscape, Wikimedia, WebMD medical reference and various surgical text books using pilonidal sinus.

It is a retrospective study of 20 cases of pilonidal sinuses, which were attended in the department of general surgery SIMS - Shivamogga Institute of Medical Sciences during the year 2012-13. Shimoga is neither too hot nor humid. It has had an average high temperature of 30°C (86°F) and an average low temperature of 23°C (76°F) and an average humidity of 47% during that year.¹⁹ All 20

patients of pilonidal sinus who had undergone surgical treatment over a period of 1 year were reviewed. Out of 20 patients 15 were male and 5 were female. 12 were manual laborers working in fields and 8 were students. All were from the Malnad area (monsoon/hilly areas). Various age groups affected were as follows:

10-20 years = 5
 20-30 years = 12
 30-50 years = 3

15 cases presented with repeated attacks of abscess formation and rupture for which they were treated conservatively and admitted when the inflammation had subsided for surgery. 5 cases presented with discharging sinus.

In all cases preoperative hospital stay was 2-5 days and 5-7 days after surgery. Average hospital stay was 7-10 days. Patients were followed upon outpatient basis later on. And on individual follow-up it was found that all the patients had complete recovery within 4-6 weeks in cases of secondary healing and 3-4 weeks in cases which had primary closure. In 10 cases primary closure was done and in 10 cases it was left to heal with secondary intention, 2 cases had recurrence, 1 had primary closure 1 had secondary healing.

RESULTS

Of the 20 patients included in this study the youngest was 15 year old male student and the eldest was 41 year old male manual labourer, the most common age group affected was 20-30 years. Out of 5 females 4 were students - 18 years, 19 years, 19 years and 23 years of age. Out of 15 males four were students – 19 years, 17 years, 21 years and 15 years of age. So out of 20, 8 were students and 12 manual laborers. 15 out of 20 cases presented with repeated infections.

10 cases had primary and 10 had secondary healing. 1 case in each group had recurrence.

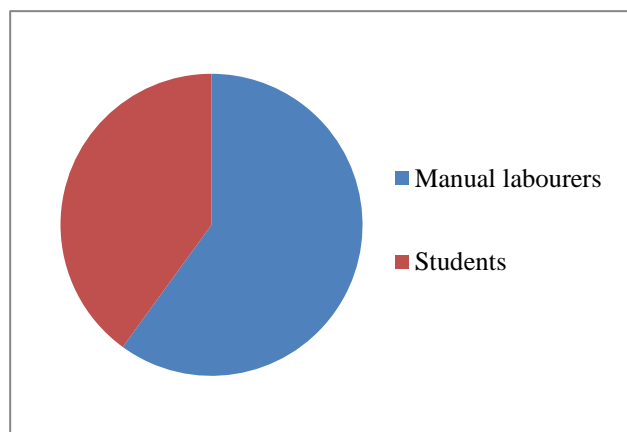


Figure 1: Occupation.

Sex incidence

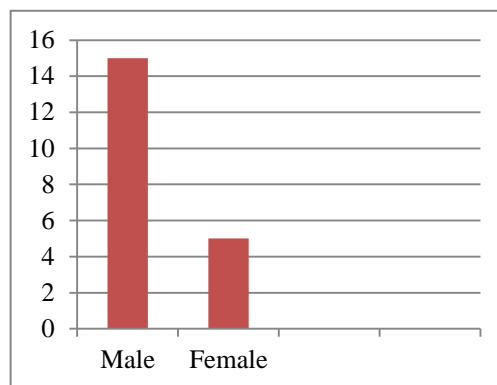


Figure 2: Sex incidence.

Age incidence

Most of the patients in the study were in age group of 20 to 30 year which is nearly 60% of the total.

Table 1: Age incidence.

Age group (years)	No. of patients	Percentage
10-20	5	25%
20-30	12	60%
30-50	3	15%

DISCUSSION

Causes

Exact origin of disease is not known. Its cause is believed to be combination of

1. Changing hormones (male preponderance due to active pilosebaceous glands)
2. Hair growth (more hairy people affected more than less hairy)
3. Friction (from clothes, prolonged sitting on driver’s seat etc.)
4. Infection (Miller 2003)¹⁶
5. Obesity (due to deep natal cleft)

Pathology

It is thought that the combination of buttock friction and shearing forces in that area allows shed hair or broken hair which have collected there to drill through the midline skin or that infection in relation to a hair follicle allows hair to enter the skin by the suction created by movement of the buttocks, so creating a subcutaneous, chronically infected, midline tract from the primary sinus, secondary tracks may spread laterally, which may emerge at the skin as granulation tissue lined, discharging openings. The sinus runs cephalad.¹

Some researchers have proposed that pilonidal cysts may be the result of a congenital pilonidal dimple.¹

Excessive sweating can also contribute to the cause of a pilonidal cyst. Moisture can fill a stretched hair follicle, which helps create a low oxygen environment that promotes the growth of anaerobic bacteria, often found in pilonidal cysts. The presence of bacteria and low oxygen levels hamper wound healing and exacerbate a forming pilonidal cyst.¹¹

Clinical features

- No symptoms, to start with a small dimple on skin
- Pain when sitting or standing
- Swelling at the cyst
- Reddened sore skin around the area
- Pus or blood draining from the abscess, foul smell
- Hair protruding from the lesion
- Formation of more than one sinus tract
- Low grade fever sometimes

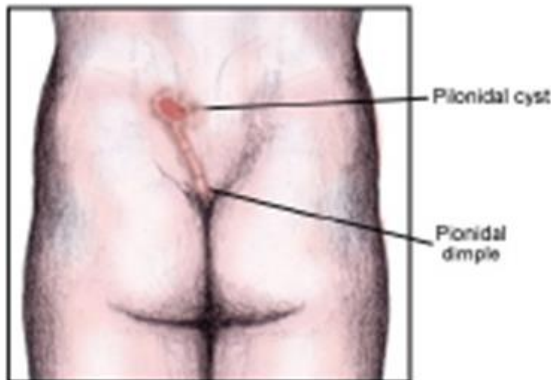


Figure 3: Clinical features.

Conservative treatment

Simple cleaning out of the tracks and removal of all hair with regular shaving of the area and strict hygiene.¹

Treatment of acute exacerbation/abscess

Abscess should be opened through a comparatively small incision after rest, baths, local, antiseptic dressing & administration of broad spectrum antibiotics, fail to bring about resolution.

Primary incision is longitudinal and should be made off the midline into skin, subcutaneous tissue to abscess cavity.

- a. Provided all hair & granulation tissue are removed from abscess cavity, there is some prospect of curing the lesion (Miller)
- b. After it has been cleaned out, the tract can be destroyed by careful instillation of pure phenol solution (Maurice)

[Douglas Malcolm Miller: Retired surgeon Essex country hospital, Colchester, England]

[Brain Armstead Maurice: Formerly surgeon, Tunbridge Wells Hospital Group, Tunbridge Wells, Kent, England]¹⁸

Definitive Operation:

When inflammation has been controlled,

- a. Patient is placed in prone jack knife position
- b. Methylene blue may be injected into the sinus to colour all the tracts. The nozzle of the syringe being pressed against the opening to obtain same pressure.¹⁸



Figure 4: Methylene blue injected in to sinus to colour all the tracts.

- c. Lying open of all tracks with or without marsupialization, the excision of all tracks with or without primary closure.



Figure 5: Excision of tracts.

- d. Excision of all tracts and then closure by some other means designed to avoid a midline wound.¹
- e. Surgeons can also excise the sinus and repair with reconstructive flap technique, such as a “cleft lip” procedure or Z-plasty, usually done under general anaesthesia.

This approach is especially useful for complicated or recurring pilonidal disease, leaves little scar tissue and flattens region between the buttocks, reducing the risk of the recurrence.¹¹

A novel and less destructive treatment is scraping the tract out and filling it with fibrin glue. This has the

advantage of causing much less pain than traditional surgical treatment and allowing return to normal activities after 1 or 2 days in most cases.¹⁵ Pilonidal cysts recur and do so more frequently if surgical wound is sutured in the midline, as opposed to away from the midline, which obliterates the natal cleft and removes the focus of shearing stress. An incision lateral to the inter gluteal cleft is therefore preferred, especially given the poor healing of midline incisions in this region.



Figure 6: After repair.

Various methods of wound closure after complete removal of the disease

- a. Primary closure
- b. Z-Plasty
- c. Karydak's procedure
- d. Bascom's procedure
- e. Vacuum assisted closure
- f. Limberg flap Closure
- g. Healing by secondary contracture.

Karydak's operation:¹ for pilonidal sinus a semi lateral incision is made around the sinus complex, the diseased component excised and the flap mobilized to allow tension free closure of the wound of the midline.¹

Bascom's procedure:¹ Incision lateral to the midline to gain access to the sinus cavity, which is rid of hair and granulation tissue and excision and the closure of midline pits. The lateral wound is left open.¹

To aid in proper healing by wound contraction - a silastic elastomer pack is particularly useful for dressing the wound as it can be removed, washed and reinserted by the patient and ensures that the wound heals from below epithelialization can sometimes be speeded by skin grafting.¹⁸

Post-operative care

Regular shaving of the site.

CONCLUSION

Most common age group involved is 20-30 years, suggesting it is most common in physically active age (due to active pilosebaceous glands) group and since

most of them are manual laborers it doesn't show any preference to sedentary workers or those who sit for long hours. It is the friction and biomechanics of that area which probably initiates the in-growing of hair into the cleft or congenital pit. All cases were from Malnad area which is neither hot nor humid so it may not be a precipitating factor. Most common presenting complaint was repeated formation of abscess and rupture. The type of surgery performed was wide excision of all the tracks. Smaller defects were primarily closed and larger ones were left to granulate and heal with secondary intention. The sutured wounds healed with primary intention in 3-4 weeks, 1 case got infected and had to be opened to heal with secondary intention. All the cases left to heal with secondary intention were taken care by repeated dressings and it was taken care that the edges do not unite prematurely before the cavity obliterates by sterile packing of the cavity with the betadine (povidone iodine) lotion soaked with a ribbon gauze. And finally when the wound healed it had a very good cosmetic outcome with a good cleft.

Friction most probably causes pilonidal sinus, males affected more than females. Whichever method of wound closure is chosen, the most important is to clear the disease completely. Post-operative care is simply regular shaving.

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Conflict of interest: None declared

Ethical approval: The study was approved by the institutional ethics committee

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