

PILONIDAL SINUS BEYOND SACROCOCCYGEAL REGION: AN UNUSUAL CASE REPORT

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Abstract:

Pilonidal sinus disease is a chronic inflammation of the skin that usually affects the sacrococcygeal area and is characterized by recurrent infections, pain, and abscess. It is caused mainly by penetration of hair into the skin and subsequent inflammatory response. Several operative methods have been suggested for treatment, but with the Limberg Flap Reconstruction being a more effective method in terms of lesser recurrence and good healing. This case report discusses a 28-year-old man with chronic pilonidal sinus disease who was successfully treated with the Limberg Flap technique. The patient had considerable postoperative improvement with no early complication, underscoring the efficacy of this method in providing the best healing and preventing recurrence. This case report emphasizes the significance of early diagnosis, proper surgical treatment, and post-surgical care in managing pilonidal sinus disease.

Keywords — Pilonidal sinus, chronic inflammation, Limberg Flap Reconstruction, surgical management, recurrence, sacrococcygeal region, wound healing, reconstructive surgery.

I. INTRODUCTION

Pilonidal sinus is an epithelium-lined tract, located a short distance behind the anus, containing hair and unhealthy granulation tissue.^[1] It is a condition of chronic inflammation caused by the penetration of hair into the skin, commonly occurring in the sacrococcygeal region. However, it can also rarely occur in other areas like the umbilicus, nose, suprapubic region, groin, interdigital web, axilla, clitoris, prepuce, or penis.^[2] The condition is of infective origin, with the tract often containing hair, dirt, and debris, along with diseased granulation tissue in the deeper layers.^[1] Hairs accumulate due to vibration and friction, leading to the shedding of hairs. These hairs enter the gluteal cleft (between the buttocks) through the openings of sweat glands. The sinus tract then extends vertically between the buttocks.^[3] Hair trapped in the subcutaneous tissue

triggers an inflammatory reaction, leading to pilonidal sinuses and cysts. The cyst can become infected due to bacteria from hair bulbs or external sources through the sinus openings. This infection often develops into a pilonidal abscess, which may self-drain through secondary fistulae. Recurrent episodes cause pain, discomfort, and interfere with daily life.^[4]

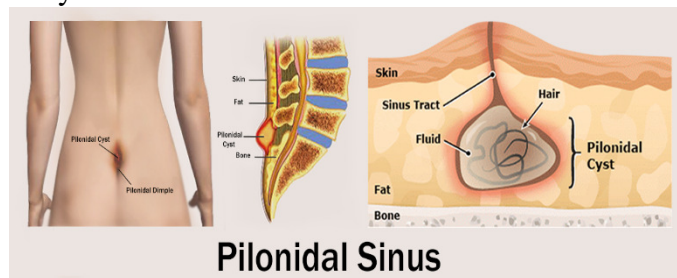


Fig. 1 Location of Pilonidal Cyst

Pilonidal sinus is a common medical condition, accounting for about 15% of anal suppurations.^[2] It affects approximately 0.7% of the population, with an incidence of nearly 25 per 100,000.^[5] The condition occurs at least twice as frequently in men as in women, with a male-to-female ratio of 2–3:1.^[4] It is most commonly seen between the ages of 15 and 30, and it rarely occurs before puberty or after the age of 60.^[5]

Karydakos simplified the etiologic process by identifying three main factors: the hair or foreign body, a force that causes the deposition of hair into the sinus, and skin vulnerability.^[6]

Hormonal imbalance, the presence of hair, friction, and infection are some of the causative factors of pilonidal sinus.^[3] Commonly recognized predisposing factors include a hairy body, thick skin, being overweight (BMI > 25 kg/m²), a deep gluteal cleft, poor hygiene, prolonged sitting for several hours a day, repeated chafing, and a family history of the condition.^[5]

Various surgical approaches have been proposed, involving either primary wound closure or healing by secondary intention, including the use of flaps and, in some cases, complex reconstructive techniques. These procedures are often associated with a difficult recovery due to prolonged healing and a significantly high recurrence rate.^[4]

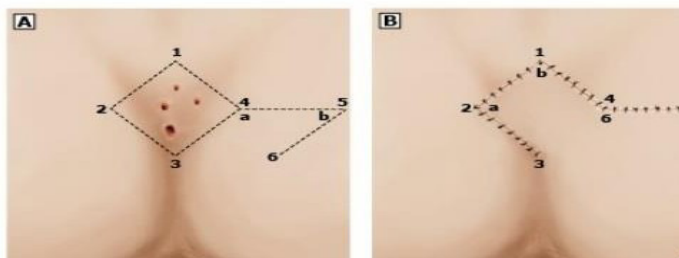


Fig. 2 Limberg Flap Reconstruction Technique

CASE PRESENTATION:

A 28-year-old male patient presented to the department of General Surgery with complaints of pain, swelling, and discharge in the gluteal region. He experienced significant discomfort, particularly while sitting.

Clinical Presentation and History:

The patient reported persistent pain and swelling in the sacrococcygeal region for an extended period. Over time, the condition worsened, leading to the development of a sinus tract accompanied by purulent discharge. The symptoms were recurrent, indicating chronicity. Contributing factors such as prolonged sitting, excessive hair growth, and poor hygiene were noted as potential risk factors. There was no history of trauma or previous surgical intervention. The patient had no known medical conditions such as diabetes or immunosuppressive disorders and no known drug allergies.



Fig. 3 Pilonidal Sinus (pain & discharge) in Gluteal region

Clinical Examination:

Physical examination revealed a tender swelling in the intergluteal region, with visible sinus tract formation and purulent discharge. The surrounding area exhibited localized inflammation and induration. Despite the significant localized symptoms, there were no systemic signs of infection such as fever or chills, suggesting that the condition had not progressed to an extensive abscess or cellulitis.

Diagnostic Investigations:

To confirm the diagnosis and assess the extent of the disease, multiple diagnostic tests were conducted. MRI of the perineum revealed a T2/STIR hyperintense collection posterior to the coccyx. The lesion measured approximately 16.0 x 23.0 x 25.0 mm, with a superior extension of 2.5

cm above the gluteal cleft. A suspicious external opening was identified on the left side. Surrounding inflammatory changes were evident, with mild diffusion restriction within the collection, indicating a well-established disease process. Histopathological examination of the excised sinus tract confirmed chronic inflammation with no evidence of granulomas or atypical cells. The presence of inflammatory granulation tissue further supported the diagnosis of a chronic pilonidal sinus. These findings, along with the recurrent symptoms and presence of purulent discharge, confirmed a diagnosis of Primary Pilonidal Sinus Disease. Given the extent of the lesion and chronicity of symptoms, it was determined that surgical intervention was necessary to achieve optimal outcomes. Simple excision with primary closure was considered inadequate due to the high likelihood of recurrence, necessitating the use of a reconstructive technique to ensure effective healing and long-term success.

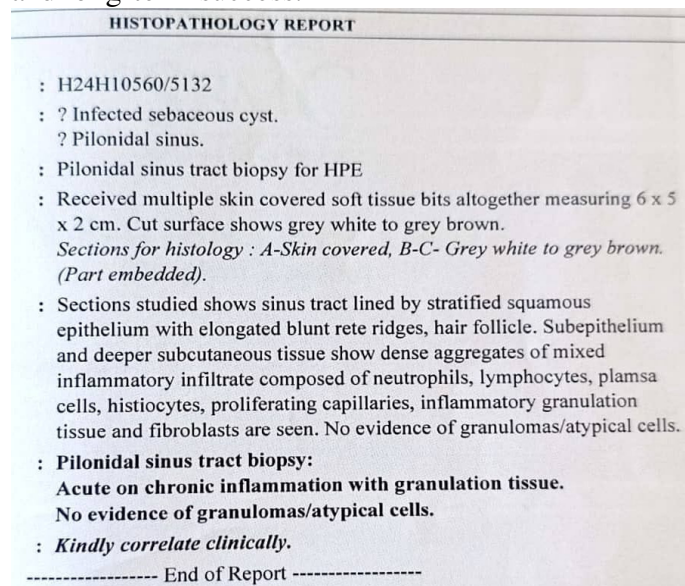


Fig. 4 Histopathology Report of the Patient

Treatment Plan:

The treatment approach for this patient was carefully planned to ensure optimal healing and minimize the risk of recurrence. Initially, preoperative management included comprehensive blood investigations and imaging studies to confirm the diagnosis and rule out other potential pathologies. A pre-anaesthetic assessment was

performed to evaluate the patient's surgical fitness. To prevent infection, intravenous antibiotics, specifically Cefperazone -Sulbactam, were administered.

The patient underwent excision of the pilonidal sinus, which involved the complete removal of the diseased tissue. A wide excision of the sinus tract was performed along with meticulous debridement to eliminate any infected or necrotic tissue. To achieve better healing outcomes and reduce recurrence rates, the Limberg Flap Reconstruction technique was employed. This reconstructive procedure allowed for tension-free closure of the defect, ensuring adequate coverage of the excised area. A surgical drain was placed to prevent postoperative fluid accumulation and minimize complications such as seroma or hematoma formation.

Postoperatively, pain management was effectively handled using appropriate analgesics. Regular wound dressings were performed to maintain a sterile environment and promote healing. The patient was given strict instructions to maintain proper hygiene, avoid prolonged sitting, and adhere to follow-up visits to monitor the wound's progress and detect any early signs of complications. These measures were crucial in ensuring a smooth recovery and reducing the risk of recurrence.

Follow-Up and Prognosis:

Post-surgery, the patient showed significant improvement. There were no immediate complications, and the wound was healing as expected. The use of the Limberg Flap significantly reduced tension at the surgical site, facilitating faster recovery and reducing recurrence risk. Lifestyle modifications, including maintaining hygiene and hair removal from the affected area, were strongly recommended to prevent recurrence. The patient was advised to avoid prolonged sitting and use appropriate cushioning when required.

Discussion:

Pilonidal sinus disease is a common yet often underestimated condition that primarily affects young males, particularly those with risk factors such as excessive hair growth, poor hygiene,

prolonged sitting, and obesity. It is believed to be caused by hair penetration into the skin, leading to chronic inflammation and abscess formation. Without proper treatment, the disease may progress to recurrent infections, sinus formation, and significant patient morbidity.

Surgical intervention is the definitive treatment for pilonidal sinus, with wide excision being the gold standard. However, the choice of wound closure technique plays a crucial role in patient outcomes. The Limberg Flap Reconstruction technique has gained preference over simple primary closure due to its ability to provide tension-free closure, reduce dead space, and promote better healing. Studies have shown that this technique significantly lowers recurrence rates compared to conventional methods, making it a superior choice for managing chronic and recurrent pilonidal sinus cases.

Postoperative care and long-term preventive strategies are equally important in ensuring successful outcomes. Proper wound care, lifestyle modifications, and patient education on maintaining hygiene are essential to minimize recurrence. Additionally, early recognition of symptoms and timely medical intervention can prevent disease progression and the need for more extensive surgical procedures.

Conclusion:

This case report presents a classic example of pilonidal sinus disease with successful surgical management using the Limberg Flap Technique. The patient responded well to treatment, and with proper wound care and adherence to preventive strategies, the prognosis remains favourable. This case highlights the need for awareness regarding early symptoms and timely medical intervention to prevent chronic complications associated with pilonidal sinus disease. The use of reconstructive techniques such as the Limberg Flap provides a more effective and durable solution, significantly improving patient quality of life and reducing the likelihood of recurrence.

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