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Case Report

Effective management of multiple pilonidal sinuses using the sinus laser closure technique: a case report

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ABSTRACT

Pilonidal sinus disease (PSD) is a prevalent condition that significantly affects young adults, particularly males. Despite the variety of treatment options proposed for managing this condition, a definitive gold standard has yet to be established. This case report details the management of multiple pilonidal sinuses in a 22-year-old male using the sinus laser closure (SiLaC) technique, a minimally invasive surgical approach. The patient presented with pain, discharge, and multiple sinus openings in the natal cleft, which had persisted for six months. Imaging studies confirmed the presence of multiple fluid-filled sinus tracts without abscess formation. The SiLaC procedure successfully obliterated the sinus tracts, resulting in rapid recovery and minimal postoperative complications. his case highlights the effectiveness of SiLaC in treating complex pilonidal disease and underscores its potential as a preferred treatment modality in similar cases. Future recommendations include larger studies to further validate these findings and explore long-term outcomes.

Keywords: Pilonidal sinus disease, Sinus laser closure, Young adults

INTRODUCTION

Pilonidal sinus disease (PSD) is a common condition, and is reported to affect 26 in 100,000 people.[1] The disease is prevalent in various populations, predominantly affecting young males aged 15 to 30 years.[2] The etiology of pilonidal disease is multifactorial; it is often associated with factors such as sedentary lifestyle, excessive body hair, obesity, and trauma to the area.[3]

The disease typically arises from hair follicles becoming obstructed and inflamed, leading to the formation of one or more sinus tracts in the natal cleft.[4] Understanding these underlying causes is crucial for effective management and prevention of recurrence.

The sinus laser closure (SiLaC) technique offers a modern advancement in managing multiple pilonidal sinuses. This minimally invasive approach effectively addresses the underlying pathology while providing key advantages over traditional surgical methods, such as reduced pain, quicker recovery, and lower recurrence rates.[5] This case report presents the application of the SiLaC technique in treating multiple pilonidal sinuses in a young male.

CASE REPORT

A 22-year-old male presented to our clinic with complaints of pain, discharge, and multiple cutaneous sinus openings located in the left paracentral aspect of the natal cleft.

These symptoms had persisted for six months and were associated with recurrent infections that caused significant discomfort and impacted his daily activities.

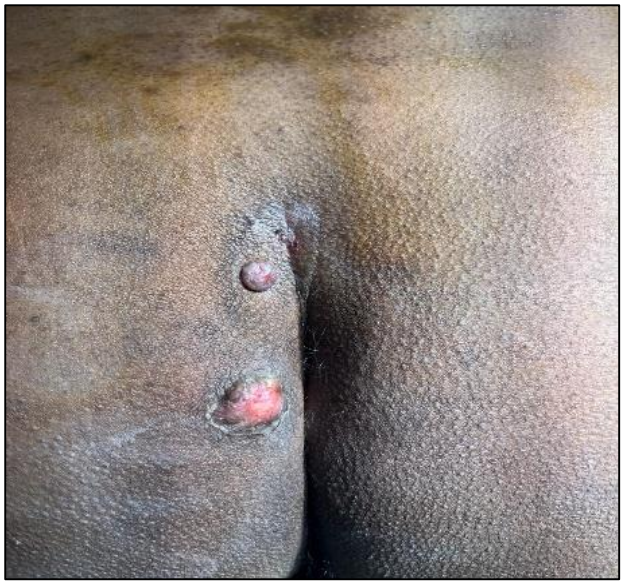

Figure 1: Multiple cutaneous sinus openings located in the left paracentral aspect of the natal cleft evaluation and imaging.

Clinical examination revealed external openings below the coccyx at the S5 vertebral level. To evaluate the extent of the disease, an MRI fistulogram was performed using STIR axial, sagittal, and coronal techniques:

Findings: The imaging revealed multiple sinuses extending from the S3 vertebral level to below the coccyx.

Characteristics: The sinus tracts were fluid-filled, with some measuring up to 3 cm in length.

Surrounding tissue: Notably, there was no involvement of bones, muscles, or anal sphincter; however, surrounding fat stranding and edema were indicative of inflammation.

Abscess formation: Importantly, there was no evidence of abscess formation or involvement of adjacent structures such as the anal canal or ischioanal fossae.

Management and surgical steps

The management of the patient with multiple pilonidal sinuses involved a comprehensive approach utilizing the SiLaC technique. The patient, a 22-year-old male, presented with pain, discharge, and multiple cutaneous sinus openings in the left paracentral aspect of the natal cleft, which had persisted for six months and were associated with recurrent infections.

Preoperative preparation: Before the surgical intervention, all sinus tracts were carefully evaluated. An MRI fistulogram was performed, revealing multiple fluid-filled sinuses extending from the S3 vertebral level to below the coccyx without involvement of adjacent structures such as bones or muscles. This imaging confirmed the diagnosis and helped delineate the extent of the disease.

Surgical procedure: Identification and Probing: The procedure began with a thorough examination under anesthesia to identify all sinus tracts. A fistula probe was used to delineate each tract accurately.

Laser closure: The SiLaC technique was employed, utilizing a 1470nm laser energy at 10 watts. Laser energy was delivered homogeneously along each identified sinus tract to obliterate the squamous epithelium lining effectively. This process involved:

Probing: Each sinus tract was probed to ensure complete identification.

Application of laser: Laser energy was applied along the length of each tract, causing thermal shrinkage and closure.

Irrigation: After laser application, thorough irrigation of the sinus tracts was performed to remove any debris and reduce the risk of postoperative infection.

Histopathological examination: The excised pits from the sinus openings were sent for histopathological analysis to rule out any malignancy or other pathological conditions.

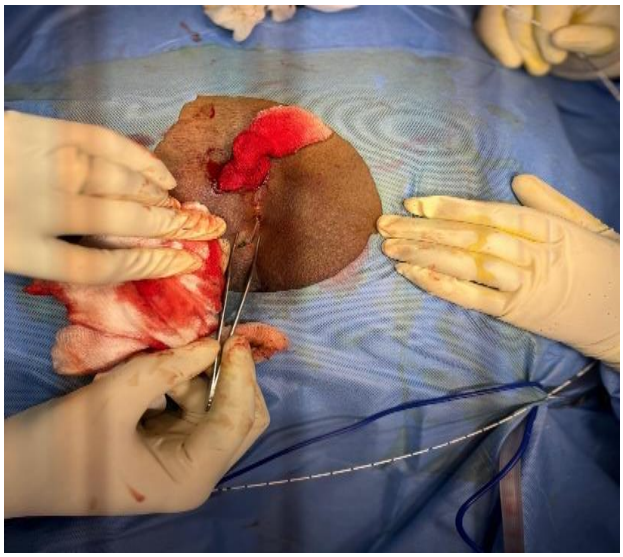

Figure 2: Patient undergoing SiLaC procedure to treat the pilonidal sinuses.

Postoperative care

The postoperative period was uneventful; the patient was monitored for any complications and discharged the following day. Follow-up assessments at one week and one-month post-surgery revealed that the wound was clean and healing well without complications. The patient reported significant improvement in symptoms and expressed high satisfaction with the procedure. This

combined management and surgical approach emphasizes the effectiveness of using SiLaC in treating complex pilonidal disease while minimizing recovery time and postoperative discomfort.

DISCUSSION

PSD is a condition that poses significant challenges in management, particularly due to its recurrent nature and the discomfort it causes patients.[6] The multifactorial etiology of PSD primarily involves hair becoming embedded in the gluteal fold, provoking a foreign body reaction that leads to inflammation and the subsequent formation of sinus tracts.[3] This case report highlights the successful application of the SiLaC technique in treating multiple pilonidal sinuses, demonstrating its effectiveness in managing this often debilitating condition. The findings from this case align with existing literature that emphasizes the benefits of minimally invasive techniques over traditional surgical approaches, which typically involve more extensive excision and longer recovery times.[5,7]

The SiLaC technique offers several advantages that are particularly relevant to the patient population affected by pilonidal disease. Notably, patients undergoing SiLaC report reduced postoperative pain and a quicker return to normal activities compared to those who have undergone conventional surgical methods.[5,7] Additionally, initial studies suggest that laser closure may result in lower recurrence rates, although further long-term data is necessary to substantiate these claims fully.[8] This case contributes to the growing body of evidence supporting minimally invasive techniques in pilonidal sinus management, highlighting their role in improving patient outcomes and satisfaction. Future research should focus on larger cohorts to validate these findings and explore the long-term efficacy of SiLaC in diverse populations. Moreover, understanding patient-specific factors that contribute to disease recurrence will be crucial for tailoring preventive strategies and enhancing treatment protocols for pilonidal sinus disease.

CONCLUSION

This study contributes valuable insights into managing multiple pilonidal sinuses using the SiLaC technique. It highlights the effectiveness of this minimally invasive approach in achieving successful outcomes with minimal complications. Specific significance lies in demonstrating that SiLaC can be an effective treatment option even for patients with extensive disease. Future recommendations include conducting larger-scale studies to validate these findings further and explore long-term outcomes associated with SiLaC treatment. Limitations of this study include its single-case nature; thus, broader research is necessary to generalize these results across diverse populations.

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