

Original research article

## SiLat (Sinus Laser Therapy) for Pilonidal Sinus: A Case Series at Tertiary Care Center

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### Abstract

**Background:** Sacrococcygeal pilonidal sinus is a common anorectal disorder with no clinical consensus on its optimal management. It requires intervention upon infection or electively to prevent pain and discomfort to patients. It has an incidence of 27 per 100,000 and is most commonly observed in the 15-30 years age group, with a 3:1 male-to-female ratio.

**Methodology:** A case series of 9 patients (7 male and 2 female) of ages 18-70 years, with pilonidal sinus admitted under the Department of General Surgery at Apollo General Hospital, Film Nagar, Hyderabad from June 2019 to October 2022, who were treated with debridement followed by SiLat were studied post-operatively and followed-up at serial intervals to assess the complications and recurrence of the disease and data compared with SiLat results available in the literature.

**Results:** None of the patients (0 out of 9) had major postoperative complications. The average pain was reported to be 2.5 on the VAS. Analgesics were used for 5 days postoperatively and all patients returned to work within 3 days. All patients had serous discharge upto 2 weeks. One patient developed purulent discharge with pain which resolved on antibiotic therapy. There were no cases of recurrence at 6 month check up.

**Conclusion:** Sinus Laser Therapy (SiLat) is found to be an effective procedure for the primary treatment of pilonidal sinus in view of post-procedure recurrence and complications.

**Keywords:** pilonidal sinus; laser ablation; minimally invasive; Anosacral disease; sacrococcygeal cyst; SiLat

### Introduction

The pilonidal sinus is a common anorectal abnormality of the sacrococcygeal area in the natal cleft. It was believed to be congenital, originating from the caudal remnant of the neural tube

or sequestered ectodermal tissue during development. (1) However, the tract is lined by squamous epithelium continuous with the epidermis, which indicates an acquired cause of disease. These days, the pathogenesis of pilonidal sinus is believed to be foreign body reaction and subsequent granuloma, due to suction of hair into the follicles. (2) The appearance can be described as tufts of hair embedded in granulation in subcutaneous tissue.

Its incidence is 27 out of 100,000 (3). It has been associated with obesity, sedentary lifestyle, bathing less than twice a week, stiff body hair and the male sex. (4)

Intervention in pilonidal sinus is only required when infected. However, elective treatment is done to prevent discomfort and pain to the patient, and to avoid potential complications.

There is no single gold standard treatment for pilonidal sinus. The surgical treatment involves tissue excision followed by either primary or secondary healing. Depending on the case, the amount of devitalized tissue removed and the method of closing the defect is determined. In secondary healing the wound is left open. Primary healing methods consist of a wide range, from simple sutures to complicated plastic reconstruction grafts. They heal quicker but are associated with a high recurrence rate. (1) Highly invasive methods of primary closure such as Z-Plasty (4), Karydakias Plasty (5), Bascom flap (6) and Limberg flap (7) have shown an increased rate of recurrence.

There is growing evidence to prove laser therapy as an effective treatment measure of Pilonidal Sinus. In this case series we refer to it as SiLat, an acronym for Sinus Laser Therapy coined by Pappas et Al. (8) it is minimally invasive, and clinical results show low morbidity and recurrence rates.

The following is a case series of 9 patients who were treated with SiLat. These cases were reviewed and taken as the basis for the current study to audit and compare with the pre existing literature on treatment modes of pilonidal sinus.

### **Methodology:**

The present study was conducted between June 2019 - September 2022 at Apollo General Hospital, Film Nagar.

#### **Inclusion Criteria:**

- Patients above 18 years of age and below 70 with clinical diagnosis of pilonidal sinus.
- Patients with either one or more pilonidal sinus defects
- Elective admission

#### **Exclusion Criteria:**

- Pilonidal fistula
- Associated with abscess
- Associated with bone involvement (coccygeal)

A total of 9 cases were treated with laser ablation during this period. Laser with a wavelength of 1470nm and energy of 100 Joules/cm with radial/ bare fiber was given in continuous mode.

### **Procedure:**

The patients were taken on OPD basis, history was taken, symptoms and signs were noted followed by general and local examination and admitted in male/female wards respectively.

The patients underwent preoperative testing of standard surgical profile and X-ray sinogram. The anatomy of the sinus tract was delineated during the X-ray sinogram using an injection of iodinated dye.

Prophylactic antibiotic (inj. Cefotaxime 1g) was administered 1 hour prior and the procedure was done under spinal anesthesia or caudal block. Aseptic precautions were taken and the site was cleaned using Betadine.



**Figure 1:** Insertion of fistula probe into the sinus/fistula tract to delineate anatomy (post debridement)



**Figure 2:** SiLat: Laser fiber in situ

In the surgery, a tract was made resembling a fistula. Thorough debridement was performed using a Volkmann Scoop, followed by a saline-hydrogen peroxide wash.

The complete sinus tract was ablated with a 1470nm, 15W strength laser using 100J/cm. The time taken for debridement was on average 12 minutes and for laser ablation 2.5 minutes.

(Figure 2 and 3) Therefore, it can be concluded that on average a 12cm fistula was ablated in 2 minutes using 1200J of energy.

Post operative analgesics were prescribed for 5 days (single drug NSAID) according to WHO analgesia ladder.

Follow up was done regularly 2 weeks post procedure, after 1 month, 3 months and 6 months. The pain score was assessed post operatively and recurrence at the 6 month follow up. Complications were studied.



**Figure 3:** SiLat – cold compression

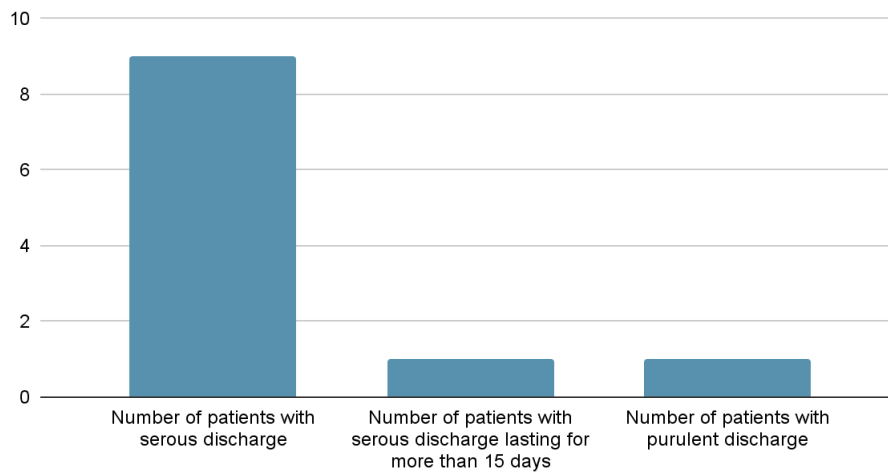


**Figure 4:** The end result after SiLat

### **Results:**

All nine of the patients presented with serous discharge at the first follow up, however all cases of discharge subsided by the one month follow up. Purulent discharge was found in one patient, who was administered a seven day course of antibiotics (amoxicillin and clavulanate) which resulted in clearing of symptoms.

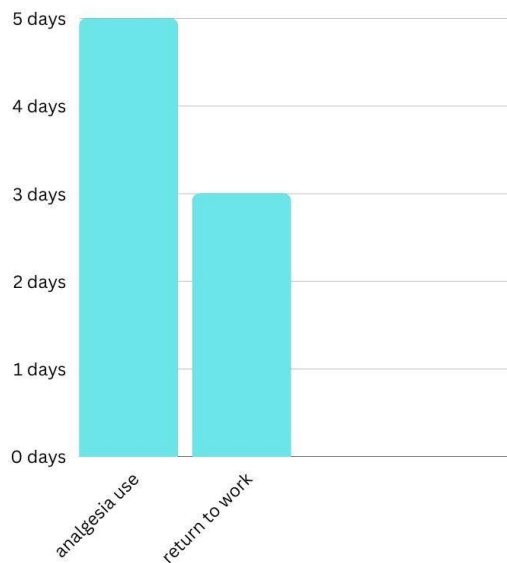
Post-operative data



**Graph 1:** complications in follow up data

All patients took analgesia of single drug NSAID for 5 days postoperatively. The self reported pain score was on average 2.5 on the Visual Analogue Scale.

All the patients could return to daily activities and work by the third day postoperatively.



**Graph 2:** post operative data

None of the patients had any major postoperative complications.

The pain score recorded was on an average 2.5. By the third day postoperatively they returned to their daily activities and work.

As compared to more invasive surgical procedures SiLat causes less lifestyle disturbances and the postoperative complications are markedly reduced. This procedure causes less discomfort to the patient owing to less surgical site dressing sessions and minimized chances of infections. Hence it enhances patient quality life.

**Discussion:** The present results of our case series of SiLat for pilonidal sinus were compared to standard literature.

No recurrences were observed in all 9 of our patients while, in a study by Pappas et Al, the recurrence rate was found to be 2.9%. (8)

The mean duration of analgesic use after surgery was found to be 5 days in the present case series. This agrees with the mean duration reported by Dessily et Al (9) as 4.9 days of analgesia.

The average time of our patients returning to work was 3 days postoperatively. In a study by Pappas et Al, 92.8% of patients could return to work immediately (8). This indicates a short duration of convalescence compared to other surgical repairs. Gilani et al (10) found that the mean time to return to work after primary closure was 25.5 days, while the mean time to return to work was 7 days in patients with rhomboid flap(11)

Among our patients, the average postoperative pain score was found to be 2.5 on VAS (Visual Analogue scale) was comparable with other studies (8)

Antibiotics were used after surgery to treat postoperative infection only in one patient. As reported above, the symptoms subsided during the course of the antibiotics.

**Conclusion:**

The follow up results of our study demonstrate SiLat as an excellent treatment for pilonidal sinus providing better cosmetic, functional results without much of dressing sessions, wound infections, and low rate recurrence against surgical flap repair. No mortality in the case series.

**Limitation of study:**

In our study the sample size is small hence this study requires to be proved with the bigger data and further meta-analysis is indicated.

**Conflict of interest:** There is no conflict of interest in the article.

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