

## Short Term Outcomes of Endoscopic Pilonidal Sinus Laser Treatment: A Single-Centre Experience

Francesco Cantarella<sup>1\*</sup>, MD, PhD;  Enrico Magni<sup>1</sup>, MD

<sup>1</sup>Unit of Proctology, Ospedali Privati Forlì, 47121, Forlì, Italy

### \*Corresponding authors:

Francesco Cantarella, MD, PhD;  
Unit of Proctology, Ospedali Privati Forlì, 47121, Forlì, Italy  
Email: fcanta81@gmail.com

Received: 05-05-2020

Revised: 05-06-2020

Accepted: 12-06-2020

### Abstract

Pilonidal sinus (PS) is a widespread pathologic condition. The etiology of pilonidal disease (PD) is in favor of an acquired cause. Multiple surgical options have been advocated. In the last few years, a minimally-invasive approach to PD has been proposed. We performed a retrospective analysis of short-term surgical outcomes of combining the Endoscopic Pilonidal Sinus Treatment (EPSiT) approach with the use of a radial laser fiber in the treatment of PD in a single center. At our proctology center, we performed 10 consecutive 'EPSiT-Laser' procedures in the period from March 2019 to September 2019. The review of our initial experience suggests that the combination of fistuloscopy and laser ablation in treating fistulizing PD is feasible, safe, and reproducible.

**Keywords:** Pilonidal disease, Laser ablation, Fistuloscopy, Minimally Invasive Surgery

Please cite this paper as:

Cantarella F, Magni E. Short term outcomes of Endoscopic Pilonidal Sinus Laser Treatment: A Single-Centre experience. *Ann Colorectal Res.* 2020;8(2):93-96. doi: 10.30476/ACRR.2020.46700.

### Introduction

Pilonidal sinus (PS) is a widespread pathologic condition, especially among young adults, with an estimated incidence of about 26 cases out of 100,000 (1). In particular, male patients have a double increase risk of being affected.

The etiology of pilonidal disease (PD) is in favor of an acquired cause, namely the obstruction of hair follicles in the natal cleft (2). Risk factors for the development of PD are the male gender, obesity, sitting for long periods of time, repetitive trauma to the sacrococcygeal region, excess body hair, and poor hygiene (3, 4).

Multiple surgical options have been advocated (5). Complete PD excision and healing by secondary

intention is painful, resulting in large wounds that require frequent postoperative clinic visits for dressing and entailing a reduction in quality of life (6). A more favored approach seems to be excision of the PS and primary closure with off-midline closure or flap-based procedures (5). Radical surgery is still the cornerstone of treatment in many countries, yielding good long-term results, but at the expense of postoperative complications, prolonged hospital stay, delayed resumption of normal daily activities, substantial pain and discomfort, sub-optimal aesthetic results, and recurrence (7, 8). In the last few years, a minimally-invasive approach to PD has been proposed.

The Endoscopic Pilonidal Sinus Treatment (EPSiT) approach was first described by Meinero (9), gaining

success over the years. This technique allows the treatment of PD by direct vision using a fistuloscope (Karl Storz, Germany). The instrument is inserted into the external opening of the pilonidal sinus, while a constant flush of mannitol solution helps to open up the tracts. Through the operative channel, thanks to endoscopic forceps, the surgeon is able to remove hair and debris. Later, by means of a monopolar electrode, the epithelialized sinus tracts are destroyed. Necrotic material is removed using an endobrush. The procedure is completed with endoscopic hemostasis.

Encouraging results come also from the results of a new technique (10) called Pilonidal Laser Treatment (PiLaT). This approach is based on the use of a diode laser with a wavelength of 1.470 nm (FiLAC™, BioLitec, Germany). A radial fiber allows both the permanent destruction of the epithelial lining of the pilonidal cyst as well as proper healing.

## Methods

We performed a retrospective analysis of short-term surgical outcomes of combining the EPSiT approach with the use of a radial laser fiber in the treatment of PD in a single center. We called this technique the EPSiT-Laser method.

All the procedures were performed by the same surgical team trained in both the EPSiT and PiLaT approaches (F.C. and E.M.).

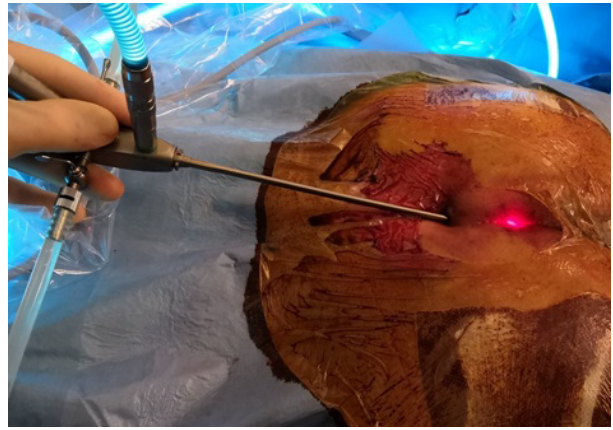
Patients were referred to the Proctology Clinic for PD. In all cases, they were encouraged to shave the natal cleft before surgical treatment. In Table 1, the patient characteristics are summarized.

**Table 1:** Patient characteristics

Characteristics	Data
Number of patients	10
Male	8
Female	2
Mean age (y)	23
Previous PS surgery	0
Mean number of pits	2,4
BMI > 30 (n)	3
Hirsutism (n)	6
Pilonidal abscess	0

Preoperative evaluation was based on the record of a detailed medical history and a clinical evaluation. All patients were affected by fistulizing PD without any signs of acute infection. A detailed surgical consent was signed by all patients.

Patients were operated in a day hospital (DH) setting under spinal anesthesia in prone position. Fistuloscopy was performed with the use of saline instead of mannitol solution. Hairs and debris were removed and PS was treated with a radial laser fiber. Laser generator was set at a power of 8 watts and 100 to 120 joules were delivered for each centimeter of the fistulous tract (Figure 1). The small surgical



**Figure 1:** An image of the procedure

access was covered with a light dressing.

The aim of the present study was to report the short term outcomes in combining two minimally-invasive approaches in the treatment of PD.

## Results and Discussion

At our Proctology Clinic, we performed 10 consecutive EPSiT-Laser procedures in the period from March 2019 to September 2019. The majority of patients were male (n=8) with a mean age of 23 years (range: 18-30). Operative time ranged from 30 min to 1 hour. Intraoperative blood loss was nil. No intraoperative complications were recorded.

Early post-operative complications (within 30 days of operation) were represented by post-operative urinary retention (n=3) with the need of temporary urinary catheterization (n=2), local pain and swelling (n=2) treated conservatively, and incomplete healing with persistent serous drainage (n=1).

The numerical rating scale (NRS) was used for post-operative pain evaluation. Mean NRS value at hospital discharge was 2.8 (range 2-5). All patients were discharged on the same day of the operation. They were instructed to remove the dressing the day after and allowed to shower. Pain was controlled well with oral acetaminophen. In two patients, oral NSAIDs were prescribed for the first 72 hours to control pain and to reduce local swelling. All patients resumed their normal activities after five days.

Regarding late complications, we recorded one case of incomplete healing at three months follow up. The patient was re-scheduled for a second EPSiT-Laser procedure. During the endoscopic phase, multiple hairs were retrieved, probably being the reason for the incomplete healing. The second follow-up at six months was regular.

In all other patients (n=9) the follow up at six months was uneventful.

Multiple invasive techniques have been proposed over the years for the treatment of PD. These techniques should probably be reserved for extensive primary disease or for cases of recurrence when a less invasive method has failed (6).

Less invasive procedures should receive more attention at the present time, considering that we are dealing with a benign disease where the vast majority of patients are young adults.

Minimally-invasive procedures, in PD, aim at treating the disease locally with destruction and shrinkage of the PS, instead of removing it with collateral damage to healthy surrounding tissues (11, 12).

The EPSiT method allows hair removal under direct vision, destruction of the epithelial lining, and subsequent closure of the primary sinus with minimal incision and discomfort. A high success rate similar to the best reports regarding the open approach are highlighted in a recent meta-analysis (13) without the need for longer hospitalization, pain, and prolonged interruption of daily activities.

Encouraging results regarding PiLaT have recently been published (10). In particular, the efficacy of laser fiber is in the proper obliteration of the tract. The latter is easily demonstrated by the inability to push back the fiber to the original depth of the sinus as a result of the shrinkage effect, extensively underlined by Wilhelm et al. (14) in their publication regarding fistula laser closure (FiLaC).

In our preliminary experience, the combination of the two techniques allows a diagnostic endoscopic phase with the correct identification of sinus anatomy, followed by an operative phase involving the initial clearing of the tracts from hair and debris before the laser destruction of the epithelialized lining of PS. Laser energy, when compared to monopolar, has both a denaturing and shrinking effect. In addition, the entire procedure is performed under vision avoiding the “blind” treatment proposed in the PiLaT technique (10).

Lack of pain, absence of a scar, easy self-management at home, faster recovery and return to daily activities, and a low risk of wound dehiscence or recurrence may explain the high satisfaction rate reported in our study. Furthermore, this technique can be easily repeated, and, in cases with recurrence, patients, if well informed, prefer to repeat the

minimally-invasive treatment rather than being immobilized for weeks after a traditional treatment.

In our small cohort of patients, we experienced a single relapse. This might be explained by the persistence of hair and debris during the first surgery. We strongly believe that accurate diagnostic phase by means of fistuloscopy allows a good clearance of the fistulous tracts, avoiding any undrained areas. Moreover, patients are encouraged to keep the natal cleft completely shaved until the healing process is complete.

## Conclusions

The review of our initial experience suggests that the combination of fistuloscopy and laser ablation in treating fistulizing PD is feasible, safe and reproducible. The treatment is performable in the DH setting. It allows a swift return to normal daily activities. In case of relapse, a second minimally-invasive treatment is proposed.

## Authorship Contributions

All authors have made substantial and significant contributions to this work.

## Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the Institutional and/or National Research Committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

## Patient Consent

Informed consent was obtained from all individuals included in the study.

**Conflicts of interests:** None declared.

## References

- Søndena K, Andersen E, Nesvik I, Søreide JA (1995) Patient characteristics and symptoms in chronic pilonidal sinus disease. *Int J Colorectal Dis* 10(1):39–42.
- Thompson MR, Senapati A, Kitchen P (2011) Simple day-case surgery for pilonidal sinus disease. *Br J Surg* 98:198–209.
- Al-Khayat H, Al-Khayat H, Sadeq A et al (2007) Risk factors for wound complications in pilonidal sinus procedures. *J Am Coll Surg* 205:439–444.
- Harlak A, Menten O, Kilic S, Coskun K, Duman K, Yilmaz F (2010) Sacrococcygeal pilonidal disease: analysis of previously proposed risk factors. *Clinics* 65:125–131.
- Chintapatla S, Safarani N, Kumar S, Haboubi N (2003) Sacrococcygeal pilonidal sinus: historical review, pathological insight and surgical options. *Tech Coloproctol* 7:3–8.
- Segre D, Pozzo M, Perinotti R, Roche B (2015) The treatment of pilonidal disease: guidelines of the Italian Society of Colorectal Surgery (SICCR). *Tech Coloproctol* 19:607–613.
- Shabbir J, Chaudhary BN, Britton DC (2011) Management of sacrococcygeal pilonidal sinus disease: a snapshot of current practice. *Int J Colorectal Dis* 26(12):1619–1620.
- McCallum IJ, King PM, Bruce J (2008) Healing by primary closure versus open healing after surgery for pilonidal sinus: systematic review and meta-analysis. *BMJ* 336(7649):868–871.
- Meinero P, Mori L, Gasloli G (2014) Endoscopic pilonidal sinus treatment (E.P.Si.T.). *Tech Coloproctol* 18(4):389–392.

10. Georgiou GK (2018) Outpatient laser treatment of primary pilonidal disease: the PiLaT technique. *Tech Coloproctol* 22:773–778.
11. Giarratano G et al (2017) Endoscopic pilonidal sinus treatment: long-term results of a prospective series. *JSL* 21(3):e2017.
12. Emile SH et al (2018) Endoscopic pilonidal sinus treatment: a systematic review and meta-analysis. *Surg Endosc* 32(9):3754–3762.
13. Meinero P, Stazi A, Carbone A, Fasolini F, Regusci L, La Torre M. Endoscopic pilonidal sinus treatment: a prospective multicentre trial. *Colorectal Dis.* 2016;18:O164–O170.
14. Wilhelm A, Fiebig A, Krawczak M. Five years of experience with the FiLaC™ laser for fistula-in-ano management: long-term follow-up from a single institution. *Tech Coloproctol.* 2017 Apr;21(4):269-276.