

**RESULTS OF LASER ABLATION THERAPY IN PILONIDAL SINÜS**

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**ABSTRACT**

Minimal invasive treatments for pilonidal sinus has been getting popüler in recent years. Laser ablation is easy, safe and effective as an alternative minimal invasive technique. Last two years we prefer to use laser ablation as the first treatment modality in our practice. Even though repeated application may be needed, short and easy application makes this technique advantageous. We investigate its effectiveness in terms of healing and complication rate. **Conclusion:** Laser ablation is effective in pilonidal sinüs with good success rate and fewer complications.

**KEYWORDS:** Laser ablation, pilonidal sinüs, minimal invasive.**INTRODUCTION**

Pilonidal sinus is the most common chronic disease of the sacrococcygeal region. In a study conducted in the Turkish army, the incidence was found to be around 8% while some studies reported the worldwide incidence as 26/100,000.<sup>[1-5]</sup> Surgical excision and flap repair is an effective treatment option with low recurrence rates but patients need 2-3 weeks to turn back to their daily lives.<sup>[6]</sup> Laser ablation as a minimally invasive method is an easy, safe, effective method, and also a good alternative to surgical treatment.<sup>[7]</sup> We preferred the diode laser that is recommended due to its fiber optic head that can radiate heat energy up to 360 degrees.<sup>[8]</sup>

**MATERIALS AND METHODS**

Between 2018-2020, laser ablation was applied to 22 patients with the diagnosis of chronic primary pilonidal sinus at Acibadem Fulya Hospital. We preferred the diode laser that is recommended due to its fiber optic head that can radiate heat energy up to 360 degrees.<sup>[8]</sup> Diode, 1470 nm and 13 w laser energy source were used for this process. Antibiotics were not administered before the procedure. After debridement and washing (with H<sub>2</sub>O<sub>2</sub>) of the sinus tract, laser ablation was performed under local anesthesia. At the end of the procedure, which takes around 10 minutes, the wound was covered with a dressing and the patient was discharged. Paracetamol was used as an analgesic after ablation. Patients were followed weekly during the first months and monthly in the following 6 months. Patients with persistent discharge at the end of the second week received laser ablation for the second time. Pain, bleeding and infection were accepted as early

complications, and patients with persistent discharge at the end of the sixth month were accepted as 'unhealed'. Pain was evaluated according to the need for paracetamol use, bleeding was followed with the presence of blood in the dressings, and infection was followed with the presence of redness or warmth in the area. The demographic characteristics of the patients are summarized in Table 1. This study was designed according to the ethical standards formulated in the Helsinki Declaration of 1964, revised in 2013. We have also got written informed consent for publication of the figure 1.

**RESULTS**

While the mean age of 22 patients (15 men and 7 women) was 23.6 (14-36) in total, the mean was 24.5 (14-36) for men and 21.7 (16-31) for women. Laser was applied to all of our patients and 12 patients' ablations were repeated at the end of the second week. No complications (bleeding or infection) developed in any of our patients. The mean paracetamol need of the patients was 1.5 tablets (0-4). At the end of the sixth month, 6 patients with persistent discharge with open sinus orifice were considered as 'insufficient recovery'. Table 2 summarizes these results.

**Table 1: Demographics of the patients.**

Gender	No. of Patients	Mean Age
Woman	7	21,7 (16-31)
Man	15	24,5 (14-36)

**Table 2: Results of laser therapy in 6 months.**

	2. Week	6. Month
No. of patients with infection	-	-
No. of patients with hemorrhage	-	-
No. of patients with leakage	12	6
Healing Rate	45 % (10/22)	73 % (16/22)

**Figure 1: Laser beam and its application through the sinus tract.**

## DISCUSSION

Although a complete consensus on the ideal treatment has not been achieved, many procedures to treat pilonidal sinus disease have been developed in the recent years. In the last 10 years, non-operative treatment options that do not require hospitalization, are easy to apply, and have low costs have been getting popular.<sup>[9-12]</sup>

Open or marsupialization techniques have been abandoned since they require a long treatment period. Other popular flap techniques such as Karydakis, Limberg and Bascom have low recurrence rates, though their recovery time of 3-4 weeks and high morbidity rates reveal the search for alternative minimally invasive methods. Phenol application is one of these alternatives. However, painful period after the procedure and high recurrence rates (27%) even after repeat applications are the disadvantages of this technique.<sup>[10,11]</sup> In 2012, C. Lindholt-Jensen first reported a healing rate of 75.7% in a series of 41 patients whose pilonidal cysts were treated percutaneously with Nd-YAG laser waves.<sup>[13]</sup>

It is the energy source given at the tip of the probe consisting of a generator and a radial emitting laser probe, and applied homogeneously at 13 watts and 1470nm wavelengths (Figure 1). With the energy it emits, it creates a temperature increase of 60-70°C in the surrounding tissue, destroying the squamous epithelial layer and the granulation tissue, causing the sinus and canal to shrink.<sup>[14,15]</sup> With a wavelength of 1470 nm, the radial penetration depth is limited to 2-3 mm, so it is advantageous with more shrinkage in the cyst and less thermal effect on the surrounding tissue compared to

simple electrocoagulation.<sup>[16]</sup> In addition, laser ablation was found to be more advantageous in comparison with primary closure.<sup>[7]</sup>

After the laser application performed under local anesthesia, all of our patients were sent home, and none of our patients stayed at the hospital. While 10 patients (45%) recovered after the first session of laser ablation, 12 patients underwent laser ablation for the second time at the end of the second week. At the end of the sixth month, a total of 16 (73%) patients were treated, while 6 (27%) patients received surgical treatment due to insufficient recovery. No complications were observed in any of our patients. Laser ablation of pilonidal sinus is an easy, fast and effective method done with local anesthesia, which makes it very advantageous. With a mean paracetamol use of 1.5 tablets, all of our patients returned to their normal lives the next day after the procedure.

## CONCLUSION

Even if additional ablation may be required, laser ablation of pilonidal sinus is an effective and uncomplicated method that can be preferred as a first step treatment choice of pilonidal sinus disease.

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