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CASE REPORT

Treatment of recurrent pilonidal cysts with nd-YAG laser: report of our experience

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ABSTRACT

Purpose: Surgical treatment remains the first-line therapy of pilonidal cyst but is associated with high levels of postoperative pain, adverse events and a recurrence rate of 30%. We report our experience with laser hair removal using the Nd-YAG laser for the treatment of pilonidal cyst.

Materials and methods: Ten patients affected by pilonidal cyst were examined and treated from October 2011 to November 2016. Treatments were carried out using the Nd-YAG laser (Deka M.E.L.A, Calenzano, Florence, Italy) at a wavelength of 1064 nm at 30-day interval.

Results: Nine patients were asymptomatic after the second treatment, while in one case the symptom disappeared after the fourth session. After 4–8 treatments, the pilonidal cyst had clinically disappeared and patients subjectively felt healed. In all cases, the soft-tissue ultrasounds performed before the first and after the last session showed the disappearance of the pilonidal cyst. In the follow-up, all the patients remained asymptomatic without any disease recurrence.

Conclusions: Nd-YAG laser is an effective treatment for pilonidal cysts, providing excellent results with quick healing and no risk of serious adverse side-effects. It could be a very attractive alternative to open surgery, enabling patients to prevent the frequent and severe postoperative issues associated with surgery.

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Pilonidal cyst; laser; Nd-YAG laser; surgery

Introduction

Pilonidal cyst is a chronic inflammatory disease of the natal cleft that mainly affects teenagers and young adults. This is a dermoid cyst containing hair bundles that can produce a sinus tract opening to the skin surface (1). Pilonidal cyst is very painful, debilitating and has an extremely negative impact on the patients' quality of life. To date, surgical treatment remains the first-line therapy but is associated with high levels of post-operative pain, a lengthy healing and recovery process, a considerable incidence of adverse events, but above all has a recurrence rate of 30% (2). The persistence of hair at the surgical site seems to hamper the secondary healing process after surgery, leading to wound dehiscence and infection and is considered the main cause of the high incidence of postoperative relapse. In recent years, laser epilation using various techniques has become increasingly useful in reducing the risk of relapse after pilonidal cyst surgery. We report our experience with laser hair removal using the Nd-YAG laser for the treatment of pilonidal cyst.

Materials and methods

Ten patients affected by pilonidal cyst who referred consecutively to our outpatient service, were examined and treated from October 2011 to November 2016. The study was carried out according to the principles of the Declaration of Helsinki and informed consent was obtained from all patients for the treatment and release of photographic images for scientific purposes. All subjects had pilonidal cysts for many years and all had experienced one or more previous surgical procedures leading to poor results and recurrences. Exclusion criteria were the presence of an open wound, a dark phototype or very light hair and lack of consent to the study. Treatments were carried out using the Nd-YAG laser (Deka M.E.L.A, Calenzano, Florence, Italy) at a wavelength of 1064 nm at 30-day interval. The number of sessions was variable with an average of 6 (range 4–8). A fluence of 32 J/cm^2 was achieved with one 20 ms pulse, frequency 1 Hz and using a 15-mm circular handle. In one rather more resistant case, we used a 20 mm handpiece in order to achieve greater penetration and obtain the desired results (one 20 ms pulse with fluence of 18 J/cm^2). A dynamic cooling system was used during and after the laser session and an antibiotic cream was applied after treatment. Digital pictures for each patient were taken at the first and last visits with a digital camera system (Anthology DekaMelaSrl, Calenzano, Florence, Italy).

In order to assess the effectiveness of our treatment, patients were invited to perform a soft-tissue ultrasound before the first and after the last session. Follow-up after the last treatment was performed after 2–4 years.

Results

The study was carried out on 10 patients with a pilonidal cyst. Three were females and seven males, aged between 18 and 55 years (mean age 36.5), Fitzpatrick phototypes I–III.

Mild erythema developed immediately after treatment which lasted a few minutes. Patients generally reported slight pain, and treatment was generally well tolerated. Nine patients were asymptomatic after the second treatment, while in one case the symptom disappeared after the fourth session. After 4–8 treatments, the pilonidal cyst had clinically disappeared and patients

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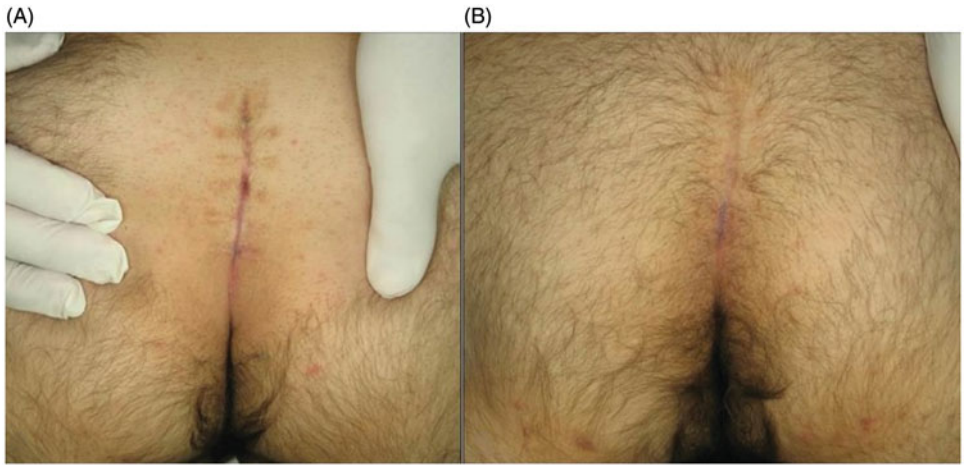

Figure 1. Clinical photographs of a patient who had had two previous surgical interventions with recurring pilonidal cyst. (A) before and (B) after Nd-YAG laser treatment.

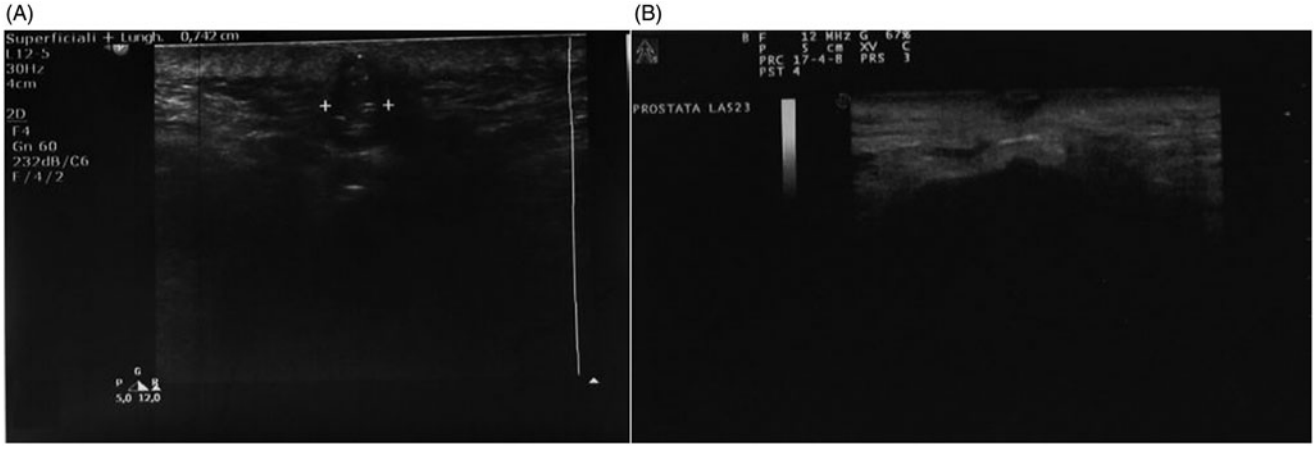

Figure 2. Ultrasound images (A) before and (B) after Nd-YAG laser treatment. The disappearance of pilonidal cysts can be appreciated.

subjectively felt healed. The clinical outcomes are highlighted in Figure 1(A,B).

In all cases, the soft-tissue ultrasounds performed before the first and after the last session showed the disappearance of the pilonidal cyst (Figure 2(A,B)). In the follow-up after the last treatment, all the patients remained asymptomatic without any disease recurrence. Nonetheless we repeated the ultrasound examination.

Discussion

In the present study, we report our experience with the Nd-YAG laser in the treatment of pilonidal cyst. In all patients, pilonidal cysts clinically and sonographically disappeared with maintenance of the results over time.

Pilonidal cyst is considered to be caused by penetration of broken terminal hairs into the adipose tissue with subsequent development of an inflammatory foreign body reaction that can create multiple microabscesses and fistulas (3). Therefore, the presence of hair seems to be a central element in the etiology of the disease, which management should be directed to treat. It has been found that frequency of recurrence and severity correlate with density of hair growth in the gluteal region (3).

Laser epilation is a very effective method to reduce hair growth and various laser devices have been tested in the treatment of pilonidal cyst, especially postsurgical relapse. In a recent work, a long-pulsed alexandrite laser was used in the sinus area to treat pilonidal cyst, displaying a significant reduction in hair density and a significantly longer disease-free period after laser treatment than after surgical treatment (4). The Nd-YAG laser has also been successfully used (3,5) but to date no study has carried out an ultrasound evaluation at the beginning and end of treatment. The Nd-YAG laser is able to penetrate deeply into the skin, the energy is absorbed by melanin and oxyhemoglobin and leads to destruction of the pigmented hair follicles and reduction of inflammation.

In our study, none of the patients who underwent Nd-YAG laser treatment showed pilonidal cyst recurrence. The only documented reactions were a slight pain and a transient erythema, but no prominent adverse outcomes were found. Treatment was generally well tolerated and provided quick, effective hair reduction, with absence of symptoms sometimes even from the second treatment onwards. Soft-tissue ultrasound repeated at the end of treatment highlighted the disappearance of the lesion in all cases, enabling us to demonstrate our results.

We have shown that the Nd-YAG laser is an effective treatment for pilonidal cysts, providing excellent results with quick healing and no risk of serious adverse side-effects. Therefore, the Nd-YAG laser could be a very attractive alternative to open surgery, enabling patients to prevent the frequent and severe postoperative issues associated with surgery. Additional randomized studies on larger sample sizes should be carried out in order to confirm these results.

Disclosure statement

The authors report no conflicts of interest.

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