

Use of Lasers for the Management of Refractory Cases of Hidradenitis Suppurativa and Pilonidal Sinus

Background: Hidradenitis suppurativa (HS) and pilonidal sinus (PNS) are chronic inflammatory skin diseases, often refractory to treatment and search for a new treatment is on. We tried deroofting with the help of carbon dioxide laser in patients of HS and PNS, however there was recurrence. **Aim:** To evaluate a technique combining the use of CO₂ laser and long pulse 1064 nm Neodymium-doped Yttrium Aluminium Garnet (Nd:YAG) laser for the treatment of HS and PNS. **Materials and Methods:** In 4 patients with HS and 5 patients with PNS, we performed procedure in two steps: first destroying the hair follicles with long pulse Nd yag 1064 laser followed by deroofting with carbon di oxide laser. Follow up was done upto 3 years. **Results:** All patients with HS were females in the age group of 30-40 years. In PNS, 2 male patients were of age less than 20, two male patients of age more than 20 and one females of age less than 20. None of the HS or PNS patients showed recurrence. **Conclusion:** The deroofting with CO₂ laser along with hair follicle removal with long pulse Nd:YAG laser is an effective minimally invasive tissue saving surgical intervention for the treatment of refractory HS and PNS lesions.

KEY WORDS: Hidradenitis suppurativa, PNS-pilonidal sinus, Carbon dioxide laser, Long pulse Nd:YAG Laser

INTRODUCTION

Hidradenitis suppurativa (HS) is a chronic inflammatory skin disease. It is also known as acne inversa and is usually refractory to treatment. It is now considered as a disease of follicular occlusion rather than an inflammatory or infectious process of the apocrine glands. Clinically, the disease often presents with tender subcutaneous nodules beginning around puberty. The nodules may spontaneously rupture or coalesce, forming painful, deep dermal abscesses. Eventually, fibrosis and the formation of extensive sinus tract may occur.^[1]

A pilonidal cyst, also referred to as a pilonidal abscess, pilonidal sinus (PNS) or sacrococcygeal fistula is a cyst or abscess near or on the natal cleft of the buttocks that often contains hair and skin debris. It involves mainly apocrine

gland bearing areas of the body, most commonly axillary, inguinal, and anogenital regions (Pilonidal Sinus). This painful condition adversely affects the quality of life of patients.

We initially treated three patients of PNS and two patients of HS with carbon dioxide (CO₂) laser alone, but the disease recurred. Therefore, we tried a combination of CO₂ laser with 1064 nm long pulse Neodymium-doped Yttrium Aluminium Garnet (Nd:YAG) laser. Here, we report the results of a pilot study on deroofting with CO₂ laser and use of long pulse Nd:YAG laser to destroy hair follicles in four patients with HS and five patients with PNS with follow up of up to 3 years.

MATERIALS AND METHODS

In 4 patients with HS and 5 patients with PNS an open trial with CO₂ laser and long pulse Nd:YAG (1064) laser was done. All four patients with HS were females in the age range of 30-40 years. One patient had only one axilla involved, two patients had both the axillae involved while remaining 1 patient had both axillae and both sides of groin involved. In PNS, 2 male patients of age less than 20, two male patients of age more than 20 and one females of age less than 20

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Informed consent was obtained from all patients. Initially, long pulse Nd:YAG laser 1064 (Synchro-Play Systems, Deka, Italy) was used to remove hair on area with parameter of 10 mm spot size, 30 ms, 30 J with pre cooling and post cooling. Then deroofting was done after 15 days with CO₂ laser (Morexel, Korea) operating at 30 W in continuous ablative mode. Purpose of delaying the deroofting till 15 days after the hair removal by laser was to get totally hair free area.

For deroofting, skin was disinfected with 0.05 mg/ml of chlorhexidine solution. Local anaesthesia was used in the form of 1% lidocaine plus adrenaline (5 µgm/ml). The lesions were then explored with blunt forceps inserted in to the sinus openings [Figures 1a and b]. All communicating tracts were explored. The roofs of tracts were removed with the help of evaporation by CO₂ and floor of lesions were exposed [Figure 1c]. All communicating sinus tracts were opened in the same way using forceps as a guide to channels. The slough present at the bottom of all tracts was carefully evaporated and cleaned with the help of CO₂ laser and scrapped by simple gauze. Then surgical wound was left open to heal by secondary intention [Figure 1d].

In two cases of PNS, few hairs were still present which were destroyed by 1064 nm long pulse Nd:YAG laser at the same time and debris was curetted out. Post-

operatively, cleaning was done at alternate days with hydrogen peroxide (H₂O₂) and normal saline and then Mupirocin ointment was applied and wound covered with gauze pieces for initial 7 days. This dressing was done at the clinic. Subsequently, the patient was trained to wash the wound twice daily with diluted potassium permanganate solution and apply Mupirocin ointment. They were asked to take oral antibiotics and anti inflammatory medicines for the initial 10 days. Complete healing resulted in about 15 days [Figure 2a-c].

Subsequently, Long Pulse Nd:YAG was repeated in all patients at 2-3 month gap for four to five times. During this time, no recurrence was observed.

DISCUSSION

HS has been associated with many disorders. Other disorders of follicular occlusion (acne conglobata, dissecting cellulitis of the scalp, and pilonidal cyst) are well-known associations with HS, and make up the so-called follicular occlusion tetrad.^[1-3] The clinical assessment of severity of HS cases is done using the Hurley staging system.^[4] Stage 1 comprises of abscess formation (single or multiple) without sinus tract and cicatrization. Stage 2 is a moderate disease with one or more widely separated recurrent abscesses with tract formation and scars. Stage 3 is the most severe disease



Figure 1: (a) Hidradenitis suppurativa with multiple sinuses, tracts, and cysts; (b) Forceps inserted to explore extent of tract; (c) Multiple tracts after deroofting and hair removal; (d) After complete healing



Figure 2: (a) Draining pilonidal sinus; (b) Hair tuft in tract of pilonidal sinus after deroofting; (c) Healed lesions after 3 years with fine hair growth

with multiple interconnected tracts and abscesses throughout an entire area.

HS and PNS are difficult to treat. Current treatment options are topical or oral antibiotics, hormonal therapies, radiotherapy, and retinoids in the form of oral isotretinoin.^[5-7] Surgical interventions include incision with drainage, electrosurgery, and carbon dioxide laser vaporisation.^[8] Sometimes large skin areas are excised, and defects may be sutured, closed with grafts or left open for healing by secondary intention.

The treatment of choice depends on severity, disease course, and preference of patient. In chronic severe conditions, surgery is mandatory. Treating the disease at an early stage is considered essential, as delay in treatment could lead to a situation where disease activity gets out of control making wide surgical excision necessary.^[9]

Various lasers and lights have been tried in isolation for HS and PNS in the past.^[10-14] These include Intense pulse light, long pulse Nd:YAG laser and carbon dioxide laser. All these lasers and lights, used alone, were associated with recurrences. Therefore, we decided to combine long-pulse Nd:YAG and carbon dioxide lasers.

The technique described here is not difficult and can be performed in office setting. No general anaesthesia or hospitalisation is needed. Removal of epidermis and dermis containing damaged epidermal appendages is done easily with CO₂ laser. Within 4-5 days a patient can resume his/her work.

The conventional treatment of HS and PNS involve use of depilatory creams, but with this recurrence is a common due to recurring hair growth at the site. However with five to six sittings, of hair removal with laser, chances of recurrence are less.^[10,11] Out of the other hair removing lasers, long pulse Nd:YAG 1064 was chosen because of its longer wavelength. It is considered as safer for Indian

skin type IV and V.

This study is based on a very small number of patients, so further studies with larger sample size are required.

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