INTRODUCTION

Management of bacterial sialadenitis and sialadenosis comprises a wide range of approaches from conservative medical treatments to more aggressive surgical interventions. Patients of bacterial sialadenitis with significant morbidity are generally dehydrated or septic, and should be admitted to hospitals for treatment. CT scan of the diseased salivary gland should be performed for better diagnosis. When a large abscess is noted, incision and drainage was performed for better diagnosis. When a large abscess is noted, incision and drainage should be considered; while small abscesses typically respond well to conservative treatments.

In the current case report, a patient with acute suppurative parotitis was treated by antibiotics without improvement. The patient was diagnosed as type II diabetes mellitus in very weak condition, and rejected CT scanning of the diseased right parotid gland. A new treatment modality using the diode laser combined with Er:YAG laser was suggested for the treatment of acute sialadenitis. The hemostatic effect of the diode laser and the bactericidal effect of the Er:YAG lasers has been proved by many researchers, and has been shown to reduce infection and inflammation for better wound healing. The combined laser therapy of diode and Er:YAG lasers is recommended in treating acute sialadenitis.

Key words: combined laser treatment, acute sialadenitis, suppurative parotitis, low level laser therapy, Er:YAG laser

CASE REPORT

A 78-year-old woman was admitted with chief complaint of tenderness and swelling at the right parotid

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gland area for several days. The patient had a previous history of swelling in the same area and was treated at a local hospital. Six days later, the swelling recurred and the patient visited the ENT Department of National Taiwan University Hospital for treatment. Since a pus discharge was noted from the right Stensen duct after milking the swollen right parotid gland, acute supplicative parotitis was diagnosed. The symptom and sign did not subside after treatments by the ENT doctor. The patient therefore consulted the dental clinic for further evaluation. The right parotid region was still swollen, warm, and erythematous, and the swelling with induration extended to the lower border of the right mandible. The patient had a previous history of type II diabetes mellitus, lung cancer, and cardiovascular accident. Acute parotitis of the right parotid gland occurred once about 25 years ago.

Only teeth #15, #16, #17 and #45 were remained in the oral cavity, and the others were missing. A pus discharge from the orifice of the right Stensen duct was found after massage of the right parotid gland. Extraoral examination revealed a swollen right parotid gland with erythematous skin surface, local heat and tenderness. The orifice of Stensen duct was red, and a little firm sensation was noticed at about 5 mm depth in the Stensen duct. There was little difference in pain sensation when the patient swallowed before, during and after meals. The patient’s oral hygiene was poor and heavy calculi were found around the cervical areas of the teeth #15, #16, #17 and #45 teeth. Trismus was also noted. It was difficult to insert an occlusal film into the oral cavity to check whether there was any sialolith in the right parotid gland. The periapical radiography revealed severe periodontitis and alveolar bone loss around teeth #15, #16 and #17 (Fig. 1). The final clinical diagnosis was acute suppurative parotitis of the right parotid gland.

LASER TREATMENTS

Step 1 Diode laser (LaserSmile, Biolase): the setting was 3 W (non-initiated) with continuous wave from extra-oral with non-contact mode for 2 minutes to increase blood circulation for “photomassage”.

Step 2 Er:YAG laser (LiteTouch, Syneron): the setting was 50 mJ/10 Hz with 100% of water for full mouth laser scaling and then ultrasonic scaling tip was used for supragingival scaling. In addition, another laser setting was applied at 50 mJ/30 Hz with 100% of water for subgingival sterilization and then ultrasonic round tip was used for subgingival curettage.

Step 3 Diode laser (Micro 980, Hoya ConBio): the setting was 0.15 W/10 Hz for incision and drainage with 300 µm initiated fiber (Fig. 2). The pus was discharged. The Er:YAG laser setting of 50 mJ/10 Hz in 5 mm distance from duct orifice was applied with circular movements for sterilization (Fig. 3). In Fig. 4, purulent secretion from the Stensen duct was noted. The symptoms and signs were significantly subsided and greatly relieved the day after laser treatments. The patient experienced no pain during course of laser treatments. No recurrence of the symptoms and signs was noted after a year, and the prognosis was very good (Fig. 5).

Fig. 1: The periapical film shows severe periodontitis and alveolar bone loss around teeth #15, #16 and #17.
Fig. 2: Using diode laser for incision and drainage without fiber initiation
DISCUSSION

For the current case study, the differential diagnoses include cellulitis, sialolithiasis (80% in submandibular gland), chronic parotitis, and acute parotitis (0.01-0.02% of all hospital admissions, or in the older debilitated or dehydrated patients). It was reported that conditions causing xerostomia and mechanical obstruction in the Stensen duct may result in decreased clearance of colonizing bacteria and predispose patients to acute bacterial parotitis. The most common microorganism is Staphylococcus aureus, followed by Streptococcus viridans and E. coli, etc. In acute infection, patients often experience unilateral swelling of the parotid gland with associated skin erythema and tenderness.

Based on hospital examinations and dental findings, the patient was diagnosed as acute suppurative parotitis. The traditional treatments for acute suppurative parotitis were medical managements including hydration, antibiotic coverage, warm compress, massage and administration of sialogogues; and surgical managements including incision and drainage and excision of the gland in severe cases. Sialography or CT scan may be necessary when patients are unresponsive to standard treatments. The dental hygiene should be strictly maintained by the patient to avoid further infection.

Although traditional treatments cost less, the incision and drainage with metal instruments may cause laceration and scar formation, which in turn could induce obstruction, and possible recurrence of the parotitis. Using laser treatments for this case can reduce pain during treatment, lessen scar formation in the duct, and improve prognosis due to biostimulation of low level laser therapy.

It may cost more for the patients using the diode laser combined with the Er:YAG laser. However, the anesthetic effect of lasers may keep patients away from injection and the possible side effect of anesthesia. A specimen of gland secretion should be obtained and cultured whenever possible. In the current case, the patient refused to pay additional fee for bacteria culture test. Due to the fact that the Er:YAG lasers have a broad bactericidal spectrum, bacterial infection may become less severe after the laser treatment.

Fig. 3: Using Er:YAG laser in 5-mm distance from duct orifice with circular movements for photomassage

Fig. 4: Purulent secretion from the Stensen duct was clearly noted

Fig. 5: Prognosis was good after treatment.
CONCLUSION

The hemostatic properties of the diode laser enable better control of the surgical field and faster healing of the wound lesions. The bactericidal effect of Er:YAG lasers has been proved by many researchers, and has been shown to reduce infection and inflammation for better wound healing. The combined laser therapy of diode and Er:YAG lasers is recommended in treating acute sialadenitis.

REFERENCE

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