The management of pyogenic granuloma with the 980 nm diode laser

A case report

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_Introduction

Pyogenic granuloma (PG) is a benign non-neoplastic mucocutaneous lesion. It is a reactional response to constant minor trauma and can be related to hormonal changes. In the mouth, PG is manifested as a sessile or pedunculated, resilient, erythematous, exophytic papule or nodule with a smooth or lobulated surface that bleeds easily.[1, 2, 3] The size of PG varies from 2 mm to 2 cm in diameter. Occasionally, the lesions may reach a diameter of up to 5 cm.[7, 9] PG preferentially affects the gingiva, but may also occur on the lips, tongue, oral mucosa and palate.

The appearance of PG usually ranges in colour from red/pink to purple. Younger lesions are more likely to be red because of the high number of blood vessels. Older lesions become pink.[5, 6] The exact cause of PG is unknown; trauma is usually a precipitating factor.

Several methods can be applied to remove PG, like surgery, electrocauterisation and laser treatment. The argon laser has long been used to treat PG, but it is claimed to result in an increased risk of scarring. There are several reports about treatment with the pulsed dye laser, although it has only been successfully employed in removing very small granuloma. In the past few years, the continuous-wave carbon dioxide laser has proved to be an effective treatment option.[2, 3] In this study, I report on a new experience in the treatment of PG with the 980 nm diode laser.

_Patients and method

Two patients with PG were examined in this study. They were treated with the 980 nm diode laser at the University of Tirana's Dental School in Albania. An initial clinical examination consisting of the medical and dental history and a thorough extra- and intra-oral examination was performed. A complementary blood

Fig. 1_Initial photograph.
Fig. 2_Immediately after surgery.


Fig. 1



Fig. 2


Fig. 3


Fig. 4

Fig. 3_Pre-op Specimen.
Fig. 4_One year after the post-treatment.

test, complete blood count, and erythrocyte sedimentation rate test made it possible to exclude infectious diseases. The patients had no systemic complaints. The data collected was evaluated and a clinical diagnosis for the type of lesion was established (Fig. 1). Incisional biopsies were taken pre- and post-operatively, and the specimens were histologically examined (Fig. 2). Patients were given written and verbal information on the nature of laser treatment and the signed informed consent forms were obtained prior to the treatment. The 980 nm diode laser was applied using the following parameters: continuous wave, 300 µm optical fibre and 6 W power. The treatment was conducted under infiltration anaesthesia (2 % lidocaine, 1 cc). The treatment area was cooled by the application of ice for two to five minutes post-operatively. All wounds were left open to heal by granulation and secondary epithelisation; therefore, no sutures were required (Fig. 3). After the treatment, analgesic medication was prescribed to be taken as required, but no antibiotics were prescribed. The follow-up visits were scheduled at ten days, one month, six months, and one year after surgery. All of the lesions were photographically documented at all stages of treatment and healing.

_Results

Post-operatively, there was no bleeding or pain. The power setting of 6 W in continuous wave mode and focused contact handpiece appeared to lead to some superficial tissue necrosis associated with delayed wound healing. The wounds were completely healed after four to five weeks without scar formation or pigmentary changes. The cosmetic effect of the laser therapy was evident (Fig. 4). No recurrence was observed in the patients who were followed up one year after the surgery.

_Discussion

Aesthetic Treatment of PG consists of the removal of the lesion. Current treatment modalities include chemical cauterisation and surgical excision. However, these methods do not exclude the risk of complications, such as scarring or pigmentary changes. These complications may lead to aesthetic problems for patients, who accept the surgical removal of PG only with great difficulty. The conventional lip-shave procedure is often painful, results in significant bleeding and poses cosmetic concerns. Laser treatment of the lips does not compromise the importance of the lip, its discrete anatomic borders such as the vermilion border, or its functional functionality.

Various laser devices have been successfully used to treat PG, including the 585 and 595 nm pulsed dye laser, the 1,064 nm Nd:YAG and the dioxide carbon laser. The pulsed dye laser is safe, but it can only be used for small PG lesions. The carbon-dioxide laser has proved to be an effective treatment option. Its use permits rapid, minimally invasive surgical treatment, but the non-specific coagulation it results in may lead to scarring.

Treatment with the 980 nm diode laser is a viable treatment option. The 980 nm diode laser beam is well absorbed by haemoglobin. The excision was well performed and suturing after surgery was not necessary because of the good coagulation. The surgical period was significantly reduced. From the good results obtained, it was concluded that the application of the 980 nm diode laser in the treatment of PG appears to be of beneficial effect._

Editorial note: A complete list of references is available from the publisher.

_contact laser

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