Effectiveness of Er,Cr:YSGG Laser in the Excision of different Oral Soft Tissue Lesions

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ABSTRACT

Er,Cr:YSGG laser, a hard tissue laser absorbed well by chromophore water apart from hydroxyl appetite crystals can be used in the excision of soft tissue lesions.

Aims and objectives: To assess the effectiveness of Er, Cr: YSGG laser in the excision of four different soft tissue lesions and the objective was to assess pain during and after procedure, bleeding during procedure and wound healing after 1 week.

Materials and methods: Four patients with different soft tissue lesions, such as peripheral ossifying fibroma, traumatic fibroma, intraoral lipoma and fibroma of the gingival. Er, Cr: YSGG laser with a wavelength of 2,780 nm (Waterlase, MD, Biolase, USA) with the settings of 1.50 W, air 30% and water 10%, MT, H mode, 25 Hz was used and pain assessed by behavioral pain rating scale, ‘faces’ pain rating scale and visual analog scale, bleeding and wound healing by visual method with photographs.

Results: No discomfort to the patient during and after laser procedure, no local anesthesia needed, no suture, no antibiotics were prescribed. Minimal bleeding was dere. No edema and good wound healing was observed.

Conclusion: Er, Cr: YSGG laser can be used as an alternative to conventional scalpel excision.

Keywords: Laser, Peripheral ossifying fibroma, Traumatic fibroma, Intraoral lipoma, Er,Cr:YSGG laser.


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INTRODUCTION

LASER is an acronym used for Light Amplification by Stimulated Emission of Radiation. From the time laser was discovered in 1960, the desire to use this new technology in the medical field commenced. As laser was yielding successful results when used as an alternative method to conventional surgical intervention, the interest to use laser in the field of dentistry multiplied.

Soft tissue laser, such as diode laser, Nd: YAG laser were initially used in soft tissue lesions because of its increased success rate. It was because of the fact that these lasers were well-absorbed by chromophores, such as hemoglobin and melanin which are found abundant in the oral mucosa. The introduction of erbium family in 1990 comprising the Er: YAG laser and Er, Cr: YSGG laser made the hard tissue laser was a boon for dentistry. The interest to use these hard tissue laser in the treatment of soft tissue lesion was because of the properties of these lasers which are well-absorbed by chromophore water apart from hydroxyl appetite crystals.

So the present study has been conducted to assess the effectiveness of Er, Cr: YSGG laser in the excision of four different soft tissue lesions and the objective was to assess pain during and after procedure, bleeding during procedure and wound healing after 1 week.

MATERIALS AND METHODS

The present study was conducted in the Department of Oral Medicine and Radiology, Ragas Dental College, Chennai, and the laser procedure was undertaken at Smile Dental Clinic, Chennai. The study included four patients who had visited the OP with the complaint of a growth in the mouth. On intraoral examination, the soft tissue lesions were provisionally diagnosed, one case as pyogenic granuloma, two cases as traumatic fibroma and one case as peripheral ossifying fibroma. The study excluded patients with any bleeding disorder, infectious diseases, etc. The patients were advised for laser excision and informed consent was taken from all the four patients before the laser procedure in a case sheet proforma.

Er,Cr:YSGG laser with a wavelength of 2,780 nm (Waterlase, MD, Biolase, USA) with the settings of 1.50 W, air 30% and water 10%, MT, H mode, 25 Hz was used. Pain was assessed using three pain rating scales namely behavioral pain rating scale, ‘faces’ pain rating scale and visual analog scale immediately after procedure. Bleeding and wound healing were assessed using the visual method substantiated with appropriate photographs taken using Nikon DSLR 500 camera. All the four soft tissue lesions were excised using Er,Cr:YSGG laser and the excised specimen was stored in 10% formalin and sent for histopathological confirmation. The pyogenic granuloma case was histopathologically confirmed to be peripheral ossifying fibroma. The traumatic fibroma of the right posterior buccal mucosa was then histopathologically confirmed as a rare case of intraoral lipoma, traumatic fibroma in the right posterior region was confirmed histopathologically and the peripheral ossifying fibroma was then histopathologically confirmed as fibroma of the gingiva (Figs 1 to 3).
RESULTS

The present study showed that during the procedure all the four patients did not experience any discomfort or pain and no postoperative pain was observed using the three different pain rating scales. Minimal bleeding during the procedure was observed (Fig. 4). No local or topical anesthesia was needed during the procedure and there was no need for suturing the surgical wound. No antibiotics were prescribed for the procedure. Postoperatively, there was no edema or scarring and good wound healing was observed after 1 week of laser procedure (Figs 5 to 7).
The present study concluded that Er,Cr:YSGG laser can be used as alternative method to conventional scalpel method with the superiority of causing no discomfort to patient and no complications with good wound healing after 1 week of the procedure.

REFERENCES


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