The use of Laser in Different Field of Paediatric Dentistry: Two Cases Reports

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Introduction

Dental lasers have been utilized in numerous clinical methods for soft tissue procedures in paediatric dentistry. Certain clinical applications include frenectomies, gingival recontouring, exposure of unerupted teeth and micro gingival surgery in the treatment of a traumatic dental injury. Although the laser is a relatively new and modern technology, it has found widespread use because of its various advantages and benefits. Little or no need for local anesthesia is a further advantage in paediatric dentistry. Because local anesthesia and pain control are two of the most important elements of dentistry, particularly pediatric dentistry to facilitate behavior management process. Poorly controlled pain can result in adverse short and or long-term consequences. The hemorrhage during soft tissue treatments, reduced operator chair time and postoperative pain, rapid wound healing, producing less necrosis of adjacent tissues and requiring less prescribing of antibiotics post-operatively are other important advantages. The purpose of this presentation is to report two paediatric cases treated with soft tissue laser, one is micro gingival surgery of treatment of complicated crown root fractured maxillary central and lateral incisors after traumatic dental injury and the other is exposure of unerupted upper left incisor tooth for eruption.

Methods

CASE 1:
A 11-year-old male patient applied to the Kocaeli University Department of Pediatric Dentistry, with complicated crown root fracture of the right maxillary central and lateral incisors, one day after a bicycle accident occurred (figure 1,2). After clinical and radiological examinations, the coronal fragments of teeth were removed and laser was used for coagulation to perform endodontic access cavities. Endodontic treatments were performed with the chemical-mechanical preparation and calcium hydroxide paste was placed in root canals. When the teeth became asymptomatic, apical seal was constituted with gutta-percha application (figure 3). Laser assisted therapy was carried out to excite gingival tissue overlying the margin of fracture line using gingivectomy technique with 810 nm diode laser (Cheese Laser Systems, Chine) (figure 4). After the periodontal tissue management, reinforced glass fiber (Interlig, Angelus, Brasil) was placed in the root and the fragment reattachment was performed using dual-cured composite resin cement (Panavia F2.0, Kuraray, Japan)(figure 5). Examination 6 months after treatment revealed good periodontal health, aesthetics and normal function (figure 6).

CASE 2:
A systemically healthy 8-year-old male patient applied to the Kocaeli University Department of Pediatric Dentistry, with complaint of eruption problem of the left maxillary central incisor tooth. Clinical examination demonstrated the absence of the left maxillary central incisor tooth in oral cavity (figure 9). After radiological examinations, it was observed that the tooth was impacted and there was no obstacle except retained soft tissue (figure 7,8). Laser application was planned to remove the retained soft tissue. Than removed by 810 nm diode laser (Cheese Laser Systems, Chine) (figure 10). The patient was scheduled in a regular follow-up period to check the eruption problem (figures 11,12,13). At the end of the 6 months, the completely eruption of tooth was observed (figure 14).

Discussion

Lasers are increasingly replacing surgical instruments in various surgery applications for paediatric dentistry. As reported in the literature, lasers provide new treatment options to basically modify some treatment modalities, change some, and supplement some others for paediatric dentists. Easier acceptance of children for soft tissue surgeries with the use of lasers has been demonstrated.

Conclusion

It was shown that lasers are effective for treatment of traumatic dental injuries and solution of eruption problems in paediatric dentistry. They enable optimal preventive and minimally invasive interventions for soft tissue procedures.