

Laser Assisted Management of Hyperpigmented Gingiva and Eruption Cyst in Children – Two Case Reports

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Abstract

Lasers were introduced in pediatric dentistry to replace the conventional methods and to make the dental visits a pleasant experience for the child patient. Gingival hyperpigmentation is a common esthetic concern in patients with excessive gingival display during smiling. The eruption cyst is a form of soft tissue benign cyst which appears as a circumscribed, translucent, fluctuant swelling of the alveolar ridge seen over the site of an erupting tooth. The current case reports describe the use of diode laser in treating gingival hyperpigmentation and in excising eruption cyst in two child patients successfully.

Keywords: Children, eruption cyst, hyperpigmented gingiva, laser

INTRODUCTION

Gingival health in the form of size, shape, consistency and colour are vital components for an attractive smile. The color of gingiva varies, from pale pink to deep bluish purple. Between these normal limits, a large number of colour variations are observed, which depends primarily upon the vascular supply, the thickness of the epithelium, the degree of keratinization, and the presence of pigments within the epithelium. Hyper pigmentation often occurs in the gingiva as a result of an excessive deposition of melanin which can compromise the esthetics and confidence level in a child specially when visible during smiling. For depigmentation of gingiva different treatment modalities have been reported like bur abrasion, scraping, partial thickness flap, cryotherapy, electrosurgery and laser.^[1-3]

The eruption cyst is a form of soft tissue benign cyst seen accompanying an erupting primary or permanent teeth and it appears shortly before appearance of these teeth in the oral cavity. Clinically the cyst appears as a circumscribed, translucent, fluctuant swelling of the alveolar ridge seen over the site of an erupting tooth.^[4] Often these cysts resolve on their own and they require no treatment, but in case they cause pain or discomfort to the patient, bleed or get infected, they need

to be excised to drain their contents and expose the tooth. The eruption cyst can either be excised by conventional scalpel method or laser can be used.^[5,6]

In this case report a diode laser was used for the management of the gingival pigmentation and eruption cyst. The American Academy of Pediatric Dentistry states that little or no local anesthesia is required for soft tissue treatments using laser, reduced chair time is needed and as laser has decontaminating and bactericidal properties, postoperative antibiotics are rarely prescribed. Thus laser is a better option than scalpel surgeries in pediatric dentistry as patient compliance is better.^[7]

CASE REPORTS

Case 1

An 11-year-old male patient, accompanied by his mother reported to the Department of Pedodontics and Preventive Dentistry, Guru Nanak Institute of Dental Sciences and Research with the complain of blackish pigmentation of

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Submitted: 04-Nov-2019 Revised: 14-Feb-2020

Accepted: 30-May-2020 Published: 09-Jul-2020

Access this article online

Quick Response Code:



Website:
www.ijpedor.org

DOI:
10.4103/ijpr.ijpr_24_19

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How to cite this article: Jalan P, Ghosh A, Zahir S, Kundu GK. Laser assisted management of hyperpigmented gingiva and eruption cyst in children – Two case reports. *Int J Pedod Rehabil* 2020;5:10-2.



Figure 1: Preoperative image of hyperpigmented gingiva.



Figure 3: Immediate postoperative image.



Figure 5: Preoperative image of eruption cyst.



Figure 7: Ten days postoperative image.

gum. On examination melanin deposits was seen all over the gingiva from incisor to molar region [Figure 1]. Laser assisted depigmentation procedure was planned after taking informed consent of the parent. After oral prophylaxis and maintenance of oral hygiene instructions the procedure was carried out.



Figure 2: Peroperative image while using diode laser.



Figure 4: Seven days postoperative image.



Figure 6: Immediate postoperative image showing the exposed tooth.

Topical lignocaine hydrochloride gel was applied in the surgical area. Before the procedure began, patient and dentist were protected from laser light by wearing protector spectacles. A diode laser unit of with a wavelength of 980 nm, in gated pulsed mode, was used. The tip was moved using interrupted brushing [Figure 2]. The saline soaked gauze was used to remove the epithelial remnants. No periodontal dressing was placed [Figure 3]. Follow up was done after 7 days [Figure 4].

Case 2

A 7-year-old female patient and her parents reported to the Out Patient Department of our college, with the chief complaint of a bluish swelling in her upper front teeth region since last 6–7 months, causing discomfort on biting to the patient. On clinical

examination we see the presence of a dome shaped, bluish purple swelling in the region of unerupted 21 [Figure 5]. On palpation the cyst was soft and bled on slightest provocation. Contra-lateral central incisor had erupted into the oral cavity. Radiographical examination showed the presence of unerupted 21 with slight amount of radiolucency seen surrounding the crown. The swelling was given the diagnosis of eruption cyst w. r. t. 21 and a diode laser assisted excision of the cyst was planned. Proper informed consent was taken from the patient's family and all safety precautions taken before starting the procedure. Topical anesthesia using 2% lignocaine spray was achieved by applying the spray onto the cyst. An incision was made on the level of the alveolar bone ridge of the unerupted 21. An output of 1.0 watt was used for soft tissue excision. Bleeding was minimal. As soon as the incision was made, the entire cystic fluid oozed out, the cyst lining was removed and 21 was exposed into the oral cavity [Figure 6]. After 10 days follow-up, excellent healing could be seen and 21 was successfully erupting into the oral cavity [Figure 7].

In both the cases, patient compliance was excellent. There was hardly any pain or discomfort to the child patients. Both parents and children were satisfied with the results. Patients were postoperatively prescribed topical application of vitamin E over the operative area. No postoperative analgesics and antibiotics were prescribed.

DISCUSSION

Diode lasers offer an excellent atraumatic treatment alternative for different soft tissue conditions in the oral cavity for pediatric patients including the cases discussed above. The wavelength of diode laser is poorly absorbed by hard tissues and these lasers have chromophores for pigmented tissues such as gingival and other soft tissues, thus they are indicated for all soft tissue surgeries. The diode laser has various advantages over scalpel surgical procedures such as better precision, controlled bleeding during surgery and postsurgical course, improved sterilization of the surgical area. There is minimal swelling and scarring, coagulation, vaporization, cutting. Often suturing is not required, and less or no postsurgical pain.^[8,9]

RN Bahadure in 2013 describes and discusses the two cases of gingival melanin pigmentation in 12 and 13 years of female patient and their early surgical intervention.^[1]

Kaushik in 2013 reported the efficacy of different techniques of gingival depigmentation by using scalpel, diode laser and electrosurgery.^[10] Narendra *et al.* in 2017 concluded that both laser and electrosurgery are said to be effective treatment technique for gingival depigmentation and laser has been found to be better in terms of depigmentation and postoperative pain.^[2]

Boj and Gracia-Godoy in 2006 presented a clinical case of a 6-year-old child with an eruption cyst on the permanent maxillary central left incisor, which was handled using treatment with an Er, Cr-YSGG laser. It did not require

suture, there was no haemorrhage, swelling, infection or postoperative pain.^[6] Chandel and Kochhar in 2012 presented a clinical case of a 12-year-old child with an eruption cyst in mandibular right second molar treated using diode laser.^[11]

CONCLUSION

The present case reports have adequately demonstrated the efficiency of using diode lasers for pediatric patients owing to their painless, bloodless, safe approach which makes it child-friendly and a better alternative to methods using scalpels and needles. Behaviour management of pediatric patients is of utmost importance in a dental operatory and lasers offer us that advantage.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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