

Excision of Epulides in Children with Diode Laser: Report of Three Cases

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ABSTRACT

Background: The present paper reports three cases of 3, 11 and 14 year-old children respectively with swelling of gingiva at different locations and its management with Diode laser.

Case 1 presented with swelling of gum on upper front teeth since few weeks. Case 2 reported to the hospital with swelling in right back lower region and case 3 reported to the hospital with swelling of gum on upper front teeth. Various differential diagnosis was considered.

The lesions were excised with laser and sent for histopathological examination. The final diagnosis were Squamous papilloma, Capillary hemangioma and Giant cell fibroma respectively.

For intraoral soft tissue surgical techniques, the laser is a feasible substitute to the scalpel. In the contemporary dental practice using laser technology, procedures can be executed with less invasive methods especially in pediatric practice.

Keywords: Diode Laser, squamous papilloma, giant cell fibroma, capillary hemangioma.

INTRODUCTION

Epulis is a non specific term any tumor like enlargement situated on the gingiva or alveolar mucosa. They are of three types ie fibromatous, ossifying and acanthomatous. The etiology of epulis could be attributed to irritative factors or hormonal changes. The treatment is focused to remove the etiological factors and excision of the lesion.^{1,2,3}

The aim of this paper is to present the case reports of three children of 3, 11 and 14 year old respectively with swelling of gingiva at different locations and to review the current literature concerning the clinical and histopathological

features of this uncommon lesion in children and its management with Diode laser.

CASE REPORT

A 3 year-old boy, was referred by a pediatrician for evaluation of a swelling of gum on upper front teeth. Childs parents revealed that swelling was present since past few weeks. The swelling started as small painless growth gradually progressed to present size. They revealed that the patient had no relevant medical history. Extra oral examination revealed no abnormality. Intra oral clinical examination revealed solitary growth on the anterior aspect of the left central and lateral primary incisor (Fig 1). It was 2.5x 4cm in

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CASE 1



Fig 1: Preoperative photograph.



Fig 2: Postoperative photograph.

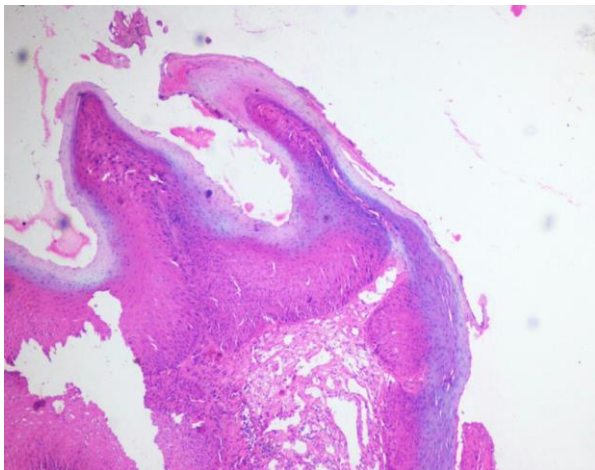


Fig 3: Histopathological view of the lesion (Squamous papilloma).

dimension, pale pink in color, sessile, firm and ovoid in shape with pebbly or papillary surface. All inspectory findings were confirmed on palpation. It was a painless firm non compressible swelling. It was provisionally diagnosed as fibroma.

CASE 2



Fig 4: Preoperative photograph.



Fig 5: 1 month post-operative view.

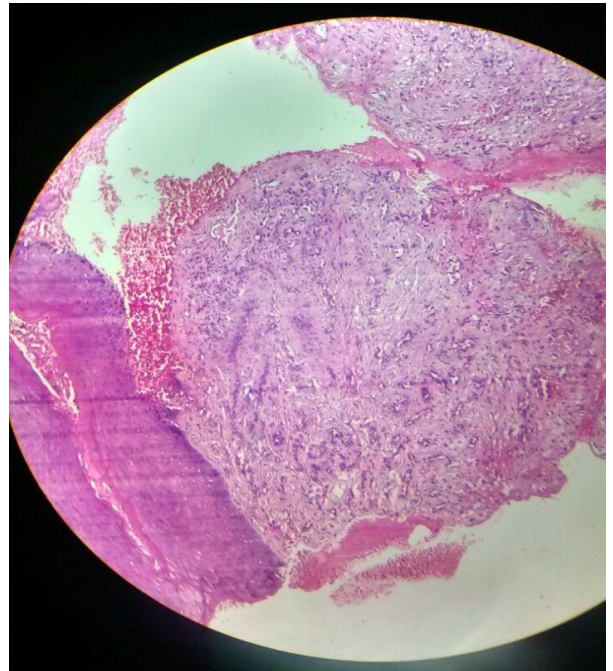


Fig 6: Histopathological view of the lesion (Capillary hemangioma).

CASE 3



Fig 7: Pre-operative view of the lesion.



Fig 8: Immediate post-operative view.



Fig 9: Histopathological view of the lesion (Giant cell fibroma).

Surgical procedure:

After local anesthesia was given, a diode laser with a wavelength of 808 nm (Sunny), fiber

with a diameter of 400 μ m, at 0.8-1.2 watts in continuous mode and straight hand pieces through which the laser beam is applied to the oral soft tissue in contact type treatment mode was used. The patients, the surgeon, and the operative staff wore safety glasses throughout the procedure. The lesion was excised totally and hemostasis was done with laser (2 watts) without need for suture application. The tissue was sent for histopathological examination (HPE). The patient was recalled every 1 month for 3 months for revaluation. (Fig 2).

The HPE report (Fig 3) revealed a benign, finger like proliferation of stratified squamous orthokeratinised epithelium with prominent of stratum granulosum. areas of hyperkeratotic epithelium is evident with no features of dysplasia. mild basilar hyperplasia in the lower third of epithelium evident. Kolocytes in the stratum spinosum evident with perinuclear halo. stroma shows mild chronic inflammatory cells with lymphocyte predominance. The above features are suggestive of oral squamous papilloma.

CASE REPORT 2

A 11 year old male child reported to the private clinic with chief complaint of swelling in right back lower region. The swelling is present since past few months causing discomfort while chewing. The swelling started as small painless growth gradually progressed to present size. Patient revealed no relevant medical history. Extra oral examination revealed no abnormality. Intra oral examination revealed solitary growth on the posterior aspect of the last molar in the line of occlusion (Fig 4). It was 2x3 cm in dimension, reddish pink in color, pedunculated, firm and ovoid in shape. All inspectory findings were confirmed on palpation. It was a painless firm non compressible swelling. It was provisionally diagnosed as pyogenic granuloma. The surgical procedure was performed as mentioned above in case 1. The tissue was sent for histopathological examination (HPE). The patient was recalled after 1 month for revaluation (Fig 5).

The HPE report (Fig 6) showed ulcerated stratified squamous parakeratinised epithelium of variable thickness. The connective tissue shows numerous thin walled endothelium lined blood

vessels with RBC. Many small budding capillaries with areas of canalization seen in focal areas. Numerous blood vessels with budding thin capillaries prominent. The stroma is infiltrated with thin strands of reticular fibers and mild lymphocyte infiltrate. Periphery shows extravasation of blood and areas of hemosiderin. These features are suggestive of capillary hemangioma.

CASE REPORT 3

A 14 year old male child reported to the private clinic with swelling of gum on upper front teeth. Child's parents revealed that swelling was present since past few years. They also revealed that few months before the excision of the swelling was attempted with scalpel and again it recurred. The swelling started as small painless growth gradually progressed to present size. They revealed that the patient had no relevant medical history. Extra oral examination revealed no abnormality. Intra oral clinical examination revealed solitary growth on the anterior aspect of between the two central incisors (Fig 7). It was 3x 5cm in dimension, reddish pink in color, sessile, firm and ovoid in shape extending towards palatal surface also. All inspectory findings were confirmed on palpation. It was a painless firm non compressible swelling. It was provisionally diagnosed as pyogenic granuloma.

Surgical procedures: After local anesthesia was given, the excision was done using diode laser with the above specified settings. Once the excision was over, the incisions were given between 11 and 21 and flap was reflected buccally and palatally to debride the remaining tissue overlying the alveolar bone. After debridement, the laser was used to control hemorrhage at 2 watts and simple interrupted suture was given with 3-0 silk. (Fig 8) Patient was recalled after a week for suture removal. The lesions were sent for histopathological examination. No postoperative complications were noted and the healing process was good. The HPE report (Fig 9) revealed the diagnosis of Giant cell fibroma.

DISCUSSION

As far as the treatment of fibroma is concerned, a conservative surgical excision is usually curative and is the treatment of choice in

most cases reported in the literature regarding children under the age of 10.¹ Electrosurgery is another option and has been used in pediatric dentistry in various procedures such as frenectomy, incision of hyperplastic gingiva, biopsies and pulpotomy.^{4,5} Electrosurgery's main advantage is the direct tissue hemostasis without need for sutures.

In addition, there can be access to areas difficult to reach and reduction of chair time, factors extremely valuable in pediatric dentistry. Laser therapy has been suggested as an alternative approach with many advantages especially in the dental treatment of children.^{6,7} Concerning the excision of soft tissue lesions, CO₂ and Nd:YAG laser have been suggested for the excision of fibromas with various advantages such as direct hemostasis and disinfection of the surgical field, minimal postoperative pain and inflammation, elimination of sutures and acceleration of the healing process. However, they lead to vaporization of the lesion and do not allow histopathological analysis of the tissue. Diode and erbium lasers are also optional in the treatment of soft tissues indicated for the excision of lesions while permitting histopathological analysis.⁸

The significant benefits described in the literature for treating a lesion with diode laser are negligible postoperative pain, better healing. Other advantages of the laser when compared with scalpel are highly decontaminated surgical bed, no need for periodontal dressing and the appearance of fewer myofibroblasts resulting in comparatively lesser wound contraction.⁹

CONCLUSION

For intraoral soft tissue surgical techniques especially for children, the laser is a feasible substitute to the scalpel. On the other hand, the value of this information with regards wound healing, hemostasis, cost- efficiency, well-being and surgical aftermath's needs to be further analyzed in clinical situations.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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