A Case of Painless Excision

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ABSTRACT

Soft tissue lesions of the oral cavity are seen in children at the dental office. This case report aims to showcase the ability of laser to treat recurrent soft tissue lesions in the oral cavity in a painless manner. This painless procedure provides relief to the child and parent who suffer from anxiety toward dental treatment.

Keywords: Laser, Painless dentistry, Peripheral giant cell granuloma, Soft tissue lesions.

CASE REPORT

An 8-year-old boy came to the Department of Pediatric and Preventive Dentistry in Dr. D Y Patil School of Dentistry, Navi Mumbai, India, with the chief complaint of a boil in the upper right back region enlarging since
6 months. Complete medical and dental history of the parents and the child was taken. The parents disclosed a similar lesion to have occurred 6 months ago in the same region, which had been excised with a scalpel by a general dentist (Figs 1 to 6).

No sutures were given, allowing it to heal by secondary intention. No other relevant medical history surfaced. On clinical examination, the “boil” was a sessile lesion of $1.5 \times 0.5 \times 1$ cm in dimension. It exhibited a reddish hue, was fluctuant, and bled on slight
examination with finger. There was no blanching or exudate seen.

Intraoral periapical radiograph showed a radiolucency surrounding the developing premolar. There was also constant trauma being inflicted to this area due to grossly carious lower right molars, which impinged the area. Extraction was considered for the same to eradicate the underlying irritant.

The differential diagnosis for the same lesion was pyogenic granuloma, PGCG, peripheral ossifying fibroma, inflammatory fibrous hyperplasia, and peripheral odontogenic fibroma. Excision with a soft tissue diode laser was carried forth. Local anesthesia was administered to ensure minimal bleeding in the region and reduce any discomfort for the child (Figs 7 to 14).

The child’s behavior rating was of Frankel rating 3 (positive). The excision was uneventful. The gingival mass was excised and sent for histopathological consideration. Vitamin E in the form of Evian oil-based capsule was topically applied. The patient’s parents were asked to apply it for the following 3 days twice daily. The patient was recalled the next day and then the next week.

The 7-day follow-up revealed the presence of the premolar erupting and gingiva to be coral pink and unharmed. The excised lesion was analyzed under hematoxylin and eosin stain. Histological report described nodular tumor in the subepithelium separated by fibrous tissue.
The report stated there to be frequent multinucleated giant cells in stroma containing ovoid to spindle-shaped cells. The stroma was elaborately vascularized and contained rare inflammatory cells, such as lymphocytes, plasma cells, and eosinophils along with hemosiderin at the tumor periphery. Bony tissue included was histologically unremarkable. The histological features confirmed it as PGCG.

Postoperative healing was uneventful. The patient was followed up at 1, 3, 6, 12, 15, and 18 months. The premolar surrounded by the excised lesion is seen to erupt as per physiological process.

DISCUSSION

This lesion accounts for <10% of all hyperplastic gingival lesions. The theory states the capacity of PGCGs to enlarge to be 0.1 to 3 cm and 94% of such lesions are <1.5 cm. The extent of these lesions rarely crosses 2 cm in diameter, although larger ones may be seen occasionally. Their gradual growth, however, becomes a tumorous mass, which then counters normal oral function. Inconsistent growth patterns exhibited by these lesions dissuade one to measure their expansion capacity. In the present case, the size of the lesion was 1.5 cm.

Unique in size, the lesion in question required special care during the excision. Known to either be sessile or pedunculated, PGCG spread by penetrating through the periodontal membrane. They cause a break in the continuity of the membrane by opening externally or internally (ulcerative lesions) in the region they occur in.

Pathologically, they mimic various other lesions. For example, the pyogenic granuloma is difficult to discriminate from a PGCG based on clinical features alone. A pyogenic granuloma is also a soft friable nodule, which bleeds spontaneously. However, radiographic differences exhibited by PGCG of displacing teeth and resorbing the surrounding alveolar bone differentiates it from a pyogenic granuloma.

Another soft, friable swelling of the gingiva is the parulis. Etiologically seen to develop due to a trapped local irritant, gingival pocket and/or nonvital teeth, a purulent exudate seen associated with it distinguishes this inflammatory lesion from a PGCG.

Hemangiomas are red and/or blue-hued congenital lesions. These vascular malformations increase in size with age, spontaneously bleed, are warm to touch, and blanch when palpated. These are easily differentiated from PGCG.

The peripheral ossifying fibroma, a reactive gingival growth, shares similar clinical features as the PGCG. However, it lacks the purplish blue hue associated with a PGCG and the calcifications seen in its radiographs differentiate the two lesions from one another.

Radiographic characters are generally nonsuggestive, but in a PGCG, the aggressive destruction around the alveolar margin or crest of bone when teeth are associated with the granuloma makes it an important diagnostic
medium for these lesions. For this reason, the destructive
central giant cell granuloma that appears within the jaw
itself is comparatively distinguished from a PGCG by
radiographic diagnosis.

In the present case report, an intraoral periapical
radiograph demonstrated focal loss of the alveolar crestal
bone in deciduous first maxillary molar region.

Due to the large size of the lesion, an excisional laser
biopsy and histopathologic evaluation were done for the
diagnosis of the progressively enlarging gingival mass.
Medical history was thoroughly taken to exclude hyper-
parathyroidism, and tests were considered to evaluate
serum calcium, phosphate, alkaline phosphatase, and
parathyroid hormone.20

Laser excision was considered over surgical scalpel
excision for painless treatment and removal of the
aggressive lesion.

Diode lasers are effective tools for precise cutting21
and make minimal change to adjacent tissues. The laser
vaporization method coagulates and seals small vessels
providing no postoperative bleeding.22

Children experience less pain with diode laser. This
is because the thermal necrosis created by the laser
through vaporization of the tissue seals sensory nerves,
decreasing their ability to transmit stimuli (of pain)23,24
and denaturation protein aids in decreasing pain.25 Diode
laser proves to have not only a bactericidal effect but also
an anti-inflammatory effect in the oral cavity, reducing
chances of infection.26

CONCLUSION

Laser treatment for aggressive lesions is considered more
effective and efficacious. This painless treatment can be
useful in children who suffer from the anxiety of surgical
treatment and fear the sharp scalpel.27,28

CLINICAL SIGNIFICANCE

In pediatric patients, identifying any lesion at its incep-
tion provides a possibility for a conservative approach.
It helps deterring the long-term developmental flaws.
Using lasers proves to be more efficient and is slowly
replacing the old scalpel technique. Peripheral giant cell
granuloma can show rapid growth and increase in size
within a few months. Arising from the endothelial cells of
the capillaries, periosteum, periodontal ligament, or con-
nective tissue of the gingiva can disrupt the underlying
bone, interfere with eruption of teeth, and may produce
minor tooth movement.29 Radiographs play an essential
role in confirming its origination from either the mucosa
or periosteum and whether it penetrates the underlying
bone damaging unerupted tooth.

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