Pyogenic Granuloma Associated with Angular Bone Defect in Young Boy: An Unusual Case Report
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Abstract
Pyogenic granuloma is one of the common inflammatory hyperplasia seen in the oral cavity. These develop in response to chronic recurring tissue injury that stimulates an exuberant or excessive tissue repair, response, and is more common in young females. We present a case of Pyogenic granuloma associated with the bone loss which is rare and unusual. The present case was successfully treated with excisional biopsy extending down deeply into the periosteum.

Key Words: Pathological Conditions; Anatomical; Pathologic Processes; Granuloma; Pyogenic; Bone loss; Lobular Capillary; Hemangioma.

Introduction
Pyogenic granuloma (PG) is a kind of inflammatory hyperplasia. The term “inflammatory hyperplasia” is used to describe a large range of nodular growths of the oral mucosa that histologically represent inflamed fibrous and granulation tissues. Hullihen’s description in 1844 was most likely the first PG reported in English literature, but the term “pyogenic granuloma” or “granuloma pyogenicum” was introduced by Hartzell in 1904. The term pyogenic is misnomer in that contrary to what the name implies, the lesion does not contain the pus and is not strictly speaking a granuloma. There are two kinds of PG, namely lobular capillary hemangioma (LCH) and non LCH type which differ in their histological features. This paper aims to present a case of PG associated with angular bone defect in the young boy which is unusual and also highlights the pathogenesis of bone loss.

Case report
An eight year old healthy male child presented with the complaint of growth in the lower left anterior region of the jaw since two to three months. Initially it was of smaller size and has gradually increased to attain the present size. The lesion bleeds frequently interfering with the eating and brushing habits. His past medical and dental histories were not significant. Patient could not recall any history of trauma to the same region. Left submandibular group of the lymph nodes were palpable, mobile and not tender.

Intraoral examination revealed a pinkish sessile solitary growth in relation to erupting mandibular left permanent canine. It was lingually erupting and only half of the crown was visible. The lesion measured 2.5 x 2 x 1.5 cm involving the marginal and attached labial gingiva and was extending down to the left lower vestibule. It extended from distal aspect of mandibular left permanent lateral incisor to mesial aspect of first premolar. It had smooth lobulated surface and the lesion bleeds on touch. (Figure 1a)

Intra oral periapical view (Figure 1b) showed loss of alveolar crestal bone with angular bony defect between mandibular left permanent lateral incisor and mandibular left permanent canine. The vertical bone loss was significant with distal aspect of mandibular left permanent lateral incisor and mesial aspect of mandibular left permanent canine. But mandibular left permanent canine was below the occlusal plane and was tilted. With these findings a provisional diagnosis of PG with differential diagnosis of peripheral giant cell granuloma (PGCG) was made.

The complete blood count was within normal limits. Under local anesthesia, the incision was extended down deeply to periosteum with completely excision. (Figure 1c) The teeth adjacent to PG were thoroughly scaled to remove plaque and calculus. Root planning was done for the mandibular left permanent lateral incisor and canine. Lesion
was submitted for histopathological examination which showed stratified squamous epithelium with underlying fibrovascular stroma with numerous proliferating blood capillaries which correlated with the clinical diagnosis. (Figure 1d) Postoperative healing was uneventful. Follow up of six months did not show any recurrence.

Discussion
PG is common tumour like growth of oral cavity or skin and is considered to be non-neoplastic in nature. Although it is a common disease in the skin, it is extremely rare in gastrointestinal tract except for oral cavity where it is found on keratinized tissue. The oral sites of PG include gingiva, lip, tongue, buccal mucosa and palate. The lesions are slightly more common on maxillary gingiva than mandible. The present case was reported in the mandible. Although it has been reported in all the age groups, it is predominant in second decade of life in young adult females possibly because of vascular effects of female hormone. The present case is reported in young boy of eight years.

Figure 1: The intraoral photograph showing the lesion in left lower vestibule (a) with intraoral periapical radiographic view showing the significant vertical bone loss with tooth #32 and #33 (b). The macroscopic (c) evaluation of the excised specimen and photomicrograph showing numerous blood capillaries (d).

Initial traumatic conditions are main etiological factor for development of PG. Gingival irritation as result of calculus, overhanging or rough restoration might be predisposing factor for development of gingival PG. It is possible that micro ulceration from these irritants in an already inflamed gingiva allows the ingress into
gingival connective tissue of low virulent oral micro flora. This evokes an exaggerated vascular hyper plastic response in the connective tissue resulting in the formation of PG. 

Clinically PG is smooth or lobulated exophytic lesion manifesting as small, red erythematous papules on a pedunculated or sometimes sessile base which is usually hemorrhagic, compressible and colour ranges from pink to purple. It is rarely associated with bone loss, Goodman-Topper and Bimstein have reported significant bone loss associated with PG in maxillary teeth in twelve years old boy. Shenoy and Dinkar have reported a similar case of PG associated with cup shaped bone loss between primary molar and first permanent molar in eight year old girl. Some authors have reported PG associated with very mild bone loss in adult patient in maxillary anterior teeth. The present case was seen in male child, in the anterior region involving the permanent erupting anterior tooth.

In the present case bone loss was seen along mandibular left permanent lateral incisor and canine. As the canine was placed lingually, it created a space between lateral incisor and first premolar. Since patient was not able to maintain proper hygiene practices with the same, the local irritants such as plaque and calculus may have precipitated for the development of PG. Pressure from the PG and presence of local irritants might have caused combined zone of bone destruction leading to present pattern of the bone loss in our case.

The consequence of the bone involvement by PG may result in infra bony pockets or localized periodontitis. When the PG with severe bone loss involves the erupting tooth, it may result in mobility of the erupting tooth leading to early exfoliation of the same. Most commonly when PG are associated with the bone loss they have to be differentiated from peripheral giant cell granuloma which is the most likely to cause the bone resorption. Generally both lesions are clinically indistinguishable but PGCG shows appearance of giant cells and lacks infectious sources. The other differential diagnosis includes peripheral ossifying fibroma, metastatic tumour, Kaposi’s sarcoma etc. The definitive diagnosis of PG can be made by histopathological examination.

Treatment of PG lies in initial removal of irritation or source of trauma along with the excisional surgery of the lesion. Some new approaches include cryosurgery, excision by Nd: YAG laser, flash lamp pulsed dye laser, injection of ethanol or corticosteroid and sodium tetra decyl sulfate. There is recurrence rate of about 16% after simple excision. To avoid the possibility of recurrence the lesion must be excised down to the underlying periosteum and predisposing irritants must be removed. Recurrences of extra gingival PG is however uncommon.

Conclusion
When reactive lesions are associated with bone loss, PG should be considered under differential diagnosis. The lesion should be recognized and treated early, when it associated with bone loss as late consequence might result in mobility and loss of the associated tooth, especially when it occurs in anterior region of jaw among children.

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