Unusual huge pyogenic granulomas – A report of case series

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Abstract

Pyogenic granuloma (PG) is a reactive hyperplasia of oral cavity and skin. It represents an exuberant tissue response to various stimuli such as local irritation, trauma, and hormonal factors. It is commonly seen on gingiva with sizes rarely exceeding 2 cm. The purpose of the present article is to report five huge PGs in anterior region of the jaw. Patient with huge PGs in anterior jaw may have severe esthetic and functional problems. Hence, early diagnosis and treatment are essential with regular follow-up as recurrence tend to occur with these lesions.

Keywords: Huge pyogenic granuloma, lobular capillary hemangioma, reactive hyperplasia

Case Series

Case 1

A 32-year-old female patient reported to us with a chief complaint of mass in the upper front region of jaw. The growth started 8–10 months back as a small nodule and progressed to reach the present size. Her medical and personal history was noncontributory. Extraoral examination revealed incompetent lips due to large lesion in anterior maxilla. Intraoral examination revealed a single, pinkish, painless, smooth, lobulated exophytic growth having sessile or pedunculated base. Color of the lesion varies from red, pink to purple depending on the age of the lesion. Histologically, these are classified as two types: Lobular capillary hemangioma (LCH) and non-LCH. LCH presents as proliferating blood vessels that are organized in lobular aggregates without specific superficial changes such as edema, capillary dilation, or inflammatory granulation. The second type, non-LCH consists of highly vascular proliferation having resemblance to granulation tissue. Most of the oral PGs are LCH types histologically. Here by, we report a case series of huge PGs representing its unusualness in terms of size causing difficulty in functions of the oral cavity, compromising the esthetics and causing psychological problems.
dome shaped, pedunculated painless growth, and originating from lingual gingival of lower central incisors. Left mandibular central incisor was missing. The growth measured approximately (5×5.5) cm had smooth lobulated surface and it extended till first premolar region on both sides. Lesion easily bleeds on probing. Oral hygiene was poor with heavy deposit of calculus in adjacent areas and also on lingual aspect of the lesion along with severe halitosis. Radiograph did not reveal any bony changes [Figure 2].

**Case 3**

A 68-year-old male reported to us with chief complaint of mass in the lower front and back region of jaw since more than a year. His medical history was noncontributory. Intraoral examination revealed a pedunculated painless growth arising from right mandibular first region, extending anteriorly to canine region. Lesion measured approximately (6×3.5) cm, freely movable in anterior direction and was hemorrhagic on probing. It was pinkish to reddish in color with numerous lobulations and superior surface of the lesion showed slight indentation marks of the maxillary teeth. Oral hygiene was very poor with heavy deposit of calculus on maxillary and mandibular teeth and in the vicinity of the lesion along with severe halitosis. panoramic view showed roots of right mandibular first molar below the lesion along with saucer shape bone loss in same region. [Figure 3] With these findings, a provisional diagnosis of peripheral giant cell granuloma (PGCG) was made with differential diagnosis of PG.

**Case 4**

A 39-year-old female reported to us for a mass on the left upper region of jaw since a year. Her medical and personal history was not significant. Intraoral examination revealed painless pedunculated growth arising from interdental gingiva of left maxillary first premolar extending anteriorly till canine and posteriorly to the distal surface of the first molar. It measured approximately (6×3) cm and was smooth, lobulated, firm, and hemorrhagic on probing. It was pale in color on its anterior aspect and reddish in outer middle region. [Figure 4] Subgingival calculus was noted in adjacent areas. Radiographic supplementation revealed no bony changes.
Case 5
A 56-year-old male reported to us with complaint of growth in the upper front region since 6–7 months. His medical history was not significant. On intraoral examination painless, sessile growth was seen arising from attached gingiva of maxillary left premolar region. It measured approximately (4×3) cm extending anteriorly till the region of maxillary left canine, posteriorly till distal aspect of second premolar, and superiorly till the mucogingival junction. Surface was lobulated, smooth, and showed telangiectasia. Calculus deposits along with root stumps of maxillary left first and second premolar were noted. Radiograph did not reveal any bony changes [Figure 5].

In all the cases, considering the clinical and radiographic features a provisional diagnosis of PG were made except in case-3 where it was considered as PGCG. All the lesions were surgically removed extending down till periosteum. Thorough scaling and root planning was done. The entire surgical specimens were submitted to histopathologic examination which confirmed the diagnosis of PG [Figure 6]. Only case-1 showed recurrence after 5 months.

Discussion
Poncet and Dor in 1897 were first to describe the PG as human botryomycosis and later the term “Pyogenic granuloma” was coined by Hartzel in 1904.[3,7] PG is a benign reactive exophytic mucocutaneous lesion. The incidence of PG is between 26.8% and 32% of all reactive lesions.[1] PG was first thought to be botryomycosis infection from horses and later it was claimed without scientific evidence that the lesion was result of purulent changes in benign oral tumors.[1,4] Some of the ulcerated PGs have demonstrated Gram-positive and Gram-negative bacilli on their surface which may be from the oral cavity, thus justifying the term “Pyogenic.” Oral PG show prominent capillary growth with granulomatous mass rather than true pyogenic organism and pus. Hence, the name is a misnomer.[3]

In oral cavity, PG shows marked affinity for gingiva accounting for 75% cases and 70% of them involve the interdental papilla.[2] Other sites include palate, buccal mucosa, lip, and alveolar mucosa of edentulous ridge.[7] PG are more common on facial aspect of gingiva than lingual aspect and some may extend between teeth to involve both sides. Maxillary anterior region is more commonly involved.[5] In the present paper, three cases were seen on facial/buccal aspect, one involved lingual gingiva on anterior maxilla, and one was seen involving posterior mandible extending till for anteriorly.

Figure 4: The huge pyogenic granuloma in canine premolar region in case-4

Figure 5: The intraoral and pre-operative radiographic picture in case-5

Figure 6: The histological section of pyogenic granuloma of all the five cases
PG occurs in all ages but predominantly in the second decade of life among females due to vascular effects of female hormone. Incidence increases during pregnancies accounting for almost 5% and is termed as pregnancy tumor. In the present paper, all PG were seen in elderly and old age patients, two were seen in males and three in females.

PG arises as result of various stimuli such as low grade chronic irritation by local irritants such as calculus, foreign body in gingiva, sharp cusp, and sharp edges of grossly decayed tooth, ill-fitting dental appliances, food impaction, and chronic biting habits. The other etiologies for PG are injury, poor oral hygiene, bacteria, virus, hormonal factors, and certain drugs such as cyclosporine. Some suggest that PG can be due to imbalance between angiogenesis enhancers, vascular endothelial growth factors, basic fibroblast factor, angiogenesis inhibitor angiostatin, and thrombospondin. In the present cases, root stumps were noted in two cases with local irritation by calculus and the presence of poor hygiene in all the cases was noted.

Clinically, these lesions are seen as exophytic painless, sessile, or pedunculated growth with smooth or lobulated surface. They are hemorrhagic and compressible. Sometimes yellow fibrinous membrane is seen in ulcerated PG. The color varies from red, pink to purple depending on age and vascularity of lesion. In the present cases, all the lesions were elevated, lobulated, and hemorrhagic. Case-1 showed blackish crustations on its outer aspect due to repeated hemorrhages.

The size of PG varies from few mm to several centimeters and rarely exceeds 2 cm. These are slow growing but sometimes may grow rapidly. PG rarely causes bone loss. In the present paper, all the lesions were exceeding 5 cm representing its unusualness in size. Huge size of PG may be attributed to its painless nature. In case-3, lesion was associated with bone loss which is a rare finding.

PG has to be differentiated from PGCG, peripheral ossifying fibroma, metastatic tumor, pregnancy tumor, hamangioma, Kaposi sarcoma, etc. Differentiation of other similar lesion is based on clinical, radiographic features along with definitive diagnosis by histopathology. In case-3 of the present paper, provisional diagnosis of PGCG was made depending on clinical and radiographic features however histopathology confirmed the lesion to be PG.

Among all our cases, the microscopic examination revealed varying degrees of vascular proliferation resembling granulation tissue. There was no organization of the blood vessels in the form of lobules and hence they were all categorized as non-lobular variant of PG. The blood vessels were also engorged with red blood corpuscles. The connective tissue stroma also showed the presence of chronic inflammatory cells and also few scattered neutrophils. The connective tissue had close resemblance to granulation tissue. Although the lesions presented in the cases above had variations in size, whereas the histopathology of all the lesions was not of considerable significance.

As these are benign lesions, surgical excision is mainstay of treatment. Excision of gingival lesion down to periosteum along with through scaling and root planning of adjacent teeth to remove all continuing source of irritants is recommended. Cryosurgery, Nd:YAG, carbon dioxide laser, flash lamp pulsed dye laser, injection of ethanol, electrodesiccation, sclerotherapy, and sodium tetradecyl sulfate are other treatment modalities. Intralesional steroids are given for recurrent lesions. A recurrence of 15–16% is reported.

Conclusion

Huge PG’s are uncommon. Huge lesions which occur in anterior region compromise the esthetics of patients as seen with our case series and also affects the function of the oral cavity such as mastication, lip incompetence if found in the labial region. Hence, early diagnosis and treatment are necessary so as to reduce the undue complications.

References