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Case Report

Pyogenic granuloma: Report of two cases with review of literature

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Abstract

Pyogenic granuloma (PG) is a reactive inflammatory hyperplastic oral lesion in response to local irritants. It is the most commonly occurring and a well-known oral lesion by oral physicians that most commonly affects gingiva, followed by lips, buccal mucosa, palate and tongue. “Pyogenic granuloma” term itself is a misnomer. This article presents a report of 2 cases of pyogenic granuloma of the gingiva and their management with a review of literature and also discusses why the term “pyogenic granuloma” is a misnomer.

Key words: **Hyperplastic lesion, lobular capillary hemangioma, misnomer, pyogenic granuloma.**

Introduction

Pyogenic granuloma (PG) is a well-known condition and a most commonly occurring inflammatory hyperplastic oral lesion. PG is a misnomer since the lesion is not associated with pus and histologically it resembles an angiomatous rather than a granulomatous lesion.[1,2] Based on the etiopathogenesis and clinical and histopathological features the lesion is referred to with the use of various terminologies such as granuloma pyogenicum, granuloma pediculatum benignum, vascular epulis, Crocker and Hartzell's disease, benign vascular tumor and during pregnancy as pregnancy tumor or granuloma gravidarum.[1,3] The first case of PG was described by Hullihen in 1844.[4] Until 1904 the lesion was described with various names; later Hartzell suggested the term pyogenic granuloma (PG).[5] Angelopoulos proposed the term “hemangiomatous granuloma” based on histopathological features such as the presence of numerous blood vessels (hemangioma-like) and the inflammatory nature (granuloma).[6] Cawson et al suggested the term “granuloma telangiectacticum” in dermatological literature based on the same histopathological features.[7] The term PG is misleading because it is not either a true granuloma or a pyogenic lesion as the origin is mostly traumatic and non-infectious; it is a capillary hemangioma of the lobular subtype and that is the reason it is quite often prone to bleeding.[8]

Case report

Case 1

A 50-year-old female patient reported to the Department of Periodontics, with a chief complaint of swelling of gums in her upper left posterior tooth region for 5 months. The swelling was initially smaller in size, which gradually progressed to the present size and was not associated with any pain or

any functional impairment. The medical history was non-contributory. On intraoral examination, a solitary, sessile, dome-shaped, reddish-pink swelling/growth was present in the upper left buccal surface area of teeth #22, #23 and #24, measuring approximately 2.5×1.3 cm in diameter, extending anterio-posteriorly from the mesial aspect of tooth #23 to the distal aspect of tooth #24, and superior-inferiorly 1.5 cm at buccal aspect of teeth #22, #23 and #24 with well-defined borders (Figure 1). On palpation it was non-tender, soft to firm in consistency, compressible and non-reducible. Intraoral hard tissue examination showed removable prosthesis in relation to tooth #21. Biochemical investigations were performed, which were non-contributory. Intraoral periapical radiograph of teeth #22 and #23 revealed loss of alveolar crestal bone (Figure 2). Based on clinical signs and symptoms, a provisional diagnosis of pyogenic granuloma was reached with a differential diagnosis list of irritational fibroma, peripheral giant cell granuloma and hemangioma. Therefore excisional biopsy was planned under local anesthesia. The biopsy was performed keeping a wide margin up to the periosteum, with thorough curettage of the area to prevent recurrence of the lesion (Figure 3). The patient was discharged after attaining proper hemostasis, with periodontal dressing to enhance healing for 5 days. Medications were prescribed for 5 days. The excised specimen was sent for histopathological examination, which revealed parakeratinized stratified squamous epithelium. The underlying connective tissue was collagenous with numerous engorged blood vessels and dense chronic inflammatory cell infiltrate, predominantly of lymphocytes, suggestive of "lobular capillary hemangioma" (Figure 4). The case was followed for 1 year with regular monthly checkups. Proper healing was noted without any recurrence (Figure 5).

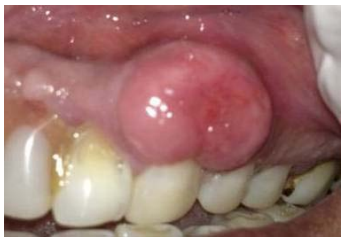

Figure 1. A well-defined lesion on left anterior buccal aspect of the maxilla.

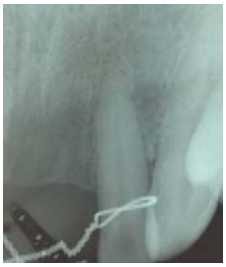

Figure 2. IOPA shows inter-dental alveolar bone loss in the area of teeth #22 and #23.

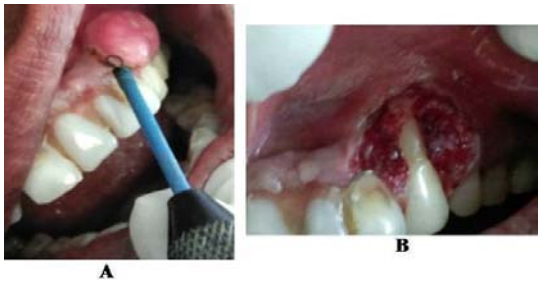

Figure 3. Surgical excision of the lesion by electrocautery (A); intra-operative photograph (B).

Case 2

A similar case was observed in a 40-year-old female patient, reporting to the Department, in her upper front tooth region for 3 months. The swelling was initially smaller in size, which gradually progressed to the present size and was not associated with any pain or any functional impairment. The medical history was non-contributory. On intraoral examination, a well-defined solitary, sessile, dome-shaped, reddish-pink swelling/growth was present in the upper front buccal surface of tooth #11 (Figure 6A). On palpation it was non-tender, soft to firm in consistency, compressible and non-reducible. Based on clini-

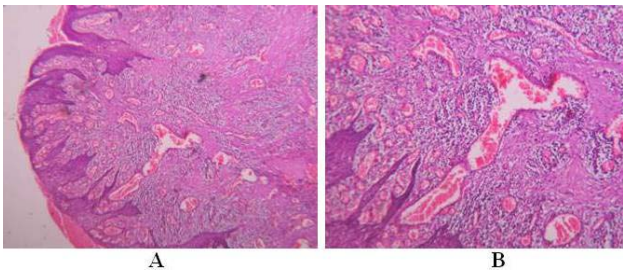

Figure 4. Histopathological view shows parakeratinized stratified squamous epithelium, with numerous engorged blood vessels and dense chronic inflammatory lymphocytes. ×10 (A), ×40 (B).

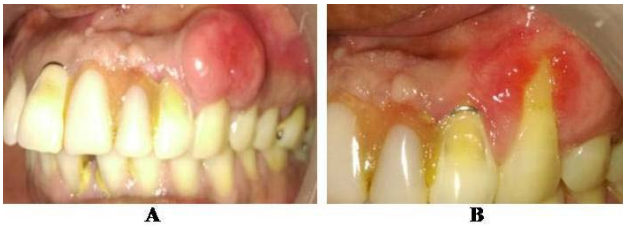

Figure 5. Preoperative photograph (A); postoperative photograph after 20 days (B). Case 2.

cal signs and symptoms, a provisional diagnosis of pyogenic granuloma was reached. Surgical excision was carried out, keeping a wide margin up to the periosteum, with thorough curettage of the area to prevent recurrence of the lesion (Figure 6B and 6C). The specimen was sent for histopathological examination, which revealed parakeratinized stratified squamous epithelium with numerous engorged blood vessels and dense chronic inflammatory cell infiltrate predominantly of lymphocytes, suggestive of "pyogenic granuloma". The case was followed for 1 year with regular monthly checkups. Proper healing occurred without any recurrence (Figure 7).

Discussion

PG is a reactive inflammatory hyperplastic lesion associated with proliferating vascular channels, immature fibroblastic connective tissue and scattered inflammatory cells. Gingiva is the most common site of occurrence, followed by lips, tongue, buccal mucosa and hard palate.[8] Multiple etiologic factors play a role in the formation of PG, including physical trauma, chronic low-grade trauma, hormonal factors, microorganisms and certain drugs.[2] Poor oral hygiene and calculus are the precipitating factors in many patients.[9] The highest incidence is observed in the second and fifth decades of life with female predilitection.[1,3] The maxilla is affected more commonly than the mandible, and the anterior region on the buccal aspect than the posterior region. Clinically it appears as a well-defined, elevated, smooth or exophytic sessile or pedunculated painless growth covered with hemorrhagic and erythematous papules with variable sizes from a few millimeters to several centimeters.[10] The cases reported here are consistent with the literature.

Radiographic features are absent except for localized bone resorption noted in rare instances of large and long-standing gingival tumors[6] as present in our cases. Various lesions such as peripheral giant cell granuloma, fibroma, peripheral ossifying fibroma, hemangioma, gingival hyperplasia, Kaposi's sarcoma, bacillary angiomatosis, angiosarcoma and non-Hodgkin's lymphoma resemble PG clinically.[11] Henceforth histopathological confirmation is mandatory for successful management.

Histopathologically PG is covered by parakeratotic or non-keratinized stratified squamous epithelium and classified as lobular capillary hemangioma (LCH) type and the non-LCH type.[9,10] The features of LCH type consist of numerous blood vessels organized in lobular patterns with inflammatory changes whereas non-LCH type consists of vascular core associated with a fibrous tissue.[1,2] The cases reported here are consistent with the literature of LCH type.

Conservative surgical excision is the treatment of choice for PG. Various other treatment modalities available are laser, cryosurgery, electrodessication, sclerotherapy,[9] and intra-lesional steroid therapy.[12] In the present cases, in case 1 the lesion was excised with electocautery and in case 2 by surgical excision, keeping a wide margin up to the periosteum, with thorough curettage of the area to prevent recurrence of the lesion and the specimen was sent for histopathology. Scaling and root planing were carried out on adjacent teeth to eliminate all the local irritants, which could have been responsible for the lesion. The cases reported here were followed for a period

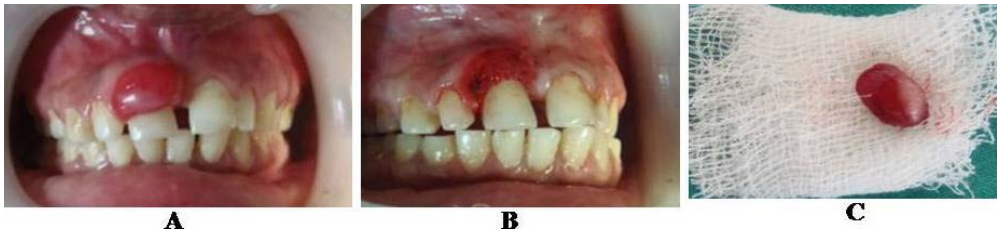

Figure 6. A well-defined gingival growth (A); Intra-operative photograph (B); excised specimen (C).

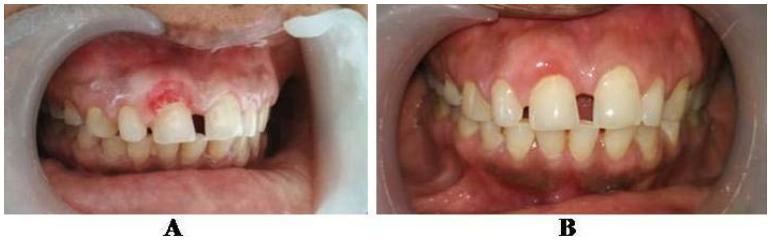

Figure 7. Postoperative photograph after 2 weeks (A); after 1 month (B).

of one year and no recurrence was noted.

Conclusion

PG is a familiar oral lesion known by many oral clinicians. Although it is a familiar lesion, there are various lesions clinically resembling PG. Henceforth histopathogical confirmation is mandatory before management of the lesion. The present manuscript also emphasizes that the term “pyogenic granuloma” is a misnomer, as the lesion is not associated with any pus and histologically it exhibits an angiomatous lesion rather than a granulomatous one.

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