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CROCKER AND HARTZELL'S EXHIBITED IN MANDIBULAR ANTERIOR REGION OF A MALE PATIENT: A CASE REPORT.

Periodontology

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ABSTRACT

Pyogenic granuloma is one of the inflammatory hyperplasias seen in the oral cavity. This term is a misnomer because the lesion is unrelated to infection and in reality, arises in response to various stimuli such as low-grade local irritation, traumatic injury or hormonal factors. Pyogenic granuloma is also referred to as Crocker and Hartzell's disease, pregnancy tumor, granuloma pediculatum benignum, benign vascular tumor and vascular epulis. The most frequently involved site is the maxillary gingiva, and mostly seen in second or third decade of life in women. This paper highlights a case report of crocker and hartzell's disease seen in a 27-year old male patient which is a rare presentation as this condition is more prevalent in females.

KEYWORDS

Pyogenic Granuloma, Crocker & Hartzell's Disease, Epulis

INTRODUCTION

Soft tissue enlargements of the oral cavity are very common and often cause a diagnostic challenge to clinicians. There are multiple pathological conditions which can produce similar type of lesions. [1]

Earlier, the term "epulis" was used clinically to describe any localized growth on the gingiva, but histological examination of such lesions indicates that the majority of them are Focal Fibrous Hyperplasia, Pyogenic Granuloma, Peripheral Giant Cell Granuloma, and Peripheral Ossifying Fibroma[2]. Pyogenic granuloma is one among the common entities causing soft tissue growth in oral cavity. [1]

Pyogenic granuloma is a non-neoplastic inflammatory hyperplasia that responds to various stimuli such as chronic local irritation, trauma, hormonal changes, bone marrow transplant, and reactions to grafts. [3]

In 1844, Hullihen described the first case of pyogenic granuloma in English literature. Cawson et al., in dermatologic literature have described it as "granuloma telangiectacticum" due to the presence of numerous blood vessels seen in histological sections. They described two forms of pyogenic granulomas, the lobular capillary hemangioma (LCH) and the nonlobular capillary hemangioma (non-LCH).[4] The term lobular capillary hemangioma is increasingly gaining favor in the dermatologic literature.

Bhaskar et al. in their study observed that oral pyogenic granuloma comprised about 1.85% of all oral pathoses, other than caries and gingivitis treated at US Army Institute of Dental Research. Daley et al. found that pregnancy epulides accounted for only 42 of the 757 epulides of all types. In an analysis of 244 cases of gingival lesions in south Indian population, Shamim et al. found that non-neoplastic lesions accounted for 75.5% of cases with oral pyogenic granuloma being most frequent lesion, accounting for 52.71% cases.[5]

Intra-oral pyogenic granuloma most frequently arises in gingiva which accounts for 75% of all cases. It may also occur on the lips, tongue, and buccal mucosa as an elevated, pedunculated, or sessile mass with a smooth or lobulated surface which may sometimes be ulcerated. It is a painless mass and may sometime show alarming rapid growth. Predilection for females and the younger age group individuals is thought to be the hormonal effect on the vasculature.[6]

Case report

A 27 year old male patient reported with the chief complaint of swelling in relation to his lower front teeth for past 10 days. Patient was found to be systemically healthy. On extraoral examination no abnormalities were detected. Intraorally oral hygiene was inferred as poor oral hygiene.

On intraoral examination, a solitary, well defined, sessile swelling, ovoid in shape measuring approximately 0.7 x 1.0 cm in size, reddish in color, with a rough surface texture was present in relation to 42,43. On palpation, it was fibrous in consistency, with no tenderness. Immediate bleeding on probing was evident. On probing a pocket depth of 6-8 mm was present in relation to facial aspects of 42,43. The discrete mass was seen to cover almost half of the tooth crown in relation to 43,42.

Based on the clinical findings a provisional diagnosis of pyogenic granuloma was made in relation to 42,43.

The differential diagnosis of pyogenic granuloma includes peripheral giant cell granuloma, peripheral ossifying fibroma, hyperplastic gingival inflammation, Kaposi's sarcoma, bacillary angiomatosis, angiosarcoma, etc.

IOPA in relation to 42,43 revealed crestal bone loss in the interdental aspect of 42,43. Oral prophylaxis was carried out for the patient and oral hygiene instructions were given. Haematological investigations were carried out and all routine blood parameters were found to be within normal limits. Following this excisional biopsy was carried out. Under adequate local anaesthesia, incision was made at the base of the tumour, and complete excision was done. The specimen was rinsed with saline, followed by storage in 10% Formalin and then sent for histopathological evaluation. The surgical wound was debrided completely of granulation tissue, debris, etc and the area was irrigated using betadine saline. A periodontal dressing was given in relation to the surgical site.

Antibiotics and analgesics along with adequate plaque control measures were prescribed for the patient.

Histopathological examination revealed the excised specimen to show hyperplastic stratified parakeratotic squamous epithelium with an underlying fibrovascular stroma. The stroma consisted of large number of budding and dilated capillaries, plump fibroblast, areas of extravasated blood and dense inflammatory cell infiltrates. The above histopathologic findings were consistent with the clinical diagnosis suggestive of pyogenic granuloma.

FIG.1. Preoperative view

FIG.2. Excision of the lesion

FIG.3 Excised specimen sent for histopathologic examination

FIG.4 Immediate postoperative view

FIG.5 Periodontal dressing given

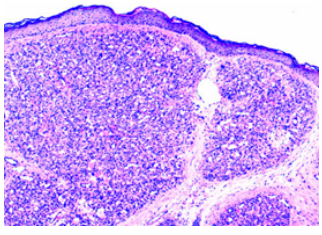

FIG.6 Histopathology

DISCUSSION

The severity and intensity of gingivitis and periodontitis is closely related to socioeconomic and cultural conditions. Better education, dental care and compliance with postperiodontal treatment seem to improve periodontal health.[3]

Pyogenic granuloma is a hyperplastic response secondary to inflammation. It is a soft tissue tumour like growth which is non-neoplastic in nature. The term pyogenic granuloma or granuloma pyogenicum was given by Hartzell in 1904. The term is a misnomer since the term pyogenic implies pus forming but actually the lesion does not contain pus and histological features also does not relate to granuloma.[1]

Regezi et al., suggested that pyogenic granuloma is caused by a known stimulant or injury such as calculus or foreign material within the gingival crevice resulting in exuberant proliferation of connective tissue. Ainamo suggested that routine tooth brushing habits cause repeated trauma to the gingiva resulting in irritation and formation of these lesions. Release of variety of endogenous substances and angiogenic factors caused disturbances in the vascularity of the affected area. Trauma to deciduous teeth, aberrant tooth development, occlusal interferences, immunosuppressive drugs such as cyclosporine and wrong selection of healing cap for implants are some of the other precipitating factors for pyogenic granulomas.[4] Approximately one-third of the lesions develop after trauma particularly those occurring on the extragingival sites. Ainamo suggested that trauma can cause release of various endogenous substances including angiogenic factors from the tumor cells and it may also cause disturbances in the vascular system of the affected area. Trauma from adjacent sharp teeth, ill-fitting dentures, accidental biting and tongue piercings are most common[7]

Some authors regard pyogenic granuloma as an "infectious" entity. Kerr has reported staphylococci and botryomycosis, foreign bodies, and localization of infection in walls of blood vessel as contributing factors in the development of the lesion. Bhaskar et al. observed that bacterial strains have demonstrated the presence of gram positive and gram-negative bacilli in oral pyogenic granuloma. Murata et al. 1997 in their study observed that after any trauma, the key to wound healing is the formation of granulation tissue and this includes the migration of inflammatory cells, migration and proliferation of vascular endothelial cells and fibroblasts and synthesis of extracellular matrix. Such processes of wound healing seem to be controlled by various kinds of cytokines. Out of these cytokines – role of growth factors, particularly basic Fibroblast Growth Factor – a heparin binding angiogenic protein, has been found to be highly mitogenic for capillary endothelial cells and to induce angiogenesis. They studied bFGF immunolocalisation in gingiva and oral pyogenic granuloma at its various stages of progression. They suggested that maximum amounts of bFGF are synthesized and released from some macrophages and mast cells into extracellular matrix during neovascularisation of the granulation tissue. As there is a site predilection for labial gingiva in the anterior region of the oral vestibule, some authors have postulated that habitual tooth brushing may also be considered as a significant cause of microtrauma and irritation to the gingiva.[5] It is now universally agreed that this lesion is formed as a result of an exaggerated localized connective tissue reaction to a minor injury or any underlying irritation. The irritating factor can be calculus, poor oral hygiene, nonspecific infection, overhanging restorations, cheek biting. Due to this irritation, the underlying fibrovascular connective tissue becomes hyperplastic and there is a proliferation of granulation tissue which leads to pyogenic granuloma.[8]

It has a striking affection for the gingiva accounting for almost 75% of the cases possibly caused by the presence of calculus and foreign material in the gingival crevice.[7] Lesion are more common on maxillary anterior gingiva than mandibular gingiva, Facial/ buccal gingiva more commonly affected than lingual/ palatal gingiva.[9] This is in disagreement with a case report by Goel et al, who reported a case of PG in mandibular anterior region. This is the same with our present case report wherein we have reported a case of Pyogenic granuloma in mandibular anterior region. Pyogenic granuloma occurring in the extra-gingival sites have been reported in literature with an incidence ranging from 26% to 55.5%. Extra-gingival pyogenic granuloma is usually seen in areas of frequent trauma such as the lower lip, tongue, and buccal mucosa. The most common extra-gingival sites are the buccal mucosa (2.79%) and the tongue (1.86%). In general, pyogenic granulomas occur more frequently in females than males. A female predominance (67.44%) was identified in a case series by Krishnapillai et al and this is in agreement with other studies, which report a range of 62.96– 77%,[6] however our case presentation was in disagreement with this as there was a rare clinical presentation of pyogenic granuloma in a male patient which is as seen in a case report by Rosa et al and Nirmala et al who published case reports in male patients aged 27 and 8 respectively.

Although pyogenic granuloma can be diagnosed clinically with considerable accuracy, radiographic and histopathological investigations aid in confirming the diagnosis and treatment.[10] Radiographical findings are absent in pyogenic granuloma but localised alveolar bone resorption in rare instances of large and long standing gingival tumours can be seen.[11] Radiographs are advised to rule out bony destructions suggestive of malignancy or to identify a foreign body.[10] Histologically, the surface epithelium may be intact, or may show foci of ulcerations or even exhibit hyperkeratosis. It overlies a mass of dense connective tissue composed of significant amounts of mature collagen.[12]

Surgical excision is the treatment of choice. After surgical excision of gingival lesions, curettage of underlying tissue is recommended. Pyogenic granuloma lacks infiltrative or malignant potential. Another modality for treatment of pyogenic granuloma reported is cryosurgery which is a safe, easy and inexpensive technique suited for out patient's clinic setting.[11] Ishida and Ramos-Silva described cryosurgery as a very useful technique for pyogenic granuloma treatment; they reported that

oral mucosa, due to its softness and dampness, is an ideal site for this technique. On the other hand, Ghodsi compared treatment which conducted surgical excision, performed in one session, and exhibiting 0% relapse, with cryosurgery, conducted in one session for 63% of all patients, two sessions for 32% of all patients and three sessions for 5% of all patients, exhibiting 0% relapse.[13] To avoid the possibility of recurrence, the lesion must be excised down to underlying periosteum and the predisposing irritants must be removed.[14] In general however, a recurrence rate of 16 % has been reported. Lasers have shown to be a successful option for the excision of pyogenic granuloma with advantages of minimal pain and invasiveness and the lack of need for suturing or packing.[15] Verma et al reported use of a flash lamp pumped pulsed dye laser in a mass of granulation tissue which had not responded to conventional treatments; they reached the conclusion that tissue responded favorably. Tay et al after a three year follow up of a treatment conducted with flash lamp pumped pulsed dye laser reported 0% relapse after conducting treatment in one session for 25% of patients, two sessions 40%, three sessions 30% and six sessions 5%.[13] Dermal pyogenic granuloma has been treated with electrodessication and sclerotherapy.[15] Matsumoto et al16 found 0% relapse when they conducted treatment with monoethanolamine oleate used as sclerosing substance in one session.[13]

CONCLUSION

Pyogenic granuloma is one of the soft tissue growths involving oral cavity. Although it most commonly affects the maxillary anterior gingiva, we presented a case of pyogenic granuloma affecting mandibular anterior region. It usually has asymptomatic clinical course with rarely causing resorption of underlying bone. Pyogenic granuloma can be adequately treated with the correct diagnosis and proper treatment planning.[13] Exclusivity of our report is pyogenic granuloma occur in a male which is very rare. A careful management of the lesion also helps in preventing the recurrence of this benign lesion.[12]

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