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Pyogenic GranulomaOn Anterior Hard Palate In A Paediatric Patient: ACase Report

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Abstract:
Pyogenic Granuloma (PG) is a reactive hyperplasia of connective tissue in response to local irritants which may bleed on probing. Histologically, the surface epithelium may be intact, or may show foci of ulcerations or even exhibit hyperkeratosis. It predominantly occurs in the second decade of life with female predilection, and size of lesion varies in diameter from few millimeters to several centimeters, but rarely exceeds 2.5cm. Pyogenic Granuloma of the oral cavity is known to involve the gingiva commonly. Extragingivally, it can occur on the lips, tongue, buccal mucosa, palate, and alveolar mucosa. This article presents a case of Pyogenic Granuloma in a 12-year-old female patient who presented clinically with pain and gingival overgrowth in the maxillary right anterior palatal surface of attached gingiva in relation tolateral incisor and canine. The lesion was excised and histopathological report confirmed the diagnosis as oral PyogenicGranuloma.

Key words*: Hard palate, Pyogenic Granuloma, Complete excision*

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I. INTRODUCTION:

As a pediatric dentist,to identify and treat soft tissue growth in oral cavity is of utmost importance and sometimes challenging due to their various differential diagnosis which falls into these categories; normal anatomical variations, cysts, developmental and lastly, neoplastic growths[1]. Pyogenic granuloma is a type of inflammatory hyperplasia that affects the oral cavity's mucosal lining and the skin which can affect the pediatric age group and young adults[2].Pyogenic granuloma was first described by Poncet and Dor in 1897[3].Oral pyogenic granuloma during pregnancy most commonly occur in female during second decades due to increased levels of hormones [4]. In a pediatric study, the average age at diagnosis was 6 to 10 years, with a male preponderance[5].

From the clinical point of view, pyogenic granuloma appears as a soft, rapid-growing mass, possibly pedunculated of variable size lobulated surface and reddish hue. It can be ulcerated and exhibits high propensity to bleeding[6]. It is considered a reactive tumor as its appearance is generated through various physical stimuli (trauma, tartar, and low intensity chronic irritation), chemicals (drugs, hormones) or dental and periodontal treatment[7].The color of the lesion depends on the vascularity of the growth, so it can be red, purple or pink[8,9].

Its histology reveals proliferation of granulation tissue with inflammatory infiltrate and great angiogenic capacity; for these reasons, vascular neoformations of different diameter are normally present.These formations exhibit abrupt onset and completion within the tissue[10].

Possible complications of lobular capillary hemangioma include, ulceration, hemorrhage from trauma to the lesion,secondary infections,cosmetic disfigurement, which may be of psychological distress to the patient, particularly when the lesion is on the face[11].

The treatment consists of the removal of the causal factor and, in the accomplishment of excisional biopsy.

II. CASE REPORT:

A 12 year old female patient, attended by her parents reported to the Department of Pedodontics, PSM College of Dental Science and Research, Akkikavu,Thrissur,Kerala with a chief complaint of pain and swelling inupper right anterior palatal region.Small swelling noticed one month back while having food which was bluish red in color, progressively increased to the current size (1.2x .7 cm) and changed to pale pink color, associated with intermittent episodes of sharppain with incidental bleeding while having food.Pain was relieved on warm water gargling. The patient's past medical and dental history were insignificant with no positive family history.

On intra oral examination the swelling was located on anterior rugae region 1.2 cm away from interdental papilla of central incisor and lateral incisor and mesial margin touching the midpalatine region. The swelling was red, round, firm, pedunculated, having distinct margin with irregular surface. It was tender on palpation and showed blanching on application of pressure. The color changed to pale pink color on subsequent visits. (Figure 2). The patient also had cutaneous lesion, nevus flammeus (port-wine stain) on neck and hands (Figure 3). No deleterious habits reported.

Provisional diagnosis of Pyogenic Granuloma or Hemangioma was formed taking into account clinical signs and symptoms and an informed consent was taken from the parents for the procedure. Local anaesthesia was infiltrated around the lesion and an excision was performed with Number 15 blade, which was then completely excised from its base(Figure 4,5). Electrocautery (Figure 6) was used to remove the remaining lesion which produced good hemostasis and sutures were placed. Anobturator was placed to protect surgical site made of cold cure acrylic resins (Figure 7).

Histopathological study showed (Figure 9, 10) polypoidal mass covered by hyperplasic parakeratinized stratified squamous epithelium with areas of ulceration. The stromal tissue is moderately collagenous and hypercellular. Numerous uniform plump endothelial cells with vesicular nucleus arranged in lobular pattern interspersed with many small vascular spaces are observed. Moderate infiltration with chronic inflammatory cells predominantly lymphocytes and proliferating fibroblastsalso seen suggestive of Pyogenic Granuloma. Follow up was done under regular intervals to check the postoperative healing and recurrence.

III. DISCUSSION:

Pyogenic granuloma is a well-recognized inflammatory hyperplastic oral lesion which comprises about 1.85% of all oral pathologies, other than caries and gingivitis[12]. The term "pyogenic granuloma" is a misnomer because the lesion does not contain pus and is not strictly speaking a granuloma. The scientifically accurate term for this entity is lobular capillary hemangioma[13]. Approximately one-third of the lesions occur due to trauma and poor oral hygiene may also be one of the precipitating factors[14].Some authors regard pyogenic granuloma as an "infectious" entity. Kerr[15] 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. Reichart et al.[16] stated that granulation tissue in oral pyogenic granuloma may become contaminated by flora of oral cavity and its surface may often become covered by fibrin which may mimic pus. However, suppuration is not a characteristic of oral pyogenic granuloma to support infectious origin[16].Ainamo[17] 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. Cutaneous lesion may also occur over vascular malformations, such as a nevus flammeus (port-wine stain)with a predilection for the head and neck region, followed by the trunk and extremities for children[18].Pyogenic granuloma may occur at all ages but is predominantly seen in the second decade of life in young adult females, possibly because of the vascular effects of female hormones [19]. This paper presents a case of a pyogenic granuloma in the anterior hard palate managed by surgical intervention.

The histologic features of pyogenic granuloma in general shows exuberant granulation tissue which is covered by atrophic/hyperplastic epithelium that may be ulcerated at times and reveals fibrinous exudates. Presence of numerous endothelium-lined vascular spaces and proliferation of fibroblasts and budding endothelial cells are the characteristic features of pyogenic granuloma. Presence of mixed inflammatory cell infiltration is also observed.[20] Differential diagnosis of pyogenic granuloma includes peripheral giant cell granuloma, peripheral ossifying fibroma, fibroma, peripheral odontogenic fibroma, hemangioma, conventional granulation tissue, hyperplastic gingival inflammation, Kaposi's sarcoma, bacillary angiomatosis, angiosarcoma, and NonHodgkin's lymphoma[21,22].

Treatment of oral PGS in many instances is surgical excision of the lesion followed by removal of all visible sources of irritation that can evoke the lesion[23].Diverse treatment modalities include drugs of intralesional steroids, flash lamp, cryosurgery, sclerotherapy, and different types of lasers like Nd: Yttrium-aluminum-garnet, Argon, CO_2[24]. Positive results exist with use of Erbium ablative laser for the treatment of isolated mucosal PGs of pediatric patients. Vilmann et al.[25] noticed lesser recurrence rate with lesions from other oral mucosal sites when compared to gingival cases. Sapp et al.[26] asserted relatively high recurrence rate after simple excision[25]. Higher recurrence rate makes the follow-ups essential part of treatment.

The site of surgical excision showed good healing with no scar formation and on subsequent recall visit showed no signs of recurrence after 6 months.

IV. CONCLUSION:

Pyogenic Granuloma is a well-known and a commonly present lesion of the oral mucosa which causes pain and discomfort to the patient especially in children. Hence early diagnosis and prompt treatment is very important to prevent further complications. Varied reasons are possible for its occurrence and can be presented in a wide variety of forms. So, it should always be kept in mind while diagnosing a reddishhyperplasic growth and adequate treatment should be done accordingly. The treatment should consist in the removal of the causal factor and subsequently in the excision of the specimen for histological evaluation in order to complete the diagnosis.

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Photograph from first visit (Fig 1)

Pre operative photograph (Fig 2)

Nevus flammeus (port-wine stain) (Fig 3)

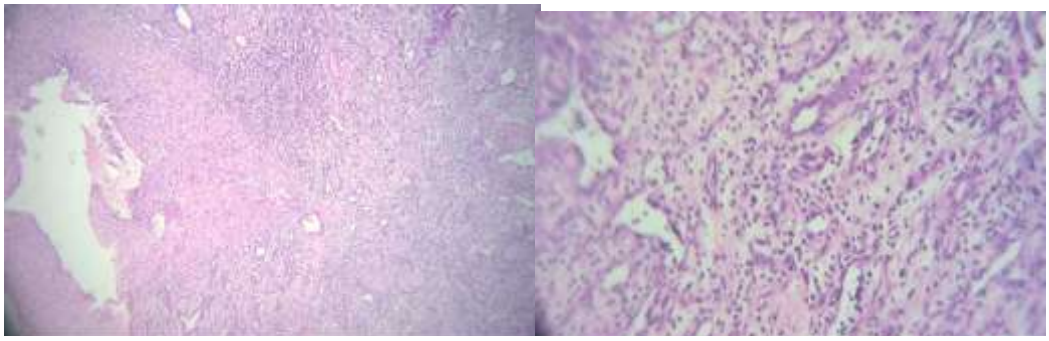
Surgical excision (fig 4)

Electro cauterization (fig5)

After excision (fig 6)

Obturator insertion (fig7)

Post surgical review after one month (fig8)



Photomicrograph showing H & E section showing numerous vascular spaces, endothelial cell proliferation and dense infiltration of chronic inflammatory cells. (10X) (Fig 9)

Photomicrograph showing H & E section showing dense aggregation of plump endothelial cells surrounding vascular spaces. (40X) (Fig 10)