Oral Pyogenic Granuloma in a 5 months old infant

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ABSTRACT:

Soft tissue enlargements of the oral cavity present a diagnostic challenge because a diverse group of pathologic processes can produce such lesions. An enlargement may represent a variation of normal anatomic structures, inflammation, cysts, developmental anomalies and neoplasm. Within these lesions is a group of reactive hyperplasias. Pyogenic granulomas are relatively common benign mucocutaneous lesions. They may be found in the oral cavity or extra orally. Lesions occurring in the oral cavity are most commonly found in the anterior segment over the gingiva followed by lips, tongue and buccal mucosa. We present a case of pyogenic granuloma in a 5-months old infant clinically consistent with a congenital epulis. Following excision and histological examination, the diagnosis was determined to be a pyogenic granuloma.

Key words: Pyogenic granuloma, Inflammatory hyperplasia, Oral cavity

Introduction

Pyogenic granuloma (PG) is one of the inflammatory hyperplasias seen in the oral cavity as a tissue response to irritation, trauma or hormonal imbalances. It is a common tumor like growth of oral cavity or skin that is considered to be non-neoplastic in nature.[1] The first case was reported in 1844 by Hullihcn[2] and the term "pyogenic granuloma" or "granuloma pyogenicum" was coined only in 1904 by Hartzcll.[3] The term however is a misnomer as it is not related to any infection, does not contain pus and is not a true granuloma. There are two kinds of PG namely lobular capillary hemangioma (LCH) type and non LCH type, which differs in their histological features.[4] Although PG may occur in all ages, it is predominant in second decade of life in young adult females, possibly because of the vascular effect of female hormones.[5] Kerr[6] study reported 289 cases, where age group incidence was not significant, cases are seen in both very young infants and elderly persons with no apparent predilection for any one age group. Nor were any significant differences in occurrence found between the sexes. However, in a series of 835 cases discussed by Angelopoulous[7] he noted that about 60 percent of lesions occurred in persons between 11 and 40 years of age, and that over 70 percent

involved females. Most common site of occurrence is gingiva in 75% cases, followed by lips, tongue and buccal mucosa.[8] Lesions are slightly more common on maxillary anterior gingiva than mandibular gingiva. Also these lesions are more common on the facial aspect of gingiva than the lingual aspect. The precise mechanism for the development of PG is unknown. Trauma, hormonal influences, viral oncogenes, underlying microscopic arteriovenous malformations, the production of angiogenic growth factors and cytogenic abnormalities have all been postulated to play a role.[9]

Oral examination is an essential part of routine physical examination of new born. When a mass is found in the oral cavity, it is important to formulate a definite diagnosis for further evaluation of the condition and management of the case. This case report describes a female infant with a gingival mass presenting clinically as a congenital epulis of the new born: however, histologically it proved to be a PG.

Case report:

A 5-months old female infant presented in the Department of Pediatric and Preventive Dentistry with parent's chief complaint of growth in the lower right front region of jaw. The growth started 3-4 months ago, as a small pea size, deep red color, painless progressively increased to 2X2cm at the time of presentation (Fig. 1). The growth was associated with profuse bleeding on provocation and there was hindrance during feeding. History also reveals presence of natal tooth at the time of birth and the tooth got extracted after a period of two months due to nursing difficulties. There was no contributory past medical history. Examination of head and neck didn't reveal any facial asymmetry; except for right submanbibular lymph node enlargement was noticed. Intra-oral examination revealed a solitary, pedunculated growth with smooth surface laterally and occlusally, reddish purple color arising from in lower right vestibule in relation to lower right deciduous incisors. Palpatory findings revealed growth measuring 2x2cm which profusely bled on trivial provocation. Consistency of growth was soft and fragile. With the above said findings, provisional diagnosis of PG on the gingival pad in relation to lower right deciduous incisors was established. Routine blood investigations were done and patient hemogram was within normal limits. Peripheral giant cell granuloma, peripheral soft fibroma and congenital epulis were considered in the differential diagnosis. Since the growth was causing feeding difficulties, an excisional biopsy under general anesthesia was carried out under antibiotic coverage. The excised specimen is shown in fig. 2. Patient was discharged on complete stoppage of bleeding with all post operative instruction. Patient revisited after 5days with healing satisfactory (Fig. 3).

Photomicrograph of excised specimen shows hematoxylin eosin stained section with hyperplasic stratified squamous parakeratinized epithelium with underlying fibro vascular stroma. The stroma shows a large number of budding capillaries, plump fiborblasts and areas of extravasated blood and dense acute and chronic inflammatory cell infiltrate. The above histo pathologic features are suggestive of pyogenic granuloma (Fig. 4). Post excision period was uneventful with regular follow up at one month intervals showed no evidence of recurrence.

Discussion:

PG is one of the inflammatory hyperplasia of the oral cavity which is usually considered to be a reactive tumor like lesion.[10] Originally PG was believed to be botryomycotic infection which was transmitted from horse to man. Later it was proposed that these lesions are caused due to some pyogenic bacteria like streptococci and staphylococci. However there is no evidence of any infectious organisms isolated from the lesions confirming the unlikely relation to any infection and hence the name is misnomer. It is now largely agreed that PG arises as a result of various stimuli such as low grade chronic irritation, trauma, hormonal imbalances or certain kinds of drugs. The tissues react in a characteristic manner resulting in overzealous proliferation of a vascular type of connective tissue (shafer et al 1983).[11] Nakamura[12] 2000 described cells in PG have low apoptosis influenced by the anti apoptotic proteins like bel-2 family proteins. In our patient the probability of growth may be due to irritation of tissue from the sharp edges of natal tooth. Although the tooth got extracted after two months of birth, growth didn't show any regression.

Clinically, PG is a smooth or lobulated exophytic lesion manifesting as small, red erythematous papules on a pedunculated or sometimes sessile base which is usually hemorrhagic and compressible. The

size varies from few millimeters to several centimeters, rarely it exceed 2.5cm in size and reaches its full size within weeks or months.[13] The surface is characteristically ulcerated and friable[14] which may be covered by yellow, fibrinous membrane[15] with color range from pink to red to purple depending on the age of the lesion. Younger PG's are highly vascular in appearance because they are composed predominantly of hyperplasic granulation tissue in which capillaries are prominent. Thus minor trauma to the lesion may cause considerable bleeding, due to its vascularity whereas older lesions tend to become more collagenized and pink. Histologically PG shows a highly vascular proliferation that resembles granulation tissue. Numerous small and large channels are formed which are engorged with red blood cells and lined with endothelial cells, polymorphs, as well as chronic inflammatory cells are present thought out the edematous stroma. The fibroblasts are typically plump and mitotic activity may be noted in the stroma cells. Older lesions demonstrate fewer and more mature cells, which are fibrocytes. A mixed inflammatory cell infiltrate of neutrophils is mostly prevalent near ulcerated surface. The overlying epithelium, if present is generally thin and atrophic, but may be hyper plastic. If the lesion is ulcerated, it shows fibrinous exudates of varying thickness over the surface.

Differential diagnosis of PG includes parulis, congenital epulis, peripheral giant cell granuloma, hemangioma, peripheral fibroma, pregnancy tumor, post extraction granuloma, hemangiopericytoma, Kaposi's sarcoma, Epstein pearls, Bohn nodules. Definitive diagnosis of PG can only be made by histological examination of biopsied tissue.

PG is a benign lesion though surgical excision which includes excision of lesion from connective tissue from which it arises, as well as removal of local etiological factors is treatment of choice other conventional surgical modalities like cryosurgery[16,17]

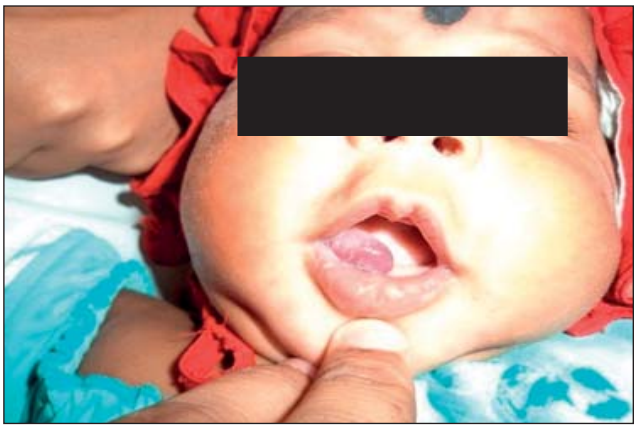

Fig 1: Photograph showing intra-oral swelling

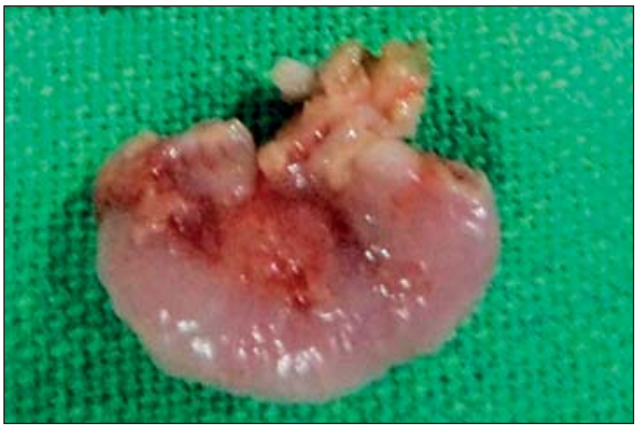

Fig 2: Photograph showing excised mass

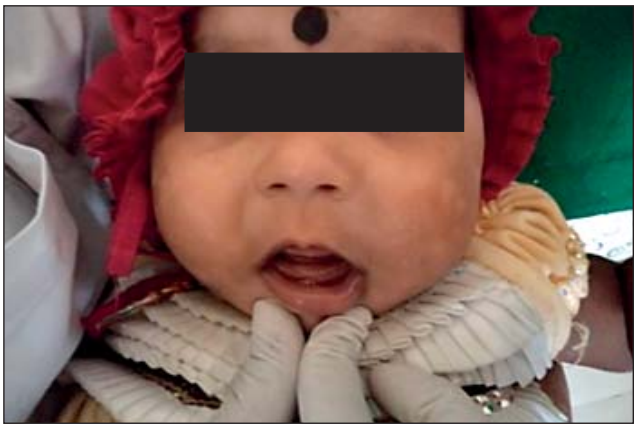

Fig 3: Post-operative photograph with satisfactory healing

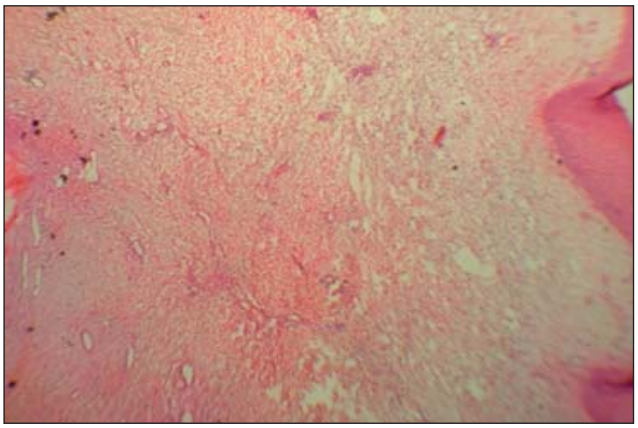

Fig 4: Histopathology section of excised mass

in form of liquid nitrogen spray or cryoprobe, Nd: YAG, co2 and flash lamp pulsed dye lasers [18,19] also been used for treatment of oral PG. Dermal PG has been treated with electrodessication and sclerotherapy.[20] Excisional treatments results in scars, and hence injection of absolute ethanol, sodium tetradecyl sulfate and corticosteroids[21] have been tried with varied success rate.

Considering the future risk of further enlargement of the lesion, uncontrolled bleeding and difficulty in feeding, surgical excision under GA was planned. After removal of the tumor mass, patient parents were instructed for the maintenance of oral hygiene. Regular follow-up revealed no recurrence of the lesion.

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