Heal Talk

Pyogenic Granuloma : Recurrence of the Lesion

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Abstract

Pyogenic granuloma is a common tumor like a growth of oral cavity or skin. It is non-malignant in nature. It was first described by Hullihan in 1884 in English literature and the term 'pyogenic granuloma' was coined by Hartzell in 1904.It is a relatively common mucocutaneous oral lesion in pregnant females. Proper oral hygiene measures and frequent dental checkups may prevent the incidence of the lesion.

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Background

Gingival overgrowth is frequently encountered in all age groups and may occur due to dental plaque, local iatrogenic factors, and an oral manifestation of systemic diseases, drug-induced or hormonal changes. Among them, pyogenic granuloma is one of the most common oral mucocutaneous lesions.[1] Pyogenic granuloma is an inflammatory overgrowth of the oral mucosa caused by minor trauma or gingival irritation and inflammation due to poor oral hygiene.[2] Generally these lesions regress postpartum. However, in the present case, the patient had pyogenic granuloma during her first pregnancy about three years back that regressed in the postpartum period but reappears at the same site in a more aggressive way during her second pregnancy. This reflects the reluctant behavior of the lesion and importance of oral hygiene.

A 25-year-old multipara presented at five months of gestation to the Department of Periodontology, King George's Medical University, with a chief complaint of a progressively increasing mass in the maxillary posterior region since four months. Her dental history revealed that she experienced similar lesion at the same site about three years back during her first pregnancy that regressed after delivery. On intra-oral examination, a pedunculated, lobulated, pinkish red colored, smooth and shiny gingival overgrowth confined to palatal gingiva was seen with respect to maxillary right first and second molar and was extended up to the mid-palatine region. The lesion measured about 3 cm x 2.5 cm in dimension. The growth was non-tender, moderately firm in consistency and non-pulsatile on palpation that bled on slight provocation. Oral cavity of the patient was inhabited by a significant amount of plaque and material alba. The patient also had difficulty in mastication and speech.

Investigations

An intraoral periapical radiograph was done to rule out osseous involvement. Routine blood investigations were performed, which were found to be within the reference range.

Differential Diagnosis

The differential diagnosis is peripheral giant cell granuloma, peripheral ossifying fibroma, haemangioma, conventional granulation tissue, Kaposi's sarcoma, angiosarcoma and non-Hodgkin's lymphoma. However, Biopsy and histological investigation are mandatory for concluding the definitive diagnosis.[3,4]

Treatment

On the first visit of the patient, scaling and root planing was done. Oral hygiene measures were explained to the patient. After local anesthesia, surgical excision of the lesion was done by conventional scalpel and blade technique. Bleeding was controlled by pressure pack and postoperative instructions were explained to the patient. The excised tissue was sent for histopathological examination. H&E stained section under microscopic examination revealed atrophic parakeratinised stratified squamous epithelium with flattened rete ridges. Stroma showed proliferation of endothelial cells and is richly vascular consisting of small to large, round variable shaped thin-walled blood vessels with intravasated and extravasated blood elements. Moderately dense diffuse inflammatory cell infiltration chiefly consisting of lymphocytes is seen. These findings are suggestive of pyogenic granuloma.

Outcome & Follow-up

The patient was recalled after 10 days for follow-up. The dressings were removed and the surgical area was healed well. Oral hygiene instructions were reinforced. No signs of recurrence were seen in the subsequent recall visit.

Discussion

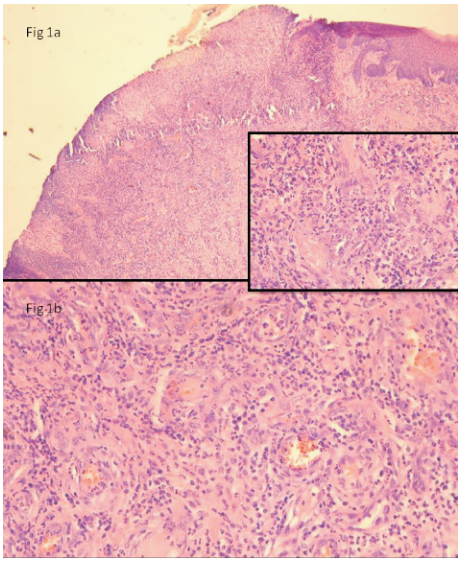
Pyogenic granuloma during pregnancy is also known as "pregnancy tumor" or granuloma gravidarum. However, the term pyogenic granuloma is a misnomer as no frank pus discharge is seen. It is an exaggerated inflammatory response to an irritation. In pregnancy, it clinically appears as a painless, protuberant, mushroom-shaped exophytic mass attached by a sessile or pedunculated base that bleeds on the slightest provocation. The incidence of the pregnancy-associated granuloma is seen to be 0.5-5% of pregnant women. Based on histological features it is categorized into lobular or nonlobular capillary hemangioma. When there are lobular aggregates of blood vessels, the lesion may be called a lobular capillary hemangioma. If the lobular capillary arrangement of blood vessels is missing then it may be called as non-lobular capillary hemangioma .[5,6] The exact etiology of pyogenic granuloma is not known but most lesions appear to be associated with local irritants and trauma.[5,7] The pathogenesis of the lesion is related with an imbalance in angiogenesis enhancers and inhibitors that may lead to the overproduction of VEGF and bFGF, and decreased amounts of angiostatin, thrombospondin-1 and estrogen receptors, leading to pyogenic granuloma.[8] Hormones like estrogen and progesterone are elevated during pregnancy and can aggravate the gingival response to local irritants. Supporting theories postulated that progesterone functions as an immunosuppressant through depression of the maternal T lymphocyte response, thus preventing a rapid acute inflammatory reaction against plaque.[9] During pregnancy, the increased level of progesterone causes dilation and tortuosity of the gingival microvasculature, circulatory stasis and increased susceptibility to mechanical irritation, all of which favor leakage of fluid into the perivascular tissues.[10]

In most cases, the regression of pyogenic granuloma occurs in natural course after parturition. It has been proposed that, in the absence of VEGF, angiopoietin-2 (Ang-2) produces regression of blood vessels and inflammatory cytokine decreases through a negative feedback mechanism.[11] However, in the present case, the lesion was regressed after first delivery but reappears during second pregnancy at the same site. Radiographical findings are generally absent in pyogenic granuloma but localized alveolar bone resorption may be seen in long-standing gingival tumors .[12] Generally surgical intervention is avoided during pregnancy as these angiogranulomatous lesions tend to bleed excessively during excision and may result in serious morbidity or fetal mortality. However, surgical excision of the lesion is the treatment of choice which is followed by curettage of underlying tissue. Apart from conventional scalpel technique various other treatment modalities have been reported for treatment of pyogenic granuloma, like cryosurgery, Nd: YAG and CO2 laser, electrocautery and sclerotherapy.[13, 14, 15] In this case, as the lesion was interfering with mastication and oral hygiene maintenance so surgical excision was done. After 10 days of recall, the surgical site healed well. No sign of recurrence was seen in the subsequent recall visits.

Learning Points/take Home Messages

* Local irritants along with hormonal changes lead to an array of periodontal problems during pregnancy.
* Patient must be encouraged for regular oral health checkup during and after pregnancy.
* The clinical appearance of pyogenic granuloma may vary from small protuberant mass to large lobulated, ulcerated growth mimicking malignancy.
* Palliative or surgical treatment of lesion depends on a variety of factors like the problem

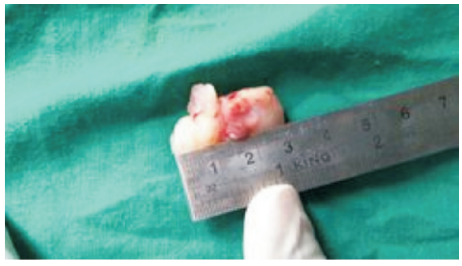
in function and esthetic, gestation week and systemic conditions etc.



Hematoxylin and eosin stained section shows mucosal ulceration (1a*40) with labular proliferation of capillaries (1b*200) & extravasated blood vessels in inset (1a inset*400)

Post Surgery

Pre Surgery



Tissue excised

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