CASE REPORT

Pregnancy Epulis

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ABSTRACT

Pregnancy epulis is a pyogenic granuloma of the gingiva, which develops rarely during pregnancy in women. Here, we report an unusual case of pregnancy epulis in a 20-year-old pregnant woman, which was surgically excised and give a review of the literature.

Key words: Pregnancy epulis, pregnancy tumor, pyogenic granuloma

Pyogenic granuloma (PG) is one of the inflammatory hyperplasia seen in the oral cavity as a tissue response to irritation. The first case was reported in 1844 by Hullihen[1] and term *pyogenic granuloma* or *granuloma pyogenicum* was coined in 1904 by Hartzell.[2] It is common in skin and oral cavity especially gingivae, which is keratinized.[3] Currently preferred histologic term is lobular capillary hemangioma as it represents a benign neoplasm, a form of capillary hemangioma, rather than a reactive infectious or traumatic process. Pyogenic granuloma has a diagnostic, lobular arrangement of capillaries at its base.[3]

Females are slightly more affected than males and the age at presentation ranges from 18 months to 93 years. The pathogenesis of this benign lesion is not well-understood. Trauma is felt to be the most common initiating event but is not always present in the history. The occasional presence of microorganisms has led to speculation of an infectious cause. This has not been proven. There is a higher incidence of pyogenic granuloma in women during pregnancy.[4] Pyogenic granuloma of the gingiva develops in upto 5% of pregnancies and hence terms like 'granuloma gravidaram' and 'pregnancy tumor' are commonly used.[5]

Case Report

A 20-year-old female patient reported to the OPD of Karpaga Vinayaga Institute of Dental Sciences, with a chief complaint of painful mass on the gingiva over a period of four months (Fig. 1). The history revealed that the growth had gradually increasing in size to the present size with ulceration and bleeding from the growth. Clinical examination of the oral cavity revealed two lobulated hemorrhagic masses one in palate, of size measuring about 3 × 2 cm and other in gingiva, 2 × 2 cm in the region of left molars (27, 28) (Fig. 2 and 3). On examination, the molar teeth (27, 28) were mobile. Radiographic evidence could not be provided as the patient was in her third trimester of pregnancy and not cooperative. Routine hemogram was done. A provisional diagnosis of pregnancy epulis was given.

The patient was then subjected to excisional biopsy under local anesthesia and the excised mass was

Figure 1 and 2. Photograph showing intraoral view of two lobulated masses.

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Figure 3. Photograph of intraoperative excisional biopsy.

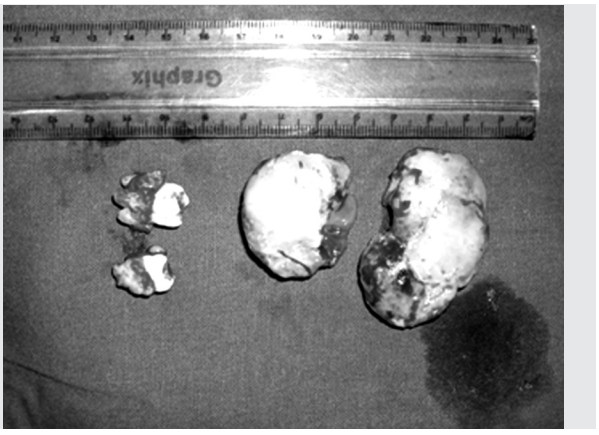

Figure 4. Photograph of excisional biopsy with extracted tooth.

Figure 5. Photomicrograph (40x) showing parakeratinized stratified squamous epithelium associated with fibrovascular connective tissue.

Figure 6. Postoperative photograph shows good healing after one day.

sent for histopathological examination (Fig. 4). Histopathological examination revealed parakeratinized stratified squamous epithelium associated with fibrovascular connective tissue. In most of the areas epithelium was ulcerated. The underlying connective tissue exhibited numerous dilated blood vessels, proliferating endothelial cells and extravasated red blood cells (RBCs). There was diffuse chronic inflammatory cell infiltration throughout the tissue (Fig.5). Thus, the final diagnosis of 'pyogenic granuloma' was confirmed. There was a uneventful healing on next day (Fig. 6).

Discussion

Gingiva is often the site of localized growths that are considered to be reactive rather than neoplastic in nature. Most of the lesions in the gingiva are reactive chronic inflammatory hyperplasia's with minor trauma and chronic irritation being the main etiologic factors. They found an almost equal distribution of lesions between the maxilla and mandible, with the anterior maxilla the most prevalent site.[6] It predominantly occurs in young females in their 2nd and 3rd decades due to hormonal influences on vasculature.

There is a higher incidence of pyogenic granuloma in women during pregnancy termed as pregnancy epulis. Clinically, the pregnancy epulis appears as a smooth or lobulated and ulcerated mass that is usually pedunculated or sometimes sessile. Younger tumors are soft in consistency, progressing to a rubbery texture on maturation. The color may range from pink to bright red to purple or brown.[4] Such lesions begin to develop in first trimester and their incidence increases

upto 7th month of pregnancy. The cause for the pyogenic granuloma in pregnancy is the raised levels of progesterone and estrogen and it is seen that the tumor usually regresses postparturition.[4]

The hormonal imbalance coincident with pregnancy heightens the organism's response to irritation[7] however, bacterial plaque and gingival inflammation are necessary for subclinical hormone alterations leading to gingivitis.[8] The development of this particular kind of gingivitis, typical in pregnancy, not different from that appearing in nonpregnant women, suggests the existence of a relationship between the gingival lesion and the hormonal condition observed in pregnancy. Sometimes pregnancy gingivitis can show a tendency towards localized hyperplasia, which is called pregnancy granuloma. Generally, it appears in the 2nd - 3rd month of pregnancy, the persistent influence of plaque induces catarrhal inflammation of the gingiva that serves as a base for development of hyperplastic gingivitis during the last months, modulated by the cumulating hormonal stimuli. In uncontrolled cases, pyogenic granuloma may arise. This lesion is rarely observed in women with poor oral hygiene in areas with local irritating factors such as improperly fitting restorations or dental calculus. During pregnancy, pyogenic grenuloma when treated by surgical excision may reappear due to incomplete excision or inadequate oral hygiene.[9]

The molecular mechanism behind the development and regression of pyogenic granuloma during pregnancy is due to changes associated with the functions and structure of the blood and lymph microvasculature of the skin and mucosa due to profound endocrine upheaval.[10] Recent studies have revealed that sex hormones manifest a variety of biological and immunological effects. Estrogen accelerates wound healing by stimulating nerve growth factor (NGF) production in macrophages, granulocyte-macrophage-colony stimulating factor (GM-CSF) production in keratinocytes and basic fibroblast growth factor (bFGF) and transforming growth factor beta 1 (TGF-β1) production in fibroblasts, leading to granulation tissue formation. Estrogen enhances vascular endothelial growth factor (VEGF) production in macrophages, an effect that is antagonized by androgens and which may be related to the development of pyogenic grenuloma during pregnancy. The molecular mechanism for the regression of pyogenic granuloma after the pregnancy is not clear. It is proposed that in the absence of VEGF, the Angiopoietin (Ang-2) causes the blood vessels to regress and VEGF, which was found high in pregnancy was found undetectable after parturition.

There are two histological types of pyogenic granuloma. One type is characterized by proliferating blood vessels that are organized in lobular aggregates although superficially the lesion frequently undergoes no specific change like edema, capillary dilation or inflammatory granulation tissue reaction. This is known as lobular capillary hemangioma type, whereas the second type nonlobular capillary hemangioma type consists of highly vascular proliferation that resembles granulation tissue. In the case presented, the histological picture was that of chronic inflammatory cell infiltration, which showed that it was nonlobular capillary hemangioma.

Differential diagnosis includes pyogenic granuloma, peripheral giant cell granuloma, peripheral ossifying fibroma and metastatic cancer. The clinical features of growth with ulceration and bleeding present interdentally during the period of pregnancy made us give a provisional diagnosis of pregnancy epulis.

Possible treatment modalities are excision, curettage, cryotherapy, chemical and electric cauterization, and the use of lasers. The lasers commonly used are argon lasers, continuous wave (CW) Nd:YAG laser, pulsed dye laser and CW carbon dioxide laser, which permits rapid, minimally invasive surgical treatment, but the nonspecific coagulation may lead to scars.[11] The management of pyogenic granuloma depends on the severity of symptoms. Excisional biopsy is indicated for treatment of pyogenic granuloma, except when the procedure would produce marked deformity.[12] Recurrence rate after excision ranges from 0% to 16%. Pyogenic granuloma of pregnancy often regresses postparturition, they need not be excised unless symptomatic.[4] As the patient presented with huge painful mass, which was ulcerated and bleeding we decided to excise completely.

Treatment considerations during pregnancy are very important as it is considered that there is a biological plausibility that periodontal diseases in pregnancy are associated with pregnancy complications like preterm births, preterm low birth weight (LBW) babies or even

pre-eclampsia.[13] Surgical and periodontal treatment should be completed, when possible.

Precautions to be taken for teeth and gums during pregnancy are:

- More frequent visits to your dentist are advisable.
- Try to reduce snacking on food high in sugar content.

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