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Aggressive Pregnancy Tumor (Pyogenic Granuloma) with Extensive Alveolar Bone Loss Mimicking a Malignant Tumor: Case Report and Review of Literature

Tumor Agresivo del Embarazo (Granuloma Piógeno) con Gran Pérdida del Hueso Alveolar Simulando un Tumor Maligno: Reporte de Caso y Revisión Bibliográfica

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SUMMARY: Oral pyogenic granuloma is a hyperplastic inflammatory lesion commonly associated to local irritation or trauma. Females are more affected than men probably due to the vascular effects of hormones that occur during puberty, pregnancy and menopause. In the pregnancy, the lesions are known as "pregnancy tumor" and tend to occur more frequently during the second and third trimester. In the oral cavity, histopathological examination is required for diagnosis, since the lesion is clinically indistinguishable from other reactive lesions and, usually, there is no evidence of bone involvement. The authors report a rare case of pyogenic granuloma with destruction of alveolar bone mimicking a malignant tumor in a 20-year-old woman in the 19th week of pregnancy.

KEY WORDS: Pyogenic granuloma; Pregnancy tumor; Granuloma gravidarum.

INTRODUCTION

Pyogenic granuloma is a vascularized mass originally described in 1897 by Poncet & Dor, who named this lesion "human botryomycosis" (Poncet & Dor, 1987). The term "pyogenic granuloma" was proposed by Hartzell (1904), although it is a misnomer since the condition is not associated with pus and does not represent a true granuloma.

The lesion appears as a hyperplastic inflammatory response to local irritation or trauma. In the oral cavity, repeated gingival inflammation secondary to plaque, calculus and foreign body are sufficient to initiate lesion development. Females are more commonly affected probably due to the vascular effects of hormones that occur during puberty, pregnancy and menopause. In pregnancy, the lesions are known as "pregnancy tumor" and tend to occur more frequently during the second and third trimester.

Clinically, pyogenic granulomas are characterized as a smooth or lobulated exophytic lesion with color ranging from red/pink to purple. Generally, the lesions are asymptomatic and tend to bleed after minor trauma. Radiographically, there is generally no evidence of bone involvement but in some cases slight superficial bone erosion can be seen. In this article, we present a rare case of pyogenic granuloma with extensive alveolar bone loss mimicking a malignant tumor in a 20-year-old woman in the 19th week of pregnancy.

CASE REPORT

A 20-year-old woman in the 19th week of pregnancy presented an asymptomatic nodular mass of 3 weeks of evolution on the buccal and palatal gingiva between the maxillary left central incisor and right first premolar. Examination revealed a 4cm x 4cm sessile rubbery nodular mass covered by smooth red mucosa with bleeding tendency

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Fig. 1. Clinical presentation of a nodular mass on the anterior maxilla.

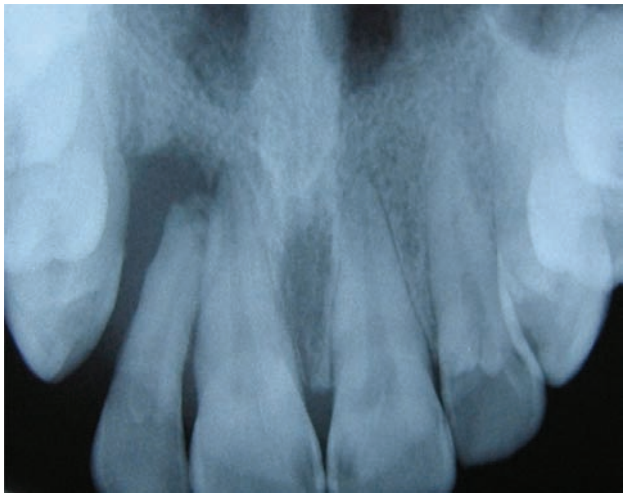

Fig. 2. Extensive resorption of alveolar bone around the right lateral incisor.

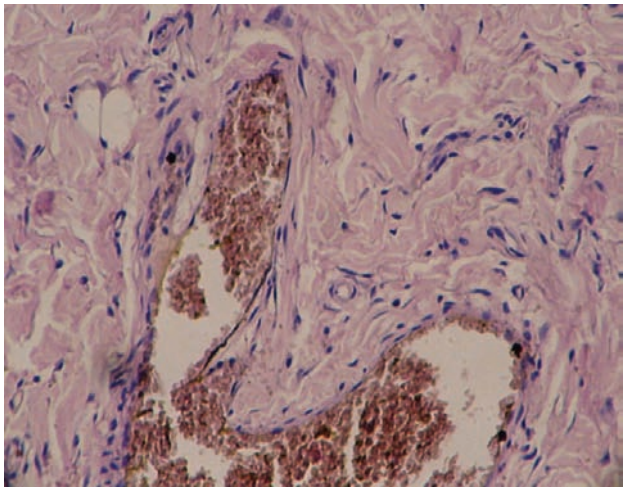

Fig. 3. Photomicrography showing a congested blood vessel and mild perivascular inflammatory infiltrate (H&E staining under 100 x magnification).

on touch (Fig. 1). Right lateral incisor was non-vital and showed severe mobility. In addition, the patient had poor oral hygiene but did not have any systemic health problems.

Maxillary occlusal radiography showed an extensive concave depression image corresponding to bone resorption around the right lateral incisor (Fig. 2). An incisional biopsy was performed and specimen was sent for histopathological analysis.

The histopathologic examination revealed a hyperplastic stratified squamous epithelium with an underlying fibrovascular stroma that shows a large number of congeries vascular channels lined with a single layer of endothelial cells and areas of extravasated blood. A mixed acute and chronic inflammatory cell infiltrate was noted. There were no signs of atypia. The microscopic diagnosis was pyogenic granuloma (Fig. 3).

Under local anesthesia (2% mepivacaine and 1:100000 epinephrine), the tumor was completely excised under the periosteum and the right lateral incisor was removed. A program of oral health education was performed, including non-surgical periodontal treatment and regular follow-up visit.

DISCUSSION

Pyogenic granuloma is a non-neoplastic inflammatory hyperplasia of the skin or mucous membrane strongly associated to the chronic local irritation and trauma. In the oral cavity, the lesions are more common in the marginal gingiva of patients with poor oral hygiene, growing in response to the presence of the dental plaque (Vilmann *et al*., 1986).

High levels of sex hormones, such as in pregnancy, may also modify the vascular response in the presence of local irritants, resulting in the formation of pyogenic granuloma. In these cases, the lesions are commonly known as "pregnancy tumor", but they are clinically and histologically indistinguishable from an oral pyogenic granuloma in males and in non-pregnant females (Whitaker *et al*., 1994; Silverstein *et al.,* 1995; Markou *et al.*, 2009; Saravana, 2009).

Clinically, the lesions usually appear as a localized solitary nodule with a sessile or pedunculated base in the gingiva. Extragingival sites are affected in 35% of the cases and include tongue, lips, buccal mucosa and palate. The surface can be smooth or lobulated with a deep red or purplish color. Bleeding after minor trauma and ulceration

frequently are noted (Silverstein *et al*.; Choukas & Toto, 1966; Lawoyin *et al.,* 1997; Al-Khateeb & Ababneb, 2003).

Radiographically, there is generally no evidence of bone involvement but in some cases slight superficial bone erosion can be seen. Extensive loss of alveolar bone and mobility of teeth are seen in 3% of the cases (Silvertein et al.), mimicking a malignant tumor. To the best of our knowledge, in the MEDLINE-database four cases of pyogenic granuloma with extensive bone loss were published (Kirkham *et al.,* 1982; Goodman-Topper & Bimstein, 1994; Shenoy & Dinkar, 2006; Ababneb & Al-Khateeb). One of these was reported in a pregnant female (Ababneb & Al-Khateeb).

Histologically, pyogenic granuloma consists of prominent vascular spaces lined with endothelium in a loosely arranged fibrillary matrix. Moderate to severe chronic inflammatory cell infiltrate is found in all cases, while polymorphonuclear leukocytes are present in most cases. Ulceration is seen in some granulomas. According Choukas & Toto, the histologic appearance of rapidly growing pyogenic granulomas may be confused with endothelial sarcomas.

Once the diagnosis, the treatment consists of surgical excision extending down to periosteum and removal of the predisposing factors. Recurrence rate is very low, comprising approximately 5% of the cases (Al-Khateeb & Ababneb). In pregnancy, pyogenic granulomas can be treated under local anesthesia following consultation with the primary care physician (Silverstein *et al*.).

This case demonstrates that the pyogenic granuloma can develop as an aggressive lesion associated with extensive loss of alveolar bone, mimicking a malignant tumor. To avoid recurrence, treatment should consist of complete surgical excision of the lesion and removal of irritants. During pregnancy, the patients should be advised about the importance of oral hygiene, since the increased levels of progesterone and estrogen, in the presence of dental plaque, can promote the development of reactive lesions in the oral cavity.

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RESUMEN: El granuloma piógeno oral es una lesión hiperplásica inflamatoria asociada a la presencia de irritación local o trauma. Las mujeres son más afectadas que los hombres, probablemente debido a los efectos vasculares de las hormonas que se producen durante la pubertad, el embarazo y la menopausia. En el embarazo, las lesiones se conocen como "tumor del embarazo" y tienden a ocurrir con más frecuencia durante el segundo y tercer trimestres. En la cavidad oral, el examen histopatológico es necesario para el diagnóstico, ya que la lesión es clínicamente indistinguible de otras lesiones reactivas y, por lo general, no hay evidencia de afectación ósea. Los autores divulgan un caso raro de granuloma piógeno con la destrucción del hueso alveolar simulando un tumor maligno en una mujer de 20 años de edad, en la semana 19 de embarazo.

PALABRAS CLAVE: Granuloma piógeno; Tumor del embarazo; Granuloma gravidarum.

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