

Aggressive Pregnancy Tumor Mimicking A Malignant Neoplasm: A Case Report

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Abstract

Aim: The aim of this report is to present the management of an aggressive, highly proliferative pregnancy tumor with clinical and radiographic characteristics highly suggestive of a malignant neoplasm.

Background: Pregnancy tumor is a benign hyperplastic gingival lesion occurring during pregnancy that is indistinguishable from a pyogenic granuloma arising in nonpregnant females, or in males. The lesion usually grows over a few months and tends to bleed.

Case Description: A 28-year-old woman at four months of gestation was referred for a massive gingival swelling (5.5 cm in greatest diameter) on the mandibular left side. The lesion was painful and continued to grow very rapidly over a three-week period, with spontaneous bleeding, and it interfered with speech and mastication. Advanced alveolar bone loss also was found beneath the lesion. A malignant process was suspected, and an incisional biopsy revealed a pregnancy tumor. The lesion was excised under general anesthesia during the pregnancy with no untoward reactions.

Summary: Pregnancy tumor represents an important differential diagnosis of oral masses and can behave in a very aggressive fashion, mimicking a malignant tumor.

Clinical Significance: This lesion should always be included in the differential diagnosis of soft



tissue masses in a pregnant woman even if the lesion is clinically very aggressive. It is acceptable practice to excise aggressive variants of this lesion during pregnancy to avoid distressing side effects.

Keywords: Pregnancy tumor, pyogenic granuloma, case report

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Background

Pregnancy tumor is a benign hyperplastic gingival lesion occurring in a pregnant woman. It mostly appears at the second or third month of pregnancy,¹ but later onset is possible.^{2,3} Clinically and histologically it is indistinguishable from pyogenic granuloma arising in nonpregnant females or males.^{1,4,5} This lesion usually affects the gingiva, especially between the anterior maxillary teeth, but the tongue, lips, palate, and oral mucosa also might be involved.^{5,6} It usually grows rapidly over a few months and tends to bleed.⁷ Histologically, pregnancy tumor is composed mainly of inflamed, immature, highly vascular granulation tissue.¹ The prevalence of pregnancy tumors has been reported to range from 0.2 to 9.6%.^{8,9}

Case Description

Diagnosis

A 28-year-old pregnant female for the past four months presented to the Dental Teaching Center, Jordan University of Science and Technology, complaining of a very large and distressing lump on her gingiva. The lesion was first noticed one month ago when it was of a negligible size, but it had grown very rapidly over the past three weeks to reach its present size. The mass bled frequently and interfered with speaking and chewing. The patient experienced a dull ache, especially at night, and had a very offensive mouth odor. The medical history was unremarkable, and she presented for routine dental visits on a regular basis.

Examination showed a large, bilobed, reddish gingival mass arising around the lower left mandibular first molar and extending both lingually and buccally (Figure 1).

The lesion also extended distally, involving the edentulous lower left mandibular second molar area and covering the occlusal surface of the left mandibular third molar. The overall size of the lesion was 5 × 5 cm in all dimensions. The surface was ulcerated on the occlusal and lingual aspects and opposing maxillary teeth occluded against the lesion, leaving obvious impression marks. The mass was tender and its surfaces bled easily upon palpation. The lower left mandibular first molar had a large mesio-occlusal amalgam

filling, deep pockets (probing depth > 12 mm), and a Grade III tooth mobility. Enlarged, firm, mildly tender submandibular lymph nodes were palpable on the same side.

Intraoral radiographs were taken under the protection of a lead apron and revealed advanced bone loss around the lower left mandibular first molar with furcation involvement (Figure 2).

The first molar was also pulpless without a root filling and a large amalgam filling extending to the pulp chamber. There was a marked degree of bone loss beneath the soft mass with ill-defined radiographic margins. The clinical picture was suggestive of a sinister pathology and an incisional biopsy was taken under local anesthesia. Bleeding from the biopsy site was arrested by a combination of hand pressure and suturing.

The histopathological section showed stratified squamous epithelium with hyperkeratosis and acanthosis. The connective tissue stroma showed



Figure 1. A large bilobed reddish gingival mass arising around the lower left mandibular first molar and extending lingually, buccally, and distally with obvious impression marks of opposing teeth. (A silk suture at the site of incisional biopsy is visible.)

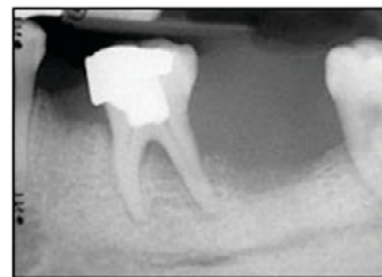


Figure 2. An intraoral periapical radiograph of the lesion site showing advanced bone loss around the lower left mandibular first molar with furcation involvement, a marked degree of bone loss with ill-defined radiographic margins beneath the mass.

marked inflammation consisting of neutrophils, plasma cells, and lymphocytes. The lesion had an abundance of proliferating capillaries arranged in a lobular fashion. Distinct capillary lumina lined by flattened endothelium were seen beneath the surface epithelium. High mitotic activity was evident, but there was no evidence of malignancy. The lesion was examined by a panel of two maxillofacial and four general pathologists, and all agreed the findings were consistent with a histopathological diagnosis of a pregnancy tumor.

Treatment

The patient received scaling and root planing with oral hygiene instructions; however, very little improvement was noticed. Therefore, and due to the large size of the tumor and its propensity for profuse bleeding, it was decided to excise the lesion under general anesthesia. The patient's obstetrician was consulted and he approved of the treatment plan. The first molar was deemed hopeless and was extracted, and the lesion was excised down to the periosteum with curettage of the underlying bone as the periosteum was found to have been breached. Profuse bleeding from the bony bed was encountered and was arrested by a combination of monopolar diathermy and bone wax. The resulting surgical defect was covered with a sedative occlusive pack (ZONE®, Cadco Products, California, USA) retained by sutures.

During the first postoperative week, the patient received oral penicillin and paracetamol. She was instructed to rinse frequently with warm chlorhexidine gluconate (2%) mouthwash. Healing was uneventful and three months after full-term delivery the patient was rehabilitated with dental implants at the surgical site. The peri-implant tissue consisted of poorly keratinized loose tissue. Therefore, the patient is scheduled for free gingival grafting at the peri-implant area.

Discussion

Pregnancy tumors are not usually associated with osseous destruction and in fact it has been suggested that in 47% of cases the lesion is actually characterized by bone formation.⁴ However, the present case showed a marked degree of bone loss with gross breaching of the underlying periosteum, which necessitated curettage of the bony bed to prevent recurrence of the lesion.

This finding has not been previously reported and reflects the aggressive nature of this case.

Pregnancy tumor has been reported to usually occur only labially on the maxillary anterior teeth.⁹ In the present case, the lesion involved a lower posterior site and extended in multiple directions to involve buccal, lingual, and distal tissues. The highly proliferative nature of the lesion also is highlighted by its extension over the occlusal surface of the third molar tooth, which was away from the point of emergence of the tumor.

This tumor can appear at any stage of pregnancy, but usually during the first or second trimester of pregnancy. In accordance with previous findings, the present case started during the second trimester. It is well established that this lesion might interfere with mastication and speech^{1,10} and is sometimes painful. However, in most cases it is painless and asymptomatic unless traumatized by the opposing teeth.⁹ This tumor caused a dull ache, especially at night, and was tender to touch. This might be due to occlusal trauma but also could be due to the inflammatory process that led to the wide area of alveolar bone loss.

The etiology of pregnancy tumor is largely unknown. In addition to plaque, other local or systemic factors, such as trauma, are probably involved in the initiation of this proliferative lesion.⁹ The appearance of the lesion specifically during pregnancy might be related to hormonal changes occurring at that time.^{1,4,5} Estrogen and progesterone receptors have been found in epithelial cells of pregnancy tumors.¹¹ However, there is no explanation for the site of appearance of the lesion, or for its appearance in certain women and not in others.^{1,4,5,8,10}

The lesion can grow rapidly but is very rarely larger than 2 cm in diameter.¹⁰ In the present case, a much larger size was found (5.5 cm in the greatest diameter). The size of pyogenic granuloma has been reported to range from 0.3 × 0.2 × 0.1 cm to 2.1 × 1.3 × 0.8 cm with a mean of 1 × 0.7 × 0.5 cm.¹² The large size coupled with the very rapid growth rate aroused suspicion that a malignant neoplasm might be the underlying cause.

The diagnosis of this lesion is made primarily on the clinical finding of a pyogenic granuloma during pregnancy. This distinct lesion is characterized by its etiology and biologic behavior in response to a

specific treatment protocol.¹³ It has been stated that “histologic evaluation is needed only if other pathologies are considered.”⁸ Our case was very suggestive of a malignant process that warranted a biopsy for histopathological examination.

Apart from the alarming possibility of a malignant tumor, there are other conditions that can be included in the differential diagnosis of a gingival mass including peripheral fibroma, peripheral giant cell granuloma, and peripheral ossifying fibroma. A pyogenic granuloma may fibrose to become a peripheral fibroma. Clinically, either facial-buccal or lingual gingiva may be involved and there may be a history of rapid growth.¹⁴ Peripheral giant cell granuloma is clinically similar to the pyogenic granuloma but occurs only on attached gingiva.¹⁵ The premolar and molar regions of the mandible are favored locations, and middle-aged females are most commonly affected.¹⁶ It arises from the periodontal ligament or alveolar periosteum as a response to irritation or trauma.

Peripheral ossifying fibroma most commonly affects children and young adults;¹⁶ however, it can occur at any age. It is more common in females and the anterior maxilla is the most common site.¹⁷ Peripheral ossifying fibroma is a slow-growing lesion with limited growth potential, usually about 1.5 cm in diameter, although some have reached 6 cm in diameter.¹⁸ The clinical appearance mimics the pyogenic granuloma, and lesions usually have normal-colored mucosa with varying degrees of ulceration. It may clinically resemble a peripheral fibroma, but histological analysis always reveals immature bone and osteoid within the lesion.¹⁶

In its mild form, if local irritants are eliminated, pregnancy tumor usually disappears spontaneously after delivery.^{1,3} A strict oral hygiene protocol should be carried out, including both professional scaling and self oral home care. Surgical excision is usually done after delivery. If the granuloma is removed during pregnancy, it can recur during the same pregnancy. The lesion also may cause permanent changes in the gingiva or additional local etiological factors can persist since the lesion may occur in the same place in subsequent pregnancies.^{9,19} However, this tumor may cause functional problems or bleed profusely, even spontaneously, and is

removed during pregnancy.^{7,9} In the present case, bleeding with the slightest provocation was encountered. Furthermore, profuse bleeding was encountered during taking of the incisional biopsy and during the definitive excision of the lesion that necessitated the use of diathermy. Severe bleeding from a pregnancy tumor has been previously reported.²⁰

Summary

The diagnosis and management of an aggressive, highly proliferative pregnancy tumor resembling a malignant neoplasm both clinically and radiographically was reported. Pregnancy tumor represents an important differential diagnosis of oral masses and can behave in a very aggressive fashion, mimicking a malignant tumor.

Clinical Significance

Clinicians should always consider this lesion in the differential diagnosis of soft tissue masses in a pregnant woman even if the lesion was clinically very aggressive. It is probably permissible to excise aggressive variants of this lesion during pregnancy to avoid the side effects of bleeding, halitosis, and interference with speech and mastication.

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