

Peripheral ossifying fibroma in Pregnancy: A multifactorial consequence

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Received: 11-01-2014
Revised: 17-02-2014
Accepted: 22-02-2014

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ABSTRACT

Pregnancy is the most remarkable time in every woman's life. The upsurge in levels of estrogen and progesterone leads to the plethora of changes in various parts of human body, including the oral cavity. In the oral cavity, changes are commonly seen on the gingiva. These include pyogenic granuloma, peripheral giant cell granuloma and also peripheral ossifying fibroma. Not many cases have been reported in literature of the latter. Peripheral ossifying fibroma can interfere with normal tooth position, may become a plaque retentive factor and can be unaesthetic. The pathogenesis of such lesions still remains an enigma. Many believe that peripheral ossifying fibroma may be a progressive stage of pyogenic granuloma. Here, we present a rare case of a peripheral ossifying fibroma seen in a pregnant female in the lower left front tooth region and have discussed the possible etiopathogenesis of the same.

Keywords: Pregnant female, second pregnancy, lower anterior, inter dental papilla, fibroma

Introduction

Hormonal changes are observed in various stages of the female reproductive cycle particularly during the time of pregnancy. Many of these changes are reflected in the oral cavity such as increased gingival inflammation, bleeding, increase in gingival crevicular fluid and gingival enlargements. [1] These have been attributed to the effect of estrogen and progesterone in the gingival vasculature which are specially altered in pregnancy. Gingival enlargements may be localized or generalized. Most commonly seen is pregnancy tumor also referred to as granuloma gravidarum. It is known to develop in up to 5 % of pregnancies. [2] Other oral lesions having

predilection in females during pregnancy are enlargements like pyogenic granuloma, peripheral giant cell granuloma and peripheral ossifying fibroma. [3] These can be easily confused with a pregnancy tumor. The etio- pathogenesis of peripheral ossifying fibroma is still uncertain. Some investigators consider it is as a neoplastic process where as others say it is reactive. Authors also believe that peripheral ossifying fibromas initially develop as pyogenic granulomas which undergo fibrous maturation and subsequent calcification. However, not all Peripheral ossifying fibromas may develop in this manner. [4] Thus the pathogenesis is still controversial.

We present an interesting case of a peripheral ossifying fibroma on the lower left anterior tooth region in a young pregnant female, with a special focus on its etiopathogenesis.

Case Report

A 25 year old female reported to the Department of Periodontology, JSSDCH, a constituent college of JSS University with a chief complaint of a slow growing painless growth in the lower front tooth region since past 3 years. The patient reported to our department during the third trimester of her second pregnancy. Although patient was evaluated thoroughly, any treatment was deferred till post parturition. When questioned about the history of the growth, she reported the following: The growth which began as a pea size was first noticed by patient four years back. At that time, the patient was in the second trimester of her first pregnancy. It being asymptomatic the patient did not consult any dentist. It was only in the third trimester of her second pregnancy that the patient became concerned of the growth and consulted the dentist. This was when the patient first visited our department. She complained of bleeding and increase in size related to the growth. As the patient was in the third trimester only oral hygiene instructions were reinforced and the patient was advised to visit post partum. The patient reported 3 months post partum and there was no regression in the size of the growth. The patient was otherwise systematically healthy. On intraoral examination, the oral hygiene maintenance of the patient was found to be fair. There was no change in color and consistency in the gingiva anywhere in the oral cavity except in relation to the 31 and 32, where a diffuse enlargement was seen. (Fig. 1)



Fig 1. Preoperative view of the growth

The whole mass was pink color, well circumscribed, firm in consistency and covered with normal mucosa. It was a sessile growth extending from the labial mucosa to the lingual aspect. The dimensions of the growth were 1x1.5cm. There was associated bleeding and migration of 31 and 32. There was no evidence of radiographic bone loss. Initial therapy including scaling and root planing was performed and the patient was recalled after 2 weeks for surgical removal of the growth.

The growth was surgically excised under local anesthesia using 2 % lignocaine with 1: 80,000 adrenaline. With the help of no. 12 blade the lesion was gently separated from the underlying bone. Bleeding was controlled with the help of gauze pieces. Periodontal pack was given to protect the surgical site which was removed after one week. The patient was put under analgesics for three days. The excised mass was washed with 0.9 % normal saline, stored in 10 % formalin and sent to the department of Oral Pathology for routine histopathological evaluation.

Histopathological examination revealed a stratified squamous keratinized epithelium in a few areas, the underlying connective tissue stroma showed a highly

cellular stroma with areas of calcification resembling bone and and cementum. (Fig. 2) The above cementum helped us in arriving at the diagnosis of Peripheral cement-ossifying fibroma alternatively referred to as Peripheral ossifying fibroma.

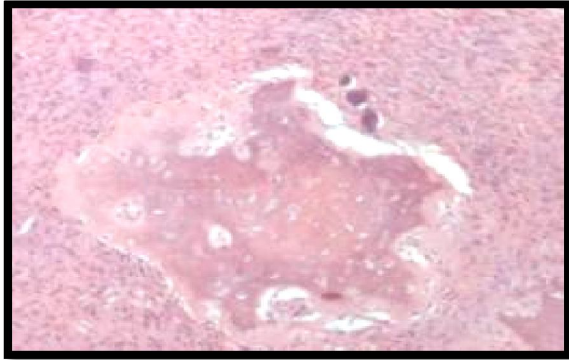


Fig. 2 H & E stained section showing highly cellular connective tissue with areas of bone and cementum like calcification (x 100 magnification)

On the basis of clinical examination and the history given by the patient, pyogenic granuloma was an obvious suspicion. Differential diagnosis included fibro epithelial polyp, peripheral giant cell granuloma and peripheral ossifying fibroma. However, upon histopathological examination, a definitive diagnosis of peripheral ossifying fibroma was reached. The patient has been evaluated for 12 months postoperatively with no fresh complaints. (Fig. 3)



Fig. 3 Post operative view

Discussion

The prime felons of the effect of pregnancy in the oral cavity are the hiked female sex corticoids (estrogen and progesterone). The lesions that may be seen on the gingiva during this time include pyogenic granuloma, peripheral giant cell granuloma and peripheral ossifying fibroma.

Other lesions usually seen on the gingiva in a physiologically healthy individual include peripheral fibroma, parulis, exostosis, gingival cyst, eruption cyst, congenital epulis of newborn and generalized hyperplasia. [5] They can be considered as differentials for the present case.

Despite the similarity in terminology, peripheral ossifying fibroma is not considered to be an osseous counterpart of the intraosseous neoplasm called central-ossifying fibroma. [6] Peripheral ossifying fibroma is a relatively more commonly used term.

The color of peripheral ossifying fibromas range from red to pink and is frequently ulcerated. It can be sessile or pedunculated, with the size usually less than 2 cm. Weeks or months may pass before it is seen and diagnosed. There is a gender difference with 66% of the disease occurring in females. The prevalence is highest around 10 -19 years of age. It is found more often in the incisor cuspid region of the maxilla than the mandible. The adjacent teeth are usually not affected. [7] This particular case identifies with many of the features of a peripheral ossifying fibroma such as the gender, age and presentation of the lesion supporting its clinical diagnosis. Most of the cases of peripheral ossifying fibroma are found in the maxillary arch. But in our case, the lesion was seen on the mandibular arch making it different from the rest. Also, the

fact that the given patient was pregnant at the time the growth first developed and then progressed in size, highlights the significance of this case.

The pathogenesis of peripheral ossifying fibromas is an area still under research. It is mostly considered to be a reactive focal gingival overgrowth derived histogenically from cells to the periodontal ligament. The origin from the periodontal ligament was first suggested by Kumar et al. The reasons for considering periodontal ligament origin for peripheral ossifying fibroma include the exclusive occurrence of this entity in the gingiva (interdental papilla), the proximity of gingiva to the periodontal ligament, and the presence of oxytalan fibres within the mineralized matrix of some lesions.^[8] Excessive proliferation of mature fibrous connective tissue is a reactive response to gingival injury, gingival irritation, sub gingival calculus, or a foreign body in the gingival sulcus. It is also known to develop in response to local irritants on associated teeth; consisting microscopically of a hyperplastic cellular fibrous stroma supporting deposits of bone, cementum or dystrophic calcification.^[7] Chronic irritation of the periosteal and the periodontal membrane causes metaplasia of the connective tissue and the resultant initiation of formation of bone or dystrophic calcification.^[9] Since peripheral ossifying fibroma has an obvious predilection for females and occurs frequently in specific periods of life such as puberty and pregnancy, the existence of hormones in the development of these has been suggested in the literature. Thus, hormonal influences may play a role increasing the occurrence in the second decade and declining after the third.^[10] Previously in a case series of four female patients,

peripheral ossifying fibromas was found, two of whom were pregnant. The findings suggested that although clinical characteristics in peripheral ossifying fibroma suggest hormonal influence, the expression of estrogen and progesterone receptors were absent. Further studies on the same line are mandatory.^[9]

Peripheral ossifying fibroma can be easily mistaken for pyogenic granuloma. The similarity in size and sex predilection of the two lesions has been stated by Eversole and Rovin. The histopathological picture has also been considered similar due to the connective tissue findings except the presence of hard tissue in peripheral ossifying fibroma. Gardner who stated that peripheral ossifying fibroma has cellular connective tissue which is so characteristic that a histological diagnosis can be made with confidence, regardless of the presence or absence of calcification.^[11] Buchner and Hansen hypothesized that early peripheral ossifying fibroma presents as ulcerated nodules with little calcifications, allowing misdiagnoses as a pyogenic granuloma. Few other authors are of the opinion that peripheral ossifying fibroma develops as a result of fibrous maturation and calcification of a pre-existing pyogenic granuloma, since the age, sex and site of both the lesions are similar.^[4]

In the present case, during the first pregnancy the patient gave a history of a growth in the lower left front tooth region. This we assume was a fibrous proliferation in the connective tissue, mostly a "granuloma gravidarum" or "pregnancy granuloma". This is nothing but pyogenic granuloma of the gingival during the time of pregnancy. Generally it appears in the second to third month of pregnancy, with a tendency to bleed and a possible interference with mastication. Treatment is

usually not required as lesional shrinkage is normally observed.^[2] This was not seen in the present case. As our patient did not receive any treatment for this growth the local factors along with the hormonal changes during the second pregnancy may have led to the development of peripheral ossifying fibroma. The presence of hormonal receptors could have been an additional confirmatory test.

The definitive diagnosis of peripheral ossifying fibroma is made by histopathological evaluation of biopsy specimens. The features observed during microscopic examination were: intact or ulcerated stratified squamous surface epithelium; benign fibrous connective tissue with varying number of fibroblasts; sparse to profuse endothelial proliferation; mineralized material consisting of mature lamellar or woven osteoid, cementum like material or dystrophic calcifications and acute of inflammatory cells in the lesion.^[7] Therapy for peripheral ossifying fibroma consists of surgical removal, inclusive of the periosteum and the periodontal ligament and the removal of the aggressive agent. This is described in the literature as an approach to reduce recurrence level. One in each five cases of ossifying fibroma suffers recurrence after its removal.^[12]

Recurrence rate is considered to be 16 – 20 %. Reasons for recurrence may be incomplete removal of the lesion, existing local factors like plaque and calculus and surgical trauma while operating.^[11] Similar treatment protocol was followed for the peculiar mass in the given case. The patient has been followed up for a period of 12 months. No abnormalities have been seen and the migrated teeth associated with the growth have come to their original position.

Intra oral growths include a wide variety of differentials. They can range

from a harmless fibroma to the malignant carcinoma. Thus, all such findings should be kept considered with suspicion. For a sound diagnosis of any clinical entity, clinical examination should always be accompanied with histopathologic examination. The latter remains the gold standard. Considering the challenges posed by any such abnormal growth in the oral cavity, prompt treatment should be administered and the patient should be kept under strict vigilance.

This case report emphasizes the existence of peripheral ossifying fibromas during the times of pregnancy. It strengthens one of the many theories for its pathogenesis that it may arise from a pre-existing pyogenic granuloma.

Oral health care especially in pregnancy is often avoided and misunderstood by physicians, dentists and patients. Every pregnant patient should be screened for oral risks, counseled on proper oral hygiene and referred for dental treatment when necessary.

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Cite this article as: Suramya S, Gujjari SK, Sreeshyla HS. Peripheral ossifying fibroma in Pregnancy: A multifactorial consequence. Int J Med and Dent Sci 2014; 3(2): 518-523.

Source of Support: Nil
Conflict of Interest: No