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Granuloma Gravidarium in Dentistry: A Case Study

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ABSTRACT

Life of a female can be compared to a roller coaster ride as far as the role of hormones are concerned.. They make her experience some of the most beautiful phases both emotionally and physically, one of which is pregnancy. The periodontium of a woman is sensitive in all these stages as some hormones produce a conditioned response to the existing gingival status. Oral *Granuloma gravidarium* (GG) is one of the most common oral manifestations in pregnant females wherein a gingival enlargement resembling pyogenic granuloma arises even due to minor stimuli. This condition usually presents difficulty in occlusion as well as mastication to the patient.

KEYWORDS: Woman, pregnancy, hormones, periodontium, *Granuloma gravidarium*

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INTRODUCTION

Pregnancy is considered as one of those golden phases of a woman's life cycle in which they seem to be very sensitive to stimulants as woman unfolds into different phases when hormonal response influences it. It can be divided into many stages such as childhood, puberty, reproductive phase, pregnancy and menopause. The periodontium of a woman is sensitive in all these stages as the hormones produce a conditioned response to the existing gingival status. As mentioned above, during pregnancy the levels of hormones such as estrogen and progesterone increase several folds thereby acting as a reservoir for periodontopathogen such as *Prevotella intermedia* in the subgingival biofilm, they diminish the host response to bacterial biofilm, increase vascular permeability, favour the infiltration of fluids into the perivascular tissues and enhance the inflammatory response, thus playing an important role in the development of the lesion. Granuloma gravidarum (GG) is an inflammatory lesion, which develops in the oral mucosa of pregnant women in response to chronic irritants of low degree such as bacterial biofilm, dental calculus and traumatic agents. Also known as Pregnancy tumor or *pregnancy epulis*, it was described in 1897 as *epulis gravidarium* by French surgeons a Poncet and Dor. It has a prevalence of 70% in gingiva and these lesions grow aggressively, spreading laterally and tend to bleed profusely on simple provocation.¹

EXPERIMENTAL SECTION

Case report:

A 22 year old pregnant female reported to our Department of Periodontics as referred by her gynaecologist in 8th month of gestation period. The chief complaint of the patient was swelling over gums on upper left front tooth region which was noticed 4 weeks back. The patient gave the history of rapid growth within 2 weeks. There was no difficulty experienced during speech however, the masticatory ability was impaired for past 2 weeks as overgrowth was impinging on occlusal surface. The patient seemed to be worried about the rapid growth and its effects on the developing foetus. Her medical history was non-significant. On intraoral examination, a solitary, erythematous, pedunculated gingival overgrowth of 6mm x 4mm x 3mm was observed. It was roughly triangular in shape, which was extended from the distobuccal aspect of 22 to the mesiobuccal aspect of 23 between 22 and 23.

The apex of the triangle was directed downwards with the base of the peduncle attached interdentially between 22 and 23. On palpation, the overgrowth was found to be fragile and on the lateral aspect it was firm while on the medial aspect, it showed bleeding on slight provocation. Lymph nodes were non- palpable and no significant bone loss was observed in the radiograph in relation to 22 and 23 as shown in Figure 1.



Figure 1: Pre-operative image showing presence of lesion in 22,23 region

A provisional diagnosis of oral *Granuloma gravidarium* was made. Conventional periodontal treatment, including scaling and root planing was performed to decrease gingival inflammation and patient was given oral hygiene and correct brushing instructions. The marginal inflammatory component had subsided after 1 week of phase I therapy. Then, the patient was prepared for surgical excision of the lesion under proper stress reduction protocol.² The hemogram of the patient was within normal limits and excisional biopsy of the growth was carried out under local anesthesia. During the excision, 2mm of adjacent healthy gingival was included to prevent the recurrence. This is shown in figure 2 and 3.



Figure 2: Post operative image after excision of lesion from 22,23 region.



Figure 3: Lesion after surgery.

The post-operative instructions were given, Paracetamol 500mg 8 hourly was prescribed for 3 days and the excised tissue was sent for histopathological examination. It revealed, the presence of stratified squamous epithelium overlying fibrocellular connective tissue stroma. Under low magnification, epithelium was parakeratinized with irregular rete ridges and connective tissue stroma showed inflammatory cell infiltrate. Under high magnification, connective tissue stroma showed numerous endothelial cell lined blood vessels and inflammatory cell infiltrate consisting of plasma cell and lymphocyte. All these features were suggestive of Granuloma gravidarium or pregnancy tumor. At 40 weeks and 6 days of pregnancy our patient went into labour and gave birth to a healthy and live female baby weighing 3.3 kg, by vacuum-assisted vaginal delivery for uterine hypokinesia and inadequate progress in labour. Her postoperative period was uneventful and she was discharged on the 3rd day. Up to now, her lesion has not recurred.

RESULTS AND DISCUSSION

Pregnancy alters female hormonal conditions considerably. These alterations can have repercussions on the oral cavity, predisposing the pregnant woman to periodontal inflammation, where *Granuloma gravidarium* arises as a reactional lesion resulting from this inflammation. It is an inflammatory hyperplastic lesion, also known as the pregnancy granuloma or pregnancy tumor and occurs on the gingiva during pregnancy. The precise mechanism for the development of Granuloma gravidarium is unknown, However, trauma, hormonal influences, viral oncogenes, underlying microscopic arteriovenous malformation, production of angiogenic growth and cytogenic abnormalities have all been postulated to play a role.³ The increase of progesterone induces a substantial microvascular alteration in certain areas, most commonly in the gingival which means female sex steroid hormones may have an influence on the periodontium of women, especially during pregnancy. Their prevalence is 0.2–9.6% of pregnancies. These lesions are clinically and histologically indistinguishable from their counterparts in men and non-pregnant women and generally appears about 3 months of gestation period or later, gradually increasing in their size. These lesions are generally observed in case of pregnancy gingivitis and present as marked inflammatory characteristics are usually observed in the gingiva, with the presence of edema, intense erythema, hyperplasia and an increased tendency of bleeding. This is due to the capacity of pregnant women to produce large amounts of progesterone and estrogen, which potentiate the vascular response. Observation is the treatment of choice in most cases, in which maintenance of oral hygiene and the use of soft toothbrushes is mandatory and adequate to avoid haemorrhage since, after delivery, a steady reduction in the size of the lingual mass, until total regression, has been observed.

A study states that pregnant woman receiving preventive and professional dental care had better birth outcomes compared with their counterparts.⁴ During the first trimester, the treatment should include preventive therapy with personified homecare instructions. If there is periodontal inflammation, it is safe and effective to provide periodontal care. Early phase of the second trimester is the safest period for providing routine dental care. During this period, the treatment is emphasized on controlling active diseases if any & eliminating potential problems that could complicate in late pregnancy. In the third trimester, a hazard for premature delivery exists because the uterus is very sensitive to external stimuli. Prolonged chair time should be avoided as women are most uncomfortable at this time and elective dental care is advised to ensure minimal complications. Management of pregnancy granuloma depends on the severity of the symptoms. If the lesion is small, painless and free of bleeding, clinical observation and follow-ups are advised.⁵ During pregnancy, surgery should be recommended if bleeding or pain from the lesion impedes daily activities, or after delivery, if the lesion has not regressed completely.⁶ Nevertheless, if the lesion represents the cause of speech and mastication interference or bleeding, surgical excision is required. Treatment can be performed with scalpel, pulsed laser surgery, cryosurgery, radiosurgery and intralesional injection of sodium tetradecyl sulphate, ethanol or corticosteroids.^{7, 8} Surgical excision of Granuloma gravidarium lesion after delivery seems the best treatment option.⁹ A simple excision is enough to prevent recurrence but the aetiology and prevention must be known to understand its nature.¹⁰ If uncontrolled bleeding occurs, management should be based on the individual condition and should range from supportive therapy such as desiccation of bleeders; local, firm compression to blood transfusion, as well as medication to accelerate fetal lung maturity or even termination of pregnancy to save the patient's life. The recurrence rate of these pregnancy tumors is about 16% and believed to be as a result of incomplete excision.⁸

CONCLUSION

The hormonal conditions of pregnancy can have an impact on the oral cavity, predisposing the patient to inflammatory lesions such as Granuloma gravidarium. These can conclude that these angiogranulomatic lesions are seemingly ferocious; however, they are knowingly innocuous. Thus, conclude that angiogranuloma during pregnancy, if conditionally managed, could preserve and restore the oral health during the golden period of pregnancy.

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