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A pregnancy associated gingival aesthetic predicament – A case report

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Abstract

The main physiological and hormonal changes in a woman's life occur during pregnancy, and the oral cavity is one of the target areas involved in them. These changes may potentiate the gingival response to local factors in the connective tissue, promoting a hyperplastic reaction. Gingival inflammatory hyperplasia is considered as a nonneoplastic reactional proliferative process, related to chronic irritative factors. The objective of this report was to describe the case of a patient in the fourth month of pregnancy, presenting with a gingival overgrowth around the lower anterior teeth, supra-osseous pockets, bleeding on probing, and an increased biofilm accumulation on the tooth surface. The patient received initial periodontal therapy, including oral hygiene instructions. Gingivectomy was performed in the areas of persistent hyperplasia. After 60 days, gingival margins appeared healthy, without any bleeding or biofilm, and there was no recurrence. Control of biofilm during pregnancy is crucial for avoiding pathologic events of the given nature.

Keywords: Pregnancy, hyperplasia, gingival overgrowth, gingivectomy, hormones

Introduction

During pregnancy, far-reaching systemic effects are observed that are the end results of complex hormonal, immunologic, dietary, and behavioral changes occurring in the body which extends beyond the reproductive organs. Increased levels of sex hormones namely, progesterone and estrogen in blood and saliva during pregnancy are pivotal in altering the gingival physiology by various mechanisms[1]. Gingival manifestations could range from mild gingivitis to massive hyperplastic lesions or pregnancy tumors. Generalized gingival hyperplasia may vary from mild enlargement of interdental papillae to such severe uniform enlargement that the crowns of the teeth may be completely covered by hyperplastic tissue. Uniform or generalized gingival fibrous connective tissue hyperplasia may be due to one of the several etiological factors. Most cases are non-specific and are a result of an amplified tissue response to chronic inflammation associated with local irritants such as plaque and

calculus.[2] They mostly appear at the second or third month of pregnancy, but later onset is possible.

The hyperplastic conditions are shown to interfere with mastication, speech and at times are painful. However, in most cases it is asymptomatic. Raber-Durlacher JE et al. had reported a higher prevalence of gingival hyperplasia and bleeding on probing in the anterior teeth region during pregnancy.[3] In most cases, these lesions resolves spontaneously after delivery; therefore, surgical treatment is not recommended if it is asymptomatic. A strict oral hygiene protocol should be followed, including both professional scaling and self oral home care. If the lesion becomes painful or interferes with function, surgical intervention should be considered.[4]

Gingival enlargement is associated with a variety of local and systemic factors. Hence a differential diagnosis is essential for complete management of the lesion. This paper presents a case report of a pregnancy associated gingival enlargement which created a profound esthetic concern for the patient.

Case Report

A 24-year-old woman reported to the Department of Periodontology, with a chief complaint of gum swelling in lower front teeth region. Patient reported difficulty in chewing, brushing and most importantly compromised esthetics. Patient revealed no history of drug intake or hereditary causes. She was in her fourth month of pregnancy when she noticed this enlargement. Intraoral examination revealed gingival enlargement with greater severity in the mandibular anterior regions, mild inflammation based on clinical appearance, gingival bleeding upon probing at 100 (80%) of 120 sites probed, and probing depths in the range of 4 to 7 mm, with the deeper depths related to the gingival enlargement. It was a Grade III enlargement (Bokenkamp A et al 1994)[10] extending from tooth 33 to 43 region, and it was retractable, with lesser enlargement around the posterior teeth [FIGURE 1]. Patient had a deep bite and on maximal intercuspation, the labial aspects of lower anteriors were entirely covered like an apron. The gingiva was pigmented in color, did not appear bulbous or fibrotic, but instead was uniform in consistency and shape as it hugged the labial surfaces of the teeth. Considering that the gingival enlargement could have created impedance for proper oral hygiene, local deposits were noted on the exposed surfaces of the teeth. The plaque index score was found to be fair.

Treatment

After a thorough case history recording and routine hematological investigation, initial non surgical periodontal therapy was performed and patient was motivated and reinforced with oral hygiene instructions. Patient desired treatment only with respect to the lower anterior teeth region. The surgical phase of therapy consisted of external bevel gingivectomy and gingivoplasty involving the labial surfaces of involved teeth [FIGURE 2-4]. Haemostasis was achieved and patient was prescribed analgesics and antibiotics. The excised tissues were collected and stored in 10% formalin and submitted for histopathological analysis [FIGURE 5]. The report revealed tissue surfaced by stratified squamous epithelium and submucosa consisted of highly collagenous fibrous connective tissue with intense inflammatory cell infiltrate in diffuse pattern. These features were suggestive of nonspecific inflammatory gingival enlargement. 2 week and 2 month postoperative recall visit exhibited uneventful healing and no relapse [FIGURE 6, 7]. She had good plaque control and was very satisfied with the esthetic outcome.

Discussion

The gingival changes in pregnancy were described as early as 1898 by Pinard. Some of the reported gingival severity ranges from mild inflammation to severe hyperplastic lesions involving the gingiva with marginal, papillary or even attached gingival involvement, depending on the level of plaque control prior to pregnancy, associated with pain and profuse bleeding. Generalized gingival fibrous connective tissue hyperplasia may arise due to several etiological factors such as chronic gingivitis and periodontal diseases, selective drug therapy and familial or genetic conditions. From our patient's history, it appeared that the most likely explanation for her present hyperplastic condition was her pregnancy. Pregnancy does not cause the condition, but the altered tissue metabolism in pregnancy accentuates the gingival and vascular response to local irritants like plaque and calculus.[11] The results of a systematic review by Figuero E et al in 2013, confirms that gingival inflammation is significantly increased throughout pregnancy and when comparing pregnant versus postpartum or non-pregnant women, without a concomitant increase in plaque levels.[9]

It is generally accepted that increase in gingival inflammation typically begins in the second month and reaches a maximal level during the eighth month of pregnancy.[4] The potentiated gingival response to plaque can be attributed to maternal immune, hormonal and microbiological changes occurring during pregnancy. An increase in the proportion of Prevotella intermedia in bacterial plaque, rather than an increase in total plaque, together with vascular changes and edema associated with high levels of estrogen/progesterone, is one of the primary explanation for gingival enlargement.[6] Immunoresponsive changes such as a decrease in T3, T4, and B-cells in peripheral blood and gingival tissue, decreased neutrophil chemotaxis, and depression of cell-mediated immunity and phagocytosis have been linked. Specific estrogen and progesterone receptors have been demonstrated in gingival tissue, suggesting that this tissue might function as a target organ for sex hormones. High levels of both progesterone and estradiol-17β during pregnancy are believed to affect the development of localized inflammation by stimulating the production of prostaglandins, primarily prostaglandin E2. It has also been suggested that high levels of progesterone downregulates IL-6 production, rendering the gingiva less efficient at resisting the inflammatory challenges produced by bacteria. Another mechanism involves gingival tissue turnover alterations concomitant to sex hormone fluctuations during pregnancy. Progesterone influences plasminogen activator inhibitor type 2 (PAI-2), an important inhibitor of tissue proteolysis, by lowering its concentrations. On the contrary, estrogen may regulate epithelial physiology in a cell and tissue specific manner. Depending on its interactions with other steroid hormones, estrogen regulates cellular proliferation and differentiation within the gingiva.[1,11] Ovadia et al in 2007 showed that the number of cells entering the S phase of the cell cycle are significantly increased in mass cultures of fibroblasts stimulated by oestradiol.[8] These concepts may support the clinical findings in our patient. Such conditions are not usually associated with osseous destruction & indeed on radiographic examination no bone loss was observed in our patient.

Although spontaneous reduction in the size of gingival enlargement commonly occurs following childbirth, complete elimination of residual inflammatory lesions requires the removal of all forms of local irritation. In

the present case, hyperplastic tissue was excised completely because the mass had begun to interfere with the patient's ability to brush, chew and was causing serious esthetic concerns.

Conclusion

Therefore since it has been established that sex hormones may potential gingival responses to local factors, regular follow-ups and oral prophylaxis should not be overlooked during pregnancy along with optimum home based oral hygiene measures. In this case, the hyperplastic tissue was excised by surgical excision and contouring was done, thus relieving the patient from difficulty in oral hygiene maintenance and cosmetic concerns.

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Legend Figures

Figure 1: Preoperative View

Figure 2: Marking Of Bleeding Points With Gold-Man Fox Pocket Marker

Figure 3: Immediate Postop View

Figure 4: Periodontal Dressing Placed

Figure 5: Excised Tissue

Figure 6: 2 Weeks Postop View

Figure 7: 2 Months Postop View