

Management of Recurrent Post-partum Pregnancy Tumor with Localized Chronic Periodontitis

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ABSTRACT

Pregnancy tumor is a benign, hyperplastic lesion of the gingiva, considered to be reactive or traumatic rather than neoplastic in nature. The term pyogenic granuloma is a misnomer as it is not filled with pus or granulosomatous tissue histologically. It is multi factorial in nature, which shows an exaggerated response to stimuli such as low grade or chronic irritation, trauma or hormonal variations. Higher levels of sex hormones during pregnancy produce effects on sub gingival microflora, the immune system, the vasculature and specific cells of periodontium which in turn in the presence of local irritants exaggerate the lesion. Since the lesion is clinically indistinguishable from other type of hyperplastic conditions, histological findings are required for proper diagnosis. We present a case report of recurrent pyogenic tumor which showed the evidence of pre-existing localized periodontitis with extensive horizontal bone destruction. The lesion was excised by electrocautery combined with conventional flap procedure after parturition period. During 3 and 6 months follow-up period post-operative healing showed satisfactory results without recurrence.

Keywords: Gingival overgrowth, pregnancy tumor, pyogenic granuloma

INTRODUCTION

Pregnancy tumor is a tumor like growth of fibro vascular or granulation tissue with extensive proliferation as a result of hormonal changes commonly occurring in the gingiva. Hullihen SP in 1844 reported the first case of pyogenic granuloma which is probably the first of its own in the English literature, whereas Hartzell in 1904 coined the term pyogenic granuloma or granuloma pyogenicum.^[1] The true prevalence of pregnancy tumors is not established, since not all affected women seeks professional attention. The overall reported prevalence is 0.2-9.6% respectively.^[2] The etiopathogenesis of oral pyogenic granuloma is still debatable.^[3] Although the exact cause of pyogenic granuloma is not clear it seems that the combination of periodontal pathogens, local irritants,^[4] and circulating hormones of the pregnant woman cause this lesion. No racial predilection is reported. Females are far more susceptible than males because

of the hormonal changes that occur in women during puberty, pregnancy and menopause. The principal oral site affected by pyogenic granuloma is the gingiva.^[5] Other sites in the oral cavity are the lower lip, tongue, buccal mucosa, upper lip and the palate.^[6-8]

The typical lesion involves the interproximal gingiva and increases in size to cover a portion of the adjacent teeth. The maxillary gingiva (especially in the anterior region) is involved more frequently than the mandibular gingiva; the facial gingiva is involved more than the lingual gingiva. A few number of lesions affect both the facial and lingual gingivae.^[9]

The female steroid hormones such as estrogen and progesterone reach the peak levels by the end of third trimester of pregnancy.^[10] It has dual effect on the pathogenesis of pyogenic granuloma occurring during this period. The hormones enhance the expression of various growth factors such as Fibroblast growth factors, Transforming growth factors and angiogenic factors namely vascular endothelial growth factors (VEGF) in inflamed tissues. Simultaneously, it decreases the apoptotic effect of granuloma cells to extend their effect.^[11] This case report aims at presenting recurrent pyogenic granuloma with persistent growth even after post parturition.

CASE REPORT

A 24-year-old female patient was referred to the Department of Periodontics, K.S.R Institute of Dental Sciences with the chief complaint of growth in the gums of right upper front teeth for the past 2

months. She was 10 days old of post-partum phase when she visited the Department of Periodontics. Past dental history revealed of similar growth in the same region which was excised in a private clinic during the 7th month of pregnancy. No history of radiographs taken in the same region. Within a week, same type of growth reappeared and gradually started increasing in size. As the lesion re-appeared, patient was apprehensive that it could be a carcinogenic tumor which was interfering with speech and mastication. She wanted immediate attention toward the lesion and treatment for the same.

On extra oral examination, no gross abnormalities were detected. On intra oral examination, diffused gingival growth was noticed between the 12 and 13 region. On the labial aspect, it measures 1 cm × 2 cm in diameter, red, sessile, smooth and shiny, soft in consistency and bled on slight provocation [Figure 1]. On the palatal aspect, the lesion was similar, but the size is somewhat more pronounced when compared with labial aspect [Figure 2] Due to the increase in size of the tumor, subgingival local irritants were found more around the involved teeth due to the improper plaque control measures. On periodontal examination, periodontal pocket depths of 7 mm, clinical attachment loss of 5 mm, with Millers Class I gingival recession was associated with the involved 12 and 13 teeth region. Based on the clinical findings, the lesion was provisionally diagnosed as a pregnancy tumor with localized periodontitis and the differential diagnosis was made as peripheral giant cell granuloma, peripheral



Figure 1: Pre-operative - labial view



Figure 2: Pre-operative - lingual view

ossifying fibroma with localized periodontitis.

Routine blood investigation was advised and values were found to be within normal limits. Full mouth intraoral radiographic investigations revealed horizontal type of bone loss extending up to the middle third of 12 and 13 teeth region only [Figure 3].

Patient was reassured with proper periodontal treatment plan. Scaling and root planning was carried out under phase I therapy and was treated accordingly with plaque control measures. Although plaque control measures improved the periodontal status dramatically, the lesion appeared static. A complete surgical excision was planned.

Under local anesthesia, excisional biopsy procedure was performed using electrocautery thereby minimizing the pre-operative bleeding for proper manipulation of the tissues in elevating the flap [Figure 4]. Full thickness mucoperiosteal flap reflected involving 11-13 regions. Root planning and flap curettage was done and irrigated with saline. Flap repositioned with figure of eight sutures and non-eugenol periodontal dressings placed. Post-operative instructions with medications were given. Excised specimen was sent for histological examination.

Histopathologic examination of the excised specimen confirmed our clinical diagnosis; the specimen stained with hematoxylin and eosin showed partial covering by parakeratotic stratified squamous epithelium of variable thickness which showed areas of ulceration and fibrinopurulent membrane. Under fibrous connective tissue stroma, numerous small and larger endothelium lined channels are formed that are engorged with red blood cells. A mixed population of inflammatory cell infiltrates comprising of neutrophils, plasma cells and lymphocyte is evident. The microscopic appearance was compatible with clinical picture and final diagnosis of pregnancy tumor was made [Figure 5].

One week post-operative healing showed some marginal inflammation with receded gingival margin. The patient was comfortable and the healing was uneventful. Sutures were removed and proper maintenance program was initiated. During recall visits of 3 and 6 months, the surgical site appeared normal without recurrence of the lesion [Figure 6].

DISCUSSION

Pyogenic granuloma is a non-neoplastic growth in the oral cavity. Clinically pyogenic granuloma



Figure 3: Intraoral periapical showing horizontal bone loss



Figure 4: During the surgical procedure

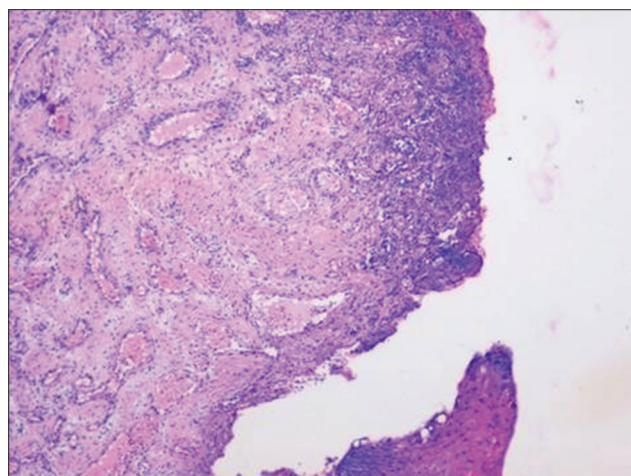


Figure 5: Histological examination revealed inflammatory cells



Figure 6: Post-operative view

appeared as smooth and lobulated mass with characteristic ulcerated and highly vascular surface. This clinical case report describes a case of recurrent growth with preexisting localized horizontal bone loss in relation to 12 and 13 region.^[12-14] In some cases localized bone loss might be due to the pressure created from the existing lesion.^[14] The tumor was managed successfully in the post-partum period without any recurrence. During pregnancy, female sex hormones especially estrogen and progesterone produce clinico-microbiological changes^[15] that affect the target cells which includes keratinocytes and fibroblasts in the gingiva. There was an increased gingival inflammation with increase in gingival crevicular fluid flow, bleeding on probing, tooth mobility and increased number of periodontal pathogens especially *Porphyromonas gingivalis* and *Prevotella intermedia*. If they were left untreated during the first trimester, the exaggerated tissue response further progress into pregnancy tumor. This tissue reaction attributed to the stimulation of fibroblasts to produce fibroblast growth factor, transforming growth factor and VEGF. The high angiogenic activity demonstrated by immunohistochemistry, implied the clinical presentation of bleeding tendency.^[16]

The regression of pyogenic granuloma may occur in natural course after parturition.

The molecular mechanism for the regression of pregnancy pyogenic granuloma after parturition remains unclear. It has been proposed that, in the absence of VEGF, angiopoietin-2 (Ang-2) causes blood vessels to regress.^[17] The inflammatory cytokines gradually decreases through a negative feedback metabolism and the endothelial cell enters the apoptotic pathway. The VEGF and angiopoietin-2, basic transforming growth factor

levels get reduced and the cells undergo regression and apoptosis.^[18]

The treatment of this localized inflammatory lesion consists of the removal of any causative irritant factor that should be followed by excision with various techniques such as conventional scalpel techniques, cryotherapy, electrocautery, sclerotherapy and laser therapy. The surgical therapy in the anterior region may produce unwanted mucogingival defects.^[19] As in our case post-partum showed the recurrent growth which was associated with preexisting horizontal bone loss, elective surgical procedure through electrocautery was planned as it is technique sensitive for precise excision and manipulation of the tissues. It seems to be ideal to get better access to the underlying tissues for degranulation and expecting good esthetic results. A 3 and 6 months follow-up period showed no recurrence of the lesion with good esthetic result and patient satisfaction.

Recurrence can be seen in few cases up to 16% after excision of the lesion. Pregnancy tumor at gingival site show more recurrence than any other sites of oral cavity. Sometimes lesion may recur as multiple deep nodules at the original site of the tumor. Recurrence is believed to occur as a result of incomplete excision, failure to remove etiologic factors or re-injury in that area.^[11,20]

In this case report, though surgical excision was carried out at 7 months of pregnancy, the recurrence of the lesion was immediate within 2 weeks after treatment. It was mainly due to the high recurrence rate of pyogenic granulomas removed during pregnancy.^[3,20,21] It was clearly observed that there was no recurrence of the lesion after 3 and 6 months post-operative period as the treatment was carried out after parturition phase. Re-excision may be necessary in some cases, whereas series of intralesional injections of corticosteroids are recommended for highly recurrent lesions.^[7,8,21]

CONCLUSIONS

Pyogenic granuloma is a non-neoplastic tumor like growth which is commonly seen in the oral cavity of pregnant woman due to the vascular effects of female hormones. However, some pyogenic granulomas (lobular capillary hemangioma) currently categorized as vascular tumors. Most of the cancerous lesions of the oral cavity resembled

hyperplastic or reactive lesions such as pyogenic granuloma and the confirmed diagnosis can be achieved by histopathological examination of the biopsied specimen.

As pyogenic granuloma is thought to be an exuberant tissue response to local irritation or trauma, clinicians should have thorough knowledge regarding its clinical presentation, proper diagnosis, prevention, management and treatment plan that helps in avoiding unnecessary apprehension among pregnant patients.

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