

**Pregnancy tumor - A rare case report on mandibular anteriors**

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**Abstract**

Pregnancy tumour is a reactive benign, hyperplastic lesion that commonly occurs on oral mucosa particularly on gingiva. It is multi factorial in nature, which shows an exaggerated response to stimuli such as low grade or chronic irritation, trauma or hormonal variations. During 2nd trimester of pregnancy higher levels of sex hormones produces changes on the sub-gingival microflora and the vascular changes. The immune system, of periodontium which in turn exaggerate the lesion. Clinically, oral pyogenic granuloma is a smooth or lobulated exophytic lesion manifesting as small, red erythematous growth on a pedunculated or sometimes sessile base, which is usually hemorrhagic. Although excisional surgery, use of pulsed dye laser, cryosurgery, intralesional injection of ethanol or corticosteroids, and sclerotherapy is the treatment of choice. We present the case of a 25-year-old pregnant woman with oral pyogenic granuloma.

**Keywords:** Pyogenic granuloma, Pregnancy tumor, Sex hormones, oral cavity and Inflammatory hyperplasia.

**Introduction**

Pregnancy tumour is a benign, nonneoplastic lesion that, mostly affects the gingiva of a pregnant female and it is considered as a variant of pyogenic granuloma. The term pyogenic granuloma is a misnomer as it is not related to any infection or not a true granuloma<sup>1</sup>.

It develops in up to 5% of pregnancies as a result of hormonal imbalance and so it is termed like “pregnancy tumour” or “granuloma gravidarum”<sup>2,3</sup>.

It was first described by French surgeons in 1897 and named it as human botryomycosis. Hartzell in 1904 proposed the term pyogenic granuloma and thought it to be a misnomer since the condition is not associated with pus and does not represent a true granuloma<sup>4</sup>.

It usually grows rapidly, bleeds easily and becomes hyperplastic and nodular in the 2nd and 3rd month of pregnancy. Although an involution usually occurs after

parturition, but in the mean while it causes interference with the function. Thus, making the excision of the tumour inevitable<sup>5</sup>. The typical lesion involves the maxillary facial interproximal gingiva and increases in size to cover a portion of the adjacent teeth. A few numbers of lesions affect both the facial and lingual gingiva. It is generally believed that the local irritants and elevated sex hormones levels at the end of second trimester of pregnancy causes the pregnancy tumour. This article describes a case of pregnancy tumour in a 25-year-old pregnant patient.

### Case report

A 25-year-old female patient reported to the department with the chief complaints of growth in the lower front tooth region for the past 2 months. Patient experienced bleeding on brushing. Her medical history revealed that she was in her 2<sup>nd</sup> trimester of pregnancy.

On clinical examination a small well defined soft tissue mass measuring 1cm x 1cm in its greatest diameter evident in the region of 32 and 33 respectively (Fig 1). Surface of the growth appears to be smooth and pink in colour. On palpation the growth appears to be firm, non-tender and bleeds on probing. Periodontal pocket depth of 4mm in the region of 32 and 33 evident. Region pertaining to the growth has supra and sub-gingival calculus.

Correlating the history and clinical findings the provisional diagnosis of pyogenic granuloma was made. Differential diagnosis of peripheral giant cell granuloma and peripheral ossifying fibroma was made. Considering her pregnancy no invasive surgical procedure was carried out. Oral prophylaxis was performed and instructions regarding maintenance of oral hygiene were given. Patient was kept under observation and asked to report when the growth interferes with speech or mastication.

### Discussion

Pregnancy tumor occurs in approximately 0.2% of pregnancies. The terms “pregnancy tumor,” “granuloma gravidarum” or “epulis” are all used interchangeably. Pregnancy is a state during which hormonal changes response to irritation caused by bacterial plaque and gingival inflammation. Approximately 50% of pregnant women experience gingival changes, but only few develop tumors in this area. Etiological factors include improper oral hygiene as well as an increased level of sex hormones such as Estrogen and progesterone<sup>6</sup>.

The subgingival flora changes to a more anaerobic flora as pregnancy progresses and *Prevotella intermedia* are the microorganism that increases significantly during pregnancy. The increase is due to elevations of levels of systemic estradiol and progesterone. It has been suggested that the altered tissue response to plaque is due to depression of the maternal T lymphocyte<sup>7</sup>. The gingiva has been shown to be a target organ for female sex hormones. Therefore, the maintenance of oral hygiene before and during pregnancy is very important to reduce the incidence and the severity of gingival inflammation.

Estrogen stimulate vascular endothelial growth factor (VEGF) and Angi oprotein-2 production by macro phages, whereas androgens have an opposite effect and which may be related to the development of pregnancy tumor. Progesterone functions as an immunosuppressant in the gingival tissues of pregnant women, allowing for an increased chronic tissue reaction, thus resulting in an exaggerated appearance of the lesion. The molecular mechanism for regression of pregnancy tumor after parturition is proposed that, in the absence of VEGF, Angiopoietin-2 (Ang-2) causes blood vessels to regress. In 1946, Zi skin and Ness compiled a clinical classification of pregnancy gingivitis as follows<sup>8</sup>:

- Class I: Characterized by bleeding gingiva with more or less no other manifestations
- Class II: Characterized by changes in interdental papilledema and swelling with exhibits a tendency to recur. Subsequent blunting of interdental papilla
- Class III: Characterized by the involvement of the free gingival margin, which takes on the color and general appearance of a raspberry
- Class IV: Generalized hypertrophic gingivitis of pregnancy
- Class V: The pregnancy tumor

The treatment of this localized inflammatory lesion consists of the removal of any causative irritant factor though scaling and that should be followed by surgical excision after delivery seemed the best option. In cases of symptomatic lesions excision with scalpel method, the flash lamp pulsed dye laser, cryosurgery, sodium tetradecyl Sul fate sclerotherapy was used<sup>9</sup>. Particularly for highly recurrent lesions, intralesional injection of absolute ethanol, corticosteroids were successfully attempted. Thus, during pregnancy, careful oral hygiene, removal of dental plaque and use of soft tooth brushes are very important to avoid occurrence of a pregnancy tumor. In this case report, only oral prophylaxis and oral hygiene measures were done as a treatment protocol. Patient was asked to report after her parturition.

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<sup>10</sup>. Recurrence is believed to occur as a result of incomplete excision, failure to remove etiologic factors or re-injury in that area.

### Conclusion

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 haemangioma) 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.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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**Legend Figure**

Figure 1: Clinical picture

