Case report

A Case Report of Pregnancy Tumor and its Management Using the Sapphire Microsurgical Knife

ABSTRACT:

Pregnancy is associated with hormonal changes that might induce periodontal diseases. A pregnancy tumor is a benign growth in the oral cavity. It appears as a painless sessile or pedunculated erythematous, exophytic, papular, or nodular lesion with a smooth or lobulated surface. Poor oral hygiene and elevated hormonal levels act as precipitating factors. Growth is usually visible after the third month of pregnancy. In this case, a 24-year-old pregnant woman had a localized gingival enlargement in the labial aspect of the mandibular anterior region that was surgically removed with a microsurgical sapphire knife.

Keywords: Pregnancy tumor, Pyogenic granuloma, Microsurgery, Sapphire Microsurgical Knife, Gingival overgrowth

INTRODUCTION

A pregnancy tumor is a variant of a pyogenic granuloma. Pregnancy increases susceptibility to gingival inflammation and related diseases. The exact cause of pregnancy tumors is uncertain, but local factors like infection, irritation, poor oral hygiene, hormonal changes, or specific medications are predisposing factors.[1]

It was first described in 1897 by two French surgeons,Poncet and Dor called it human botryomycosis. In 1904, Hartzell proposed the term pyogenic granuloma, although it is a misnomer since it is not related to pus and is not a true granuloma.[2]

A pregnancy tumor is a benign, vascular lesion, rapidly growing, red, pedunculated, or sessile papule or nodule on the skin or mucous membraneswith sizes ranging from millimeters to centimeters.It may bleed easily and be tender to the touch. It occurs in about 5% of pregnancies, most frequently after the first trimester.[3] In this case, the lesion was on the mandibular anterior gingiva in contrast to the literature reporting it to be more common on the maxillary anterior region.[4]

PRESENTATION OF CASE

A 24-year-old female patient came to the Department of Periodontics with a chief complaint of swelling of the gingiva in the lower front region of the oral cavity for the last two years (figure: 1). The Patient experienced bleeding on brushing and pain during mastication. She first noticed the lesion during the start ofthesecond trimester of pregnancy, however, did not seek medical attention at that time. This lesion gradually decreased in size after her pregnancy to attain the present dimensions.

Figure 1: Localized gingival enlargement with respect to 31 and 41

Intra-oral examination revealed soft tissue mass in the anterior region of 31 and 41. It was reddish and 1.5cm×1cm in size. It had a smooth surface and an 8mm deep pseudo-pocket. On palpation, it had a soft consistency and slight bleeding. No ulceration was seen. The patient was unable to maintain oral hygiene because of gingival enlargement and had the habit of tobacco chewing. Intra-oral periapical radiograph revealed mild horizontal bone loss.

A provisional diagnosis of pregnancy tumor was made. The Patient was informed about the procedure and the possible outcome before obtaining a written consent form.A routine blood examination was done, with all values lying within normal limits. Phase-I therapy i.e., Oral prophylaxis was done, which resulted in a reduction in gingival inflammation. Follow-up visits were scheduled for the next 3weeks. Later, the patient reported with persisting lesion and surgical excision of the lesion was planned.

Surgical Procedure:TheExcision was performed using a microsurgical Sapphire knife after local infiltration with the2% Lignocaine with epinephrine 1:80,0000 (figure:2). After excising the lesion, curettage of the area was done. The surgical site was irrigated with povidone + normal saline (figure: 3). Periodontal dressing (coe-pak) was placed on the surgical area, postoperative instructions were given, and advised to take tablet Amoxycillin 500mg and tablet Acelofenac 100mg + Paracetamol 325mg + Serratiopeptidase 15mg thrice a day for three days.

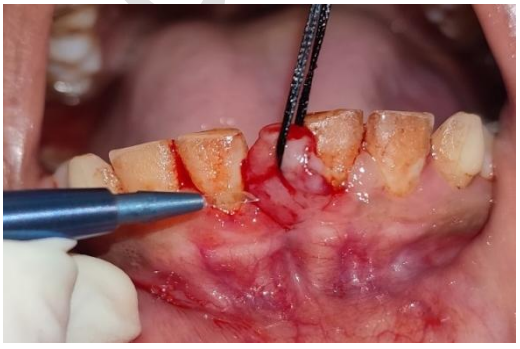

Figure 2: Excision of lesion using microsurgical sapphire knife.

Figure 3: After excising the lesion

Excised tissue was sent for histopathological examination. The h and E-stained sections showed hyperkeratinized hyperplastic stratified squamous epithelium overlying a mass of connective tissue stroma under low power.

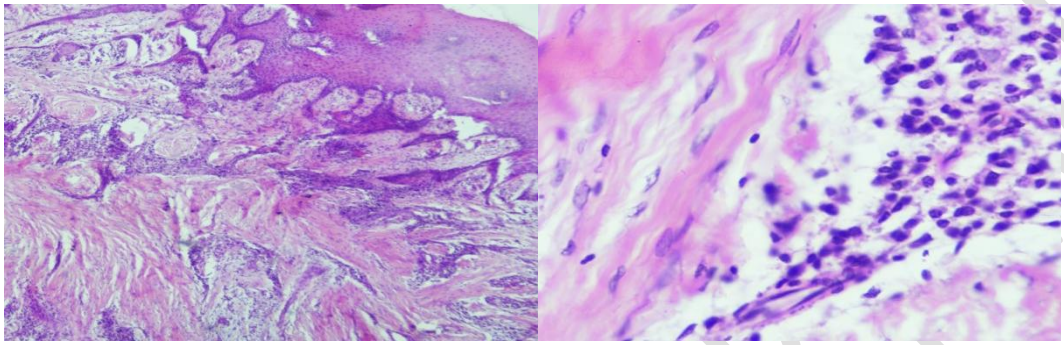

Fig 4.Histopathological examination

Under increased magnification, plump-shaped fibroblasts predominate among the loose to dense bundles of collagen fibers that make up the connective tissue stroma. Red blood cells and extravasated red blood cells were visible in several endothelial-lined blood arteries (few of which were dilated). Numerous locations also showed proliferating endothelial cells and budding capillaries. Chronic inflammatory cells predominantly comprising of lymphocytes and a few plasma cells were evident (figure: 4). Based on the histopathological report and clinicopathological correlation, a final diagnosis of pregnancy tumor was made.

The patient was recalled after 10 days to remove coe-pak and healing was uneventful. The patient was recalled for a follow-up examinationonthe30th day (figure: 5).Instructions regarding the maintenance of oral hygiene were given. No recurrence has been reported after six months.

Figure5: Follow-up at 30th day

DISCUSSION

According to Tumini et al., pregnancy tumor is a consequence of gingivitis that results in local hyperplasia.[5]Ziskin and Ness(1946) proposed a clinical classification of pregnancy gingivitis:

Class I: Gingival bleeding with more or less no other manifestations
Class II: Interdental papilledema and swelling tend to recur. Subsequent blunting of interdental papilla
Class III: Involvement of the free gingival margin, color and general appearance of a raspberry
Class IV: Generalized hypertrophic gingivitis of pregnancy.
Class V: The pregnancy tumor[6]

Pregnancy elevates progesterone and estrogen in plasma, leading to their accumulation in gingival tissues via hormone receptors. The increase in progesterone can induce microvascular alteration. Estrogen controls cellular proliferation, differentiation, and keratinization along with progesterone, increasing prostaglandin E2 and enhancing osteoclastic activity. Progesterone alters tissue homeostasis by decreasing fibroblast proliferation, alters the pattern of collagen production and reduces plasminogen activator inhibitor type 2, which is an inhibitor of tissue proteolysis.[7]

Evidence of increased growth of P. intermedia, P. gingivalis and Tannerella species in subgingival plaque at the start of pregnancy gingivitis has been reported. These species use pregnancy hormones, especially progesterone, as a source of nutrition.[7]Ojanotko-Harriet al., (1991) suggested that progesterone is an immunosuppressant that hinders rapid acute gingival inflammation against plaque, leading to increased chronic tissue reaction and a clinically exaggerated inflammation appearance.[8]

Excisional surgery is the treatment of choice whereas cryosurgery, excision by Nd:YAG laser and electrocautery, and sclerotherapy are alternative therapies. The scalpel is the gold standard due to its precision, faster healing, and cost-effectiveness, especially for small biopsy lesions and malignancy treatment over electrocautery and lasers. According to Bhatsange et al. (2016)[9], scalpel incisions result in minimal collateral tissue damage and faster healing compared to the diode laser or electrocautery, as observed histologically. The Microsurgical sapphire knife has a smaller and super sharp cutting edge than the conventional blade creating accurate, clean cut and minimal tissue trauma and hence results in better healing, but it is costlier and requires careful handling compared to a conventional scalpel.

After childbirth, gingival enlargement gradually reduces. However, up to 16% of pregnancy tumors may recur if not fully excised or if underlying causes are not addressed.[10] Pregnant women should be advised to maintain oral hygiene and attend regular follow-up appointments.

CONCLUSION

Pregnancy tumors can cause pain, swelling, and oral function difficulties. Gynecologists should emphasize oral hygiene and regular dental check-ups. For asymptomatic patients, wait until the pregnancy ends for potential regression. However, for symptomatic cases, thorough oral prophylaxis and surgical excision are preferred treatments.

Ethical Approval:

As per international standards or university standards written ethical approval has been collected and preserved by the author(s).

Consent

As per international standards or university standards, patient(s) written consent has been collected and preserved by the author(s).

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