CASE REPORT

Giant granuloma gravidarium of the oral cavity

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SUMMARY

Oral health is affected by hormonal changes during pregnancy but is usually neglected by both the obstetrician and the patient during follow-up visits. Gingival enlargement is one of the most common oral lesions seen during pregnancy. Rarely, gingival enlargement can be very big, significantly affecting maternal nutrition and impairing haemodynamic status. A giant granuloma gravidarium and appropriate management strategies are discussed. Patients must be encouraged to undergo regular dental check-ups during pregnancy. Simple oral hygiene measures are highly effective in mitigating most oral lesions of pregnancy.

BACKGROUND

This case highlights the possible consequences of neglecting oral hygiene during pregnancy. Large gingival enlargements can cause significant discomfort to the patient and can complicate an uneventful pregnancy. Obstetricians must encourage their patients to visit their dentist and follow oral hygiene instructions. Most pregnancy related gingival lesions are easily managed with simple oral hygiene measures.

CASE PRESENTATION

A 26-year-old prima gravida woman who was 28 weeks pregnant, was referred to the Department of Dentistry for evaluation of a progressively increasing mass in the mandibular teeth region. On examination, a large proliferative gingival growth (approx 5×3 cm) was observed enveloping the occlusal surfaces of all posterior teeth with both buccal and lingual extensions. The lesion was moderately firm on palpation, non-tender and coated with plaque and debris. Some degree of mobility was suggestive of a pedunculated lesion. On manipulation, a sluggish bleed was observed, which however ceased spontaneously in a few minutes. The patient had stopped using a toothbrush for the past several weeks owing to the increased bleeding during tooth brushing. The large lesion was also affecting mastication and speech and bled spontaneously several times a day. Poor oral hygiene with significant materia alba and plaque deposits on all tooth surfaces was recorded. The surface of the lesion had multiple traumatic indentations corresponding to the opposing tooth surfaces (figure 1). A single right submandibular inflammatory lymph node was palpable. The medical history was positive for gestational diabetes mellitus which was managed satisfactorily with insulin therapy. A provisional diagnosis of pregnancy pyogenic granuloma (PG) was made and treatment options were discussed.

Figure 1 Giant granuloma gravidarium covering the occlusal surfaces of mandibular posterior teeth.

INVESTIGATIONS

An orthopantomogram revealed no intraosseous pathology of the mandible. Bone loss with pathological migration of teeth 43, 44 and 45 was observed (figure 2).

DIFFERENTIAL DIAGNOSIS

The differential diagnosis of a large gingival mass in the oral cavity includes peripheral giant cell granuloma, peripheral ossifying fibroma, haemangioma, conventional granulation tissue, Kaposi's sarcoma, angiosarcoma and non-Hodgkin's lymphoma. Biopsy and histology is definitive in ruling out these lesions.

TREATMENT

Although the large lesion and its associated discomfort favoured surgical excision, in view of the advanced pregnancy and the unwillingness of the patient to accept the risks of the proposed surgery, the procedure was deferred until parturition. The patient underwent ultrasonic supragingival scaling to reduce the plaque and calculus deposits, and oral hygiene instructions were reinforced. Chlorhexidine gluconate (0.12%) mouthwash was prescribed to improve oral hygiene and regular follow-up was advocated. The patient reported 8 weeks later for

Figure 2 Preoperative panoramic X-ray.

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Figure 3 Excision of the lesion down to the periosteum.

further management of the gingival lesion following intrauterine fetal death 4 weeks earlier. The lesion appeared to show no regression in size or in symptoms. A surgical excision was performed down to the periosteum under general anaesthesia along with extraction of periodontally weakened teeth associated with the gingival growth (figures 3 and 4).

OUTCOME AND FOLLOW-UP

The patient withstood the procedure well and the intraoperative and postoperative periods were uneventful. Histological features of prominent endothelial proliferation with capillary formation and associated inflammation confirmed the clinical diagnosis (figure 5). No recurrence of the lesion was observed at a 2-month follow-up visit.

DISCUSSION

Oral health can be affected by hormonal changes during puberty, menstruation, pregnancy and the menopause. Gingivitis in pregnancy usually increases during the first trimester when gonadotropins are overproduced, and during the third trimester when oestrogen and progesterone levels are at their highest.¹ Localised gingival enlargements are often seen in pregnant patients (granuloma gravidarium) and are categorised as 'conditioned enlargements' as the systemic condition of the patient exaggerates or distorts the normal gingival response to dental plaque.² Although commonly used, the term 'pyogenic

Figure 4 Excised gingival lesion.

Figure 5 Acanthotic stratified epithelium with subepithelium showing proliferating capillaries and fibroblasts (H&E $\times 40$).

granuloma' is a misnomer since the condition is not associated with pus and does not represent a granuloma histologically.

Pregnancy PG is usually seen as a reddish, semi-firm, discrete, mushroom-like, flattened spherical mass that protrudes from the gingival margin and is attached by a sessile or pedunculated base. It is generally associated with bleeding either spontaneously or during tooth brushing and mastication. Female sex hormones affect the gingiva by altering the effectiveness of the epithelial barrier to bacterial insult and by interfering with collagen maintenance and repair.³

The correlation between gingivitis and the quality of plaque is greater after parturition than after pregnancy, which suggests that pregnancy introduces other features that aggravate the gingival response to local irritants. Ojanotko-Harri *et al*⁴ suggested that progesterone functions as an immunosuppressant in the gingival tissues of pregnant women, preventing a rapid acute inflammatory reaction against plaque but allowing an increased chronic tissue reaction, resulting clinically in an exaggerated appearance of inflammation. Increased levels of progesterone produce dilatation and tortuosity of the gingival microvasculature, circulatory stasis and increased susceptibility to mechanical irritation, all of which favour leakage of fluid into the perivascular tissues.⁵ Depression of the maternal T lymphocyte response and destruction of gingival mast cells by increased sex hormones with resultant release of histamine and proteolytic enzymes, and changes in subgingival flora may all contribute to the exaggerated inflammatory response to local irritants and plaque.⁶

Microscopic examination of gingival PG shows prominent endothelial proliferation with capillary formation and associated inflammation. The capillary formation exceeds the usual gingival response to chronic irritation and accounts for the enlargement. However, these microscopic features are not pathognomic because they cannot be used to differentiate pregnant and non-pregnant patients. Daley *et al*⁷ indicated that a diagnosis of 'pregnancy tumor' is valid clinically in describing a PG occurring in pregnancy because it describes a distinct lesion not on the basis of histological features but on aetiology, biological behaviour and treatment protocol.

Most gingival disease during pregnancy can be prevented by the removal of local irritants and the institution of fastidious oral hygiene at the outset. Regular follow-up appointments with a dental surgeon should be recommended and any surgical or periodontal treatment is best performed in the second trimester. It is easier to treat early carious lesions rather extensive dental

decay needing dental extractions during the later stages of pregnancy. Dental extractions and postoperative pain management can be challenging and will require coordination with the obstetrician. Management of pregnancy PG depends upon the severity of the symptoms. If the lesion is small, painless and free of bleeding, regular follow-up and emphasis on oral hygiene maintenance is usually recommended. Surgical intervention is generally not considered during pregnancy as potential risks must be carefully considered prior to any surgical procedure since these lesions have a tendency to bleed heavily and may result in serious morbidity or fetal mortality.⁸ Surgical excision, the use of lasers/cautery and cryosurgery are among the modalities described for the management of these gingival lesions.² Care must be taken to ensure that the excision extends down to the periosteum and that the adjacent teeth are thoroughly scaled to remove the source of continuing irritation (plaque, calculus, foreign material). In pregnancy, treatment of gingival growths that is limited to the removal of tissue, without complete elimination of local irritants, is usually associated with recurrence. The high rates of recurrence observed have prompted a few investigators to suggest waiting until parturition before initiating surgical management as spontaneous reduction commonly follows the end of pregnancy and often makes surgery superfluous. In this case, although the lesion was interfering with mastication and worsening oral hygiene and surgical intervention was therefore indicated, a conservative approach was instead preferred as there was a risk of significant intraoperative bleeding during attempted excision of such a large PG. The lesion appeared to show no signs of regression even 4 weeks following the end of the patient's pregnancy and so surgical intervention was necessary for the alleviation of symptoms.

CONCLUSION

Oral health is afforded little importance at follow-up visits during pregnancy, although there is evidence that there is a direct relationship between maternal periodontal health and fetal outcome.⁹ Often, gingival enlargements are detected only when they reach a considerable size and cause persistent bleeding and difficulty masticating. Management of such large PGs remains a challenge as the size of the lesion significantly impacts on oral hygiene. In addition, such patients tend to prefer soft and sugary foods, which hinders the control of gestational diabetes mellitus. Pregnant patients must be encouraged to visit the dentist at regular intervals to minimise the occurrence of such lesions. During pregnancy, instructions for oral hygiene maintenance, removal of dental plaque, and the use of soft

toothbrushes are simple and effective measures to minimise the occurrence of PG.

Learning points

- ▶ The gingiva in a pregnant patient often shows an exaggerated proliferative response to local irritants due to the effect of hormonal variations during pregnancy.
- ▶ Most patients and obstetricians do not consider oral health assessment during pregnancy to be important but regular oral health check-ups should be encouraged during pregnancy.
- ▶ Most pregnancy gingival enlargements are self-limiting, can be prevented by simple oral hygiene measures, and regress spontaneously following parturition.
- ▶ Gingival enlargements in pregnancy may rarely require surgical excision so the risk–benefit ratio must be carefully assessed before surgery.

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