CASE REPORT

Harmonious functional and aesthetic correction of severe localised pregnancy-induced gingival enlargement associated with capillary haemangioma

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SUMMARY

Gingival enlargement is a clinical condition that has been widely studied and is directly associated with specific local or systemic conditions. Pregnancy has been presented to increase susceptibility to gingival inflammation. Sex hormones are believed to be a risk factor for periodontitis because of their ability to proliferate specific periodontal microorganisms and affect host immunological response, but it is unclear whether pregnancy gingivitis exposes or proceeds to periodontitis. In this case report, the patient reported with severe localised enlarged gingival mass which initiated when she was pregnant. After parturition, gingival enlargement was persisting and causing functional and aesthetic problem. Enlargement did not resolve even after non-surgical therapy; therefore, surgical excision of the entire enlarged gingival mass was performed. Histopathological examination revealed capillary haemangioma. No evidence of malignancy was seen. No recurrence was seen even after 2 years of follow-up.

BACKGROUND

Oral diseases, such as gingivitis, periodontitis and dental caries, are prevalent conditions that affect an individuals' oral health and may also have an impact on general health and quality of life.¹ Onset and progression of periodontitis vary in patients, being dependent on host and environmental factors. Increased sex hormone secretion is considered a host risk factor. In addition, several reports have indicated that sex hormones induce proliferation of specific periodontal microorganisms^{2–4} and affect host immune response.^{5–7} In particular gingival inflammation deteriorates at the time of conception when sex hormones are elevated and positive control of periodontal pathogen is vital. Oral health during pregnancy can be characterised by frequent gingival changes.⁸ Therefore, maintaining a high standard of oral hygiene will contribute not only to the mother's general well-being, but will also positively affect the health of the newborn. Pregnancy gingivitis usually occurs in 30–100% of women.⁸

Gingival enlargement is a clinical manifestation that distinctly differs from the normal gingival features of scalloping margins, uniform surface and contours, and knife-edged papilla. In contrast, enlargement may present with irregular or regular surface features, fibrosis or oedema, a localised or generalised occurrence, and a mild or severe

degree. Enlargement often starts as papillary enlargement in mild cases, and it can result in growth that coalesces to involve the adjacent gingiva. The aetiology of gingival enlargement has been attributed to chronic gingivitis and periodontal diseases, selective drug therapy and familial or genetic conditions.⁹ The association between gingival enlargement and pregnancy is widely recognised.¹⁰ Increased gingival inflammation during pregnancy follows the hormonal cycle. It begins with increasing gonadotropin levels and is maintained throughout 4–8 months of pregnancy.¹¹ An increase in the proportion of *Prevotella intermedia* in bacterial plaque, rather than an increase in total plaque, is instrumental in the development of gingival inflammation during pregnancy.¹² Increased levels of oestrogen and progesterone during pregnancy also stimulate increased gingival vascular permeability and oedema, respectively.¹³ Gingival inflammation usually decreases in the final month of pregnancy. By the third month after parturition, gingival inflammation is at levels similar to the first month of pregnancy.¹² This article presents an unusual localised severe case of postpartum gingival enlargement.

CASE PRESENTATION

A 26-year-old woman reported to the outpatient department of periodontology with enlarged gums in the frontal region, left side of upper jaw since 1 year. Her medical history revealed that the patient was in good health with no history of any systemic disease and/or condition. She had no known drug allergy and was not taking any medication. Her vital signs were within normal limits. History of present illness revealed that she was pregnant at the time of initiation of swelling and the swelling had grown to present size after the birth of the child. Her intraoral examination revealed pinkish red, fibrotic, localised enlarged gingiva from distal of tooth 21 to mesial half of tooth 23, and from vestibule to the palate in the anterior region. The oral hygiene of the patient was poor and the enlargement was a functional and aesthetic problem for the patient.

The patient's treatment consisted of patient education and oral hygiene instructions, mechanical debridement and periodontal surgery. Before beginning of the treatment a written consent was obtained from the patient. Mechanical debridement was performed and the patient was given oral

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Figure 1 Preoperative—(A) facial view and (B) palatal view.

hygiene instructions and medications. After the non-surgical therapy, re-evaluation of the condition dictated healthier gingival tissues, but there was no improvement in gingival enlargement; therefore, surgical excision was planned (figures 1–5).

INVESTIGATIONS

An excisional biopsy was performed under local anaesthesia and the sample was sent for histopathological examination. The surgical site was covered with periodontal dressing and the patient was recalled after 1 week. Histopathological examination of the tissue showed fibrous connective tissue covered partly by inflammatory exudates and partly by squamous epithelium. Stroma showed numerous proliferated small thin-walled variable-sized intercommunicating vascular spaces. These spaces were lined by a layer of endothelium and the lumen contains blood. The above histopathological findings were suggestive of capillary haemangioma as final impression. Stroma presents marked infiltration by chronic inflammatory cells. No evidence of malignancy was seen.

TREATMENT

Surgical excision of the entire enlarged gingival mass was performed. The involved teeth were thoroughly scaled and planed. The surgical site was covered with periodontal dressing. The patient was given oral hygiene instructions, medications and recalled after 1 week.

OUTCOME AND FOLLOW-UP

The exact aetiology of the gingival enlargement in this case was not known but seems to be pregnancy induced and associated with capillary haemangioma. Although surgical treatment resulted in correction of the overgrowth, future studies on pregnancy gingivitis and gingival enlargement might help to explain the aetiology surrounding this case. No recurrence was seen even after 2 years of follow-up.

DISCUSSION

Based upon the patient's medical and dental history, it is difficult to ascertain a direct cause and effect. Common aetiologies

Figure 3 Excised gingival mass.

for gingival enlargement in the differential diagnosis included inflammatory; conditional (pregnancy, pubertal or hormonal); and such rare causes as bacterial, fungal, tuberculosis and viral infections. The patient was not on any medications, including oral contraceptives, which are known to induce gingival hyperplasia. Therefore, drug-induced gingival hyperplasia was ruled out. We eliminated hereditary gingival hyperplasia because the condition started during pregnancy. Hereditary gingival hyperplasia usually manifests much earlier in life and appears more firm and fibrotic, clinically.¹⁴

Gingival enlargement as a result of untreated gingivitis/periodontal disease is associated with abundant accretions and horizontal enlargement instead of the obvious vertical growth, as seen in this case. The patient's recent pregnancy makes pregnancy gingivitis an attractive explanation for the hyperplastic gingiva although complicated by chronic inflammation as reported in histopathological examination of the excised tissue in this case. An increase in sex hormones during human pregnancy is associated with reactive hyperplastic lesions involving the gingiva. In our patient non-surgical periodontal therapy alone did not reduce the gingival enlargement because the degree of hyperplasia was severe, thus necessitating surgical intervention.

Increased female hormone levels during pregnancy are suggested to be related to the increased susceptibility to gingival inflammation without a certain association with the amount of plaque.^{15–18} Perhaps the most common opinion among dental clinicians is that healthy gingiva stays usually unaffected, and thus pregnancy itself does not cause gingivitis, but dental plaque or calculus is required for initiation of gingival changes during pregnancy.¹⁹

Figure 2 Intraoperative—(A) facial view and (B) palatal view.

Figure 4 Postoperative—(A) facial view and (B) palatal view.

Figure 5 (A and B) Microscopic sections showing fibrous connective tissue covered partly by inflammatory exudates and partly by squamous epithelium. Stroma showed numerous proliferated small thin-walled variable sized intercommunicating vascular spaces lined by a layer of endothelium and the lumen contains blood. Stroma presents marked infiltration by chronic inflammatory cells.

Learning points

- ▶ Gingival enlargement associated with pregnancy resolves after parturition but in this case did not; therefore, such enlargements should be paid special attention.
- ▶ Excised tissue should be sent for biopsy to rule out differential diagnosis.
- ▶ It is mandatory to examine whether such enlargements are benign or malignant through various histopathological examinations.
- ▶ Gingival enlargement may be associated with other findings also like capillary haemangioma in this case.

Competing interests None.

Patient consent Obtained.

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