



PERIMENOPAUSAL GINGIVAL OVERGROWTH: A NEW ALERTING CASE REPORT

Periodontology

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ABSTRACT

Gingival disease leads to acute or chronic inflammatory reaction, occurring in an intensified manner due to exposure to dental plaque. This is commonly seen in the interdental area and usually extends to the marginal gingiva. The growth occurs slowly without any early clinical findings. There were many confounder factors evident to play the role for such gingival tumefaction to occur. Among various factors, hormonal levels (in perimenopause condition) could perturbate with local factors can lead to gingival overgrowth. With proper identification and rectification of the etiology, gives us a simple solution for management of gingival hyperplasia of patients. A simple and effective management of such inflammatory gingival overgrowth is regular plaque control by decreasing the bacterial overload and effective nonsurgical periodontal treatment with regular follow up visit to reverse the gingival inflammation and prevent future periodontal destruction.

KEYWORDS

Gingival Inflammatory Overgrowth, Perimenopause, Estrogen And Non-surgical Periodontal Therapy.

INTRODUCTION:

Gingival inflammatory overgrowth clinically presents as slight ballooning of interdental papilla and marginal gingiva. The overgrowth is slower in progress, usually accompanied without any symptoms of pain. It can occur either in a localized or generalized form. Usually it is initiated by dental plaque and due to their prolonged exposure leads to overgrowth of the gingiva. Of the various factors that lead to gingival overgrowth, variations in endocrinal hormonal levels has been figured out as one of the factor that lead to gingival overgrowth.¹

Perimenopause or menopause transition is the physiological stage that occurs due to hormonal changes especially a drop in the estrogen hormone. It starts around 40 years of age and ends a year after the last menstrual period. Any alterations in these hormones may cause changes in systemic health such as irregular periods, hot flashes, sleep disorders, vaginal or bladder problem and mood irritability and changes in oral health having dry mouth, decreased salivary secretion and bleeding gums occasionally.² Perimenopausal condition also found to have changes in the gingiva; due to its variation in the hormonal levels and acting as niche for triggering such inflammatory overgrowth.

In the periodontium, the female sex hormonal receptors especially estrogen and progesterone receptors are found in the gingiva, periosteal fibroblasts, fibroblasts of the lamina propria and periodontal ligament fibroblasts and osteoblasts. When there is any variation in these hormones, there is a direct impact on the gingival tissues leading to cellular proliferation and permeability of blood vessels, which eventually leads to edema and inflammatory response to any confounder factors in oral cavity. The dynamic response of the periodontium to sex hormone occurs due to its actions at molecular level on the extracellular matrix and cells in gingival connective tissue during times of hormonal fluctuations.³ Thus gingival changes can be triggered by sex hormones.

At menopausal transition, due to estrogen deficiency results in inflammatory cascade of gingiva and bone loss; mediated by various

cytokines, leading to periodontal disease. Thus earlier gingival changes had to arrest for preventing its further progression. The preventive role in managing such gingival disease may be controlling bacterial growth and by oral hygiene maintenance. The nonsurgical periodontal treatment considered as the basic treatment protocol for managing such gingival overgrowth associated with hormonal imbalance. It decreases the signs of inflammation by improving all the periodontal parameters. The Estrogen Replacement Therapy [ERT] may be indicated in severe estrogen deficiency with systemic involvement by physician choice. But regular plaque control will prevent the future buildup of gingivitis to periodontitis and tooth loss. Thus monitoring in an early stage of menopause will arrest the periodontal tissue destruction in postmenopausal condition of the woman's life.⁴

This case report describes the etiology and successful management of an inflammatory gingival overgrowth in maxillary anterior region associated with perimenopause condition by an effective Non-Surgical Periodontal Therapy (NSPT) and a strict periodontal maintenance program. It also highlights the crucial period of women's life for screening and preventing any changes in the quality of systemic and oral health.

CASE DESCRIPTION:

A 47 year-old patient reported to our outpatient department with the complaints of inflamed gums in upper front teeth since 20 days, which she felt was esthetically unappealing. This occurred slowly; unnoticed initially and was painless. She also complained of dry mouth, bleeding gums with occasional burning sensation. Her medical history revealed an irregular menstrual period for past 1 year.

Intra oral clinical examination revealed an overgrowth in the gingiva, which is localized, involving both the labial and palatal/lingual interdental papilla and marginal gingiva in the maxillary and mandibular anteriors. Local factors were evident in the subgingival region of maxillary anteriors. The gingiva appeared deep red and swelling of size 7 mm x 7 mm with a sessile growth having a defined border was seen [Figure 1,2,3].



Figure1: Inflammatory gingival overgrowth



Figure 2: Occlusal View Of Maxillary Arch



Figure 3: OPG

Profuse bleeding was seen upon probing. Swelling was soft and friable. All the clinical signs for gingival inflammation were evident. The periodontal probing depth was found to be 6 mm in relation to 11,12,21,22 and 5 mm in 41,42,31,32. Her blood investigation showed decreased serum estrogen level 26 pg/mL and progesterone level 12 ng/mL from the normal range. Patient was diagnosed with inflammatory gingival overgrowth associated with perimenopause condition.

Under LA, scaling and root planing was done in two visits within 24 hrs, followed by chair side mouth rinsing by the patient with a 0.2% chlorhexidine solution for 2 minutes and brushing the tongue of the patient with 1% chlorhexidine gel. This is followed by an additional subgingival irrigation with saline (three times) of all pockets with a 1% chlorhexidine gel as reported by Pundir et al.^[5] Meticulous oral hygiene instructions were given. Patient was recalled at 1st week, 2nd week, 1st month and 3rd month [Figure 4, 5, 6, 7,8]. At the end of 3rd month, gingival overgrowth subsided to the satisfaction of the treating periodontist and the patient.



Figure 4: 1 week postoperative view



Figure 5: 1 week postoperative view



Figure 7: 1 month postoperative view



Figure 8: 1 month postoperative occlusal view



Figure 9: 3 Month Postoperative View



Figure 10: 3 Month Postoperative Occlusal View

DISCUSSION:

Gingival overgrowth was a common feature in gingival disease. If left untreated, shall lead to some aesthetic problems, plaque accumulation, gingival bleeding and periodontitis. Also it shall develop into chronic or acute inflammatory overgrowth. Gingival overgrowth is often associated with multiple factors and can exhibit pleomorphic properties. The growth of gingiva occurs toward the incisal edge of the clinical crown and also buccolingually. Buccal surface of the gingiva is more commonly affected. The overgrowth of the gingiva appears as a localized nodular growth of the interdental papilla (horizontal growth) in the initial stages and extends to the crown of the teeth (vertical growth). The overall increase in a severe case covers a large portion of the crown of the teeth.⁶

Perimenopause has been variously defined, beginning with irregular menstrual cycles with declining ovarian function and ends a year after the last menstrual period. It varies greatly from person to person. It also referred as climacteric meaning transaction period where ovaries stop functioning. The term menopause and climacteric are often used synonymously, but they two differ. The menopause refers to the date of last menstrual cycle and represents shorter and defined period; while climacteric or perimenopause implies a much longer period and a period of crucial physical, emotional, and psychological changes in a woman's life due to changes in the circulating sex hormone levels. The variation in the level of female sex hormones estrogen and progesterone are responsible for various physiological changes in females at specific phases of their life. This perimenopausal condition triggers a wide range of changes in systemic health including oral cavity due to their hormonal imbalance, particularly variations in the level of circulating estrogen.⁷

Estrogen was the main sex steroid hormone responsible for alterations in blood vessels of target tissues in females. In contrast, progesterone had been shown to have little effect on the vasculature of systemic target tissues. There were two theories for the actions of the hormones on these cells: a) modification of the impactiveness of the tissue barrier to microorganism insult and b) effect on scleroprotein maintenance and repair.⁸ These hormones may alter immunologic factors and responses, including antigen expression and presentation, and cytokine production, as well as the expression of apoptotic factors and cell death as explained by Huber et al.^[9] These hormones could significantly influence on the periodontium, exerting cellular proliferation, differentiation and growth in target tissues, effect on the microcirculatory system altering the permeability of vessels as described by Mariotti.³ Thus declined estrogen hormonal levels play a significant role in changing the quality of women's systemic and oral health during menopause transition.

Symptoms often start in the perimenopausal period which usually involves irregular menses and vasomotor symptoms like hot flushes. Other symptoms include sleep disturbances, mood alterations and vaginal dryness. In the oral cavity, complaint of dry mouth because of decreased salivary secretion as well as burning sensation of the mouth and altered metallic taste sensation. The other pathological oral conditions manifested in oral cavity are periodontal disease (Periodontitis, gingivitis, desquamative gingivitis) and osteoporosis of jaw.^{4,7}

There were many studies linking postmenopausal condition with more periodontal destruction because of estrogen deficiency, which acts by blocking the production of cytokines that promote osteoclast differentiation and osteoclast apoptosis.¹⁰ There were findings in the gingival tissues associated with menopause condition showing bleeding gums and gingivostomatitis as described by Jafri et al.¹¹ Thus hormonal and microbiological variations found to influence the oral cavity.

The gingiva was more affected by this hormonal change, due to its decreased body ability to fight minor infections or maintain a healthy balance of useful and harmful bacteria within the oral environments leading to inflammation by release of various cytokines like interleukin 1 β , tumor necrosis factor alpha, interleukin 6, granulocyte-macrophage colony-stimulating factor and macrophage colony-stimulating factor produced by up-regulation of macrophages and osteoblast. That ultimately results in collagen destruction and bone resorption lead to severe periodontitis. Thus their symptoms include swelling of gums, pain, uneasiness, bleeding, mobility and change in taste. It was an important time for establishing preventive health goals by arresting progression of gingivitis to periodontitis.^{4,12}

To the knowledge of the author, this is the first case report showing an inflammatory gingival overgrowth associated with perimenopausal condition rather than inflammation. Still no cases are reported with any sign or symptoms in the gingival tissues of the perimenopausal woman. During this phase, various ages of 40 to 50 years, show the symptoms occur with different degrees, ranging from low, middle, high, to very high. The occurrence of gingival overgrowth may be due to decreased estrogen hormonal levels with chronic exposure to local factors i.e. dental plaque by triggering such an inflammatory overgrowth. Thus inflammatory gingival overgrowth is usually a secondary complication of other types of overgrowth, and together they are called combined gingival overgrowth as described by Kesic et al.¹³

The pathogenesis behind this gingival lesion was still unclear. The host responds to this local factor; by initial inflammatory responses in the gingiva. This may lead to constant activation of degradative enzymes and tissue proteinases, leading to connective tissue breakdown, alveolar bone resorption, and ultimately tooth loss with increased risk of disease progression. The first step in order to prevent gingival changes was by controlling bacterial load and proper oral hygiene maintenance. If left treated, the gingivitis turns to periodontitis and tooth loss eventually. But early prevention and motivation can stop the disease progression as explained by Buencamino et al.⁴

In this case report, on correlating patient medical history having irregular menses, dry mouth, bleeding gums with occasional burning sensation since 1 year and blood investigation (decreased estrogen hormonal level 26 pg/mL and progesterone level 12 ng/mL), supports our clinical diagnosis for perimenopause condition. Dental plaque and calculus which is located sub-gingivally predisposes the development of inflammatory gingival overgrowth as explained by Mariotti.¹⁴ Thus perimenopause condition found to have influence over the gingival changes due to its variation in the hormonal levels and acting as triggering factor for such inflammatory overgrowth induced by local factors, dental plaque. Still future investigation is needed to support this conditioned gingival overgrowth.

Treatment of gingival overgrowth is based on an understanding of the cause of overgrowth and the underlying pathologic changes. The nonsurgical periodontal treatment (NSPT) considered as the basic treatment protocol for managing such gingival overgrowth associated with hormonal imbalance. It decreases all the periodontal parameters of inflammation. With regular follow-up on our patient's dental health, we found that nonsurgical therapy (NSPT) was successfully utilized to treat this gingival overgrowth. She was also advised for medical

consultation regarding systemic changes and any supplementation of estrogen replacement therapy.

In this case report, treatment regimen followed with conservative approach combining chlorhexidine use and nonsurgical periodontal therapy involving the full mouth disinfection (FMD) concept reduced the need for surgical intervention in patients with such overgrowth, which was in accordance with the study done by Pundir et al.⁵

However, the patient's motivation to maintain good oral hygiene and to adhere to a 3-month periodontal maintenance program appeared to be the essential component for the success we observed in this patient. Thus conservative nonsurgical periodontal therapies (NSPT) with proper prophylaxis and a rigorous home care regimen can be suggested as one of an effective treatment protocol for managing such gingival overgrowth. Still longitudinal studies are needed to support the perimenopausal condition correlating with any gingival alterations.

CONCLUSION:

Thus perimenopausal period must be considered in our diagnostic regimen as an essential period for establishing preventive health goals. Proper oral hygiene maintenance is very crucial to avoid any changes in the gingival tissues. Hence the non-surgical periodontal therapy [NSPT] plays an effective role for managing such gingival overgrowth case associated with perimenopausal condition explaining the success in its simplicity and preventing the future periodontal tissue breakdown.

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