

Management of Puberty Associated Gingival Enlargement in the Aesthetic Zone in an Adolescent Female- A Case Report

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ABSTRACT

The onset of puberty can bring about changes in the hormonal levels which in turn may affect the gingival tissues in both males and females leading to altered tissue response to dental plaque and can lead to conditioned enlargement. Such overgrowths can bring about various problems like difficulty in speech, bleeding gums and even aesthetic problems. In the current case report, we have discussed the management of a Puberty Associated gingival overgrowth in the maxillary anterior region in a young adolescent female.

KEYWORDS: Conditioned enlargement, Estrogen, Gingivectomy, Progesterone, Puberty, Testosterone

INTRODUCTION

One of the common forms of gingival diseases is Gingival enlargement and can be caused by gingival inflammation, fibrous overgrowth or a combination of the two.¹ It is multifactorial and results from a complex interplay between the host and the environment or can occur in response to various stimuli.² It may be Plaque induced, associated with hormonal or systemic disturbances, neoplastic, drug induced, etc. and different forms of enlargement have different clinical and histological presentations and thus proper history taking, clinical and histopathological examination is the key in differentiating one type of enlargement from the other and also for establishing an accurate diagnosis and formulating a proper treatment plan.

Puberty is a complex process of sexual maturation resulting in an individual capable of reproduction, induces changes in physical appearance and behavior that is the direct result of increases in sex steroid hormones, primarily testosterone in males and estradiol in females.^{3,4} These hormones exert their effects on different tissues wherever their receptors are present. In the gingiva, these steroid hormones can influence the cell division, growth and differentiation of fibroblasts and keratinocytes. Alterations in blood vessels is mostly caused by estrogen and stimulation of the production of inflammatory mediators mainly by progesterone.⁵ This can result in an exaggerated response of the gingival tissues to plaque and can lead to gingivitis or gingival enlargement. Puberty associated gingival enlargement can occur in both sexes and it falls in the category of Conditioned gingival enlargement as the presence of plaque is necessary for

such type of enlargement to occur.² Thus maintenance of proper oral hygiene is the key in the management of such types of conditions.

In this case report, we present a typical case of puberty associated gingival enlargement and emphasize the importance of taking a proper history in achieving a correct diagnosis and formulating a proper treatment plan in such cases.

CASE REPORT

A 15 year old female patient reported to the out-patient department of Department of Periodontology and Oral Implantology, Narsinhbhai Patel Dental College and Hospital with a chief complain of swollen gums in the upper front region since 3 years. The growth gradually kept increasing in size since its inception to its noticeable current size. It was associated with bleeding from gums on brushing. The medical history revealed that the patient started menstruating before 3 years, and the gums had started swelling up almost concomitant with it. Dental History revealed that the patient had a history of trauma to her upper front teeth before 4 months.

On intraoral examination, a reddish pink bulging of the interproximal papillae with blunt and rounded marginal gingiva was found on the facial surface extending from the mesial surface of 11 to mesial surface of 21 (figure 1). It was soft, edematous and friable and bled on the slightest provocation. There was a presence of some amount of marginal plaque and calculus. An Ellis class II fracture on 11 and 21 was also noticed that occurred due to trauma before 4 months. IOPA did not show any

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abnormalities involving the alveolar bone, periodontal ligament space or the lamina dura (figure 2).



Figure 1: Pre-operative view showing the gingival condition of 15 year old female patient with puberty associated gingival enlargement

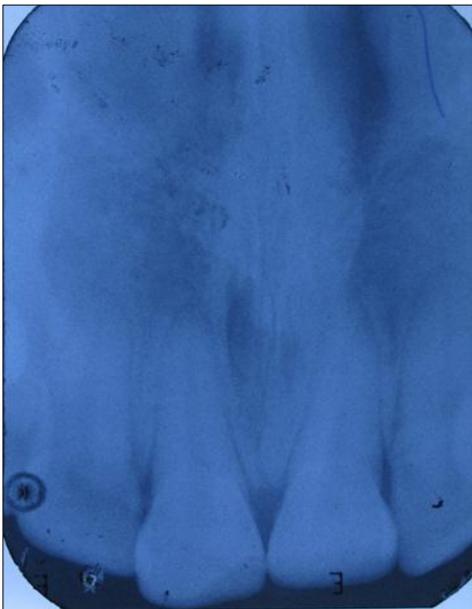


Figure 2: Radiograph of the involved region

Routine oral prophylaxis was performed, and the patient was recalled after 1 month. On re-evaluation, the inflammatory component of the enlarged gingiva had subsided but there was still a presence of fibrous component that compromised the routine oral hygiene measures, and so Gingivectomy was performed to excise the bulge of the tissue and regain the healthy form and consistency of the gingiva (figure 3, 5). The tissue was sent for Histopathological examination. Composite restorations were also performed in 11 and 21. An informed and a written consent were obtained from the patient for all the above mentioned procedures. The patient was kept on regular follow up, and we did not notice any recurrence of the lesion even after 6 months of the procedure (figure 6).

H & E section showed hyperplastic Para keratinized stratified squamous epithelium with elongated rete ridges. Connective tissue showed collagen fibers arranged in thick bundles and in few areas whorled pattern was



Figure 3: Excised gingival tissue

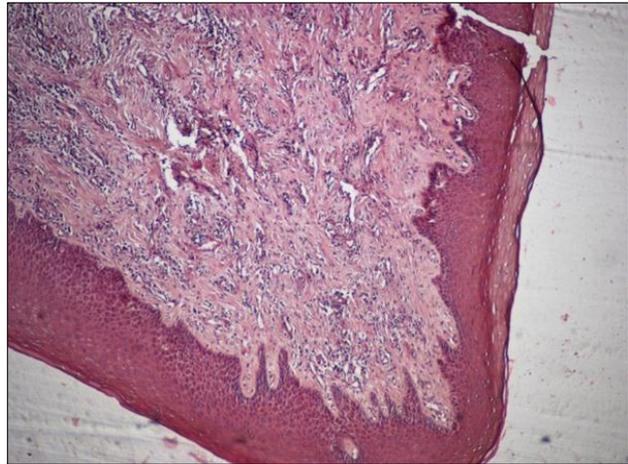


Figure 4: H & E staining showing parakeratinized stratified squamous epithelium with elongated rete ridges and connective tissue with collagen bundles arranged in whorled pattern.



Figure 5: Immediate Post-operative



Figure 6: Six Months follow up

evident. There was the presence of mild inflammatory infiltrate and mild vascularity (figure 4). Careful history taking, clinical findings and histopathological findings led to the diagnosis of Puberty associated gingival enlargement.

DISCUSSION

Puberty is the period of transition of a child towards maturation and adulthood. At this time, there is a marked increase in Testosterone levels in males and Estrogen and Progesterone in females.⁶ An increase in gingival inflammation with no accompanying increase in the levels of plaque during puberty has been found in several cross sectional as well as longitudinal studies and the increase in gingival inflammation was correlated with increased progesterone and estrogen levels without a significant increase in mean plaque index.⁷⁻⁹ A study conducted by Sutcliffe P and colleagues showed a peak prevalence of gingivitis at 12 years, 10 months in females and 13 years, 7 months in males, which is consistent with the onset of puberty.¹⁰ On careful history taking, it was found that our patient also had started observing her gum swelling and bleeding gums when she was 12 years of age, and it also coincided with the onset of her puberty. The papillary and marginal gingiva is involved in puberty associated gingival enlargements. Clinically, puberty associated gingival enlargement may be characterized by prominent bulbous interproximal papillae in the facial gingiva with the lingual surfaces most often remaining relatively unaltered probably due to the action of the tongue and the excursion of food would also prevent a heavy accumulation of local irritants on the lingual surfaces.² On clinical examination, a very similar gingival condition was observed in this case. This clinical picture may be due to increased amount of *P. Intermedia* and *Capnocytophaga* species that are found in cases of Puberty associated gingival enlargements, and both these species possess the ability to substitute progesterone and estrogen for menadione (Vitamin K) as an essential growth factor for this microorganism.¹¹

In most of the cases of enlargements associated with puberty, a conventional periodontal therapy comprising of scaling and root planing is sufficient to treat the condition.¹² However, in some cases where there is more amount of fibrotic tissue along with the inflammatory component, the inflammation can get subsided with conventional scaling and root planing but the fibrotic component that persists after scaling has to be removed by surgical means. Gingivectomy is the treatment of choice in such cases, and it can be performed by a conventional method with a scalpel or periodontal knives, Electro surgery, LASER, etc.² In the present case, Gingivectomy was performed by scalpel by an external bevel incision. The wound area was covered with periodontal pack for 1 week. The healing was uneventful. The patient was recalled periodically at 1 week, 1 month, 3 months and 6 months after the procedure to assess the healing and also to check for recurrence. No recurrence was noted. There was a scalloped contour of gingiva with

firm and resilient consistency after 6 months of the procedure (Figure 6).

CONCLUSION

Gingivitis and gingival enlargements in puberty are caused by local factors like plaque but are aggravated due to the presence of sex steroid hormones. Thus, maintenance of good oral hygiene is the key when it comes to prevention and management of such conditions. This case report highlights how proper taking a proper case history and clinical examination are helpful in differentiating amongst different enlargements and can help in proper management of such cases.

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