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Recurrent idiopathic gingival enlargement - A rare case report

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Abstract

Idiopathic gingival enlargement is a condition chara cterized by an abnormal overgrowth of gingival tissue that can occur spontaneously without an obvious cause. This condition is considered rare and can present in two different forms: isolated or as part of multi organ syndromes. The enlargement can be severe and gradually worsen over time, leading to the functional and Esthetic concerns.

A comprehensive treatment plan involves addressing local irritants and reducing inflammation. One of the most effective surgical treatments for this condition is gingivectomy. However, despite treatment, there are cases where recurrence rates remain high. This report focuses on a specific case of idiopathic gingival enlargement with a notable recurrence rate.

Keywords: Idiopathic Gingival Enlargement; Recur rent Gingival Enlargement; Gingivectomy; Undis placed Flap.

Introduction

Idiopathic gingival enlargement (IGE) is a perplexing condition characterized by an absence of a definite cause. It gives rise to disturbances in the oral cavity that affect its functionality, aesthetics, and psychological well-being. According to the literature, its prevalence is relatively low, estimated to be around 1 in every 175,000 inhabitants. [1] Goddard and Gross were the first authors to report a case of IGE in 1856.[2] Typically, IGE is observed when permanent teeth erupt, although it has been known to occur in primary dentition, and in rare instances, also at birth. The condition can present as gingival enlargement alone, or alongside other systemic manifestations.[3] The development of IGE is believed

to be associated with genetic mutations that result in connective tissue defects.[4] Clinically, the condition can lead to occlusal disturbances, late eruption of per manent teeth, difficulties in speech and mastication. This paper reports the case of a male patient diagnosed with the non-syndromic form of IGE. Furthermore, we also discuss our treatment approach for this condition, which currently revolves around gingivectomy as the main treatment option, despite the potential risk of recurrence.

Case report

A young male aged 20 years, apparently healthy with no known allergies, presented to the Department of Periodontics at College of Dental Sciences in Davangere, Karnataka, with the primary complaint of gum enlargement in both the upper and lower jaw regions. He started noticing the increase in size since he was 10 years old. He wanted treatment for Esthetic concerns. The patient had previously visited private dental clinic in June of 2022 and underwent tooth removal in the upper left back tooth region. Also, underwent gum surgery in the upper right and lower front teeth region, which had recurred again in a short period of 1 month. His medical, personal, and family histories did not yield any noteworthy information that could be linked to the present condition. There were no notable factors that could have contributed to the presentation. The patient had potentially competent lips. There were no extra-oral abnormalities detected. On intra-oral examination, there was generalized diffuse gingival enlargement seen in the Bucco-palatal aspect wrt 16 – 26 and labio-lingual aspect wrt 33 – 43 teeth region involving the marginal, attached and interdental gingiva (Figure 1-3). On inspection, the color appears pale pink with physiologic pigmentation and the surface appears smooth and stippled. Upon palpation, the surface appears firm in consistency and non-tender, non-pulsatile swelling, fluctuancy and compressibility were absent. Bleeding on probing was also absent. All the second and third molars were impacted. There was no periodontal involvement of any teeth. The panoramic radiograph revealed no notable involvement of the alveolar bone. It revealed normal bony trabecular pattern and the absence of anomalies in permanent dentition with retained lateral incisor (Figure 4). Based on the aforementioned observations, the patient was diagnosed with idiopathic generalized gingival enlargement. The initial treatment plan consisted of providing the patient with oral hygiene instructions as well as performing scaling and root planing procedures. Based on the size and extent of the gingival enlargement, it was recommended that a gingivectomy be performed in quadrants. One week after the non-surgical periodontal therapy, an external bevel gingivectomy was done in the first quadrant from the 1st premolar to first molar region, under local anaesthesia (Figure 5a). Periodontal pack was placed to cover the wound area. The patient was prescribed a 15-day course of antibiotics and instructed to use chlorhexidine mouthwash, which did not result in any adverse effects. The excised tissue was sent for his to patho logical examination (Figure 5b), which revealed the presence of epithelial acanthosis and minimal inflammatory infiltrates in the subepithelial and connective tissue. Dense collagen bundles, numerous fibro blasts, and few blood vessels were also observed, consistent with the features of IGE. Adequate oral hygiene was maintained by the patient one month after the gingivectomy, and the crowns of the premolars and molars were sufficiently exposed. However, there was a relapse of the treatment done in the first quadrant (Figure 6). The transgingival probing depth after one month was almost equivalent to pre-treatment values. The patient

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refused any further treatments and has not returned for follow-up, since then.

Discussion

IGE is a highly unusual condition characterized by a benign gingival overgrowth. According to current literature, the inheritance pattern for IGE is typically autosomal dominant, with chromosomal ab nor malities identified at 2p21-p22 and 5q13-q22.[3] Nutritional and hormonal factors have also been suggested as possible causes of the condition.[4] It has been suggested that a mutation in the Son of Sevenless-1 (SOS-1) gene could be a possible cause.[5] IGE can appear as an isolated and non-syndromic form, but in most cases, it has been linked to other conditions such as epilepsy, mental retard ation, and hypertrichosis. Additionally, IGE may be linked to various syndromes, such as Cowden's syndrome (resulting in multiple hA Marto mas), Zimmerman-LA band syndrome (causing bone, nail, ear, and nose defects, and splenomegaly), Murray-Purelie Drescher syndrome (resulting in multiple dental hyaline tumors), Rutherford syndrome (leading to corneal dystrophy), Jones syndrome (causing sensori-neural deafness), and Cross syn drome (resulting in hypopigmentation with athetosis).[6] However, since our patient did not exhibit any other systemic manifestations, the IGE was considered to be non-syndromic in nature. Non-syndromic forms of IGE are inherited in an autosomal dominant pattern, with their gene locus on chromo some 2p. The use of FISH analysis has shown that it involves the presence of two gene loci located on the short arm of chromo some 2, specifically located at 2p21-2p22 and 2p13-p16.[7] The study indicated that patients with IGE commonly exhibit a failure of eruption of permanent molars, which is consistent with the present case where the permanent molars also failed to erupt. Maxillary molar impaction may result from atypical osteo-fibrosis of the alveolar bone, while mandibular molar impaction suggests anomalous development of the dental germ close to the mandibular lower border.[7] Managing IGE typically involves a long-term and gradual approach, which may consist of a combination of periodontal surgery, orthodontic correction, and regular maintenance therapy. Gin give ctomy using scalpel, or excision using electrocautery and carbon dioxide lasers are often considered as the preferred surgical treatment options.[4] The underlying mechanism of IGE is not yet fully understood, but studies have shown the involvement of gingival fibroblasts. The periodontal ligament remains unaffected. The enlargement is usually limited to the attached gingiva.[8] The gingival enlargement observed in this particular case seems to be linked with the eruption of permanent dentition, which implies that the presence of teeth may be necessary to initiate the growth process. In the present case, patient's misaligned teeth contributed to a higher risk of plaque accumulation and posed challenges for long-term periodontal maintenance. Thus, a comprehensive treatment that included scaling and root planing and gingivectomy in the affected areas followed by orthodontic rehabilitation was advised for the patient. The recurrence rate after surgical treatment has been reported to be around 34.92%.[8] Upon his to patho logical examination, the connective tissue is often enlarged with intense arrangement of collagen fibers, abundant fibroblasts, and some amount of chronic inflammatory cells. The gingival tissue affected is usually bulbous in shape and relatively lacking in blood vessels. Additionally, the overlying epithelium shows thickening and

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acanthosis, with elongated rete ridges.[8] Similar histological findings were observed in the present case. While there is widespread agreement on the treatment modality, there is some controversy among authors regarding the optimal age for treatment. Most authors recommend treating the condition when the complete set of permanent teeth erupt in the oral cavity, to avoid relapse.[9] Several factors can affect the likelihood of relapse after surgical treatment including age, surgical approach or technique, location of the enlargement, and genetic factors. In the present case, the recurrence was seen twice, and as early as 1 month after the surgical excision. Simi lar recurrence of IGE was seen with a long follow-up of 9 years, which was successfully managed via gingivectomy and intrasulcular applic ation of 0.2% hyaluronic acid (Gengigel®).[10] Thus, maintaining gingival health through the surgical approach and thorough plaque control post-operatively, is essential to prevent the recurrence of IGE. Furthermore, long-term stability following ortho dontic treatment is necessary to ensure better outcomes and consolidate the gingival remodelling process, while also preventing the recurrence.

Conclusion

Idio pathic gingival enlargement is an abnormal enlarge ment of gingival tissues that lacks a clear underlying cause. This condition can cause both functional and aesthetic problems and may require periodontal treat ments such as gingivectomy or gingivo plasty.

Main taining good dental hygiene practices at home and regularly visiting a dental professional are crucial for effectively managing IGE.

Early diagnosis and intervention can help to prevent complications and improve outcomes for patients.

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Legend Figures

Figure 1: Pre-Operative Frontal View

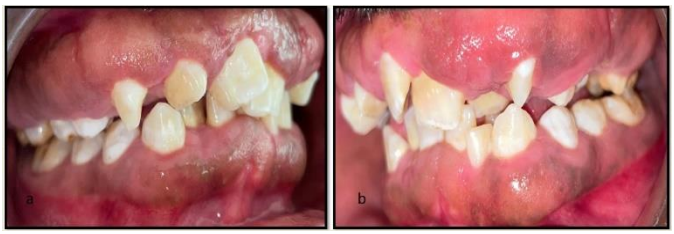

Figure 2: Pre-Operative Lateral Views; A – Left Lateral View; B – Right Lateral View.

Figure 3: Pre-Operative Occlusal Views; A – Maxillary; B – Mandibular.

Figure 4: Panoramic Radiograph Showing Multiple Impacted Teeth.

Figure 5: A – Gingivectomy Done From **13 To 16**; B – Excised Gingival Tissue.

Figure 6: 1-Month Post-Operative View

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