

Gingival Hyperplasia, Impact on Smile Aesthetics: Clinical Case Report.

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Abstract

Introduction: Gingival hyperplasia is common in patients with fixed orthodontic appliances who have poor oral hygiene. This gingival enlargement is characterized by slow, continuous and sometimes asymptomatic development. Clinically, gingival hyperplasia appears as an irregular and swollen contour, requiring a surgical approach to provide a regular contour to the gingival margin, restoring aesthetics and function to the periodontal tissue. The classification of hyperplasia's is defined according to the causal factor, in this case in question it is a hyperplasia caused by orthodontic trauma associated with poor hygiene.

Objective: The objective of this work is to report a clinical case of a patient with gingival hyperplasia, with aesthetic complaints and treated surgically by surgical excision.

Case report: Female patient, 22 years old, was using orthodontic braces and during clinical examination, gingival tissue increase and extension with the periodontal probe were found, in addition to the presence of biofilm on the brackets and gingival margin. Treatment of choice was genioplasty in which surgical excision of the swollen gums was performed, respecting the biological space of 3mm and without any complications. Postoperative recommendations were made and a satisfactory postoperative period was achieved, achieving the expected results.

Conclusion: In addition to surgery, the patient must maintain adequate oral hygiene to avoid recurrences of gingival hyperplasia.

Keywords: Gingival hyperplasia. Fixed orthodontic appliance. Dental biofilm.

1. Introduction

Gingival hyperplasia is a reaction of fibrous connective tissue, a benign lesion that can be caused by chronic trauma, tooth fracture, poor adaptation of prostheses, inadequate oral hygiene associated with the use of fixed orthodontic appliances, among others [1]. This volume of gingival tissue is a problem for periodontal health and aesthetics [2].

The use of orthodontic appliances contributes to the accumulation of biofilm and consequently triggers inflammatory proliferative processes in the gingival region [3, 4]. The oral cavity is a place that,

under hygienic conditions, presents a diversity of microorganisms that live in harmony with the host. However, when in unfavorable conditions it can generate an imbalance of this microbiota, generating a negative impact on gingival health [5].

According to Pedron and collaborators (2010), people with orthodontic appliances should be more careful with their oral hygiene, however, they have greater difficulty [6]. For Raszl-Henrique et al. (2018), this occurs due to the brackets that become niches for the accumulation of biofilm, and thus neglect of oral hygiene is a factor that contributes to the emergence of gingival hyperplasia [7].

Periodontal plastic surgeries reestablish the shape and function of altered periodontal tissue, improving the aesthetics of the smile. Gingivoplasty is the periodontal surgical technique used to create an adequate gingival contour, without bone involvement, establishing harmony in the smile [8]. Through this technique, it is possible to promote the remodeling, anatomy and physiological contour of the gingiva [9].

The objective of the present work is to report the clinical case of a female patient wearing a fixed orthodontic appliance who presented with gingival hyperplasia, reporting discomfort with excess gingiva in relation to her smile. The clinical characteristics, impact on the aesthetics of the patient's smile and choice of treatment plan to correct periodontal health and gingival aesthetics will be highlighted.

2. Case Report

A 22-year-old female patient attended the Ana Lúcia Chaves Fecury

Integrated School Clinic at CEUMA University, complaining of excessive gingival enlargement after using orthodontic braces. She reported discomfort regarding the aesthetics of her smile.

In the anamnesis, the patient reported being asthmatic and allergic to amoxicillin. After data collection, a clinical examination was carried out. During the clinical examination, a probe was carried out, with a millimetre probe, of all teeth and excess gingiva was found, ranging from 2 to 3 mm in depth between dental units 16 to 24 in the upper region and 33 to 43 in the lower region. The irregular contour was the main cause of dissatisfaction (Image 1, 2, 3 and 4). The treatment plan for the patient was then basic periodontal therapy and genioplasty of the upper and lower dental units, to be performed in two sessions. The patient was advised to remove the orthodontic appliance, by the specialist himself, and was informed about the possible recurrence of hyperplasia if she continued to use the appliance and neglect of oral hygiene.



Image 1: Initial appearance of the smile. Front view.
Source: personal collection.



Image 2: Intra aspect
Source: personal collection.



Image 3: Intraoral aspect. Left side view.
Source: personal collection



Image 4: Intraoral aspect. Right side view.
Source: personal collection.

Dexamethasone 4mg was administered as preoperative medication, 1 hour before the procedure, orally, in a single dose, as an anti-inflammatory agent. Afterwards, mouthwash was performed with 0.12% chlorhexidine digluconate and extra-oral antisepsis with 2% chlorhexidine. Use of topical anesthetic benzotop® 200mg/g (DFL, Rio de Janeiro/RJ, Brazil), anterior and middle superior alveolar nerve block with 2% lidocaine with epinephrine 1.100.00 (DFL®, Rio de Janeiro/RJ).

to diffuse, probing was performed with a millimeter probe (Golgram®, São Caetano do Sul/ SP, Brazil) and the bleeding point was demarcated, followed by an internal bevel incision with a scalpel blade. 15C (Solidor®, São Bernardo do Campo/SP, Brazil) and removal of the edematous tissue with a McCall curette (Golgram®, São Caetano do Sul/SP, Brazil) (Images 5, 6, 7 and 8). Soon after, the distance from the biological space was verified, through bone probing, indicating 3mm from the gingival margin to the bone crest. There was no need for osteotomy.

After the anesthetic technique and waiting for the anesthetic



Image 5: Front View. Immediate postoperative period of gingivoplasty of the upper teeth.
Source: personal collection.



Image 6: Left side view. Immediate post-operative period.
Source: personal collection



Image 7: Right side view. Immediate post-operative period.
Source: personal collection.



Image 8: Appearance of the smile in the immediate post-operative period.
Source: personal collection.

Post-operative medication of choice was Ibuprofen 600mg (Medley®, Suzano/SP, Brazil), 01 tablet every 8 hours for 03 days and mouthwash with 0.12% Chlorhexidine Digluconate (Periogard®– Colgate, São Bernardo do Campo/ SP, Brazil), 24 hours after surgery and 30 minutes after brushing, with the aim of reducing postoperative bacteremia, where effective oral hygiene becomes difficult and uncomfortable. In addition, post-operative guidance and guidance were given regarding the recurrence of hyperplasia if the device was not removed.

The Patient returned to the clinic for evaluation 7 days after surgery, in which she had removed the device with her orthodontist and reported satisfaction with the result obtained. It was clear that there was a reduction in swollen gums in the lower anterior teeth, a result after controlling bacterial plaque and removing the orthodontic appliance (Images 10, 11 and 12). It is worth noting that the patient was already at the end of orthodontic treatment and for this reason the device was removed.



Image 9: Appearance of the smile 7 days after surgery.
Source: personal collection.



Image 10: Frontal aspect of the smile 7 days after surgery.
Source: personal collection.



Image 11: Left lateral aspect of the smile 7 days after surgery.
Source: personal collection.



Image 12: Right lateral aspect of the smile 7 days after surgery.
Source: personal collection.

3. Discussion

In this case report, the surgical technique of gingivoplasty was performed to correct a gummy smile caused by orthodontic trauma associated with poor hygiene. Disordered gingival growth can be influenced by local and host factors, such as the use of orthodontic appliances and accumulation of biofilm on brackets, bands, elastics and other orthodontic accessories [10]. The brackets have a shape that facilitates the retention of biofilm, and when not cleaned correctly with the help of interdental brushes and threads, it becomes a bias for the stomatognathic device, as it facilitates the emergence of gingival inflammation [3, 10].

The main way to induce regression of gingival inflammation caused by orthodontic appliances is to eliminate the cause, with correct brushing, with the aid of an interdental brush and the use of dental floss with a threader, to control biofilm [10]. However, when there is no regression, gingivoplasty or gingivectomy is indicated, in which bone is removed during the operation [9].

Gingival excess can trigger adverse effects not only on aesthetics, but also on periodontal health, affecting masticatory function where the protective barrier against trauma decreases as a consequence, in addition to the formation of false periodontal pockets that serve

as a focus for the proliferation of bacteria [9]. Therefore, before the surgical procedure, it is essential that basic periodontal therapy is carried out in a session prior to the day of surgery [9].

The choice of treatment was based on the patient's history, as she reported that gingival growth appeared after using orthodontic braces. Thus, gingivoplasty consists of surgical excision through the demarcation of a marginal contour, modeling the gingiva and removing excess, promoting the appropriate anatomical contour of the interdental papillary and attached gingiva [11]. There was no need for osteotomy as the gingival enlargement was caused by orthodontic trauma, without bone involvement.

As explained, the patient is asthmatic, however, during the planning of the protocol, it was verified that there was no need for a large amount of anesthetic, so lidocaine with the vasoconstrictor epinephrine does not represent a risk for asthmatics. It is only necessary to control the patient's anxiety to avoid generating crises and possible complications during the procedure [12].

The drug choice was Ibuprofen 600mg, as it has anti-inflammatory and analgesic action. Drug therapy associated with mouthwashes with 0.12% chlorhexidine digluconate led to good healing, avoiding

infectious foci [5]. The postoperative period was satisfactory and there was quick and good healing, without any complications during surgery or after surgery.

4. Conclusion

The literature shows that patients with orthodontic appliances have a high chance of developing gingival hyperplasia. This situation can worsen when it is associated with poor hygiene. It is concluded that basic periodontal therapy, correct oral hygiene instructions and the surgical technique of genioplasty promote a good prognosis, aesthetics and periodontal function, bringing satisfaction to the patient.

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