

Inflammatory fibrous hyperplasia in pediatric dentistry due to deleterious habit: case report

Hiperplasia fibrosa inflamatória em odontopediatria causada por hábito deletério: relato de caso

Hiperplasia fibrosa inflamatoria en odontología pediátrica debido a hábito perjudicial: reporte de caso

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Abstract

This paper reports the clinical case of a pediatric dentistry patient, presenting a correlation between non-nutritive suction and inflammatory fibrous hyperplasia. A 10-year-old female patient attended the Pediatric Dentistry Clinic of the Araçatuba Dental School-Brazil (FOA/UNESP) with her mother, who reported a "little ball under the upper lip" of the daughter, observed three months before, with gradual increase. The clinical examination revealed poor positioning of tooth 21 and a fibrous hyperplasia at 2 cm from the upper region of the respective tooth. A presumptive diagnosis of inflammatory fibrous hyperplasia was established. The proposed treatment was lesion excision, fabrication of a Hawley appliance for repositioning of tooth 21 and counseling on the need to cease the deleterious digital sucking habit. We conclude that elimination of the traumatic agent is fundamental for therapeutic success, in addition to surgical removal.

Descriptors: Hyperplasia; Fingersucking; Habits.

Resumo

Este trabalho relata o caso clínico de uma paciente infantil, apresentando uma correlação entre sucção não-nutritiva e hiperplasia fibrosa inflamatória. Uma paciente de 10 anos de idade frequentou a Clínica Odontológica Pediátrica da Faculdade de Odontologia de Araçatuba-Brazil (FOA/UNESP) com sua mãe, que relatou uma "bolinha sob o lábio superior" da filha, observada há três meses, com aumento gradual. O exame clínico revelou mau posicionamento do dente 21 e hiperplasia fibrosa a 2 cm da região superior do respectivo dente. Foi estabelecido um diagnóstico presuntivo de hiperplasia fibrosa inflamatória. O tratamento proposto foi a excisão da lesão, a confecção de um aparelho Hawley para reposicionamento do dente 21 e o aconselhamento sobre a necessidade de cessar o hábito deletério da sucção digital. Concluímos que a eliminação do agente traumático é fundamental para o sucesso terapêutico, além da remoção cirúrgica.

Descritores: Hiperplasia; Sucção de Dedo; Hábitos.

Resumen

Este artículo informa el caso clínico de un paciente de odontología pediátrica, presentando una correlación entre la succión no nutritiva y la hiperplasia fibrosa inflamatoria. Una paciente de 10 años asistió a la Clínica de Odontología Pediátrica de la Escuela de Odontología Araçatuba-Brazil (FOA / UNESP) con su madre, quien informó de una "pequeña pelota debajo del labio superior" de la hija, observada tres meses antes, con incremento gradual. El examen clínico reveló un mal posicionamiento del diente 21 y una hiperplasia fibrosa a 2 cm de la región superior del diente respectivo. Se estableció un diagnóstico presuntivo de hiperplasia fibrosa inflamatoria. El tratamiento propuesto fue la escisión de la lesión, la fabricación de un aparato Hawley para el reposicionamiento del diente 21 y el asesoramiento sobre la necesidad de dejar el hábito de succión digital perjudicial. Concluimos que la eliminación del agente traumático es fundamental para el éxito terapéutico, además de la extirpación quirúrgica.

Descritores: Hiperplasia; Succión del Dedo; Hábitos.

INTRODUCTION

Hyperplasia is defined as a proliferative response of the oral mucosa to trauma, with excessive formation of epithelium and fibrous connective tissue, which protrudes as a pedunculated or sessile lesion into the buccal cavity. Depending on the microscopic characteristics it can be classified as inflammatory and/or ulcerated. These lesions are classified according to the tissue that forms them, and may be predominantly granulomatous (pyogenic granuloma), fibrous (IFH), or classified as other hyperplastic lesions (drug-induced gingival hyperplasia)¹. Inflammatory lesions constitute approximately 66% of all oral cavity lesions, mostly attributed to poor oral hygiene. These lesions are not gender-related; however, it is believed that the females are the most likely to present this lesion, at a ratio of 5:1, which can be attributed to the fact that women use prostheses or orthodontic appliances more often, probably for aesthetic reasons². In adults, it is mainly associated with the use of poor-fitting prostheses, while in children and adolescents it is more associated with the presence of biofilm³. Histopathological examination is the most important for establishing a definitive diagnosis, since IFH

requires differential diagnosis with other diseases. This not only provides a definitive diagnosis, but also information on clinical behavior, prognosis and determination of the need for additional treatment or follow-up⁴, and allows the clinician to provide evidence-based medical/dental care, increasing the probability of a positive outcome. The most appropriate therapy for the treatment of IFH is the surgical removal of the lesion (excision)⁵.

The development of the craniofacial complex results from the interaction between genetic and environmental factors. The sucking behaviors are recognized as etiological factors that can cause changes in the normality pattern, thus affecting the dental arch characteristics and occlusion⁶. The extent of damage caused by a deleterious habit on the stomatognathic system depends, among others, on the variables frequency, duration and intensity⁷, and can be classified as non-compulsive when they are easily acquired and abandoned; or compulsive, when they are fixed to the child's personality, constituting a rescue when the child feels threatened^{8,9}. Thus, deleterious habits such as non-nutritive sucking may have important consequences on the morphology of

the hard palate, tongue movement, changes in dental positioning, among others, with a higher risk of developing an open bite and oral motor disorders¹⁰. Concerning the therapy, psychological approach and the use of some devices can aid in abandonment of the habit^{11,12}.

CLINICAL CASE

A 10-year-old female patient attended the Pediatric Dentistry Clinic of São Paulo State University (UNESP), School of Dentistry, Araçatuba accompanied by her mother, who reported a 3-month "little ball under her upper lip" with a gradual increase. During anamnesis the mother reported that the child had a non-nutritive sucking habit of the right thumb for 4 years. The clinical examination revealed anterior open bite, poor positioning of tooth 21, which was in direct contact with the upper labial mucosa (Figure 1), and a painless, non-bleeding, sessile, hyperplastic lesion with approximately 2 cm in its larger diameter, in the upper region of the respective tooth (Figure 1).



Figure 1: Poor positioning of tooth 21, which was in direct contact with the upper labial mucosa and a painless, non-bleeding,

A presumptive diagnosis of inflammatory fibrous hyperplasia was established. The treatment plan included surgical excision followed by removal of the deleterious habit. After preoperative care, topical anesthesia was applied with Benzotop (Nova, DFL[®]) for 3 minutes and supplemented with infiltrative terminal anesthesia (3% prilocaine, Cristália[®]) at approximately 2 cm from the lesion, with care to avoid masking the lesion, which would complicate the surgical procedure. The lesion incision and excision of was carefully performed with a scalpel blade number 15 (Figure 2). The definitive diagnosis of the lesion was Inflammatory Fibrous Hyperplasia (IFH), since the histopathological analysis revealed parakeratinized stratified squamous epithelium with areas of acanthosis, atrophy and discrete mononuclear inflammatory infiltrate corresponding to the typical IFH microscopy. In addition to surgical removal (excision) of the lesion, it was proposed to fabricate a Hawley appliance for

repositioning of tooth 21 (Figure 3) and counseling on the need to remove the deleterious digital suction habit. After 40 days, there was a good repositioning of the tooth 21 (Figure 4).



Figure 2: Clinical aspect after removal of the lesion.



Figure 3: Installation of the Hawley appliance for repositioning of tooth 21.



Figure 4: Clinical aspect of tooth 21 repositioning after 40 days of installation of the Hawley appliance.

DISCUSSION

IFH is defined as a proliferative response of the oral mucosa to trauma, with excessive formation of epithelium and fibrous connective tissue, which protrudes as a pedunculated or sessile lesion into the oral cavity⁵. The clinical characteristics presented in the respective clinical case are compatible with IFH, as described in the literature. It is possible to observe

lesions with an exophytic aspect, well-delineated, similar to the adjacent mucosa, pedunculated, asymptomatic, with slow growth and without bone involvement^{5,13}.

Inflammatory lesions constitute approximately 66% of all oral cavity lesions¹. These lesions do not show gender predilection; however, it is believed that the females are more prone to this lesion at a ratio of 5: 1. There is consensus in the literature that the pathogenesis of IFH has close relationship with chronic trauma of low intensity, the most common being the use of dental prosthetic devices with unsatisfactory fitting⁵. In the present clinical case there was no apparent etiology, since the patient did not use prosthetic devices; however, it was observed that the deleterious habit of non-nutritive suction contributed to displacement of tooth 21, which culminated in a constant trauma at the mucosal region of the upper lip, as evidenced. The scientific literature shows that sucking habits cease between 3 and 4 years old, and not usually lead to establishment of a malocclusion. However, when there is persistence, especially during the eruption period of permanent incisors, the occlusion may become impaired. In this case, it was observed that the continuous habit contributed to the occurrence of malocclusion.

Warren¹⁴ further states that the parents/caregivers should ideally be instructed to aid the abandonment of the deleterious habit until 2 years of age. Also, in his study, he observed that thumb sucking is particularly difficult to be left out, emphasizing the importance that it does not even begin. Surgical therapy recommended in the literature for cases of IFH is an excisional biopsy, where the lesion is completely removed, with a safety margin^{15,16}, followed by removal of local factors. Therefore, in the present case, this procedure was adopted, followed by histopathological analysis for definitive diagnosis.

The histopathological findings are consistent with most bibliographic findings, which report a stratified squamous epithelium often hyperplastic and keratinized, which can display inflammatory changes such as exocytosis, acanthosis and proliferation of epithelial cones¹⁷. This case also exhibited parakeratinized stratified squamous epithelium with areas of acanthosis and atrophy. Conversely, the lamina propria was made by a prominent dense connective tissue, rich in cells and blood vessels, featuring discrete mononuclear inflammatory infiltrate near the epithelial and perivascular region, presenting IFH as definitive diagnosis. Several authors consider the prognosis to be excellent after lesion removal - which is in agreement with the patient follow-up - as long as the etiological agent is removed, and guidelines are clearly transmitted to the patient/caregivers/parents¹⁸.

The psychological approach and the use of some devices can also aid in quitting. In the present case, there was no need to use appliances such as a palatal crib, which is used to discourage the habit or impede the suction¹⁴. However, the Hawley appliance was placed in an attempt to reposition tooth 21, showing good results after 40 days.

Inflammatory fibrous hyperplasia usually affects users of poor-fitting dentures. However, other agents may trigger such condition, as shown in this clinical case. Therefore, the pediatric dentist should be aware of the particularities of each case to establish a correct diagnosis and appropriate treatment, in order to restore the patient's oral health. Whenever possible, in addition to surgical removal, it is necessary to eliminate the traumatic agent.

CONCLUSION

We conclude that elimination of the traumatic agent is fundamental for therapeutic success, in addition to surgical removal.

REFERENCES

1. Espinoza-Zapata M, Loza-Hernández G, Mondragón-Ballesteros R. Prevalence of buccal mucosa lesions in pediatric patients. Preliminary report. *Cir Cir.* 2006; 74(3):153-57.
2. Cawson R, Eveson J. Oral pathology and diagnosis: Color atlas with integrated text. Philadelphia, USA: Saunders, 1995;1-128.
3. Rodriguez AF, Sacaquispe SJ. Hyperplasia Fibrosa Inflatória y posibles factores asociados em adultos mayores. *Rev Estomatol Heridiana.* 2005;15(2):139-44.
4. American Academy of Pediatric Dentistry. Management considerations for pediatric oral surgery and oral pathology. *Pediatr Dent* 2018;40(6):373-82.
5. Neville B, Damm DD, Allen C, Chi A. Oral and Maxillofacial Pathology, 4th ed. Elsevier; 2016.
6. Góis EG, Ribeiro HC, Vale MP, Paiva SM, Serra-Negra JMC, Ramos-Jorge ML et al. Influence of nonnutritive sucking habits, breathing pattern and adenoid size on the development of malocclusion. *Angle Orthod.* 2008;78(4):647-54.
7. Scarpelli BB, Berger SB, Punhagui MF, Oliveira CAZ, Ferelle A, Oltramari-Navarro PVP. Evaluation of a preventive educational program for malocclusions: 7-year study. *Braz oral res.* 2016;30(1):e119.
8. Cavalvanti AL, Bezerra PKM, Moura C, Bezerra PM, Granville-Gracia AF. Relationship between malocclusion and deleterious oral habits in preschool children in Campina Grande, PB, Brazil. *Stom Glass S.* 2008;55:154-62.
9. Montaldo L, Montaldo P, Cuccaro P, Caramico N, Minervini G. Effects of feeding on non-nutritive sucking habits and implications on occlusion in mixed dentition. *Int J Paediatr Dent.* 2011;21(1):68-73.

10. Vasconcelos FMN, Massoni ACLT, Heimer MV, Ferreira AMB, Katz CRT, Rosenblatt A. Non-nutritive sucking habits, anterior open bite and associated factors in Brazilian children aged 30-59 months. *Braz Dent J.* 2011;22(2):140-45.
11. Suhani RD, Suhani MF, Muntean A, Mesaros M, Badea ME. Deleterious oral habits in children with hearing impairment. *Clujul Med.* 2015;88(3):403-7.
12. Bueno SB, Bittar TO, Vazquez FL, Meneghim MC, Pereira AC. Association of breastfeeding, pacifier use, breathing pattern and malocclusions in preschoolers. *Dental Press J Orthod.* 2013;18(1):30e1-6.
13. Gheno JN, Martins MAT, Munerato MC, Hugo FN, Sant'ana Filho M, Weissheimer C et al. Oral mucosal lesions and their association with sociodemographic, behavioral, and health status factors. *Braz oral res.* 2015;29(1):00289.
14. Warren JJ, Bishara SE, Steinbock KL, Yonezu T, Nowak AJ. Effects of oral habit's duration on dental characteristics in the primary dentition. *J Am Dent Assoc.* 2001;132(12):1685-93.
15. Barros RMG, Campos KSM, Cabral LM. Relato de caso clínico de hiperplasia fibrosa inflamatória. *Rev Odontol Araçatuba.* 2014;35(2):15-18.
16. Dutra KL, Longo L, Grandó LJ, Riveiro ERC. Incidence of reactive hyperplastic lesions in the oral cavity: a 10 years' retrospective study in Santa Catarina, Brazil. *Braz J Otorhinolaryngol* 2019; *Braz j otorhinolaryngol.* 2019;85(4):399-407.
17. Palacios-Sánchez B, Cerero-Lapiedra R, Campo-Trapero J, Esparza-Gómez GC. Alteraciones gingivales no relacionadas con placa. *RCOE.* 2006;11(1):43-55.
18. Coelho CM, Sousa YT, Daré AM. Denture-related oral mucosal lesions in a Brazilian school of dentistry. *J Oral Rehabil.* 2004;31(2):135-39.

CONFLICTS OF INTERESTS

The authors declare no conflicts of interests.

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