

**Orthodontic and restorative treatment in cleft lip without bone graft –
case report****Tratamento ortodôntico e restaurador em paciente com fissura labial
sem enxerto ósseo – relato de**

DOI:10.34119/bjhrv2n6-029

Recebimento dos originais: 10/10/2019

Aceitação para publicação: 18/11/2019

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ABSTRACT

Introduction: Cleft lips and palates are among the most common congenital orofacial anomalies of the head and neck. Treatment of orofacial clefts is challenging, prolonged and delivered by multidisciplinary teams. The patient is typically treated from birth until adulthood. Dentist performance is indispensable for the treatment. This pathology affects several speech, swallowing and dentition implications. Case Report: Patient M.A.D. with complete right unilateral incisive pre-foramen cleft sought dental care. During clinical and radiographic examination, a good facial profile, passive lip sealing, Angle class I malocclusion and absence of the lateral incisor on the same side of the cleft were observed, but there was the presence of the pre-canine. The treatment without bone graft was planned through dental compensation with interceptive and corrective orthodontics and aesthetic reanatomization of the canine. After orthodontic treatment, there was a 3.24 mm diastema between the canine and distal pre-canine mesial. To maintain the proportionality between the teeth, composite resin veneers were made in the upper anterior teeth with increased incisal third. Conclusion: The dental compensation through orthodontics and the confection of the direct veneers in composite resin by operative dentistry were essential in order to obtain the final result extremely satisfactory through conservative treatments.

Keywords: Cleft Lip; Operative Dentistry; Corrective Orthodontics; Interceptive Orthodontics.

RESUMO

Introdução: Fendas de lábio e palato estão entre as anomalias mais comuns da cabeça e pescoço. O tratamento das fendas orofaciais é desafiador, prolongado e demanda uma equipe multidisciplinar. O tratamento do paciente inicia desde o nascimento até a vida adulta. A atuação do cirurgião-dentista é indispensável para o tratamento. Esta patologia provoca alterações na fala, deglutição e dentição. Relato de Caso: Paciente M.A.D. com fissura pré-forame incisivo unilateral direita completa procurou atendimento odontológico. Durante exame clínico e radiográfico, observou-se bom perfil facial, selamento labial passivo, maloclusão classe I de Angle e ausência do incisivo lateral do mesmo lado da fissura, porém havia a presença do pré-canino. Planejou-se o tratamento sem enxerto ósseo, por meio da compensação dentária com ortodontia interceptativa e corretiva, e reanatomização estética do pré-canino. Após o tratamento ortodôntico, havia diastema de 3,24 mm entre a mesial do canino e a distal do pré-canino. Para manter a proporcionalidade entre os dentes confeccionou-se facetas em resina composta nos dentes anteriores superiores com aumento do terço incisal. Conclusão: A compensação dentária através da Ortodontia e a confecção das facetas em resina composta por meio da Dentística foram essenciais para se obter um resultado final muito satisfatório através de tratamentos conservadores.

Palavras-chave: Fenda Labial; Dentística Operatória; Ortodontia Corretiva; Ortodontia Interceptora.

1 INTRODUCTION

Cleft lips and palates are among the most common congenital orofacial anomalies of the head and neck. These clefts occur when the lip or palate fail to fuse during their prenatal development in the first trimester^{1,2}. The global prevalence of these clefts is about 1 per 500 to 700 of live births^{2,3}. Although unique causal factors remain unknown, it is currently widely accepted that clefts are of multifactorial etiology, with genetic predisposition and environmental influence playing a role⁴; and this condition may appear isolated or associated to some syndrome^{5,6}.

Orofacial clefts trigger a series of anatomical, functional and esthetic implications that affects impairing speech, swallowing, dentition, and may involve the development psychosocial of the patient⁷. Dental alterations occur frequently, like that, abnormalities of the size and shape of the tooth, pre-canine tooth, agenesis of the lateral incisor, hypodontia, enamel defects, and late eruption^{8,9}.

Treatment of orofacial clefts is challenging, prolonged and delivered by multidisciplinary teams. The deft patient is typically treated from birth until adulthood². Dentist performance is indispensable for the treatment, mainly in orthodontics, surgery, restorative dentistry and pediatric dentistry.

The orthodontist accompanies patient's craniofacial development and corrects the malocclusion that is often more complex in these patients. In some cases, the dental movement becomes difficult due to the bone defect in clefts lips and palates.

Alveolar bone graft is associated with numerous orthodontic treatments¹⁰, but the surgery has a high cost and comprises one more surgical step for the patient. Thus, when there is a possibility of solving the treatment without alveolar bone graft, it is preferred by patients. In these cases, it is often necessary to work together orthodontics and restorative dentistry for the close of treatment as the esthetic dental, shaping and the closure gaps between teeth.

Therefore, this case report describes the treatment of a patient with cleft lip performed without alveolar bone graft, involving orthodontic and restorative aesthetic treatments.

2 CASE REPORT

Patient M.A.D., female, 10 years old, leukoderma, presenting pre-foramen cleft lip complete right unilateral incisor, required dental care for orthodontic treatment.

During clinical examination, it was observed a good facial profile, passive lip sealing and small asymmetry of the nose wing (Figure 1). In accordance with the Angle classification, her malocclusion was classified in class I with the incisors on top. The patient was in the first transitional period of mixed dentition, with the shape of the upper arch has already corrected through speedy expansion of the maxilla with circuit breaker Hyrax and in contention with transpalatine bar (Figure 2).



Figure 1: Initial assessment of the patient



Figure 2: Speedy expansion of the maxilla - Hyrax and transpalatine bar.

Radiographic exams (panoramic, periapical radiographs of the fissure, and profile) (Figure 3) and computed tomography (Figure 4) were requested for that could be assessed the size of the fissure and the establishment of treatment plan. It was confirmed absence of right upper lateral incisor and presence of pre-canine tooth in this area. In the chest profile has been observed good relationship sagittal bone bases (maxilla and mandible) and a rack back of upper incisors, common in fissure patients due to the scar of the cheiloplasty, thus resulting in top bite of anterior teeth. In computed tomography, it was possible to calculate the width of the fissure, the height and its relationship with the apex of the pre-canine, as well as the distance (3.24 mm) between pre-canine (PC) tooth and upper right central incisor (11).



Figure 3: Radiographic exams

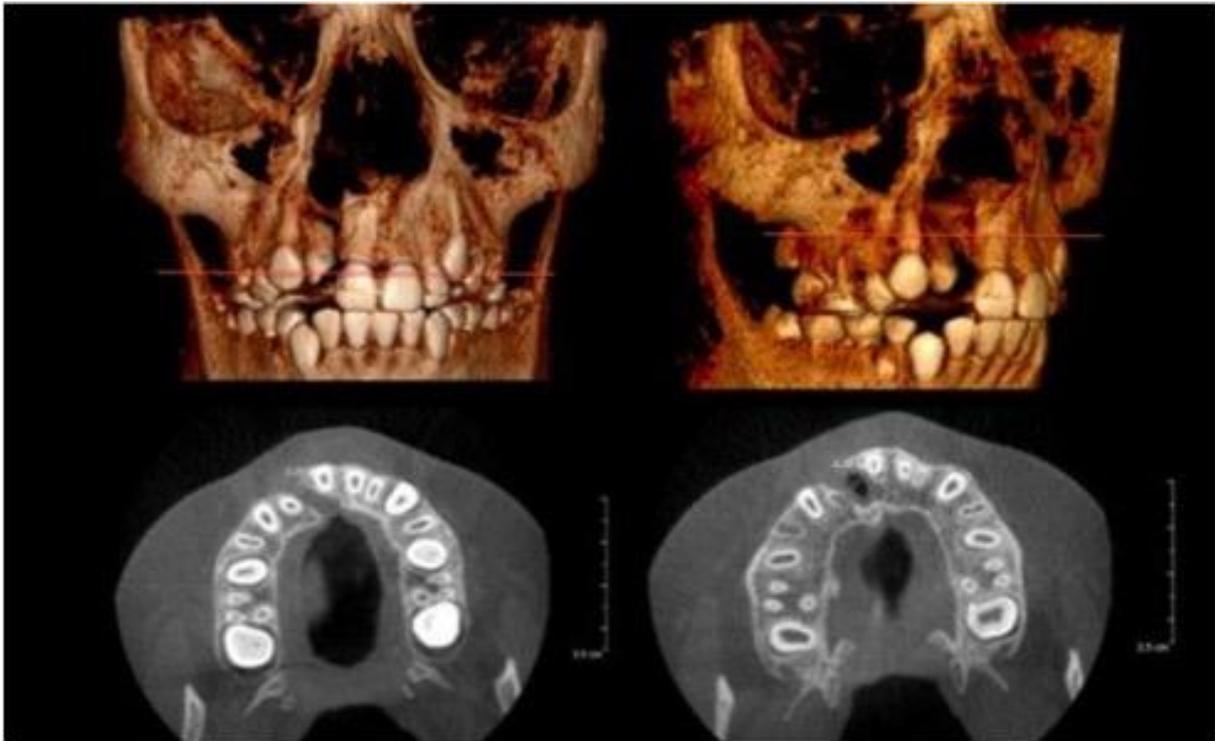


Figure 4: Computed tomography

Considering that the distance between PC and 11 teeth was small, the established treatment strategy was to perform orthodontic treatment without surgery for alveolar bone grafting, associated with restorative dentistry for dental compensation and PC re-anatomization.

It was initially installed a bar transpalatine with spring that would guide the upper incisors to vestibular, correcting top bite of anterior teeth. In addition, installed orthodontic brackets in permanent teeth to align and flatten them. The patient also necessitated a lingual arch due to early mandibular tooth loss (Figure 5).

The orthodontic treatment for the PC tooth was based on the inclination of its root to distal (distant from the cleft) and crown to mesial, getting in touch with the central incisor and taking the space for distal (Figure 6). At the end of the orthodontic treatment, it was possible to observe the correct way of dental arch, middle line coincident, ideal occlusion (key molar and canine guide correct) (Figure 7) and diastema teeth of 3.24 mm. Then, it was removed all the orthodontic appliance and added composite resin between PC and canine to space containment until restorations tooth, avoiding a possible movement (Figure 6).



Figure 5: Lingual arch for space maintenance.

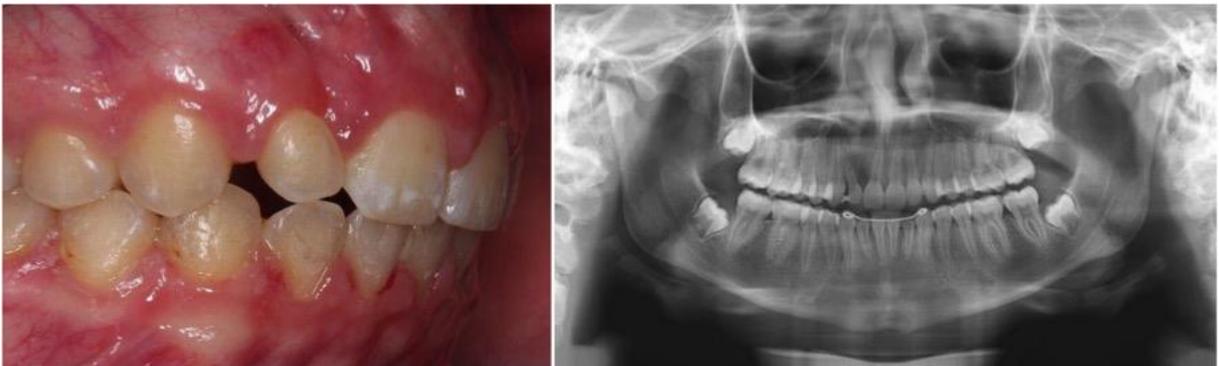


Figure 6: Taking the space for distal PC.



Figure 7: Orthodontic finishing - dental arch, middle line coincident, ideal occlusion with key molar and canine guide correct.

For restorative dentistry was planned diastema closure between PC and canine by PC re-anatomization to lateral incisor form and mesial restoration to canine with composite resin. Nonetheless, that it would be possible to obtain an acceptable proportionality among the teeth was necessary the manufacture of direct composite resin veneers to 13-23 teeth.

There was an indication for increased clinical crown by periodontal surgery, however the patient did not accept this option. So, the surgery was not possible. Thus, during the planning for the confection of the veneers became essential to the increase the incisal teeth, in addition to the elaboration of a convexity of the cervical spine to the incisal, producing a natural effect in these teeth.

The restorative treatment consisted in dental office Bleaching, waxing diagnosis, mock-up with resin bisacrilic, pre-canine reanatomization (Figure 8) and direct composite resin veneers using silicon palatal barrier (Figure 9).

After orthodontic and restorative treatments observed a harmonious smile and an ideal occlusion. The follow-up was made after 6 months (Figure 10).



Figure 8: Pre-canine reanatomization with composite resin.



Figure 9: Composite resin veneers 13-23.



Figure 10: Follow-up 6 months.

3 DISCUSSION

Oral clefts rehabilitative treatment starts immediately after birth with primary surgeries generally being performed up to the age of 12 months¹¹. Although primary surgeries correct aesthetics and function, they can have deleterious effects on maxillary growth¹²⁻¹⁴, in this case was observed rack back of upper incisors, due to the scar of the cheiloplasty, resulting in top bite of anterior teeth.

The presence of dental abnormalities in number and shape are frequently observed in the region of the lateral incisor fissured patients and agenesis is one of the most prevalent findings in these patients^{8,9}. When the cleft is small size, affecting only lip and harelip, the occurrence of pre-canine tooth is common. The pre-canine tooth is so named when it is in place of the upper lateral incisor and is located in the distal alveolar cleft.

The maintenance of the PC tooth allows the preservation of alveolar bone present in the region next to the defect. In the case reported, the monitoring and conservation of the PC tooth during the mixed dentition of the patient, even if they considered poorly positioned teeth, made an orthodontic treatment with better perspective.

The orthodontic treatment of the fissure patient is usually carried out in two phases, the first starts in the mixed dentition with appliances interceptive, also known as pre-bone graft. The second phase, when this is indicated, it starts with the complete

permanent dentition, known as the post-enucleation phase. The post-enucleation phase is determined by the alignment and leveling of the teeth, these protocols of preoperative and postoperative phases bone graft, seeks to determine a pattern of first choice in the treatment of these patients¹⁵.

However the bone graft surgery in patients with cleft lip and palate may have postoperative complications. Alonso et al. (2010)¹⁶ observed that in 10 patients with age between 8 and 14 years, two of the cases studied showed clinical implications, since bone exposure of the grafted area, graft loss, until the infection of the graft donor area. In the case report, the success was obtained without the need of surgery to graft, sparing the patient more a surgical process. In spite of the surgical rehabilitation with alveolar bone graft is the first and only therapeutic option in cases in which the patient has bone defect in the region of the maxilla, depending on the extent of the fissure, this can be masked with Orthodontics and Restorative Dentistry treatments like this case.

Rodrigue et al. (2014)¹⁷ admit that in some specific cases the orthodontics repositions the teeth correctly, but not always the aesthetics is matched, due to dental individualities as color, shape and size, so anatomical corrections and closures of spaces need to be restored by restorative dentistry.

Though ceramic materials have satisfactory results and color stability excellent¹⁸, composite resins have advantages and favorable characteristics at the closing of the diastema, like as adhesive material and promotes conservation of dental tissue, besides lower cost when compared to ceramic materials¹⁹. Considering the young patient in this case, it was decided to use composite resins.

Lamenha et al. 2007²⁰ explain that the closing of the diastema with composite resin is feasible when your extension varies from 0.5 to 3 mm, otherwise, the patient should be treated orthodontic. In this case report, the patient had a diastema of 3,24mm, however, the same had already completed the orthodontic treatment and by referring to a patient fissured treated without bone graft, it was necessary to balance the closure of dental diastema according to favorable relationship between height and width of the dental crown. For this, the waxing diagnosis is essential in treatment planning and confection of the mock-up to predict outcome^{21,22}.

It is not uncommon either in literature, as well as in day-to-day practice, cases in which patients with complete clefts were treated without surgery for alveolar bone graft. The present case report is highlighted by treating a patient with cleft pre-foramen unilateral incisor full right, in which her treatment was obtained through Orthodontics

and Restorative Dentistry, presenting satisfactory results and exempting the surgical phase for alveolar bone graft, having been considered a conservative alternative to resolution of the case.

4 CONCLUSIONS

The aesthetic and functional impairments affect fissured patients and interfere directly in its development of an occlusal registration, because the presence of the bone defect in the region of the maxilla may favor the agenesis of maxillary lateral incisor and the onset of pre-canine tooth. The conservation of this tooth resulted in a greater chance of success to the case, masking the alveolar bone defect without the need of bone graft.

The dental compensation through orthodontics and the confection of the direct veneers in composite resin by operative dentistry were essential in order to obtain the final result extremely satisfactory through conservative treatments.

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