CASE REPORT

Esthetic rehabilitation with composite resin in a patient with lateral incisor agenesis

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Abstract

Dental agenesis affects much of the population. Among treatment options, the reanatomization with composite resin can be a good option. This study aimed to report a case where multidisciplinary treatment was performed, and canines were transformed into incisors and premolars were transformed into canines using composite resin. At the end of treatment, a satisfactory result could be observed.

Keywords
Agenesis, Composite Resins, Anodontia

Introduction

Dental agenesis, defined as the absence of one or more teeth in the dental arch, is considered a common abnormality in the population. This anomaly causes esthetic and functional complications to the affected patient, as well as malocclusion and impairment of chewing ability.[1]

Other terms may be used for classification of this anomaly, according to the number of missing teeth, as follows: Hypodontia and agenesis for the absence of one to six teeth (excluding third molars); oligodontia for more than six teeth; and anodontia that characterizes a complete lack of teeth.[2]

The cause of this anomaly is still controversial; however, studies indicate that it is multifactorial. These factors can be hereditary, congenital, associated with syndromes (Down, Rieger, Book, cleft lip/palate/lip and palate, among others) and environmental (e.g. radiation). Studies also indicate that patients suffering from dental agenesis have predisposition to other anomalies, such as enamel hypoplasia; changes in the shape and size of upper lateral incisors; impaction of canines; abnormal shortening of the teeth roots; rotations of premolars.[3]

Diagnosis is usually clinical and radiographic, being more accurate in panoramic radiographs. When diagnosed early, we can have a good planning and a favorable outcome of the case.[4]

Regarding the prevalence of this anomaly, studies show that there is no significant prevalence of gender, but it is observed that the anomaly affects more permanent teeth. The most affected tooth is the third molar, followed by the second premolar, and thirdly the upper lateral incisors. In permanent teeth, cases involving first molars, upper central incisors and canines are rare. In the case of involvement of the upper lateral incisors, it is common to move canines mesially with orthodontic treatment for further transformation into lateral incisors, and so transform...
the first premolars in canines. In such cases, it is often indicated to not to close all diastemas by orthodontic treatment for esthetic harmony reasons. Hence, spaces are kept for later work on the esthetic restoration.\cite{5}

Treatment in most cases is multidisciplinary, involving specialties such as orthodontics, dentistry, implant or prosthetic rehabilitation.\cite{6} As we complete the orthodontic step, we must choose between two lines of treatment: Closing the existing spaces, leaving only the spaces of missing teeth for later implant placement or distribute the spaces and then rehabilitate them with direct or indirect restoration. This choice should be an agreement between patient and professional, but the professional is responsible for advice and guidance. Among available techniques and restorative materials, the most common is to opt for direct restorations in composite resins, as the cost of treatment is more accessible.\cite{7}

Therefore, this paper aimed to report a case of esthetic restoration with composite resin in patients with lateral incisor agenesis.

**Case Report**

Male patient, 22-year-old, attended the dental clinic reporting dissatisfaction with the smile. Clinical examination, radiography, intraoral photographs, and extra-oral and molding for making study models and diagnostic wax-up were made. It was observed that the patient presented agenesis of upper lateral incisors, gummy smile, and yellow teeth [Figure 1]. Through the virtual planning along with analysis of the study model, the chosen treatment was the realization of clinical crown lengthening, followed by the completion of tooth whitening and later reanatomization of the central incisors, the transformation of canines in lateral incisors and transformation of premolars in canines. After healing the clinical crown lengthening procedure [Figure 2], it was performed the wax-up through Mock-up in bis-acrylic resin (3M ESPE). With Mock-up positioned, the preparation was carried out with spherical diamond bur 1014 (KG Sorensen) in the cervical region and diamond bur 2135 (KG Sorensen) on the labial face in order to remove all composite resin from previous restorative procedures [Figure 3]. With the diagnostic wax in hand, he was made one cleft guide with added silicone, and this was placed in the arch of the patient to check their adaptation [Figure 4]. The acid etching with 37% phosphoric acid (Ultradent) was performed for 30 s and then washed with water for the same period. The adhesive (Single Bond - 3M ESPE) was applied on the tooth surface and after mild air stream to evaporate
the solvent, and then each tooth was photopolymerized for 20 s [Figure 5]. The first layer of composite resin (A1E - 3M) was inserted into the putty guide in order to restore the entire palate and incisor side of the evaluated teeth. After the first layer was photopolymerized, the guide was removed and the second layer of composite resin was inserted (A1D - 3M) restoring the dentin [Figure 6]. Finally, the composite resin was used (A1E - 3M) to restore all the vestibular enamel, and it was possible to restore the harmony of the anterior teeth. The finishing procedures were done with the sequence of discs (Soflex pop-on - 3M) from the coarse to the finer grain, and after 24 h polishing was done with felt disc and diamond paste (enamelize). Thus, it was possible to reach a satisfactory result [Figure 7].

**Discussion**

Dental agenesis is considered a common anomaly among the population. There is still controversy regarding prevalence by gender. It is also found differences in the prevalence of affected teeth, but there is agreement that the most affected tooth is the third molar.

The restorative treatment of patients with dental agenesis in most cases is multidisciplinary, as the spaces should be distributed in the best way so that they can have a better ratio of size and tooth width.

When the chosen treatment is the insertion of bone integrable implants, the first step is the orthodontic correction in order to open areas where they will be inserted, followed by the surgical procedure to insert the implants and subsequently, the manufacture of the prosthesis on implants.

Due to high costs to perform implants, many patients opt for treatment with composite resin, such as in this work, which was initially performed orthodontic treatment to close the spaces, and later the reanatomization with composite resin, with the transformation of canines in lateral incisors and premolars in canines.

**Conclusion**

Based on the reported case, it can be concluded that the treatment of patients with lateral incisors agenesis can be performed with composite resin based on multidisciplinary planning. It is a cost-effective option with a satisfactory result.

**References**