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Alternative aesthetic treatment of dental agenesis: a case report

Tratamento estético alternativo para agenesia dentária: relato de caso

Tratamiento estético alternativo para la agenesia dental: aporte de un caso

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Abstract
Objective: To restore the self-esteem of an adolescent patient with dental agenesis through an alternative conservative aesthetic treatment. Methodology: A case report. Demarcation of the gingival plasty area and determination of bleeding points for gingivoplasty with a periodontal probe, incision using the internal bevel technique with a 15c scalpel blade and Kirkland's gingivotome. Composite resin increment technique by conditioning the enamel with 37% phosphoric acid for 30 seconds, washing with water for 1 minute and drying with absorbent paper. Application of the Adhesive System Adapter Single Bond 2 and light curing for 20 seconds. Soon after, with the aid of a Uvenner matrix, the resin Z350xt filtek supreme color B1 enamel was used for a thin veneer, photoactivated 3 times for 20 seconds. Interproximal excesses were removed with sandpaper. Results: The treatment, based on a gingivoplasty and reanatomization in composite resin, restored the patient's smile and self-esteem directly and quickly. Conclusion: A multidisciplinary planning based on the principles of conservative restorative dentistry is capable of restoring the aesthetic patterns of the smile, thus restoring the patient's self-esteem and social well-being.
Keywords: Health teaching; Tooth agenesis; Esthetics.

Resumo
Objetivo: Restaurar a autoestima de uma paciente adolescente com agenesia dentária através de um tratamento estético conservador alternativo. Metodologia: Relato de caso. Demarcação da área da plastia gengival e determinação dos pontos de sangramento para gengivoplastia com sonda periodontal, incisão pela técnica de bisel interno com lâmina de bisturi 15c e gengivótomo de Kirkland. Técnica de incremento de resina composta condicionando o esmalte com ácido fosfórico 37% por 30 segundos, lavando com água por 1 minuto e secando com papel absorvente. Aplicação do Adhesive System Adapter Single Bond 2 e fotopolimerização por 20 segundos. Logo após, com o auxílio de uma matriz de Uvenner, foi utilizado o esmalte resina Z350xt filtek Supreme Color B1 para uma faceta fina, fotoativada 3 vezes por 20 segundos. Os excessos interproximais foram removidos com lixa. Resultados: O tratamento, baseado em gengivoplastia e reanatomização em resina composta, restaurou o sorriso e a autoestima da paciente de forma direta e rápida. Conclusão: Um planejamento multidisciplinar baseado nos princípios da odontologia restauradora conservadora é capaz de restaurar os padrões estéticos do sorriso, restaurando assim a autoestima e o bem-estar social do paciente.
Palavras-chave: Ensino em saúde; Agenesia dentária; Estética.

Resumen
Objetivo: Recuperar la autoestima de un paciente adolescente con agenesia dental a través de una alternativa de tratamiento estético conservador. Metodología: Reporte de caso. Demarcación del área de plastia gingival y determinación de puntos de sangrado para gingivoplastia con sonda periodontal, incisión utilizando la técnica de bisel interno con hoja de bisturí 15c y tomo gingival Kirkland. Técnica de incremento de resina compuesta acondicionando el esmalte con ácido fosfórico al 37% durante 30 segundos, lavando con agua durante 1 minuto y secando con papel absorbente. Aplicación del Sistema Adhesivo Adaptador Single Bond 2 y fotopolimerización durante 20 segundos. Poco después, con la ayuda de una matriz Uvenner, se utilizó el esmalte de resina Z350xt filtek Supreme Color B1 para una carilla delgada, fotopolimerizando 3 veces durante 20 segundos. Los excesos interproximales se eliminaron con lija. Resultados: El tratamiento, a base de gingivoplastía y reanatomización con resina compuesta, restableció la sonrisa y la autoestima del paciente de manera directa y rápida. Conclusión: Una planificación multidisciplinar basada en los principios de la odontología restauradora conservadora es capaz de restaurar los patrones estéticos de la sonrisa, recuperando así la autoestima y el bienestar social del paciente.
Palabras clave: Enseñanza en salud; Agenesia dental; Estética.

1. Introduction

Currently, society is permeated by an incessant search for aesthetic standards, with increasing relevance of the beauty industry, influencing and controlling its concepts. The advancement of materials and techniques in aesthetic dentistry, the search for a more harmonious smile, became a reference for oral health (Pinto et al., 2013).

It is known that agenesis is an anomaly in dental development, causing aesthetic and functional problems, determined by the non-formation of one or more teeth (Lacarbonara et al., 2022; Choi et al., 2017). Given as the most common craniofacial malformation among humans in permanent dentition, excluding third molars, it varies from 1.6% to 9.6% depending on the population analyzed, impacting on the harmony of a healthy smile and consequently on the self-esteem of individuals (Matalova et al., 2008).

It is evident that the shape, size and gingival contour of maxillary anterior teeth have great relevance, not only for dental esthetics, but also for facial esthetics. Thus, knowing that the primary tooth has such altered characteristics, in relation to the permanent tooth, its presence in a permanent arch causes disharmony in the gingival contour, consequently in the smile (Hasanreisoglu et al., 2005).

As an option to correct the gingival contour, in order to increase the crown of the tooth, in addition to making a proportion between its height and width, gingivoplasty is a successful alternative treatment (Suzuki et al., 2008). This surgical treatment is well accepted by patients and, in addition to being technically simple, it is capable of harmonizing possible aesthetic deviations such as the asymmetry of the dentogingival smile (Rosetti et al., 2006).

Additionally, taking into account the advances in Dentistry in recent decades, through new restorative materials capable of cooperating to increase the patient's self-esteem, a conservative restorative treatment, such as a reanatomization in composite resin, is considered a viable and satisfactory alternative approach. This technique makes it possible to retake the natural golden proportions of the tooth in the smile, helping the symmetry of the anterior portion of the patient's arch (Mauro et al., 2003).

Therefore, the goal of this article is to present an alternative aesthetic treatment for the case of an adolescent presenting dental agenesis, in which the entire clinical sequence of the treatment will be described.

2. Methodology

This study is a case report, which was documented and presented according to the study methodology by (Estrela, 2018). In addition he was conducted in accordance with Declaration of Helsinki of 1975, revised in 2013. The patient signed the free and informed assent form and due to age, the free and informed consent form signed by the parents was also obtained. In accordance with CNS Resolution No. 510 of 2016, Art. 1, sole paragraph, "The CEP/CONEP system will not be registered

or evaluated: VII - research aimed at theoretical deepening of situations that emerge spontaneously and contingently in professional practice, provided they do not reveal data that can identify the subject". Thus, submission for evaluation by the Research Ethics Committee was not necessary as it was a case report study.

3. Case Report

Patient JS, 16 years old, female, presented to the Faculty of Dentistry of the Newton Paiva University Center, reporting being dissatisfied with the appearance of her smile, which interfered with her self-esteem related to her colleagues.

Figure 1 - Deciduous element 63.

Source: Authors.

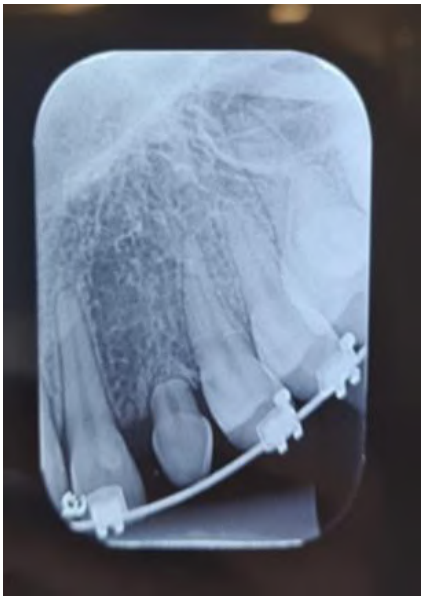
After a detailed anamnesis, the clinical examination showed the presence of the deciduous element 63, without mobility (Figure 1).

Figure 2 - Clinical periodontal evaluation.

Source: Authors.

In the clinical periodontal examination, disharmonious gingival height was observed in its region, showing unsatisfactory dental and gingival esthetics (Figure 2).

Figure 3 - Radiographic examination show the absence of element 23.



Source: Authors.

The radiographic examination revealed the absence of element 23, and the presence of physiological root resorption (Figure 3).

As this is a young adult patient, the proposed planning was a conservative alternative treatment, since, one must wait for the biological age of the patient in order to install implants[9]. Initially, gingivoplasty was indicated in element 63, as it did not show signs of exfoliation.

In preoperative care, 2% chlorhexidine was used for extraoral antisepsis and 0.12% chlorhexidine mouthrinse for intraoral antisepsis. Then, anesthetic blockade was performed with 2% lidocaine and 1:100,000 epinephrine. The measurement of the 2 mm probing depth on the buccal surface of the primary canine was performed. Bleeding points were marked with the value of the periodontal probe placed on the external face of the keratinized gingiva. The incisions for the gingivoplasty procedure were performed using the internal bevel technique, using 15c scalpel blades and a kirkland gingivotomy. After removing the gingival tissue, there was no need for osteotomy and placement of surgical cement. The patient was instructed on the necessary care and was prescribed dipyrone 500 mg every 6 hours in case of pain.

Figure 4 - 14 days after gingivoplasty.

Source: Authors.

After 14 days, it was possible to better observe the increase in the clinical crown of tooth 63, an adequate healing of the surgical area and a harmonious gingival contour (Figure 4).

Restorative treatment for reanatomization was performed 30 days after surgery. The construction of a direct composite resin veneer on element 63 recreated the anatomical characteristics of a permanent canine. The most important point considered is the maintenance of the element without performing the canine guidance, as it is a deciduous element with slight root resorption and without mobility.

The restorative treatment was divided into two sessions. In the first session, after prophylaxis and color selection, under absolute isolation, tooth preparation was performed. As the technique to be used was by addition, there was no need for dental wear, the tooth enamel was conditioned with 37% phosphoric acid for 30 seconds, after washing with a water jet for one minute and drying; the adhesive system Adapter Single Bond 2 (3M ESPE) was applied and photoactivated for 20 seconds. Soon after, with the aid of a Uveneer matrix, the resin Z350xt filtek supreme color B1 enamel, inserted in the matrix, was taken to the tooth, creating a resin veneer on the vestibular surface of the primary canine, in order to reduce the clinical time and guide the anatomy. The facet was photoactivated three times for 20 seconds.

Figure 5 - Element 63 immediately after restoration.

Source: Authors.

Excess and retention in the interproximals were removed with the help of sandpaper and diamond diggers, checking whether there were occlusal contacts in the laterality (Figure 5).

Figure 6 - Final restoration after polishing.

Source: Authors.

Finally, in the second session, the kit of drills for resin finishing and the kit of rubbers for EVE polishing were used, providing the final anatomy and smoothness to the tooth (Figure 6).

4. Discussion

Agenesis also known as hypodontia is a dental anomaly that can affect one or more teeth and affect both dentitions. It impairs speech, chewing and especially the patient's esthetics (Farias et al., 2006), resulting in morphofunctional dysfunctions and presenting challenges for the dental surgeon in indication of a satisfactory treatment (Coelho et al., 2010). It is not known for sure what the cause of such malformation is, but the literature suggests some probable factors such as: heredity,

evolutionary changes, in addition to association with other syndromes. Another issue raised by researchers is gender preference, there are reports that the predilection of agenesis by females is greater, with higher ratio (Farias et al., 2006).

The simplest way to identify hypodontia is through radiographic examination, and the most suitable technique for this diagnosis is panoramic radiography, as it allows viewing and evaluating all regions of the maxilla and mandible and their interactions with other parts of the skull, without submitting the patient to several radiographic shots (Farias et al., 2006). The aesthetic issue, which is hampered by the absence of dental elements, in most cases, causes several damages to the patient. Therefore, in addition to functionality, rehabilitative and restorative treatment should be extended, with the aim of restoring self-esteem to the patient (Mukai et al., 2010).

According to the existing bibliography, there are several resolutions for cases of dental agenesis, with the loss of this deciduous element, there are several prosthetic rehabilitations for the case studied. An implant-supported crown is considered a conversational treatment for these anomalies (Richardson et al., 2001; Kokich & Kinzer, 2005), however, an implant cannot always be performed, factors such as quality and quantity of bone must be taken into account, but in addition and specifically in the case of a 16 year-old patient, age is the main factor to be considered (Rossi et al., 2003).

Since the implant would be unfeasible at the moment, the conventional fixed prosthesis appears as another resource for the treatment of this dental agenesis. Fixed prostheses have a disadvantage of wearing out the adjacent healthy dental structures, and this is more accentuated because this is a 16-year-old girl (Salgado et al., 2012). The orthodontic alternative, with space closure through premolar mesialization, could be the treatment of choice. This solution is the best accepted by patients from an aesthetic point of view and provides better periodontal health, but it would probably cause a change in occlusal function (Robertsson & Mohlin, 2000) and in this specific case, the patient was referred during orthodontic completion to decide on the treatment.

Several factors can affect a harmonious smile, such as agenesis in permanent dentition, and the consequent maintenance of deciduous teeth because, even if the smile is healthy, these changes affect the proportionality between the dental elements, from the discrepancy between the shape, the size and the ratio of height and width of the teeth (Coelho et al., 2010). The anterior teeth are essential in the valuation of the smile, as they grant the freedom to smile, therefore they go beyond the individual's aesthetic importance, even contributing to their good social life and, therefore, providing health in its broadest conception (Mauro et al., 2003).

As there is an increase in the relevance of aesthetic standards in the daily life of society, patients increasingly seek dental offices to repair dental imperfections that affect their aesthetics, well-being and, especially, their self-esteem (Silva et al., 2006). Currently, periodontal esthetics has been an extremely discussed and valued subject (Trevisani & Meusel, 2014). It is believed that a smile, in harmony with the dentofacial structures, is considered more beautiful (Sousa et al., 2010), so the search for conservative therapy, with high success rates, has become relentless (Trevisani & Meusel, 2014).

For a greater harmony of the smile, it is essential that there is symmetry between the teeth, the gums and the lips. In the case of patients with these proportions, a treatment option is to increase the clinical crown, which may be with or without bone wear. It is also known that the maintenance of aesthetic rehabilitation treatments is directly related to the existing compatibility between the adjacent periodontal tissues and the restorative material (Trevisani & Meusel, 2014).

Gingivoplasty, being a pre-prosthetic surgery with numerous indications (Falabella et al., 2015), aims at remodeling the gingival margins, with the aim of obtaining a physiological contour, seeking to re-establish pink aesthetics (Rosetti et al., 2006). As it is a safe technique, it is widely approved by patients and dentists and, through its execution, great esthetic results can be obtained (Hortkoff et al., 2017). In a case of prolonged retention of a deciduous element, the removal of excessive or irregular gingival tissue through gingival resective surgery is indicated as a plausible therapeutic approach, in order to provide the ideal size of the dental crown (Pedron et al., 2010).

Therefore, the performance of a gingivoplasty is justified because, in this surgical procedure, there is only soft tissue removal, without altering the supporting periodontium (Falabella et al., 2015).

Advances in the dental market and the development of new restorative materials have, in several cases, been able to recover the balance of the dentofacial relationship, the beauty provided by the smile, the conservation of the stomatognathic system, in addition to restoring the patient's self-esteem. interest in functional and mainly esthetic restorations, obtained a remarkable increase (Coelho et al., 2010). Direct adhesive reconstitution is a technique that requires from the professional great theoretical knowledge and practical skill in order to reanatomize a tooth, since the same dental element presents variability in shape between individuals, whether in size, width and even in its alignment with others (Coelho et al., 2010). These direct adhesive methods also have several advantages: color versatility, possibility of repairs, reversibility, conservation of the tooth structure, shorter treatment time and affordable cost, thus allowing for exceptional aesthetics to the patient's smile (Coelho et al., 2010).

Dentistry has, based on analysis and planning, a range of procedures to solve a single case. Dental plastic surgery can be defined as the union of material and technical resources with the purpose of rescuing or improving the beauty of teeth within a larger context: the good appearance and health of the smile in its entirety (Mauro et al., 2003).

In view of this, having a material that combines good results in terms of color stability, resistance, ease of carving and good polishing, like current resin compounds (Silva et al., 2006), it can be inferred that their use is advantageous at an aesthetic, restorative and functional level. Thus, the use of composite resin in direct technique is indicated, as it is more conservative and enables preservation of dental and periodontal tissue, highlighting the relevance of the patient's age, which is one of the determining factors in choosing the treatment to be performed, due to bone maturation of the patient during her rehabilitation (Valente et al., 2014).

Thus, the case report is multidisciplinary, as it relates several areas of Dentistry, combining theoretical and practical knowledge, with the objective of playing a key role in restoring the patient's health17, physical health by restoring form and function, and psychological health by enabling the re-socialization of an individual with difficulty in getting into contact with the community, due to low self-acceptance, as a result of a deviation from the aesthetic standard.

5. Final Considerations

In view of the studies carried out and through the philosophy of conservative dentistry, an increase in the clinical crown followed by reanatomization with composite resin becomes a viable treatment for a case of prolonged retention of the primary tooth, caused by agenesis of the germ of its permanent successor in a patient without prior indication for another conventional rehabilitation treatment.

Future research should be carried out in search of aesthetic, durable and conservative treatments, and materials, for those patients who, for any reason, cannot undergo implants and other surgical procedures.

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