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## Cleft Lip and Palate in Children and Adolescents The Role of the Pediatric Dentist

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### Abstract

Cleft lip and palate comprise congenital malformations that alter the functional structures of the face, which may affect the lip and oral cavity. Consequently, important functions, such as phonation and hearing, can be compromised, causing a relevant impact on the health and social life of these individuals. The objective of this work was to carry out a literature review on the role of the Pediatric Dentist in the approach of patients with cleft lip and palate and to classify and characterize cleft lip and palate. This study is a narrative review of the literature, so the electronic seats were performed in a non-systematic way. The databases used for research were Medline (PubMed), Virtual Health Library (SciELO, Medline and Lilacs) or Google Scholar. The terms used for bibliographic searches were described in the Health Sciences Descriptors (DeCS), with their respective terms in English described in the Medical Subject Heading (MeSH), below: Oral health. Cleft lip Cleft palate Oral health Cleft lip Cleft palate, It is concluded that the performance of the pediatric dentist in the face of cleft patients was shown to be fundamental, since he, together with a multidisciplinary team, should evaluate and monitor the patient as a whole, not limited to dental treatment. The dentist must be attentive to changes in the stomatognathic system to develop a comprehensive plan based on the patient's general and clinical rehabilitation, proving to be necessary to obtain a good prognosis for these cases.

**Keywords:** Oral health; Cleft lip; Cleft palate

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### Introduction

Cleft lip and palate comprise congenital malformations that alter the functional structures of the face, which may affect the lip and oral cavity. Consequently, important functions, such as the phonation and hearing, can be compromised, causing an impact relevant in the health and social life of these individuals [1]. The Etiology of cleft lip and palate is complex and genetic factors, environmental factors and the interaction between them seem to be associated with these conditions. Epidemiological studies show that some risk factors are important during pregnancy, such as the use of alcohol, tobacco, nutritional deficiencies, viral infections, drug use, and exposure to teratogenic agents [2]. The prevalence of cleft lip and palate varies worldwide, but these conditions are estimated to affect 1 in every 700 live births In Brazil, the research program Latin American Collaborative Study of Congenital Malformations showed that the prevalence ranges from 2.41 to 11.89 for each 10,000 born, varying according to the region of the country. Thus, cleft palates are common malformations that have an important impact on Health-Related Quality of Life (QVRSB) of Brazilian children and adolescents. The

approach multidisciplinary approach of these patients is essential to optimize the treatment and understanding the role of different professionals allows attention to the cleft patient is integral, including support to the family nucleus

Decision making for surgical treatment, for example, involves the evaluation of the medical team, together with the speech therapy, dentistry, among other related areas that will evaluate the best time to this intervention considering the history and context of each patient [3]. Individuals with cleft lip and palate have several characteristics inherent to this condition, such as delays in tooth development and tooth eruption. Furthermore, agenesis is of the most common consequences for these patients evidencing the need for planning and rehabilitative treatment dentist [4]. In this way, the Pediatric Dentist plays an important role in approach of children and adolescents with cleft lip and palate,

Accompanying these patients from the first days of life to the establishment of permanent dentition. Thus, the management of these patients is carried out in an integrated manner, aiming at the benefit of these individuals and improves your quality of life.

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## Objectives

### General-purpose

Conduct a literature review on the role of the Pediatric Dentist in Approach to patients with cleft lip and palate

### Specific Objectives

Classify and characterize cleft lip and palate Highlight the role of the Pediatric Dentist in the management of cleft palate and in the orientation of the family nucleus.

## Methodology

This study is a narrative review of the literature, thus electronic searches were performed non-systematically. The bases of data used for research were Medline (PubMed), Virtual Library in Health (SciELO, Medline and Lilacs) or Google Scholar. The terms used for the bibliographic searches were described in the Descriptors in Science of Health (DeCS), with their respective English terms described in the Medical Subject Heading (MeSH), below: Oral health. Cleft lip. Fissure palatine. Oral health. Cleft lip. Cleft palate. The inclusion criteria involve works that include classification, diagnosis and management of cleft palates, as well as management strategies for these patients. Initially, the reading of the abstracts of the articles and then the articles were read in full and their data used to write this work.

## Literature Revision

The pediatric dentistry professional plays a fundamental role in the assessment, diagnosis, prevention and rehabilitation, when it comes to patients cracked. It is of great importance that the dentist is incorporated into the team and interacts with other professionals (doctors, psychologists, physiotherapists) in their daily activities to gain access during intervention to better subsidies, taking into account the difficulties in handling cracks. It is worth noting that attitudes towards people with special needs are trained early and strengthened by the school network, by interpersonal relationships and by a society that does not accept such differences. These difficulties extend to emergence and continuity of many myths in dental treatment, and the dentists must be prepared to clarify to parents and meet the changes in these paradigms.

## Classification of cleft lip and palate

Cleft lip and palate are a consequence of insufficient fusion of the facial processes during the embryonic development of the face that occurs between the 4th and 12th week of intrauterine life. The cracks that involve only the lip are the result of problems in the fusion of the nasal processes of the frontal prominence with the maxillary process. The cracks that surround the palate result from failures in the fusion of bilateral processes (SPERBER, 2002). The classification of cleft lip and palate favors understanding and serves as a guide for addressing these conditions. There are several systems classification of fissures, according to embryological or anatomical or according to the pathogenesis and etiology [5]. In Brazil, the most used classification is the Spina modified by Silva Filho, who uses the incisive foramen as a reference base for diagnosis of the fissure and classifies them into four groups [6]. Incisive pre-foramen clefts (Group I) are those that are restricted to the primary palate, covering exclusively the lip and/or alveolar ridge without pass the incisive foramen. Incisive Trans foramen clefts (Group II) fully involve the primary and secondary palates, ranging from the lip to soft palate. Post-incisive foramen fissures (Group III) include exclusively the palate and In addition to these clefts, there are the rare clefts of face (Group IV), which involve other structures such as the cheek, eyelid, nose and cheek bones. Pre and trans foramen incisive clefts can be sub classified into according to the side on which the structures are affected (unilateral, bilateral or median). Additionally, sub mucosal fissures are those that occur in the secondary palate, being the malformation in the soft palate muscles or in the bone tissue of the hard palate, with the mucosal layer remaining intact. These clefts can occur simultaneously with clefts of the primary palate (Table 1).

## Clinical implications of cleft lip and palate in children and teenagers

The morphological changes caused by cleft lip and palate reflect on functional and aesthetic consequences for children and adolescents, which can bring psychosocial impacts that compromise their daily. For Group I cleft lip and palate, there are usually no many repercussions related to phonation, after all, the commitment is labial and does not extend to the palate. However, there is a large aesthetic compromise, due to the lip involvement,

**Table 1.** Types of oral clefts according to Spina et al. (1972) classification modified by Silva-Filho et al. (1992).

Groups	Classification	Structures	Involved	Sub classification
Group 1	Pre-foramen fissures incisive for man	primary palate, lip and/or alveolar ridge without exceeding the incisive foramen	Unilateral Bilateral Mediana	Complete or incomplete right Complete or incomplete left Complete or incomplete Complete or incomplete
Group 2	fissures incisive transform amen	primary palates and secondary, spanning from the lip to soft palate	Unilateral Bilateral Mediana	Right or left
Group 3	Post foramen fissures incisive	exclusively palate	-	Complete or incomplete
Group 4	Rare cracks of face	nose and cheekbones		

in addition to the repercussion in the tooth germs when there is involvement of the alveolar ridge [8].

In cases of bilateral Group I clefts, the prognosis is more critical, given the separation of the premaxilla, causing even more complications of bone and tooth development. The repercussions of Group II fissures involve lip and palate and their severity varies according to the sub classification. For example, individuals who have fissures unilateral complete labiopalatine will show nasal changes such as asymmetries and flattening of the nose wing. In these cases, the maxilla is segmented into two portions and all these changes have repercussions on difficulties in breastfeeding, phonation and predisposition to changes teeth [9].

In situations where the commitment is bilateral, these repercussions become even more severe, as the maxilla becomes segmented into three portions (two lateral portions and the premaxilla). In these cases, there is a important reduction of the columella and the nasal apex is also affected. You patients have difficulties in breastfeeding, changes in maxillary growth, dental alterations and difficulties in phonation. These cases are the most severe and require the greatest number of interventions. Group III clefts exclusively affect the palate, therefore compromise breastfeeding by preventing the seal necessary to exercise the negative pressure that will provide the output of breast milk. Furthermore, there is repercussion in phonation, causing nasal speech and hearing difficulties [3].

Group IV clefts are rare and can compromise several

facial structures and the more structures are affected, the greater the impact for patients. Structures commonly compromised in fissures of Group IV are the oral cavity, nose, orbit, among others [5]. Therefore, cleft lip and palate generate an impact for children and adolescents, directly compromising their general health and activities of the daily. Although treatment protocols vary greatly from according to the reality of each service around the world, attention to these patients must be a priority in health systems and the approach multiprofessional approach is essential for the comprehensive care of these individuals [4].

### **Multiprofessional approach to cleft patients in Brazil: the role of the pediatric dentist**

The management of cleft patients is a challenge due to the limited evidence on the best treatments for each case. In 2002, the World Health Organization (WHO) reported that clinical trials should be carried out in order to elucidate the best strategies for the management of patients with craniofacial anomalies (SHAW et al., 2004). The protocols of care for cleft patients are very variable around the world and, in addition to the difference between the sequences of approaches, there is also great variation between the surgical techniques used. However, several reports of multiprofessional care have been published, evidencing that the interaction between the different areas of health is relevant for the care of cleft patients [8].

There are several centers specialized in the treatment of craniofacial malformations in Brazil. Ordinance 62 SAS / MS regulates the registry of hospitals that perform integrated procedures for rehabilitation aesthetic and functional of cleft

patients in the Unified Health System (SUS). These centers must follow specific rules to be accredited, as they have already followed more than 10 documented cases, rules of physical facilities and health team that includes several professionals such as plastic surgeons, nurses, paediatricians, dentists, among others (BRASIL, 1994). The dentist plays a crucial role in monitoring and rehabilitation of cleft patients. According to the hospital protocol of Rehabilitation of Craniofacial Anomalies at the University of São Paulo (HRAC-USP), the rehabilitation of patients with cleft lip and palate consists of lip plastic surgery at 3 months and palate surgery at 1 year age, followed by bone graft between 9 and 12 years. Therefore, the Pediatric dentist plays an important role in accompanying children from birth until the establishment of the permanent dentition [9].

Thus, early dental treatment is established as soon as possible. at birth and is based on guidance to parents on the need to promote oral health, determining the importance of the integrity of dental elements (LIMA, 2000). The Pediatric Dentist must accompany the cleft patient at all stages of treatment and growth, because, at some point, Orthopaedics and Orthodontics will be needed [10].

Furthermore, when it comes to cleft lip and palate rehabilitation, the use of denture and any intraoral device that improves the quality of life of this patient should be considered and applied by the pediatric dentist. It should be keep in mind that the health of the teeth and their supporting tissues (gums and alveolar bone) is of fundamental importance, since the fissure occurs in the oral cavity in close relationship with the teeth. For that reason, as member of the rehabilitation team, the dentist must accompany the individual with an oral cleft even before the teeth erupt, acting in the promotion and prevention of oral health [1]. For the rehabilitation process, an approach is outlined specific therapy, which is the individualized form of treatments that will be needed to conduct rehabilitation, as each case is different. For this, the type of cleft (extension of the affected anatomical structures), indication or not of surgery, better surgical times, presence or absence of caries (restorative dentistry), endodontic conditions and periodontal treatment, regardless of whether or not to consider follow-up of treatment and own or family estimate. From the initial phase of treatment to the acquisition of teeth permanent, it is up to the Pediatric Dentist to provide the dental care for children with clefts, with a focus on improving habits and reducing caries activity, tooth preservation and monitoring of the craniofacial growth. Orthodontic treatment in the primary dentition is limited to cases of intervention of functional alterations or when correction is required. Achieved with movement stability (VEIGA et al., 2017). During mixed dentition, soon after the emergence of molars permanent, orthodontic treatment, if necessary, with the objective of fix the most commonly detected problems, in the indicated cases. IT'S It is very important that the patient and family follow the indication and use of the orthodontic appliance, for which there is a greater risk of caries, which goes beyond the child's maturity to control, however monitoring the treatment is a condition fundamental.

The dental resources used in the rehabilitation process of patients with cleft lip and palate are varied and can be simple or complex, depending on the needs of each case, therefore, the

Dental rehabilitation is individual, extensive and essential for the final result.

Finally, when it comes to the nutritional approach of patients cleft patients, in addition to pediatric nutrition, pediatric dentistry assumes a fundamental, since it is up to him to guide the fathers, especially the mothers of these children, regarding the immediate implications of the cleft, with emphasis on food, highlighting the importance of breastfeeding, either direct or milked and offered in a bottle (preferable with soft and slightly enlarged hole) The literature states that due to lack of knowledge and fear of feeding the cleft baby, due to the lack of adequate instructions to the mothers when birth, small amounts are sometimes offered in devices with reduced orifices and formulas are not applied to facilitate the breast-feeding. This set increases the breastfeeding period and energy spent by the baby, hindering its feeding performance.

It is up to the professional to guide as to the suction force applied by them; that the fissure region should not be avoided, in order to work the stimulation of the muscles of this region, instruct on the positioning of the baby during breastfeeding, keeping him in a more upright position, to reduce the nasal reflux of milk and its entry into the ear canal. Still, because of excessive intake of air during feeding, it is indicated to do slowly to promote eructation [10].

## Discussion

Based on the literature, the management of cleft patients should be performed by a multiprofessional team, in which the Pediatric Dentist has fundamental role in the initial preventive guidelines. However, this needs be patient and devise communicative methods that are effective, aiming meet the needs of these patients to hear and communicate, during early childhood. The hours dedicated in the initial period are very valuable and re-evaluation consultations should take place every four or six months, or should occur more frequently, when and there is a need. In some cases, close monitoring of oral health is recommended. of the child It is the function of the pediatric dentist to adopt preventive measures against diseases and be aware of the guidelines for parents and guardians during every treatment. Costa (2011) states that the dental approach prevention of cleft patients should be no different from those without fissure. Kuhn et al. (2012) agrees with two other studies that preceded his with regard to the role of the dental surgeon in the rehabilitation cleft lip and palate.

Still, there is evidence as to the importance of creating a multiprofessional protocol to establish a standard in care offered to patients with cleft lip and palate, this protocol was then divided into three phases: pre-surgical, surgical and post-surgical, starting with 1st week of life.

Although the pediatric dentist is not responsible for the surgical and facial plastic surgery, it is suggested that the same accompany the oral surgeon and maxillofacial in the execution of

cheiloplasty, which is the procedure performed to close the lip, being performed around 90 days of life, adjusting the musculature of the mouth, aiming at a pleasant aesthetic for the patient, being in conjunction with all evolution and development of the patient.

The preoccupation with diction, occlusion and facial growth, as well as the importance of surgical proposals, the treatment multiprofessional approach is essential for a possible resolution of deformities, in a short period of time and with a minimum of trauma for the patient.

After surgical procedures, orthodontic treatment is fundamental for the rehabilitation of people with clefts, and, in cases of performing secondary surgeries. Studies claim that the ideal phase to start orthodontic treatment would be around 6 and 7 years of age, in which maxillary growth accelerates due to the onset of mixed dentition. On the other hand, Lima et al. (2015) highlighted that the treatment orthodontic treatment should start between 11 and 14 years of age or at the beginning of teething permanent and aims to complement the orthopaedic treatment (when performed) correcting the bad positions of teeth that persist.

Tuji et al. (2009) highlight that pediatric dentists and orthodontists should be responsible for clinical procedures and correction and stabilization of the alveolar and palatine processes of the jaws (TUJI et al., 2010). According to Tannure and Moliterno (2007) the prevalence and activity of caries in children with cleft palate were relatively higher when in compared to children who do not have the same characteristic (TANURE, 2007). Regarding the prosthetic treatment, it is up to the pediatric dentist the assessment and conduct of cases in which intervention is required. Moreira (2010) points to the use of palatal prostheses as a temporary or definitive, this treatment option is more indicated for cases where there is impossibility of surgical treatment. In the same study, the author warned about the existence of cases in which prostheses are contraindicated, as in case of patients with intellectual difficulties and non-collaborating patients. Leal et al. (2014) showed another treatment option for these patients. Unable to use prostheses, which is the use of palatal obturators, found that as a speech aid they were effective. Kuhn et al. (2011); understand that the complete establishment of the oral and general patient health can only be achieved when your treatment is carried out in a multidisciplinary way with all professionals involved that goes against the opinion of other authors [10].

## Conclusion

It is concluded that the role of the pediatric dentist in relation to patients fissured people proved to be fundamental, as he, together with a team multiprofessional should assess and monitor the patient as a whole, not limited to dental treatment. The dentist must be aware of the changes in the stomatognathic system to develop a plan comprehensive approach based on the clinical and general rehabilitation of the patient, showing necessary to obtain a good prognosis in these cases.

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