



ORAL REHABILITATION IN MIXED DENTITION: THE CHALLENGE OF REPLACING PERMANENT TEETH

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ABSTRACT

Aim: To present the report of a female patient, 10 years old, referred for treatment in the Dentistry Clinic of a Brazilian public university.

Case report: The patient's oral health condition was unfavorable with biofilm accumulation, pain report and chewing difficulty. After anamnesis, clinical and radiographic examination, the treatment plan included removal of infectious foci (54, 55, 64, 65, 74, 75, 85, 16, 36 and 46) followed by prosthetic rehabilitation. At this stage, the functional restoration of the lower arch was restricted by the imminent eruption of the premolars. In the upper arch, the maintenance of the mesio-distal diameters aims to guarantee the chronological sequence of successors irruption and establishment of normal occlusion. During the monthly follow-up consultations the patient presents a more spontaneous smile, although she still needs constant reinforcement in oral hygiene habits.

Conclusions: The rehabilitation of patients with loss of permanent teeth during the mixed dentition phase should consider the peculiarities of this period for the restoration of health without altering the normal pattern of occlusal development.

KEYWORDS: oral rehabilitation, mixed dentition, permanent teeth

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INTRODUCTION

Dental caries still stands out as the main oral cavity-related disease in children, especially in developing countries, despite the overall reduction of their indices¹. One of WHO's goals related to oral health is that at age 12, 50% of the population of a country are free of carious lesions, but it is observed that the

loss of first permanent molars is still very prevalent among children, often ranging from 3.5%² to 32%³, reflecting that many countries still remain below the targets of the World Health Organization and the International Dental Federation.

In Brazil, the evaluation of caries rates shows that a small part of the population concentrates a large burden

of disease, a phenomenon known as polarization⁴ and consequent need for extensive rehabilitation treatment. In the mixed dentition phase, there is still no definition of the adult occlusal pattern, and therefore, the restorative option chosen can not interfere in the development process of the

stomatognathic system, becoming a challenge for the professional.

In addition, the professional should consider that the planning of any prosthetic resource for a child, can not be static due to the growth and development of the child's facial skull⁵. Thus, it requires periodic monitoring by observing the various modifications that occur in the oral cavity and adapting the treatment to these observed needs. Thus, the objective of this paper is to report the case of a patient in the mixed dentition stage, highlighting the aspects considered in the prosthetic rehabilitation phase.

CASE REPORT

A 10-year-old female patient was referred to the Dentistry Clinic of a public university by the primary health unit for specific dental treatment. During the patient's anamnesis, no relevant changes were found that would prevent treatment.

The intraoral examination revealed unfavorable oral health conditions with biofilm accumulation, associated gingivitis and many infectious foci, which compromised the patient's quality of life, since they were related to pain and difficulty in chewing. The deciduous elements 55, 54, 64, 65, 75, 74, 84 and 85 presented extensive carious lesion compromising a large part of the dental crown that limited the restorative possibilities (Figs. 1-5). In addition, radiographic examination revealed root resorption that compromised more than one-third of its length, contraindicating maintenance in the dental arch. The elements 16, 36 and 46 presented a carious lesion with great coronary loss and involving the root canals, with no possibility of performing endodontic treatment and subsequent prosthetic rehabilitation (Figs. 6-8). The elements 53

and 63 presented caries lesion in dentin and the 21, lesion of active white spot. In addition, due to coronary loss, the patient presented bilateral block extrusion bilaterally.

infectious foci (54, 55, 64, 65, 74, 75, 85, 16, 36 and 46), followed by prosthetic rehabilitation to restore masticatory function and maintenance of spaces for the eruption of permanent successors.

Figure 1. Initial clinical aspect (front view).



Figure 2. Initial clinical aspect (right lateral view).



Figure 3. Initial clinical aspect (left lateral view).



Figure 4. Initial clinical aspect (superior view).



Figure 5. Initial clinical aspect (inferior view).



Figure 6. Radiographic image. Note: Commitment of the 16.



Figure 7. Radiographic image. Note: Commitment of the 36.



Figure 8. Radiographic image. Note: Commitment of the 46.



The treatment plan was established giving priority to the removal of all dental elements associated with

The rehabilitation began with molding of the upper and lower arches and bite registration in wax. The semi-adjustable articulator (ASA) was then assembled to test the adaptation of the prosthetic devices and then to transfer the prostheses to the patient's mouth (Figs 9-12). In the assembly phase of the teeth in the ASA, the occlusion was satisfactorily achieved and, in this way, the prosthetic devices were transferred to the patient's mouth. In the test phase of the teeth in the mouth there was a maladaptation of the inferior prosthesis, which caused an open bite to be installed, making it necessary to choose only the superior prosthesis. In addition to the open bite the imminent eruption of the lower premolars restricted the functional restoration of the lower arch. In the upper arch, the removable partial prosthesis was maintained in order to maintain the mesio-distal diameters and ensure the chronological sequence of successors irruption and establishment of normal occlusion (Figs. 13-15).

Figure 9. Initial aspect of prosthetic devices (right lateral view).



Currently, the patient is periodically monitored at the dental clinic and presents a more spontaneous smile, which demonstrates an improvement in her self-esteem,

although oral hygiene needs constant reinforcement (Fig. 16).

Figure 10. Initial aspect of prosthetic devices (left lateral view).



Figure 11. Figure 11: Initial aspect of prosthetic device (superior view).



Figure 12. Initial aspect of prosthetic device (inferior view).



DISCUSSION

The rehabilitation of patients with large occlusal structural losses is complex and difficult to solve, becoming one of the major challenges of dentistry^{6, 7}. In these cases it is necessary to replace the lost dental elements to restore

occlusal and aesthetic function. Currently, the use of osseointegrated implants is considered a great option for rehabilitation in case of permanent tooth loss. However, in children, this option is not available because it is a phase of bone growth and development of the stomatognathic system. The use of removable acrylic plaques for replacement of teeth lost at this stage is the most commonly used option according to the odontopediatrics literature^{5, 8} and are preferably used in the Brazilian dentistry faculty, presenting an adequate level of patient satisfaction according to the perception of Pediatric Dentistry teachers. They present the advantage of maintaining the space for permanent teeth, recovery of vertical dimension and function, favoring mastication and phonation^{5, 8}, and can be used by young children from 3 years of age provided they are properly motivated and oriented.

Figure 13. Final aspect of rehabilitation (front view).



Figure 14. Final aspect of rehabilitation (right lateral view).



The mixed dentition stage comprises a period of major changes and the impacts of a tooth loss are rapidly observed, and may compromise

permanent dentition, such as loss of space for eruption of permanent teeth, loss of vertical dimension, decrease of the masticatory force⁹ and arch shortening when loss of posterior teeth. In the case described, bilateral block extrusion of the posterior portion was observed, which significantly reduced the prosthetic space, making it impossible to make the prosthesis for the lower arch. The patient and her caregiver were guided about the limitations of rehabilitation at this time, and agreed with the proposed model. Rehabilitation should be discussed with children and guardians considering the perceptions and adequate indications for each case¹⁰.

Figure 15. Final aspect of rehabilitation (right lateral view). Note: Space absence to replacement inferior teeth.



Figure 16. 6-month follow up. Note: Lower premolars erupting.



In addition to the impacts on occlusal and aesthetic harmony, tooth loss has consequences in the social relationship and quality of life of the patients⁹. Prosthetic appliances are very important to the oral and social rehabilitation of children, because many of them worry about missing teeth, and the great majority of them and the

guardians became satisfied with the appliances¹⁰. In this report, it was observed that the change in the patient's behavior was clear, smiling more frequently and talking during consultations, demonstrating a greater bond with the professional.

CONCLUSIONS

One of the limitations to the use of removable partial dentures in children is the possibility of fractures and the need for repairs¹¹⁻¹². The patient has been in use for a year and in this period did not show any indication of repair or maintenance, which can be understood as appreciation to the apparatus and the understanding that it is responsible for its maintenance. It reinforces the need to involve the patient and his family as one of the factors related to the favorable performance of any treatment.

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