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CARRERA DE ODONTOLOGÍA

**COMPLICATIONS OF SEVERE EARLY CHILDHOOD CARIES.
PROSTHETIC MANAGEMENT. CLINICAL CASE PRESENTATION**

**PROYECTO DE TITULACIÓN PREVIO A LA OBTENCIÓN DEL TÍTULO
DE ODONTOLOGA**

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DIOS, PATRIA, CULTURA Y DESARROLLO



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RESUMEN

La caries severa de la infancia temprana (CIT) puede llevar a la pérdida prematura de los dientes primarios (comúnmente llamados dientes de leche). La pérdida de espacio durante el cambio de la dentición primaria a la permanente puede progresar rápidamente y crear una serie de problemas que afectan la salud en general, incluyendo alteraciones fonéticas, estéticas, funcionales y nutricionales. Este período de alto riesgo puede tener un impacto significativo en el crecimiento y desarrollo.

El siguiente es un caso clínico de un niño de 60 meses con una rehabilitación protésica total en la parte superior e inferior después de múltiples exodoncias como resultado de lesiones cariosas y problemas sistémicos como consecuencia de procesos infecciosos, con el fin de establecer programas de control clínico en los cuales se pueda observar la erupción adecuada y saludable de los dientes permanentes. Por lo tanto, los controles dentales regulares y las medidas preventivas pueden prevenir complicaciones futuras.

Palabras clave: Prótesis dental, Caries dental, Infancia temprana, Susceptibilidad, Rehabilitación dental.

ABSTRACT

Severe early childhood caries (ECC) can lead to the premature loss of primary teeth (commonly referred to as deciduous teeth). The loss of space during the transition from primary to permanent dentition can progress rapidly and cause several problems that affect overall health, including phonetic, aesthetic, functional, and nutritional changes. This high-risk period can have a significant impact on growth and development.

The following is a clinical case of a 60-month-old child with complete upper and lower prosthetic rehabilitation after multiple extractions due to carious lesions and systemic problems resulting from infectious processes; to establish clinical control programs in which the proper and healthy eruption of permanent teeth can be observed. Therefore, regular dental check-ups and preventive measures can prevent future complications.

Keywords: Dental prosthesis, dental caries, early childhood, susceptibility, dental rehabilitation.

INTRODUCTION

Early childhood caries is defined as the presence of cavitated or non-cavitated lesions in missing or filled teeth, usually occurring in any primary tooth in children 71 months of age or younger. (1) (2)

Whether or not it causes pain, early childhood caries can still have a negative impact on quality of life, despite not being life-threatening.(3)

Affects masticatory performance, social interactions, and cognitive and neurological development of affected children, parents tend to experience financial and emotional stress.(4)

Although early childhood caries is easily preventable, it is one of the most prevalent childhood diseases worldwide, primarily affecting socially disadvantaged populations.(5)

Certain socioeconomic factors, such as low household income and the level of parental education or employment status, can significantly increase the risk of developing this pathology (6)(7)

The consequences, such as the early experience of pain, can affect the child's immediate and long-term quality of life. In very young and uncooperative children, therapy is often only feasible under general anesthesia and is further accompanied by premature loss of primary teeth.(8)(9)

Which is also considered an oral health problem, due to the functional and psychological damage.(10)

The primary dentition plays a fundamental morphological, functional and psychosocial role in the development of the child, as it provides the appropriate conditions for skeletal and

muscular growth. In addition, maintaining the integrity of the deciduous arch has a strong influence on the development of the permanent dentition, the preservation of the length of the dental arch, and preservation of the space necessary for the eruption of successor teeth.(11)

Adverse effects of space loss include; dental arch crowding, ectopic eruption and impaction of permanent teeth, tipping of the first permanent molar, cross-bite development and mid-line discrepancies.(11,12)

Artificial dentures for children play a very important role when there is a premature loss of teeth, whether in primary, mixed or young permanent dentition, helping to restore masticatory function. Preventive action is important in the development of undesirable oral habits and personality disorders. The decision to perform one or another type of rehabilitation depends on the age and individual characteristics of the patient, significantly influencing the hygiene habits of the family and the cooperation of the child.

CASE REPORT

Male patient, 5 years 4 months old, weight 21 kg and height 110 cm, who attends the Dental Clinic of the Catholic University of Cuenca-Ecuador, due to a referral from his medical team who requested dental extractions since he presents repeated fever episodes, tonsillitis, and abdominal pain. The family history includes parents who are drug users, absent at home and that the child is cared for by the maternal grandmother, who reports that the child does not collaborate in oral hygiene, high incidence of consumption of cariogenic foods and that he continues to be bottle-fed at night.

The general clinical examination revealed a brachiocephalic biotype, loss of vertical dimension and muscular hypotonia (Fig. 1).



Figure 1.- Photos extra oral

The intraoral clinical examination revealed: poor oral hygiene, generalized papillary gingivitis, presence of dental bacterial plaque, complete temporary dental formula, but with absolute destruction of the coronary remnant in all teeth due to caries (Fig. 2).



Figure 2.- Photos intra oral

In the panoramic radiograph, the temporomandibular joint presented normal development and complete permanent dental formula (Fig. 3).



Figure 3.- Panoramic radiography

Treatment goals included:

- Generate self and parental awareness regarding the deteriorated oral health status of the patient.
- Encourage the acquisition and practice of oral hygiene habits.
- Encourage the importance of a balanced diet, and low consumption of cariogenic foods.
- Eliminate infectious sources.
- Reestablish aesthetic; phonetic and masticatory capabilities.

- Control the eruption of permanent teeth
- Prevent future carious lesions
- Reduce stomatological risk.

First of all, information was provided to the parents about the dental treatment required by the child, its benefits and possible complications, obtaining the informed consent of the parent for the execution of the intended treatment.

Due to the extent of the dental treatment and the anxious behavior of the child, it was decided to perform the operation in the operating room under general anesthesia. Initially, an attempt was made to preserve the teeth that present healthy dental structure, but all the teeth presented great subgingival destruction, so we proceeded to carry out multiple extractions of residual root fragments. Prior to surgical intervention, laboratory tests were carried out on the patient (complete hematology and coagulation time) and consultation with the pediatrician, resulting in assessments within normal limits and with no reference to apparent systemic pathology. (Fig.4)



Figure 4.- Extracted residual roots

In the rehabilitation phase; Crafting of removable prosthetic appliances for both the upper and lower dental arches. prosthesis to restore phonetic, appearance and masticatory function. During insertion, retention, stability and occlusion were evaluated. (Fig.5)



Figure 5. Total upper and lower removable prosthesis

In the maintenance phase, a control program was established, inspecting soft tissues, monitoring the prosthetic devices, and eruption control. Clinical controls were scheduled every 2 months and radiographic controls every 6 months. In the first control, the lower total prosthesis was modified due to the eruption of tooth 3.1 (Fig. 6).



Figure 6.- Control at 2 months

Once the prosthesis has been installed in the patient, it is necessary to verify the stability of the acrylic, adequate adaptation of the device to the oral structures, rocking movements, retention, adjustment of the hooks and occlusal adjustment. For a better adaptation of the fixed prosthesis in the child, it is important to teach him/her in a mirror how to place and remove the device. (with the tips of the fingers, one on each side of the device, traction in the region of the hooks), observe speech and chewing, teach him to sanitize the device and motivate him to use it.

DISCUSSION

Premature loss of primary teeth generally causes delayed development of the jaws, inadequate position of the jaws relative to each other, alterations in the sequence and chronology of eruption. Furthermore, it can result in challenges with speech, aesthetics, and have implications for growth, physical health, and personal self-worth.(13)

Globally, different interventions have been suggested for the management of ECC lesions, from active surveillance to extraction, depending on the disease process and the patient's caries risk.(14)

There is a consensus among experts that clinical decision-making for caries management in children must factor in several elements, including the patient's risk levels, current oral health status, age, and the caregiver's adherence to preventive approaches. (15)

In this case, the decision to have multiple extractions was made due to the fragility of the dental remnants due to the extension of dental caries, which did not allow any rehabilitative treatment to be carried out, the multiple infections and the great potential for malocclusion.(15)(16)

Full denture rehabilitation is a simple, non-invasive, and inexpensive treatment modality for patients with congenital or acquired disorders that severely affect tooth development.(15)(16)

Meets aesthetic and functional demands where tooth extraction is not generally indicated.(16)

Our patient's treatment plan included the fabrication of removable prostheses that were planned taking into account the age of the girl and the underdevelopment of her arches, since early intervention benefits her results .The maxillary arches, being completely edentulous, were treated with a conventional prosthetic design, that is, basically a complete denture with holes that allow the remaining natural teeth to emerge through it. Radiographic control is also necessary, identifying the right moment for the removal of the prosthesis, which is when the permanent successor already has 2/3 of the root formed, when the use of the device must be suspended.

CONCLUSIONS

Dentists and medical personnel who care for children are challenged to diagnose obvious pathologies and treat them as soon as possible to reduce future complications and also carefully manage the psychosocial implications for the child patient. Children require follow-up throughout their lives, particularly during early childhood

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