



Pre-surgical orthopedics in newborn patients with cleft lip and palate

Ortopedia prequirúrgica en pacientes recién nacidos con labio y paladar hendido

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ABSTRACT

Introduction: Cleft lip and palate is the most common craniofacial malformation of the world's population, causing a great impact on society since it compromises both aesthetics and function. Presurgical orthopedic treatment at an early age limits the consequences of this anomaly. **Objective:** To describe two cases of male newborn patients diagnosed with unilateral and bilateral cleft lip and palate that underwent early pre-surgical orthopedic treatment. **Methods:** Initially Friedman's stimulation plate was used to confront the alveolar ridges less than 5 mm to continue subsequently with the formation of the nasal wings which were depressed. **Results:** The alveolar fissures were closed completely in both cases in addition to lengthening the columella, increasing the size of the depressed nostril, as well as improving the perioral muscle tone thus enhancing the results of the cheiloplasty. **Conclusions:** Early preoperative treatment in infant patients with cleft lip and palate is a successful alternative for achieving closure of lip-alveolar-palatal clefts, with the aid of a skilled operator and committed to treatment parents.

RESUMEN

Introducción: El labio y paladar hendidos es la malformación craneofacial más común en la población mundial, causando un gran impacto en la sociedad porque compromete tanto la parte estética como funcional. La ortopedia prequirúrgica es un tratamiento que interviene en edades tempranas para la disminución de las secuelas de esta anomalía. **Objetivo:** Describir dos casos de pacientes género masculino recién nacidos con diagnóstico de labio y paladar hendidos unilateral y bilateral completo a quienes se les realizó tratamiento temprano con ortopedia prequirúrgica. **Métodos:** Se utilizó inicialmente placa estimuladora de Friedman para afrontar los procesos alveolares a menos de 5 mm, para continuar posteriormente con la conformación de las alas nasales que se encontraron deprimidas. **Resultados:** Se cerraron las fisuras alveolares completamente en ambos casos, se estimuló el cierre de la fisura del paladar, además de elongar la columela, aumentar el tamaño de la ventana de la nariz que se encontró deprimida y se logró la tonicidad muscular perioral adecuada para mejorar los resultados de la queiloplastia. **Conclusiones:** El tratamiento temprano prequirúrgico en los pacientes recién nacidos con labio y paladar hendidos, es una alternativa exitosa en el cierre de la fisura labio alveolopalatina, con la ayuda de un operador habilidoso y unos padres comprometidos con el tratamiento.

Key words: Cleft lip and palate, pre-surgical orthopedic treatment, nasoalveolar molding.

Palabras clave: Labio y paladar hendidos, ortopedia prequirúrgica, conformación nasal.

INTRODUCTION

Cleft and lip palate is the craniofacial anomaly with the highest incidence; it represents approximately 1:500 of global population and in Mexico, 1:700 alive newborns,^{1,2} depending on racial and geographic conditions. These malformations are defects that compromise both the anatomical and functional part with great aesthetic involvement. Additionally, the psychological component influences the family and social environment. The etiological basis of this disorder includes the interaction of several factors such as: drug ingestion in the first trimester of pregnancy (anticonvulsants, benzodiazepines, salicylates); infectious factors such as viral and bacterial diseases; nutritional deficits and irradiation which has demonstrated its teratogenic effect.

Pre-surgical orthopedics has evolved and improved with the passage of time. According to clinical results in the long term, interdisciplinary work has brought a significant reduction in the sequelae of the LPH because orthopedics diminishes the aesthetic and functional complications that these patients suffer from.

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METHODS

Case 1

Diagnosis

Male patient diagnosed with unilateral cleft lip and palate, who was brought in for consultation to the Clinic of Craniofacial Anomalies of the Center of Medical Specialties of the State of Veracruz «Dr. Rafael Lucio» (CEMEV). Upon clinical examination a 15 mm complete alveolar-palatal-lip cleft, depression of the wing of the nose on the left side, a short and asymmetrical columnella and cleft palate with exposure of the vomer bone was observed (Figures 1-3).

Treatment goals

To shape the alveolar process and nostril, to move the concha major is towards the concha minor, to decrease the size of the alveolo-palatal fissure, to decrease complications during cheiloplasty and to improve the perioral musculature tone.

Treatment plan

The patient's parents signed an informed consent where the diagnosis, treatment plan and possible complications were specified. The treatment plan consisted in obtaining an impression with condensation silicone in order to manufacture a Friedman obturator that would be used until the fissure decreased to less than 5 mm. Then, treatment would continue in 2 months with the use of a nasal shaper joined to this



Figure 1. Initial extraoral photography.

plate. Appointments were scheduled every week to perform activations and changes according to the needs of the patient (Figures 4-7).

Case 2

Diagnosis

Male patient, two months of age, who was admitted in the orthodontics service for assessment and treatment with pre-surgical orthopedics. Upon clinical examination a bilateral, complete cleft lip and palate was observed along with premaxillary protrusion, a short columnella, asymmetric and depressed nostrils (Figures 8 y 9).

Treatment goals

To retract and align the premaxilla and shape adequately the alveolar process in addition to form the depressed nasal wings and stimulate closure of the



Figure 2. Initial submentovertex view.



Figure 3. Initial intraoral photography.

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