Prosthetic Management of Cleft lip and Palate Patient with Oronasal Communication: A Case Report

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Introduction

Oral-facial clefts are birth defects in which the tissues of the mouth or lip don’t form properly during fetal development. Children with clefts often don’t have enough tissue in their mouths, and the tissue they do have isn’t fused together properly to form the roof of their mouths.

In the United States, clefts occur in 1 in 700 to 1,000 births, making it the one of the most common major birth defects. According to the European Commission on Science Research and Development for the European Community, the incidence of these malformations is one case out of every 600 individuals. Clefts occur more often in children of Asian, Latin, or Native American descent.

A cleft lip appears as a narrow opening or gap in the skin of the upper lip that extends all the way to the base of the nose. A cleft palate is an opening between the roof of the mouth and the nasal cavity. Some children have clefts that extend through both the front and rear part of the palates, while others have only partial Clefting.

These malformations are also typically varied in terms of severity that depends mainly on the degree of structural involvement.

The Classification of these disorders is based on the incisor foramen as reference. Thus Premaxilla clefts are located anterior to the incisor foramen and affect the premaxilla (Group I); post foramina Clefts are located posterior to the foramen (Group II); and trans foramina clefts extend from the premaxilla to the soft palate (Group III) (1). Generally there are three different kinds of clefts:

- Cleft lip without a cleft palate
- Cleft palate without a cleft lip
- Cleft lip and cleft palate together

In addition, clefts can occur on one side of the mouth (unilateral clefting) or on both sides of the mouth (bilateral clefting). More boys than girls have clefts, while more girls have cleft palate than boys have a cleft lip, with Clefting (or both clefts) or on both sides of the mouth (unilateral clefting). More people have Cleft palate without a cleft lip (2).

The objective of the dental treatment was to seal the oronasal communication and stabilize the margins of the defect by inserting a kind of obturator as well as re-placing the missing teeth.

In Consideration to the oral hygiene for the patient with the identification of clearly deficient plaque control, I decided to apply a kind of fixed-removable pros-

In Figure 1 we see a Pre-surgical photograph showing the patient with a cleft lip and the tissue they have isn’t fused together properly to form the roof of their mouths. In Figure 2 we see the signs of severe cleft palate with increased overbite-relationship (Fig 2).

As well as different dental ages affecting teeth # 11, 12, 21, 22, and 25, poor oral hygiene with heavy stain and calculus was also diagnosed. The case was cons-

A new model was obtained for the patient was very excited and pleased with the final result (Fig 11).

Discussion

This case of cleft lip and palate allow us to review two important aspects of this pathology:

1. The causes, and 2. The existing therapeutic possibilities, particularly when prior corrective therapeutic measures have not been done at the correct time.

The causes of such malformation are highly diverse, though 5 major groups can be considered:

- Genetic Factors: that can be classified as (Syndromic and Non-Syndromic Oral Clefts) according to the way factors behave manifested clinically. Syndromic Clefts such as those that happen in association with other Syndromes as Osteo-
syndromic Dysplasia (4), and Van der Woude Syndrome (5). Non-Syndromic clefts are not related to syndromes rather than it happens due to gene al-
terations and causes isolated type of cleft lip and palate. Such as the sporadic forms of cleft lip and palate in areas of Venezuela.

- Environmental Factors such as maternal smoking habits (6), and smoking (7), and parent age (8). Folic acid (9), and Zinc and Vitamin B deficiency in pregnant women (9) are other related causes of such malformations.

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genetic and environmental factors such as genetic alteration of specific gene accompanying by maternal smoking habits, clearly predisposes to development of oral clefts.

The therapeutic possibilities regarding the management of orofacial clefts, most kids who are born with these conditions can have reconstructive surgeons within the first 12 to 18 months of life to correct the defect and significantly improve facial appearance. Children with oral clefting often undergo dental and orthodontic treatment to help align the teeth and take care of any gaps that exist because of the cleft.

Routine dental care may get lost in the midst of these major procedures, but healthy teeth are critical for a child with Clefting because it is needed for proper speech.

Children with cleft palate often have an alveolar ridge defect and defects can:

- Displace, tip, or rotate permanent teeth
- Prevent permanent teeth from appearing
- Prevent the alveolar ridge from forming

These problems can be fixed by grafting bone onto the alveolus, which allows the placement of the child’s teeth to be corrected orthodontically. Orthodontic treatment usually involves a number of phases, with the first phase beginning as the permanent teeth start to appear. In the first phase, which is called an orthopedal expansion, the upper dental arch is rounded out and the width of the upper jaw is increased. A device called an expander is placed inside the child’s mouth. The widening of the jaw may be followed by a bone graft in the alveolus.

The orthodontist may wait until the remainder of the child’s permanent teeth comes in before beginning the second phase of orthodontic treatment. The second phase may involve removing extra teeth, adding dental implants if teeth are missing, or applying braces to straighten teeth.

In about 25% of children with a unilateral cleft lip and palate, the upper jaw growth does not keep up with the lower jaw growth. If this occurs, the child may need orthognathic surgery to align the teeth and help the upper jaw to develop.

For these children, phase-two orthodontics may include an operation called an osteotomy on the upper jaw that moves the upper jaw both forward and downward. This usually requires another bone graft for stability.

These individuals pose the greatest orthodontic challenge, as reflected by the patient presented in this study. In our case, an adult patient with cleft lip and palate came to our clinic looking for aesthetic treatment for his clefts. His cleft lip was surgically corrected in his childhood, but neither bone grafting to close the oronasal communication where done nor orthognathic surgery. An oronasal fistula remains in the palate the matter that causes him problems with chewing, swallowing, breathing, phonation and aesthetic.

A plastic surgery where done to seal the oronasal fistula and to reshape the nostril. But, orthognathic surgery to correct the jaw relation was refused by the patient.

From the Prosthetic point of view, a number of treatment possibilities exist for cleft patients. One option is a Removable Prosthesis as reported in different studies, including overdentures on natural teeth (as in our case) (10-12).

Prosthesis may prove necessary in some patients to seal residual cleft palate or correct an inadequate pharyngeal vault that compromise speech (15). Another management option is conventional fixed prosthesis involving teeth stented on both sides of the cleft, thereby contributing to restore functional loading capacity (15). Implants are another option when placed in the inserted bone tissue (14-15).

As long as the alveolar cleft did not receive a bone graft, implants was not the treatment of choice in such a case. A kind of fixed-removable prosthesis on telescopic crowns was the treatment of choice to achieve two objectives.

1. Seal the remaining oronasal fistula and stenting of the arch on both sides of the palatal cleft.
2. Improve plaque control that is essential for the treatment of prosthesis. The fact that the patient may remove the secondary structure facilitates hygiene of the dental abutments when compared with cleaning difficulties associated with a conventional fixed bridge.

The double crown concept and the intradental design facilitate both teeth and prosthesis stability over the long term and ensure favorable masticatory force transmission. However, in any case, and regardless of the rehabilitation approach adopted, prosthodontic maintenance is essential component of long term patient care, and doctors must maintain adequate chewing and speech function, and facial aesthetics.

References

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Practice Matters
Fig. 2: Intra-oral Photograph before dental Fig. 5: Anterior Teeth Preparation Fig. 6: Telescopic Crowns “Outer Layer” in place
Fig. 7: Telescopic Crowns “Inner layer” cemented in place Fig. 8: Super structure tested for fitness Fig. 9: Wax up model

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