

BCP “Bilateral Cleft Palate” Appliance

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Abstract:

In this article, the authors describe an approach for treating the “bilateral cleft of the palate” in newborn patients, by a simple removable appliance called the BCP “Bilateral Cleft Palate” Appliance. The appliance is a removable acrylic plane, with Y-shaped three sectors; an expander “works as an intraoral retractor to retract the prognathic segment” and a string for appliance removal. This appliance is indicated for newborn bilateral cleft palate patients, especially during the first days after birth when the infant patient suffers difficulties in nursing and feeding. The appliance reduces the cleft palate, obturates the nasopalatine fistula, and is used to retract the anteriorly protruded prognathic segment, as well. The action of this appliance is orthopedic as it works to retract the prognathic segment by activation of the “opened central expander” that works as a “retractor and contractor”.

Key Words:

Bilateral Cleft Palate, Prognathic segment, Newborn patients, BCP Appliance.

Introduction:

Patients with bilateral palate clefting often have maxillary evolution disorders and hypoplasia. The first step in such cases is to start treating the patient orthopedically in the first month of the newborn’s life. The dilemma is that orthodontist has to do his utmost to retract the prognathic segment when the patient is unable to cooperate and the difficulties in the patient’s feeding and nurturing are most difficult, especially when a nasopalatine fistula exists (Figure 1). Even after cleft repair and orthodontic treatment, a severe maxillary deficiency may persist. However, the earlier the treatment is begun the less complications there are in the future.



Figure 1, a bilateral cleft palate “palatal cast”;
the prognathism, nasopalatine fistula and bilateral clefts are obvious.

Discussion:

The BCP “Bilateral Cleft Palate” patients traditionally undergo repair with surgical approaches. These approaches may fail because of:

- 1- Palatal scarring,
- 2- Soft tissue memory,
- 3- Scar formation.

Orthopedic traction leads to slow retraction of the surrounding tissues, allowing the body to accommodate to the new position of the maxilla (Krimmel et al), what may enhance the circumstances of orthopedic and surgical procedure of the patient during his next years of growth.

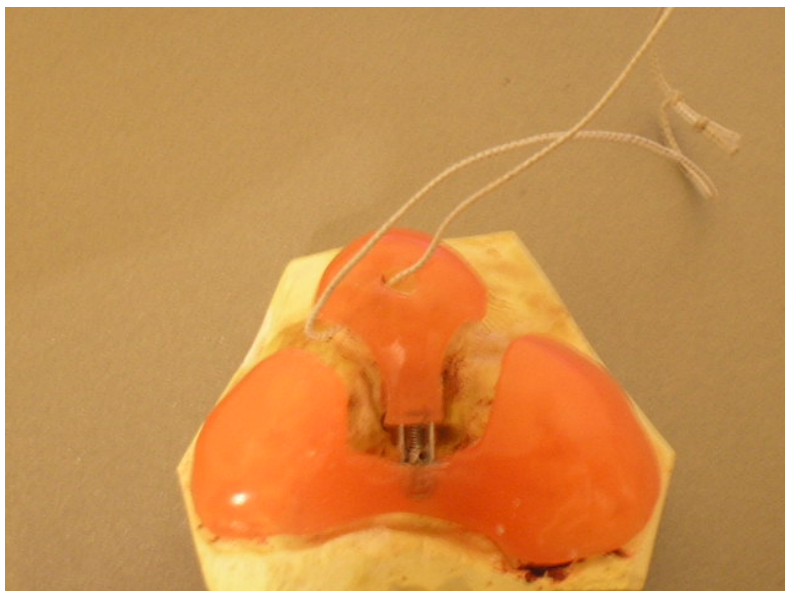


Figure 2, BCP Appliance for prognathism retraction.

BCP Appliance:

The BCP Appliance (Bilateral Cleft Palate Appliance) may act as an initial treatment (Figure 2). The appliance consists of a retractor (counter-expander) in the center of an acrylic plane, split into three Y-shaped sectors. By activation of the Central “Counter-Expander” of this appliance, the anterior portion of the appliance is drawn posteriorly, reducing the prognathic segment. This appliance works as an orthopedic therapy in such patients, whereas the acrylic plane in the base of this appliance insures the obturation of the nasopalatine fistula, if present. The appliance is activated by following the arrow marked on the screw (Figure3). The activation causes the anterior portion of the appliance to turn gradually back.



Figure 3, Activation of BCP Appliance, the left photo shows the appliance before its activation, whereas the right one shows it after activation. Notice the “posterior-traction” of the anterior part of the appliance in the right photo, after the activation.

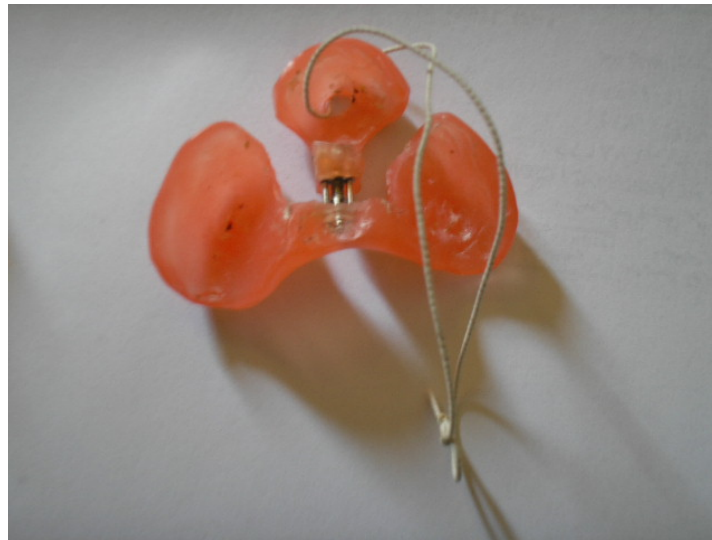


Figure 4, BCP Appliance “The internal view”.

The activation average is $\frac{1}{4}$ turn per 72 hours, which insures regular prognathic segment retraction of almost 2mm. per month.

It is recommended that the appliance be highly polished on all surfaces to avoid any traumatic potential effect to the infant (Figure 4). The string enables the patient's parents to easily remove and withdraw the appliance. (Figure 5).

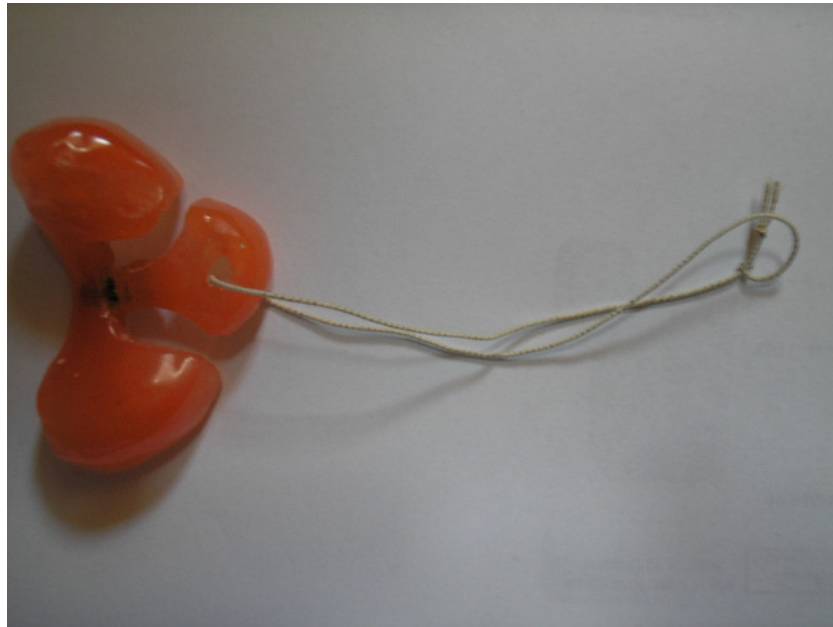


Figure 5, BCP Appliance has a string that facilitates its withdrawal from the infant's mouth.

Conclusion:

This appliance is a simple initial treatment of bilateral cleft palate in newborn patients. Such cases are really challenging to the team of orthodontists, orthopedists and maxillo-facial surgeons, as well. However, it is recommended that each case be studied, treated and approached as a unique entity. The BCP Appliance is NOT a panacea for all bilateral cleft palate cases, and practitioners are advised to take into account case severity, patient's age, existence of systemic diseases or syndromes and patient's parents' cooperation and comprehension. In addition, the average degree of activation should be modified for each case in discussion with the entire team. Finally, cleft lip and palate cases need to have a high degree of teamwork to provide the best therapy for patients.

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