

Modified Crib-Based Ortho-Traction Appliance

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Abstract

Tooth impaction can be defined as the infra-osseous position of the tooth after expected time of eruption. Multiple impacted teeth might be related to genetic syndromes such as cleido-cranial dysplasia (CCD) or endocrine disorders which certainly complicate the treatment and lengthen the overall treatment time considerably. It needs co-ordinated management to guide eruption of as many teeth as possible.

The Customizable design of Ortho-traction appliance with modified crib provides traction of multiple impacted teeth at the same time. This reduces treatment time and patient discomfort. Additional crib like design not only

provides place for hooks but also prevents tongue thrusting.

Keywords: Orthodontic traction, multiple teeth, Appliance for traction

Introduction

Tooth impaction can be defined as the infra-osseous position of the tooth after expected time of eruption. It occurs as much as 25% to 50% of the population¹. According to a review by Bishara², the primary etiological causes of tooth impaction include space deficiency, disturbances in tooth eruption sequence, retention of deciduous teeth, trauma, premature root closure, rotation of tooth buds, thickened overlying osseous or mucosal tissues, cysts and odontoma. Multiple

impacted teeth might be related to genetic syndromes such as cleidocranial dysplasia (CCD) or endocrine disorders.

Orthodontic intervention to bring these impacted teeth into the line of occlusion is important for long-term function and stability.

Multiple impactions certainly complicate the treatment and lengthen the overall treatment time considerably. Due to impaction of multiple teeth in syndrome cases like Cleidocranial dysplasia, conventional method of traction with help of adjacent teeth is not possible. It needs coordinated management to guide eruption of as many teeth as possible³.

In such a case, open communication between the orthodontist and oral surgeon is essential, as it will allow for the appropriate surgical and orthodontic techniques to be used.

Armamentarium

1. 19 gauge SS wire.
2. 0.007 inch band material.
3. Silver solder

Framework

- Design can be customized depending upon teeth present.
- Banding posterior teeth.
- U shape wire along the palate soldered to molar bands.
- A smaller U shaped wire soldered anteriorly on base arch wire vertically making it look like a crib, this will not only be used for hooks attachment during traction but also will act like a tongue crib.
- Additional hooks labially on premolar and molar band for traction of impacted canine and premolar.
- This design will provides anchorage and also help in traction of multiple teeth at the same time.

- Easy to fabricate. Anterior crib like structure in pre-maxilla acts like tongue crib as tongue thrusting is common in such patients.
- Explained in figure 1,2,3 4 and 5

Ortho-traction appliance with crib framework

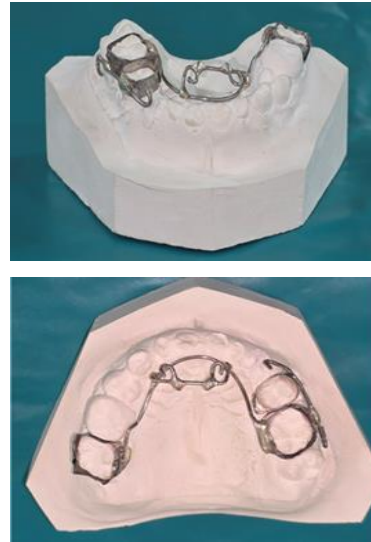


Figure 1 and 2: Showing anterior crib along with hooks for preventing tongue thrusting and traction of teeth at the same time



Figure 3 and 4: Showing side view with additional hooks for traction (if needed).

Conclusion

This is simple and effective framework for traction of multiple teeth at the same time in cases required. The design could be modified according to teeth present or

hooks required for traction. The anterior crib like structure will also halt tongue thrusting, this will lead to effective traction and habit correction.

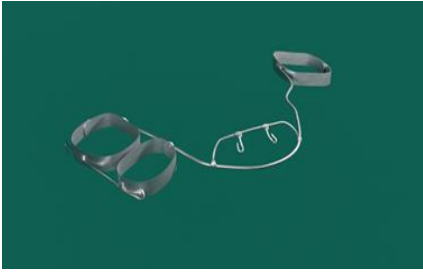


Figure 5: 3D perspective view of the appliance



Figure 6: Appliance cemented in mouth

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