

Restructuring Hyrax Arm To Customize Inbuilt Hooks For Maxillary Protraction.

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Skeletal Class III malocclusion is characterized by deficient maxilla, mandibular prognathism, or a combination of both.

Maxillary expansion and protraction with facemask is an effective and widely used approach for Class III correction¹ but it has limitations of the loss of dental anchorage.² Recently skeletal anchorage treatment has been introduced for maxillary protraction. Since they require surgical invasive procedures to insert and remove them, not all patients are willing to accept the protocol. Moreover, some of the components may not be stable during the treatment.³

In conventional face mask and rapid maxillary expansion (RME) therapy, a J-shaped hook is usually soldered to the wire component of RME appliance for attachment of elastics for protraction of maxilla along with expansion. Appliance rigidity is necessary attribute to circumvent loss of dental anchorage. Several authors have demonstrated decreased rotational component of force along the long axis of the tooth when appliance rigidity is increased⁴. Further, it has been observed that treatment effects with rigid acrylic bonded appliance is skeletal as opposed to dentoalveolar.⁵ Moreover, silver soldering has been shown to be more cytotoxic and genotoxic as compared to orthodontic appliances having no silver solder.⁶ Hence, a modified design for making inbuilt J-hooks in Hyrax arm of RME appliance is presented.

For appliance fabrication, adapt the anterior arm of hyrax screw on palate, occlusally and extend in buccal vestibule. Bend the terminal ends of anterior arm of hyrax backwards to make hooks. Twist the posterior arm on the palate and around terminal molar. Acrylize the framework. (Figure 1-4).



Figure 1. Appliance fabrication & incorporation of hooks in anterior arm.



Figure 2. Right lateral view.

Figure 3. Left lateral view.



Figure 4. Appliance in place.

This simple modification of anterior arm of hyrax screw as J-hook to an RME appliance makes it sturdy and prevents breakage or bending of hooks with orthopedic traction. Moreover, it avoids harmful side effects of solder. Present technique allows easier fabrication and reduces appliance fabrication time considerably as no soldering is required.

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