ABSTRACT

Fixed functional appliances have become an integral part of the contemporary orthodontic armamentarium. As with any other appliances, they may also break during the course of orthodontic therapy. Replacement of the same is expensive and also requires a large inventory. An innovative low cost option with minimal increase in inventory is described in this article.

Keywords: Forsus, Fixed functional appliance.

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INTRODUCTION

Class II malocclusion is the most frequent sagittal problem in orthodontics as it affects one-third of the population. One of the recommended therapeutic approaches to Class II malocclusion in growing patients is functional jaw orthopedics through the primary mechanism of mandibular advancement. Fixed devices for sagittal advancement of the mandible that do not require patient compliance and that can be worn in association with fixed appliances have become popular with clinicians. These they contoured overcome two major limitations of removable functional appliances: The need for patient compliance and the lack of the possibility of combining the use of the functional appliance with fixed appliance therapy.

Forsus™ Fatigue resistant device (FRD) (3M Unitek, Monrovia, USA) is a three piece, semi-rigid telescoping system incorporating a superelastic nickel-titanium coil spring that can be assembled chairside in a relatively short period of time. It is compatible with pre-existing appliance and can be incorporated into them. The FRD attaches to the maxillary first molar and onto the mandibular archwire, distal to either the canine or first premolar bracket. As the coil is compressed, opposing forces are transmitted to the sites of attachment. Since the appliance was introduced, a custom portion has been added to the push rod. The new parts are called direct push rods because they allow the appliance to be attached directly to the mandibular archwire instead of a bypass wire. The recurve portion prevents the push rod from rotating into the bite.

Forsus Class II corrector is indicated as a fixed functional appliance for a non-compliant patient. But, is it in true sense a noncompliant appliance; what if the patient loses the push rod of one side and reports back? In such circumstance, the only option available is to change the whole assembly, as the manufacturers do not provide any spare push rod for either side thus increasing the overall cost of treatment. However, considering the popularity of the appliance, an attempt has been made to construct a new push rod on the affected side with simple available orthodontic materials without disturbing the assembly on the other side. A step by step procedure has been mentioned below to fabricate the push rod using 0.044 inch wire.

PROCEDURE

1. Take a 0.044 inch steel wire and bend it according to the available push rod of the unaffected side but in opposite direction (Fig. 1).
2. Once a proper hook shape is formed, the wire is cut equal to the length of the available push rod.
3. To fabricate the stop on the push rod:
   i. Measure the length of the available push rod distal to the stop
   ii. Make a mark on the fabricated push rod according to the measurement made above
   iii. Cut a piece of band material (0.004 × 0.180 inch) and adapt it to snugly fit on the fabricated push rod and make a weld joint at the junction to two ends of the band material (Fig. 2)
   iv. Cut the excess band material and adapt the rest of the band material on the push rod (Fig. 3)
   v. After ensuring the fit of the band ring, it is aligned mesial to the mark made previously.
vi. Using the spot weld machine, this ring is welded on the fabricated rod (Fig. 4).

vii. Ensure that the ring is fixed and not mobile after the welding.

The push rod is placed in patient’s mouth and the fit checked (Fig. 5). It is important to see that the ring is snugly fit and does not slide into the Forsus spring.

CONCLUSION

We have found this to be a more economical variant, as compared to actually replacing the whole assembly which increases the cost of the treatment considerably.

REFERENCES


