

Technique Tips — ADH Appliance: An Alternative for Patients Allergic to Acrylic



Figure 1.



Figure 2.

Retention is an integral part of successful orthodontics. It can be defined as 'maintaining newly moved teeth in position long enough to aid in stabilizing their correction and to permit reorganization of the periodontium, as well as the alveolar bone, around the teeth.'¹

The Hawley removable retainer² is used widely as it permits the patient to perform optimal oral hygiene care. The



Figure 3.

major disadvantage of such a retainer is the effect of the acrylic baseplate on speech and the possibility of an allergic reaction to the monomer. To overcome these shortcomings of the traditional acrylic retainer, a new non-acrylic based retainer is suggested that has all the features of the traditional retainer but with reduced bulk, better tissue adaptability and enhanced patient comfort.

Design and construction

A 23-year-old girl presented with relapse of previous orthodontic treatment resulting in a midline diastema in the maxillary arch and opening of the extraction spaces in all quadrants (Figure 1). The patient reported that she developed swollen lips and palate on wearing the retainer, which resolved uneventfully when the appliance was discontinued. The

allergy to acrylic was the culprit in lack of sufficient wear of the retainer, which resulted in relapse. As the patient was not willing to undergo retreatment with fixed appliances, it was necessary to design an acrylic-free appliance.

When considering a material substitute for the acrylic it was important to consider properties such as strength and the ability of the material to retain the wire components. Remanium®, a cast metal alloy, is a material used frequently in the manufacturing of cast partial dentures in prosthodontics and has the desired properties.

The new retainer consists of three soldered components; the cast framework (Remanium®) (half-round pattern), a labial bow made of 0.7 mm round hard stainless steel wire (Leone®) soldered to the Adam's clasps on the first molars, which is soldered to the framework on the palatal/lingual aspect. A 'closed horseshoe' framework design was selected for the maxillary arch, and a 'lingual bar' type design was constructed for the mandibular arch. (Figure 2)

On delivery of the appliance, retention was adequate in both the maxillary and mandibular arches. The patient did not present with any of the signs of allergy that she had developed with the previous appliance. During the weekly recall, it was noted that the patient could maintain optimal oral hygiene as the metal components were easier to clean. There was no immediate decrease in speech efficiency as the appliance was less bulky, without compromising on strength and with minimal soft-tissue irritation (Figure 3).

References

1. Graber TM, Neumann B. *Removable Orthodontic Appliances*. Philadelphia: WB Saunders, 1977.
2. Hawley CA. A removable retainer. *Int J Orthod Oral Surg* 1919; 5: 291–305.