

TECHNIQUE CLINIC Modified Arrowhead Clasps for Removable Biteplanes

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Removable anterior biteplanes are used to facilitate overbite reduction, free the occlusion from interferences, and permit placement of mandibular brackets. Such appliances must have sufficient retention to be stable while allowing easy insertion and removal by the patient.

The traditional recurved clasps, which engage the buccal molar tubes, are prone to distortion, unreliable in retention, and often difficult to insert. Ball clasps, which fit into interdental undercuts in the premolar regions, provide better retention, but can be difficult to remove.

A single-arrowhead auxiliary clasp has been proposed for use with removable appliances. This article describes a modification that makes the clasp usable with fixed appliances.

Design and Construction

Either of two modified single-arrowhead clasp designs, made from .028" (.7mm) stainless steel wire, can engage the interdental undercuts of any tooth mesial to the first permanent molar.

The first type of arrowhead is formed with a 100° bend into the undercut, passing occlusally under the main archwire (Fig. 1). The distal portion passes over the contact point of the adjacent teeth and into the acrylic of the biteplane. The mesial portion continues 2-3mm occlusal to the archwire and is bent labially to form a small horizontal loop, which is used by the patient for appliance removal.

In the second type, the distal portion of the wire ends in a loop-shaped arrowhead (Fig. 2). The mesial arm passes occlusally and labially under the main archwire. A 90° bend then forms a recurved extension occlusal to the bracket wings, which serves as a handle for appliance removal. The end of the wire continues interdentally into the biteplane acrylic. This design is less compact and esthetic than the first type, but is easier to adjust.

Optimal retention is provided by two incisor and two premolar clasps (Fig. 3). In some cases, however, adequate retention may be achieved with only two premolar clasps. The location of the clasps can vary depending on the availability of suitable undercuts.

The biteplane should be constructed after the maxillary arch has been aligned enough that the clasps can be placed in the appropriate locations. We suggest that a stainless steel working archwire be in place for one appointment interval before impressions are taken. The archwire should be removed for the impression to ensure accuracy of the working cast. If the acrylic is formed in a horseshoe shape and kept as small as possible, patient discomfort and speech impairment will be avoided.

Conclusion

These simple clasps provide firm retention and stability, yet can be easily adjusted if necessary. If they are placed more mesially, they can allow mesial or distal maxillary molar movements, which would be impossible with conventional recurved first-molar clasps. They can also be used to improve

the retention of acrylic bite wafers when fixed appliances are used during orthognathic surgery. □

FIGURES

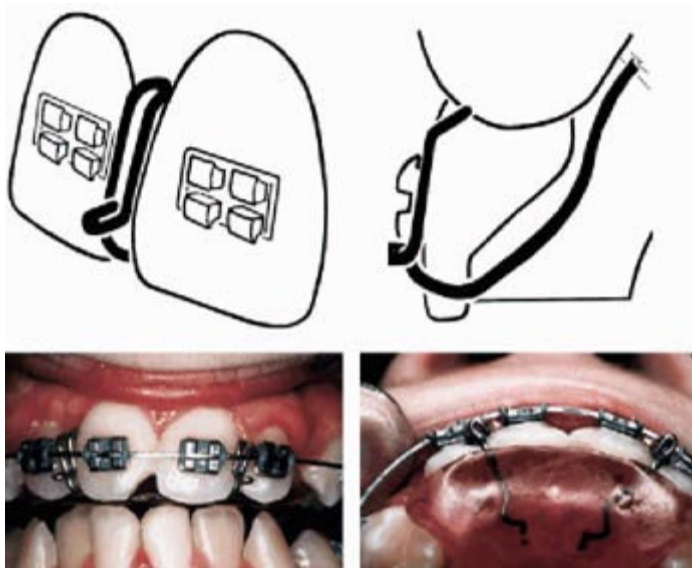


Fig. 1 Compact design of single-arrowhead clasp.

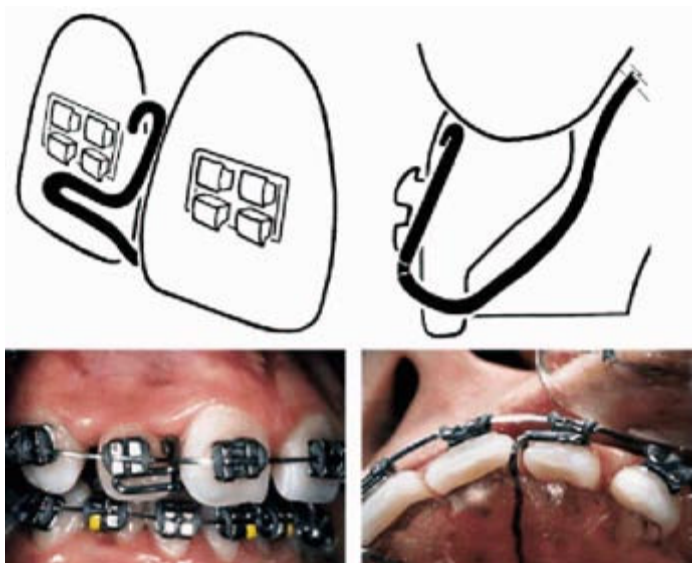


Fig. 2 Design with free distal extension for easier adjustment.



Fig. 3 Ideal clasp locations for maximum retention.

