New, Esthetic Organic Polymer Maxillary Retainers

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We have used the esthetic QCM retainer, which is made from an organic polymer (polyethylene terephthalate), for nearly six years.[1,2] About two years ago, we developed a new version* (Fig. 1). The new retainer is easy to fabricate and fit to the dental arch. It requires no special tools or instruments, only an ordinary hair dryer.

The anterior plastic part, a flat organic polymer wire with 10° labial torque, is attached to .032" stainless steel posterior arms, each 11cm long. The plastic portion comes in three intercanine widths, with or without activating omega loops in the posterior arms (Fig. 1A).

*Chikami Miltec, Inc., Kochi, Japan. Distributed by Ormco/"A" Company, 1717 W. Collins Ave., Orange, CA 92867.

Fabrication

The retainer can be constructed with or without clasps. Although the steps are generally the same, the order of fabrication differs slightly.

1. Choose the proper size so that the flat plastic part reaches the buccal curvature of the canines (Fig. 2). If omega loops are used, be sure to acti-

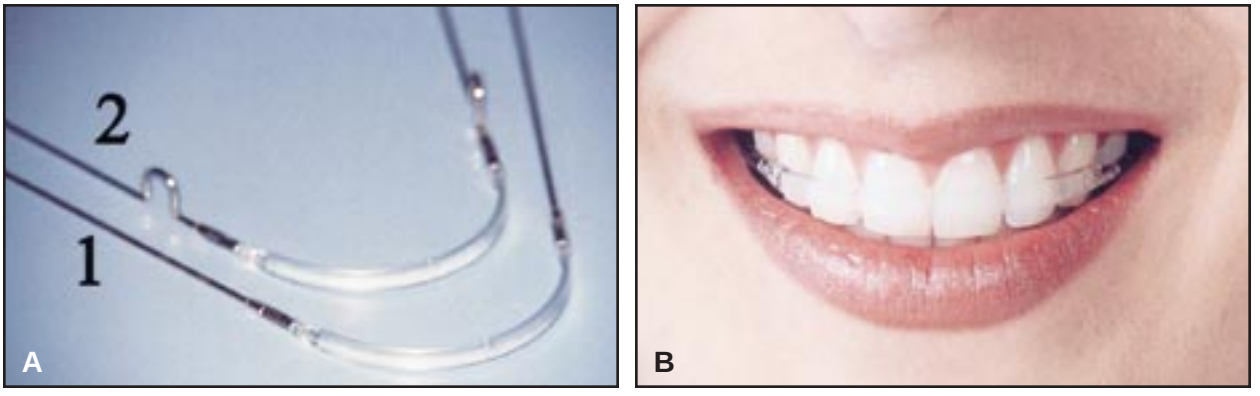

Fig. 1 A. Esthetic retainer without (1) and with (2) omega loops. B. Retainer in place.

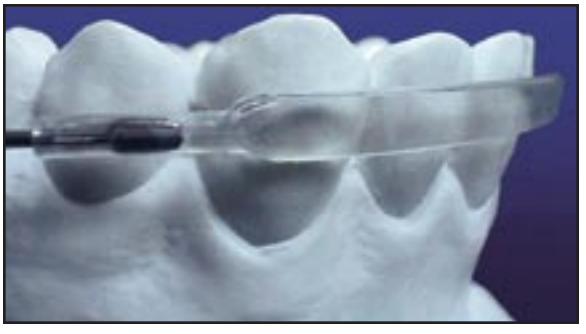

Fig. 2 Selecting proper size, with anterior plastic portion extending to buccal curvature of canine.

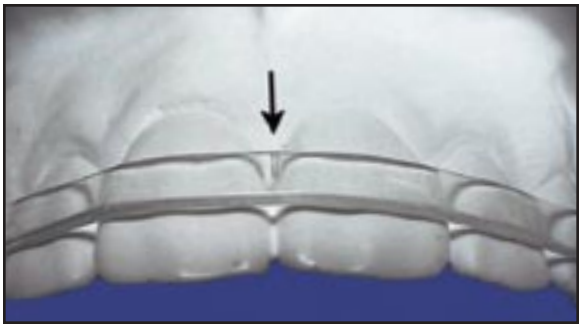

Fig. 3 Retainer aligned on cast (arrow indicates midline mark on plastic).

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vate the loops before proceeding to the next step.
2. Place the retainer on the cast with the bottom of the plastic portion one-third of the distance from the incisal edges of the incisors. Match the midline mark on the plastic with the dental midline (Fig. 3). Fix the wire temporarily to the cast with cellophane tape.
3. Place the cast with the wire attached to it on the corner of a table, and heat one side of the plastic wire for a few seconds with a hair dryer (Fig. 4). The organic polymer will then be soft enough to adapt to the cast with thumb pressure.
4. Fix the finished half to the cast with cellophane tape; fit the opposite side in the same way.
5. If clasps are desired, bend the clasps, then build up the palatal plate from acrylic resin as usual (Fig. 5). Because resin monomers are harmful to plastic, the acrylic plate should be

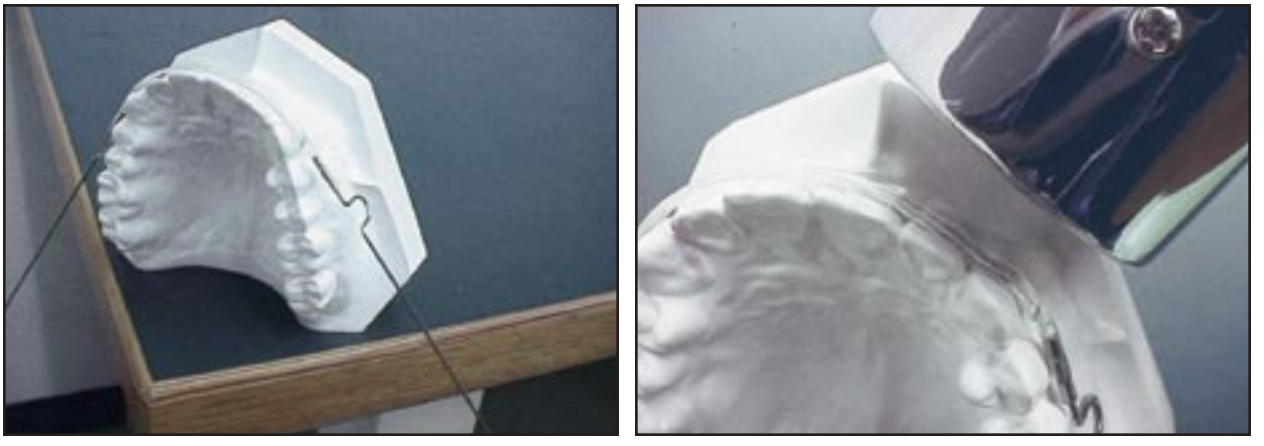

Fig. 4 A. Cast with retainer placed on corner of table. B. One side of retainer heated with hair dryer.

Fig. 5 Forming acrylic plate.

Fig. 6 Posterior arm of retainer wire soldered to clasp.

formed with a brush-up technique or with light-cured resin. Solder the metal posterior arms of the retainer wire to the clasps (Fig. 6). For retainers without clasps, bend the posterior arms to conform to the cast on the palatal side before building up the acrylic plate.
6. Polish the acrylic as usual, but do not polish the retainer framework.
7. Try the retainer in the mouth. If the fit is not as desired, replace the retainer on the cast, heat the plastic with the hair dryer, and adapt the retainer with thumb pressure.

Discussion

Both patients and laboratory technicians were generally satisfied with the previous version of the QCM retainer. Connecting the posterior metal arms to the plastic seemed to be difficult and time-consuming, however, and although few failures were reported, there was some concern that the retainers would fail if the plastic portion were disconnected. In the new generation, the plastic portion and the metal wires come in one piece (Fig. 1).

The new maxillary retainer not only responds to technicians' needs, but enhances patients' esthetic appearance. Patients surveyed in our clinic have even been willing to wear esthetic labial retainers during the day as well as at night.

REFERENCES

1. Watanabe, M.; Nakata, S.; and Morishita, T.: Organic polymer wire for esthetic maxillary retainers, J. Clin. Orthod. 30:266-271, 1996.
2. Goto, S. and Yokoi, Y.: in *Shikagikougaku Rinshou Kenkyu Kenshu Koza*, ed. Y. Miura, Ishiyaku Shuppan Kabushikikaisha, Tokyo, 1997, p. 174.