

Fixed Active Retainer for Minor Anterior Tooth Movement

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Orthodontists are often required to treat simple malocclusions involving only rotations and crowding of the anterior teeth, due to either normal physiological development or relapse of earlier treatment. We have developed a simple lingual retainer that produces minor tooth movement in such cases. The procedure is as follows:

1. Etch the lingual surface of the tooth to be moved with 37% phosphoric acid, and apply a

thin coat of light-cured adhesive.

2. Adapt an .012" nickel titanium wire to the lingual surfaces with a college plier, and activate it according to the movement desired (Fig. 1).
3. Light-cure the adhesive.
4. Cut off any excess wire with a carbide bur.

The mechanical system consists of a single force on the anchor tooth, which produces a rota-

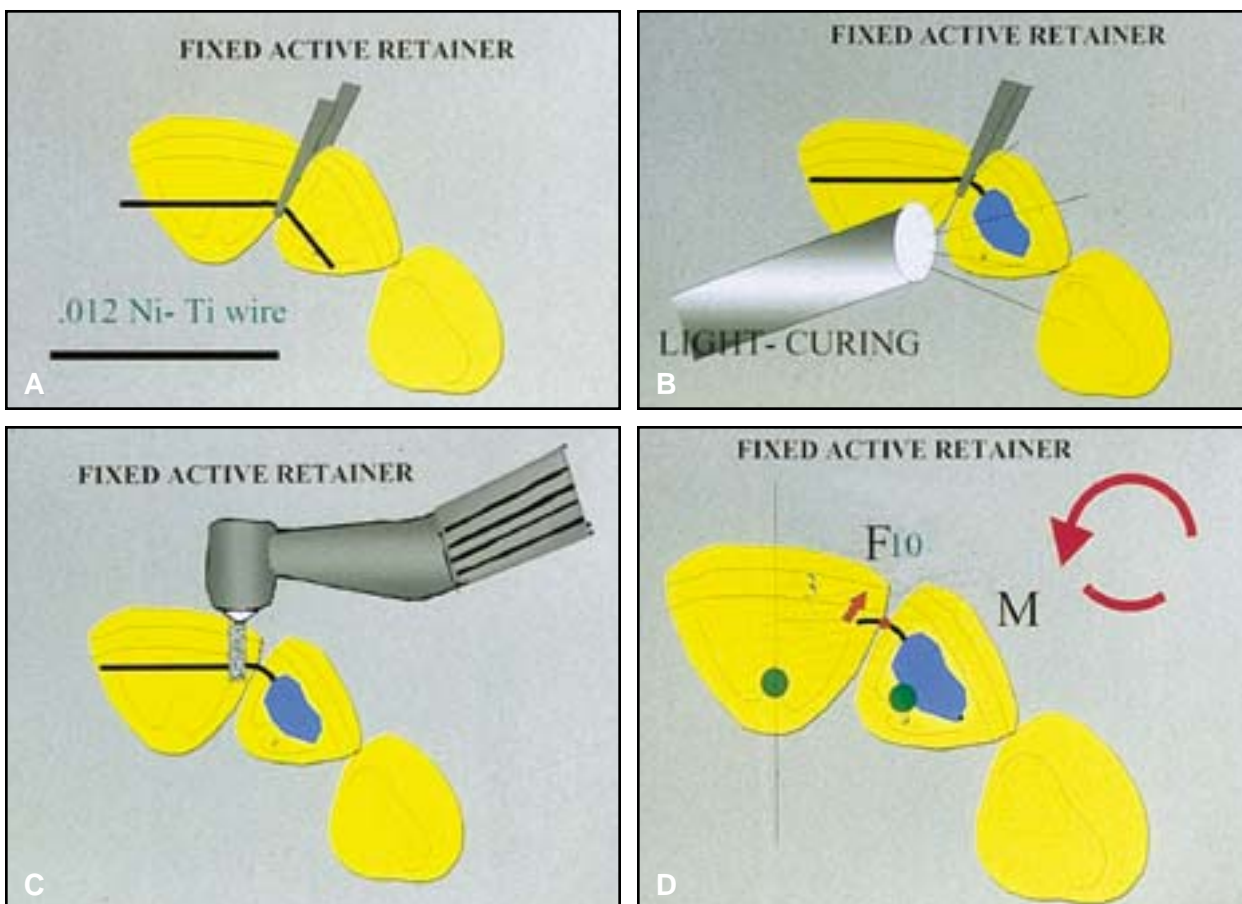


Fig. 1 A. Nickel titanium wire adapted to lingual tooth surfaces. B. Wire bonded with light-cured adhesive. C. Excess wire cut with carbide bur. D. Mechanical system: single force (F) on anchor tooth produces rotational moment (M).

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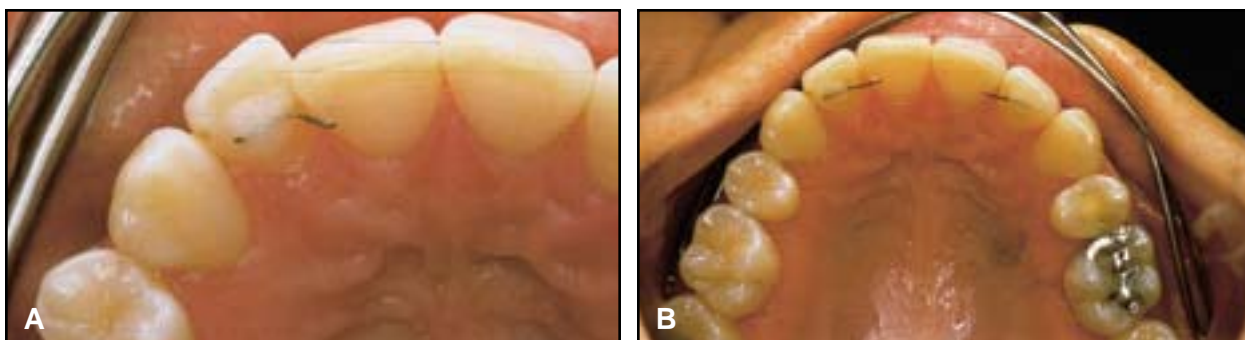


Fig. 2 Case 1. A. Retainer wire bonded between maxillary right central and lateral incisors (wire added one month later between maxillary left central and lateral incisors). B. After three months.



Fig. 3 Case 2. A. Minor axial crowding between central incisors. B. Retainer wire in place. C. After three months.

tional moment on the tooth to be moved. In our experience, the force is too light to move the anchor tooth, while the moment is sufficient to cause rotation.

Applications

Case 1 shows an active retainer placed between the maxillary right central and lateral incisors (Fig. 2). A month later, another wire was added between the left central and lateral incisors. After three months, the crowding was resolved, and the wires were left in place for retention.

Case 2 had minor axial crowding between the maxillary central incisors (Fig. 3). An active retainer was bonded, and the situation was corrected in three months. The wire was left as a retainer.

Conclusion

This active retainer is more comfortable than lingual brackets^{1,2} and more esthetic than labial appliances. It is inexpensive, requires no setup, and is easily constructed at the chair.

Minor crowding or individual tooth rotations can be corrected quickly, as shown here. In cases with more severe crowding, some interdental stripping may be required before the retainer will be effective.

REFERENCES

1. Miyawaki, S.; Yasuhara, M.; and Koh, Y.: Discomfort caused by bonded lingual orthodontic appliances in adult patients examined by retrospective questionnaire, *Am. J. Orthod.* 115:83-88, 1999.
2. Sinclair, P.M.; Cannito, M.F.; Goates, L.J.; Solomos, L.F.; and Alexander, C.M.: Patient responses to lingual appliances, *J. Clin. Orthod.* 20:396-404, 1986.