Esthetic Removable Fixed Retention

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For the adult patient orthodontic treatment is odious in itself involving, as it often does, the disfigurement of wearing unsightly appliances. For those with enough fortitude to endure the physical and emotional stress of conventional treatment with fixed appliances there is yet a further esthetic insult to be borne: a retainer. If a conventional Hawley retainer is employed, the temptation to remove the offending blemish is often too hard to resist, and the retention program often falls prey to the well-known sequela of removing a retainer "just for a few hours": loss or breakage of retainers, or change of sensation of "fit" as teeth move, and eventually the premature discontinuance of retention.

Unfortunately, many adult patients fall into the second group of Riedel's classification of retention requirements: "Cases in which it is necessary to continue permanent or semipermanent retention."[1] For many of these patients the original malocclusion involves spacing and rotation of anterior teeth, often attended by periodontal problems in varying degrees of control, and conditions demanding a persistent retention program.

The solution of wearing a retainer periodically is at best unsatisfactory, and is often inadequate to maintain stability of tooth position. The "night only" school of retention is also open to question since its effect is that of permitting relapse during the daytime and recovery at night, thus keeping teeth in a floating state of instability, probably inconsistent with the already precarious state of periodontal integrity seen in many of our adult patients.

In a recent paper Andreasen and Johnson proposed an ingenious solution to this problem, "Permanent Retention With a Nonparallel Pin Retainer"[2]. The appliance consisted of a contoured cast lingual bar permanently attached by screws to lingual inlays in upper anterior teeth.

The authors of this paper have solved a similar problem in a somewhat identical fashion. We have adapted a device proposed as a periodontal stabilizing splint by Ehrlich, Frisch and Nedelman in 1968.[3] This method provides for the lingual bar to be removed by the patient. The lingual bar is cast with pins which fit into parallel holes in the lingual inlays. The patient learned to remove and replace the lingual bar quite easily, and does so for cleaning twice daily. The bar is contoured to conform to the lingual of each tooth and inlay and fits in place securely.

The patient is thus provided with a complete esthetic retainer which is comfortable and easy to manipulate and maintain. Effective hygiene is readily maintained and there is no interference with office prophylaxis or other periodontal therapeutic programs. Palatal and periodontal tissues are provided a normal environment rather than the altered condition enforced by the wearing of a conventional retainer.

The patient was a fastidious young matron in good health. Dental examination showed no missing teeth and a good level of hygiene and operative dental care. Occlusion was Class I. There was an upper central diastema of three mm and some mild irregularity, rotation and spacing of upper central and lateral incisors (Fig. 1). The teeth were of good form and color and un-

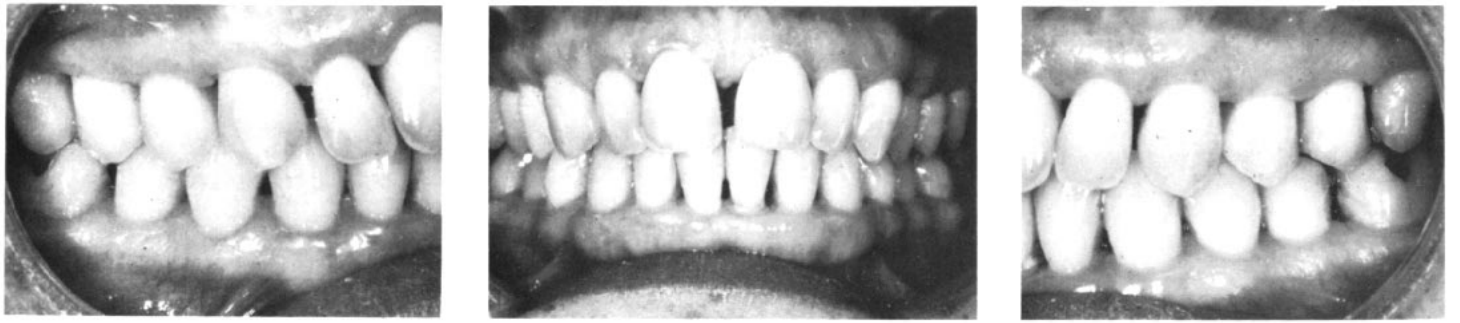

Fig. 1 Original malocclusion showing diastema and mild irregularities.

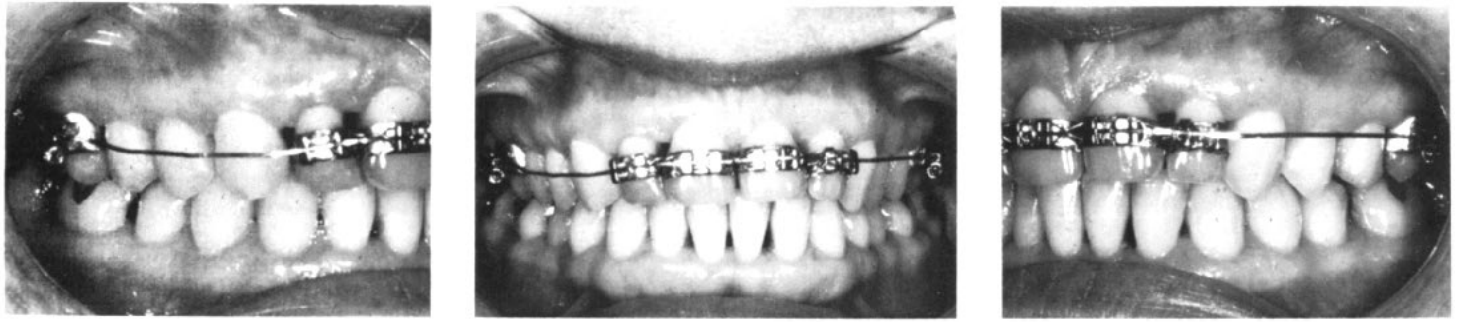

Fig. 2 Case at completion of partial banded treatment.

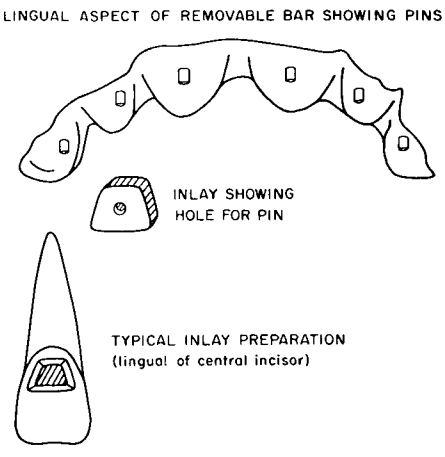

Fig. 3 Lingual inlays showing holes for pins and cast lingual bar showing pins.

affected by caries. There had been an episode of periodontal disease ten months earlier which had been surgically treated resulting in some loss of gingival tissue and further change in position of the upper anterior teeth. There was some mobility due to bone loss. Overbite and overjet were acceptable.

The upper four anterior teeth and first molars were banded, the spaces closed, and individual tooth positions perfected (Fig. 2). Treatment time was eight months.

Bands were removed and parallel-walled inlay preparations were immediately prepared in the cingulum areas of the upper six anterior teeth by the patient's operative dentist. A rubber base impression was taken in a customized tray. Hydrocal models were poured, wax patterns prepared and cast following accepted laboratory procedures. The unfinished castings were placed in the mouth to insure proper fit and then placed back on the model for fabrication of the removable portion of the retention system. Parallel holes (.020) were drilled in the center of each inlay to a depth of 7/8ths of the thickness of each inlay using a laboratory hand piece set in a surveyor

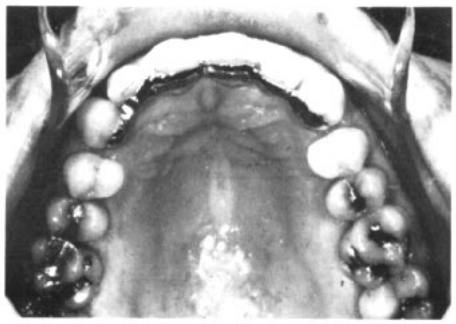

Fig. 4 Lingual bar seated to place in cemented inlays in the mouth.

after the technique described by Ehrlich, Frisch and Nedelman. Nylon bristles were placed in the holes to the depth drilled and a lingual bar about two mm thick was waxed to shape covering the cingulum area of the six anterior teeth compatible with the occlusion. The lingual bar with the nylon bristles embedded was cast in hard gold. The inlays and lingual bar are shown in Figure 3. With the pin holes protected by wax, the inlays were cemented to place and polished.

The removable lingual bar was fitted to place without difficulty inserting the pins into the holes in each inlay (Fig. 4). The patient was instructed in its removal and placement. A small scaler had been provided but soon proved unnecessary.

After two years of this retention program, tooth position and gingival health are excellent (Fig. 5) and the patient has reported no difficulty.

Summary

A technique and case report are presented to demonstrate the use of a cast lingual bar retainer with pins to insert into parallel holes in prepared inlays. This technique provides for esthetically undetectable but rigid retention which is completely compatible with good oral hygiene and tissue care and may be continued indefinitely.

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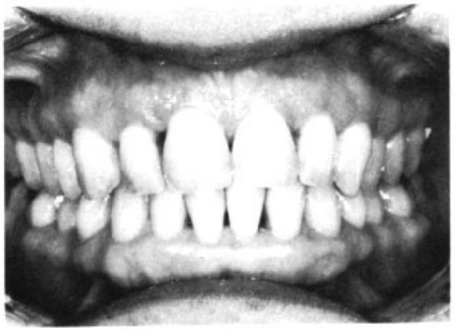

Fig. 5 Finished case after two years of removable fixed retention.

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3. Ehrlich, P., and Nedelman, C.: Hygienic esthetic anterior splinting. *J. So. Cal. Dent. Assn.*, 36:225-228, 1968.