

CLINICAL SECTION

The Manchester positioner – dual retention made easy

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Accurate easy placement bonded retainers have long been a desired aspect of contemporary orthodontic treatment. This article offers the reader a simple and precise method of placing a fixed bonded retainer. This technique also has the advantage of providing a retainer that can be used as both the positioner and the dual removable retainer.

Key words: Orthodontics, dual retention, fixed retainers, removable

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Introduction

Retention following active orthodontic treatment has been a controversial area for many years. Traditionally routine removable retainers have been employed to maintain alignment with various prescriptions relating to the pattern of wear. The retainers are used to hold the repositioned teeth in their corrected position while the surrounding tissues remodel to the new location. The re-organisation of the tissues can take a considerable time ranging from 120 to 160 days for the periodontal ligaments to more than 232 days for the supracrestal fibres.¹ If this phase of treatment is not undertaken the teeth may return back to their original untreated position. The actual aetiology of relapse and retention is unclear and is related to many factors² which make guidance to definite retention regimes difficult to prescribe. Indeed, a Cochrane review of the literature³ to evaluate the effectiveness of different retention regimes concluded that there was insufficient evidence on which to base the practice of orthodontic retention. It is clear, however, that some orthodontic movements are more prone to relapse than other tooth position changes. Therefore, each orthodontic treatment must have a plan of the retention phase as an important aspect of the overall orthodontic management of the patient. It should be emphasised to the patient and parents that ‘permanent cure’ is rare² and the retention phase should be incorporated in the consent for treatment.

Retainer regime

A number of different retainers have been made available for use including Hawley retainers, Begg retainers and more commonly vacuum-formed retainers. Increasingly, especially following non-extraction treatment and when

long term maintenance of the alignment is desired, bonded fixed retainers are used. These are mostly in the form of a twist-flex wire placed on the lingual or palatal surfaces of the upper and lower labial segments. These retainers have been demonstrated as providing a reliable form of post-orthodontic treatment retention,⁴ although if placed incorrectly torque may be introduced and result in unexpected tooth movement.⁵ This reinforces the need for highly accurate and passive placement of bonded retainers. Various techniques of stabilising the retainer wire have been suggested with floss, acrylic transfer trays,⁶ molar bands⁷ ceramic locking elements⁸ and elastic separators.⁹

In addition to the problems of bonded retainers as stated above, dual retention with a removable retainer may be preferred as a backup to the bonded retainers. This allows a responsibility of retention to be passed to the patient and not sole reliance on the clinicians’ bonded retainer. If a bonded retainer should debond the patient may return, even after many years, with the view that the clinician’s retainers have failed and any subsequent movement is now the responsibility of the clinician. This can be partly avoided with dual retention by providing the patient with the removable retainer and requesting long-term retainer wear, thus delegating an element of responsibility to the patient.¹⁰

Dual retention is a desired approach for retention following active orthodontic treatment and the design of the Manchester Positioner performs both roles and allows easy placement of the bonded retainer.

Retainer laboratory construction

The laboratory construction of the Manchester Positioner is outlined below.

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Figure 1 Construction of Manchester positioner – the acrylic should overlie the lower incisors by 2–3 mm

The removable splint/retainer is formed either by vacuum, or pressure forming a blank over the cast model. The acrylic splint is extended to whichever teeth are required, i.e. 1st or 2nd molars and trimmed so that it finishes 3 mm past the gingival margins on the labial aspects and 4–5 mm past the margins on the lingual aspects (Figure 1). The area behind the anterior teeth should be extended further to allow for the subsequent stage.

A window is incorporated into the splint directly behind the anterior teeth where the twist-flex wire will be placed. The window should be large enough to allow room for bonding but, ideally, some splint material should remain over the incisal edges and below the margins, hence the extra depth of the splint in this area. The finished splint can be placed back on the model and a multi-strand (0.0175' twist-flex) wire adapted to the

cingulum plateaus of the anterior teeth. Enough wire should be allowed to extend on to the surface of the splint at both ends of the window. The wire can be cut to the correct length before waxing it in place on the model (Figure 2a,b). The adjacent surface ends of the splint should be roughened where the wire is to lie before placing cold-cure resin over the wire ends to secure it to the splint. The splint now becomes the positioner for holding the twist-flex wire in an accurate, passive state while in the mouth (Figure 3a,b).

Technique

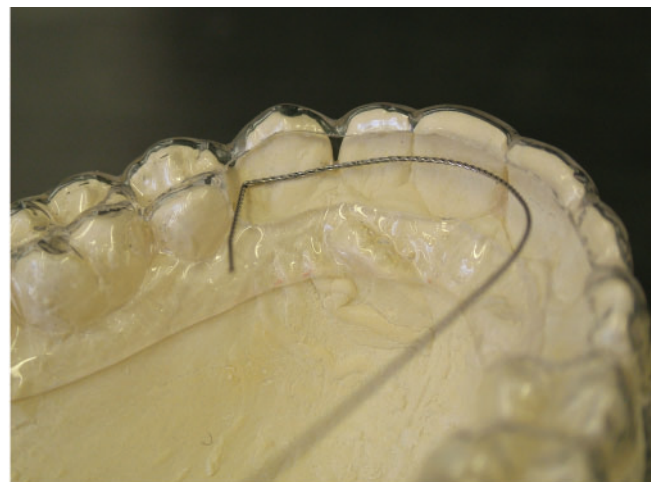
Placement of the bonded retainer

The positioner has been designed to ensure an accurate locator is available to place the bonded retainer. Placement of a bonded retainer can be technically difficult and requires a dry field along with stability of the retainer wire prior to applying the composite. This positioner allows fabrication of the wire to be in a completely passive position adjacent to the teeth prior to cementation.

The positioner is initially fitted in a similar manner to placement of Essix retainers. The fit of the retainer should be checked to ensure complete seating over all the required teeth and no adverse movement or 'rocking' is evident. The twist-flex wire must always be checked for correct positioning prior to bonding (Figure 4). The positioner should then be removed before pumicing the teeth to be bonded and applying the acid-etch solution. The positioner should be replaced before applying the composite via the conventional method. A description of applying and bonding the composite has been previously documented.⁹ Using the positioner allows

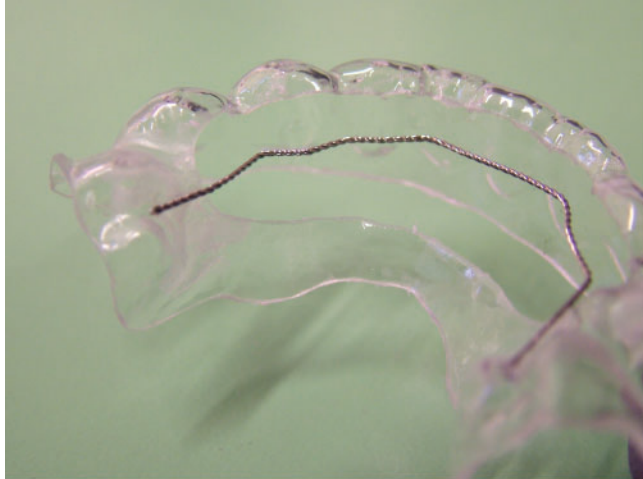


(a)



(b)

Figure 2 (a,b) Multi-strand wire is adapted from the pre-molars to the lingual surface of the lower incisors



(a)



(b)

Figure 3 (a,b) The Manchester positioner with an incorporated passive fixed retainer



Figure 4 The positioner is tried in and checked for fit, ensuring the fixed part of the retainer is in a passive position on the labial surface of the anterior teeth



Figure 5 Once the multi-strand fixed retainer has been bonded in position the two ends of the wire can be sectioned to 'free' the removable retainer

time to place the composite without having to manipulate the wire into place at the same time.

Removal of the positioner

Once the flexible wire has been cured into place the positioner can be removed. The two ends of the bonded retainer need to be separated from the retainer. This can be done by a high speed bur to detach the wire from the retainer at either end (Figure 5) or by cutting the wire with ligature cutters. The fixed retainer remains bonded on the teeth placed in the correct position (Figure 6).

Placement of the removable retainer

Once separation has been achieved the removable retainer can simply be removed from the teeth (Figure 7). The two ends of the multistrand flexible wire can be tidied up as necessary and the retainer replaced in



Figure 6 The bonded retainer *in situ*



Figure 7 The removable retainer can be removed as used as a conventional part-time retainer

the mouth. This will then serve as the dual retainer that is normally worn during evening and nights.

Conclusion

In this article, we have described a method of accurately placing a bonded retainer. This technique ensures a bonded retainer is placed passively and the positioner enables freedom of both hands during the technique sensitive bonding and cementation stage. The positioner can then be used as a conventional removable retainer that, due to the design, will not interfere with the bonded retainer.

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