Journal of Orthodontics, Vol. 32, 2005, 182–184

CLINICAL SECTION

Clinical pearl
In-treatment replacement of missing incisors

T. M. Hodge
Eastman Dental Institute, London, UK

Four methods of in-treatment replacement of missing incisors are described.

Key words: Orthodontics, clinical pearl, in-treatment, missing incisors

Received 28th February 2005; accepted 29th April 2005

Introduction

Missing incisors can have a major impact on dental and facial aesthetics. Prior to achieving the goals of orthodontic treatment, patients are frequently left with embarrassing, unaesthetic spaces. The aim of this article is simply to highlight the practical management of missing incisors with temporary in-treatment replacement.

Methods

Prosthetic tooth and labial bracket

A bracket sited on an acrylic tooth often makes a suitable single unit replacement. Initially, when an archwire of round or reduced dimension is in place, an additional palatally-bonded retaining wire will prevent unwanted movement of the prosthetic tooth. To increase retention the area of the acrylic beneath the bracket can be roughened and coated with a plastic bracket primer, or an undercut on the labial surface of the acrylic can provide mechanical retention at the composite-tooth interface. A prosthetic tooth of appropriate shape and size can aid space closure to the desired amount as it acts simply as a space maintainer.

Prosthetic tooth and acrylic flange cantilever

If sufficient space is present prior to tooth alignment, or forces are to be applied to teeth adjacent to the space, a more substantial means of in-treatment placement may be required. An acrylic tooth incorporating an acrylic flange strengthened with a fibre reinforced composite (Figure 1) can provide this interim measure. Perforations to the cantilever facilitate a mechanical bond.

Patient 1 (Figure 2) had anterior spacing due to congenitally absent upper lateral incisors and an unerupted, dilacerated UR1. Following the extraction of UR1 the resulting space meant it was both desirable and possible to place an immediate prosthetic tooth. Initial archwire dimension and the need to apply a force to the mesial of UL1 to create space indicated the use of such a tooth- borne prosthesis.

Prosthetic tooth attached directly to the archwire

An acrylic tooth reduced bucco-lingually can be used where space is required in this dimension and sufficient mesio-distal space is available. Additional space can be gained by fixing the tooth directly to the archwire avoiding the depth of a bracket base.

Patient 2 was referred following loss of a cast post and crown when the buccal wall of the root of UL1 fractured below the gingiva to the level of the alveolar crest. In order to expose the fracture margin and allow for reconstruction, root extrusion was planned. Brackets were placed using a rigid rectangular steel archwire as a guide plane, which allowed a tractional force to be applied immediately. In order to maintain both the space and smile aesthetics a veneer was made by reducing the labio-lingual thickness of the acrylic tooth. The incisor was bonded directly to the archwire so as not to encroach on the root being extruded or the labial mucosa, as could have occurred had a bracket and a labial offset in the archwire been placed (Figure 3). Vertical offsets were placed in the archwire to ensure space maintenance and allow sufficient tractional force to be applied (Figure 4). The presence of the prosthetic tooth also avoided a potentially large, irritant span of archwire.

Address for correspondence: T. M. Hodge, Eastman Dental Institute, 256 Gray's Inn Road, London WC1X 8LD, UK.
Email: trevorhodge@eggconnect.net

DOI 10.1179/146531205225021069

Figure 1 Acrylic tooth cantilever with a fibre reinforced composite strengthened acrylic flange

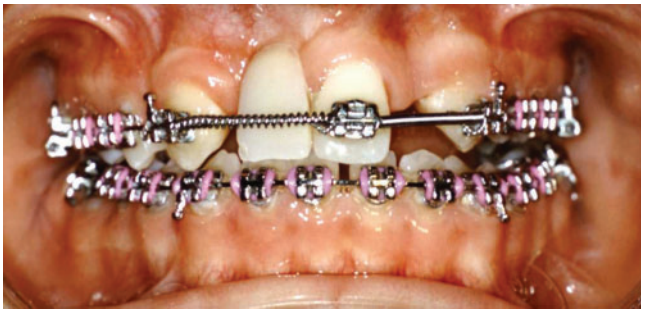


Figure 2 Patient 1 with acrylic bridge *in situ*

Figure 3 Patient 2 with acrylic veneer attached to the archwire

Extracted tooth

When extraction of a tooth is enforced, and the coronal tissue remains intact and not discoloured, use of the tooth itself can be an ideal choice of in-treatment replacement.

Patient 3 had previously avulsed UR1 and sustained an intrusive injury to UL1. Although UR1 was promptly re-implanted it subsequently became ankylosed and despite repeated application of calcium hydroxide replacement root resorption occurred (Figure 5). Once in treatment, UR1 was extracted, the root remnant was removed, the coronal defects were restored with composite and a bracket was then bonded to the tooth and added to the appliance (Figure 6). Additional support was provided by a palatally bonded retainer.

Figure 4 Patient 2 occlusal view showing extrusive traction to distal of UL1

Figure 5 Patient 3 with post-traumatic replacement root resorption affecting UR1

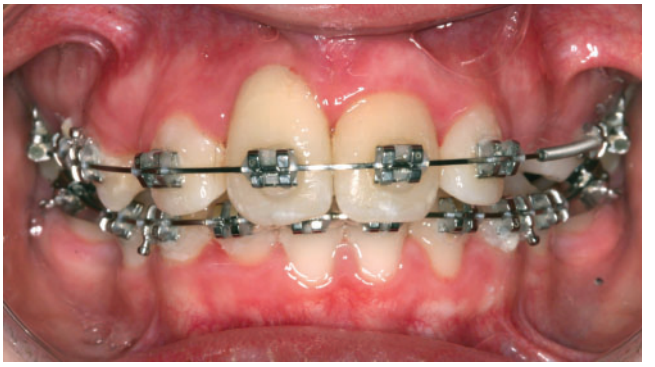


Figure 6 Patient 3 with extracted coronal aspect of UR1 *in situ*

Conclusions

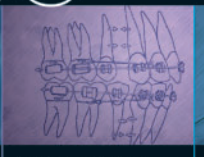
The in-treatment replacement of missing incisor teeth can be beneficial in achieving the desired orthodontic goals and improving the patient experience.

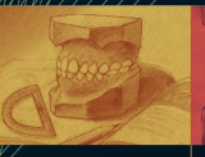
Acknowledgements

With thanks to Steve Jones, Melissa Chen and Samantha Hodges, who supervised the above cases, and Ed Payne, for technical support provided.

MBT™ System Symposium 2005

MBT™





An exciting opportunity to hear Dr Richard McLaughlin speak in London.

3M Unitek is proud to announce the details of the forthcoming MBT System Symposium to be held on

Monday 28th November, 2005
and
Tuesday 29th November, 2005
at the easily accessible
Hilton, London Paddington Hotel.

The Symposium will give a unique opportunity to hear Dr McLaughlin speak in London and will cover key elements related to the clinical use of the MBT appliance system.

Dr McLaughlin will focus on the key area of diagnosis and treatment planning for orthodontic, surgical and borderline cases. Specific attention being given to the different stages of treatment.

Topics covered:

- Diagnosis and treatment planning for orthodontic, surgical and borderline surgical cases.
- Levelling and aligning - the differences between extraction and non-extraction treatment.
- The vertical dimension and overbite control opening deep bites and closing open bites.
- Antero-posterior correction - an overview of the options.
- Efficiency in space closure - the latest thinking.
- Techniques in case finishing.

The event will also involve lectures from a variety of UK speakers.

For further details and booking information call

Nicola Johnson
on
01509 613278
or email
njohnson@mmm.com.

3M Unitek

Products that make your life easier.