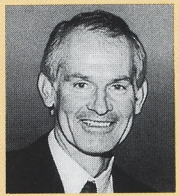
AESTHETIC UPDATE

Compiled by Geoffrey M. Knight



Further evolution of the direct resin bonded bridge

The direct resin bridge is finding favour amongst increasing numbers of practitioners.

The benefits of single visit placement, minimal tooth preparation, low cost and a means of enabling patients to review their options at a later date are all positive benefits of this bridge. Immediate replacement of an extracted tooth by a direct resin replacement bridge minimizes the amount of alveolar bone loss and may avoid complex bone grafting as would occur if a partial denture was fitted.

A potential problem with this bridge has been the occasional debonding that occurs when no preparation is carried out on the abutment and the pontic extends beyond the patient's envelope of occlusion. This can be avoided by meticulous attention to the occlusion although there remains situations where further reinforcing is required to prevent pontic failure.

Fibres have been used successfully to improve the retention of direct resin bridges. More recently reinforced carbon fibre posts (Composipost*) have been applied with particular success where it is possible to remove an existing proximal restoration from an abutment tooth and place the post within the restoration to extend as reinforcing for a future pontic. The difficulty arises where anterior teeth seldom have restorations, particularly in younger patients and pontics have to be placed in a closed occlusion that does not permit reinforcing on the lingual aspects of the tooth. Occasionally, clinicians may be able to place reinforcing on the labial aspects. However, this is usually only possible for patients ▶

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

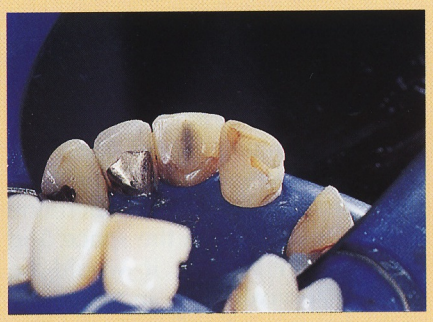


Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

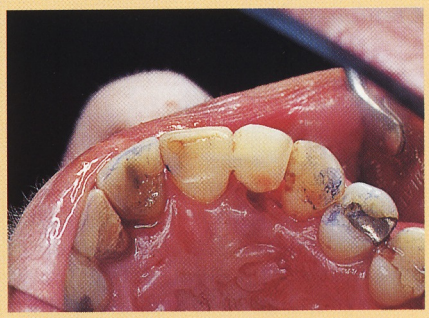


Fig. 9.

Fig. 10.

who have an orthodontically compromized occlusion.

The advent of tooth coloured quartz fibre posts (Aestheti-plus, RTD*) has solved the clinical problems associated with masking the black carbon posts even though there is a slight compromise in strength.

The following technique is not suitable for younger patients but useful for older patients who want a direct bridge. Such people are usually prepared to exchange a little tooth preparation for the benefits of having a bridge that will sustain a greater occlusal load.

Figure 1 shows a cavity prepared on the lingual surface of an extracted upper incisor. The prep is extended approximately 5 mm to a depth of 1.5 mm. The margins of the canal ▶

Continued from page 29.

are undercut to provide resistance form for a post moving in a lingual direction (Fig. 2). Excellent retention for a fibre post is created (Fig. 3) and as the preparation is well away from the pulp, unlikely to cause any pulpal irritation at a future date (Fig. 4).

The clinical case shows the space of a periodontically broken down lateral incisor that has been extracted. It is to be replaced with an immediate direct fibre reinforced resin bridge bonded to the adjacent central incisor. A rubber dam was placed between the first bicuspids to isolate the teeth from the oral environment.

The restoration on the distal aspect of the central incisor was removed and a cavity prepared by firstly making a small groove through the enamel into the dentine. The base was then enlarged with a small round diamond bur or air abrasion to create a cylindrical preparation about 4 mm in length (Fig. 5).

A white reinforced post (Aesthetiplus, RTD) was sectioned and tried into the preparation to determine that it would fit into the space and was aligned so that it would be situated approximately in the centre of the future pontic (Figs. 6 and 7).

The preparation was etched with phosphoric acid, etched and dried with oil-free air.

A resin-modified glass bonding agent (Fuji Bond LC†), was placed into the preparation and cured after which a further increment of resin-modified glass ionomer was placed and an increment of Nulite F‡ resin puddled into the preparation prior to the insertion of the fibre post. The post was then cemented into the tooth by light curing for 20 seconds and a direct resin pontic constructed around the fibre post (Fig. 8). After removal of the rubber dam, the occlusion was examined to make sure that the pontic did not have occlusal interferences (Fig. 9). The complete pontic demonstrates good aesthetics (Fig. 10) that gives the patient a range of future treatment options should the direct bridge prove unsatisfactory.

A detailed account of pontic construction is described in the November 1997 issue of the ADA *News Bulletin* or on the web at www.dentalk.com.au go – Aesthetic Update go – Direct Bonded Fibre Reinforced Bridges.

Direct resin bridges are evolving as a predictable and conservative alternative for replacing missing teeth. Better materials and increasing clinical experience with the construction of these bridges has substantially improved their range of clinical applications. □

---

*Amalgadent Dental Supplies (Australia) Pty Ltd, Caulfield South Vic 3162.
†Halas Dental Pty Ltd, Waterloo NSW 2017.
‡Nulite Systems International Pty Ltd, Hornsby NSW 2077.