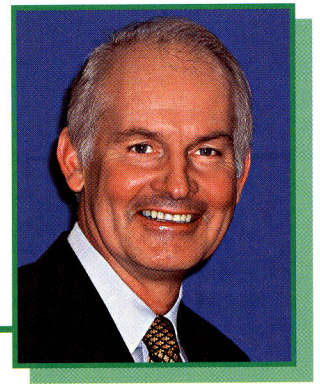


AESTHETIC Update



Compiled by *Geoffrey M. Knight*

The immediate direct resin bridge

Dental practitioners occasionally find that removing a tooth creates an aesthetic dilemma for the patient concerned. The standard clinical protocol in such cases has been to have a single tooth 'flipper' manufactured to insert immediately after the extraction.

Placing a direct resin bridge dramatically simplifies the clinical management and provides a patient with an outcome that can be either a long-term solution or an intermediate replacement that gives time to further treatment plan the clinical situation.

This is a clinical technique that attracts well informed individuals with busy schedules who want minimal tooth preparation and immediate outcomes to their dental problems or patients who don't have the resources for traditional crown and bridge dentistry.

Providing pontics remain clear of occlusal interferences they will give many years of trouble free service. Cantilevered bridges experience less functional stress, allow patients to floss without special aids and are simpler and more time efficient to place than bilaterally anchored pontics.

A major patient benefit of these bridges is the maintenance of the alveolar bone around the extraction site that eliminates the need for future bone grafting.

CLINICAL TECHNIQUE

A patient presented with a fractured lateral incisor (Fig 1). The occlusion was examined to determine there were no interferences that may contraindicate placing a direct bridge and pontic shades were chosen prior to the application of rubber dam.

After anaesthesia the lateral incisor was carefully removed to minimize gingival trauma. A mattress suture applied to limit bleeding and create a favourable gingival contour (Fig 2).

Rubber dam was applied and adjacent teeth were tied with floss ligatures to help form a seal. Choice of an abutment tooth depends upon the periodontal health and nature of the occlusion. The restoration on the distal of the central incisor was removed and an undercut slot was prepared within the enamel two thirds the way across the lingual surface (Fig 3), using fine diamond burs (Fig 4).

Bioload was removed from the abutment tooth with a pumice slurry followed by a five second etch with 37 per cent phosphoric acid gel, washed and dried with oil free air (Fig 5).

After applying a universal bonding agent, flowable composite resin was puddled into the lingual preparation and suitable fibre reinforcement placed. Clinicians may use either tape or posts as long as the lingual undercut slot is engaged. Microhybrid resin was then puddled into the fibre and cured. Fibre reinforcing reduces the chance of stress failure at the isthmus between the pontic and abutment (Fig 6).

The core of the pontic was formed by placing microhybrid resin over the fibre on the facial and lingual surfaces, making sure that the core did not

extend beyond the facial contours of adjacent teeth (Fig 7).

A sectional matrix was positioned on the gingival floor with the concave surface against the abutment tooth. Resin modified GIC was then inserted between the core and the matrix to form the gingival floor of the pontic (Fig 8). RMGIC resists plaque formation on the gingival surface, releases fluoride ions to help prevent caries on the abutment and as RMGIC's can be shaped with slow speed diamond burs, facilitates gingival contouring.

Microhybrid and microfill resins were used to form a direct resin laminate over the pontic core using the shades predetermined before rubber dam dehydration. Paper points are useful in preventing proximal overhangs and absorbing any leakage through the rubber dam seal (Fig 9).

Initial contouring of the pontic was carried out before removal of the sectional matrix and rubber dam. After rubber dam removal the occlusion was adjusted over a full range of mandibular movements to determine there were no interferences. Any occlusal interference will eventually result in pontic failure. Final contouring and polishing was carried out before dismissing the patient with post-operative extraction instructions (Fig 10).

The patient was recalled in a week for review to confirm healing was proceeding normally; there were no occlusal interferences and further polishing (Figs 11, 12).

CONCLUSION

Immediate direct resin bridges are a viable and time efficient way of providing patients with an immediate outcome to an aesthetic dilemma. They provide patients with either a long-term clinical solution or an intermediate provisional restoration. Preserving the alveolar ridge suggests they are the preferred treatment option for most clinical situations.



Fig 1. Fractured root of a lateral incisor requiring extraction and immediate replacement.

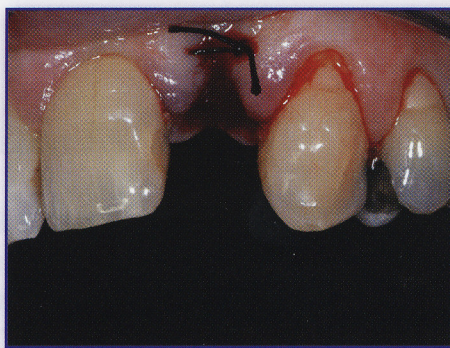


Fig 2. Following removal a mattress suture was placed to arrest bleeding and create a favourable gingival contour.

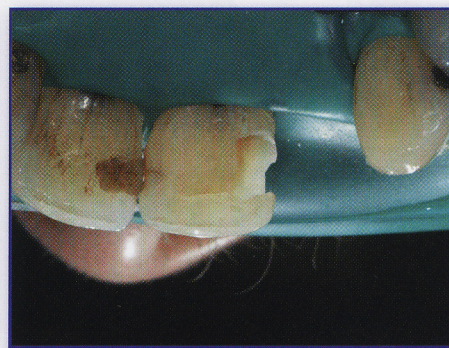


Fig 3. Existing restoration removed and an undercut slot was prepared within enamel about 2/3 across the lingual surface.

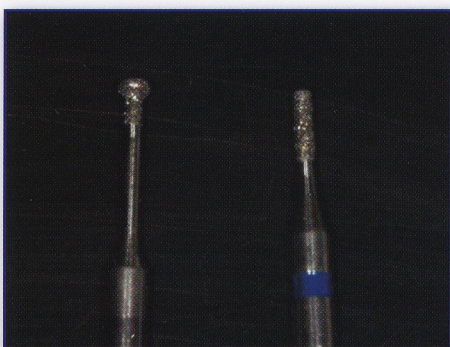


Fig 4. Burs used for slot preparation.

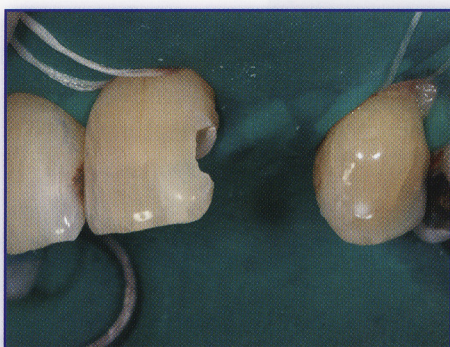


Fig 5. Bioload was removed with pumice slurry followed by etching with phosphoric acid.

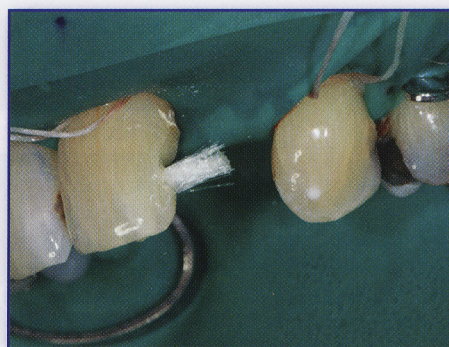


Fig 6. Reinforcing fibres bonded into undercut slot.

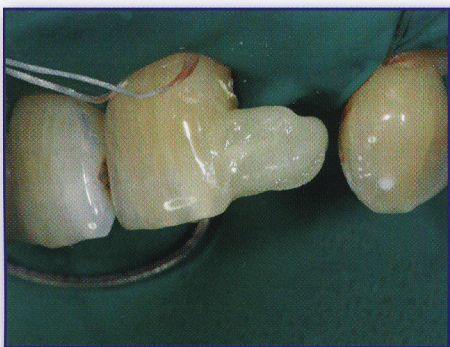


Fig 7. Pontic core formed with microhybrid resin over reinforcing fibres.

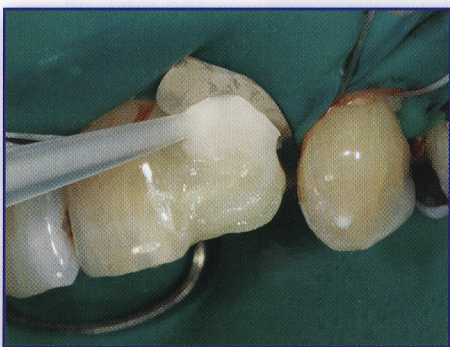


Fig 8. Gingival floor of pontic formed using RMGIC over sectional matrix template.



Fig 9. Microhybrid and microfill resins used to construct polychromatic pontic facing over reinforced core.



Fig 10. Immediate post-operative view of completed bridge.



Fig 11. One week post-operative, gingival healing proceeding normally.

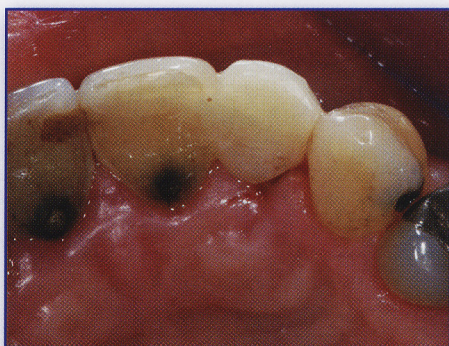


Fig 12. Lingual view one week post-operative, socket healing proceeding normally below protection of pontic.