

Compiled by  
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# MINIMAL INTERVENTION Cantilever bridge

## CASE STUDY

**Apart from losing** most of the teeth, the upper left quadrant bone quality was poor and financial constraints were significant. The request was for a 'smile' without resorting to a removable prosthesis.

The periodontal condition of the central incisors was sound and it was decided to construct an extended metal-reinforced cantilever bridge to replace teeth 22, 23 and 24 using the two central incisors as abutments.

Minimal preparation of these teeth was unavoidable in order to get circumferential clasps onto the incisal third of the two centrals (Fig 1).



Fig 1. Minimal tooth preparation required to insert metal frame

Impressions were taken with a wax bite registration and sent to a laboratory\* for fabrication of the metal framework. The metal frame was coated to mask the metallic colour and to enable adhesion of composite resin to the frame (Fig 2).



Fig 2. Coated metal frame back from laboratory

\* Andent Laboratories, Melbourne, Australia.

The patient was recalled for insertion of the metal framework:

- After trying the frame to make sure there was an accurate fit (Fig 3) the teeth were thoroughly cleaned to remove pellicle and plaque;

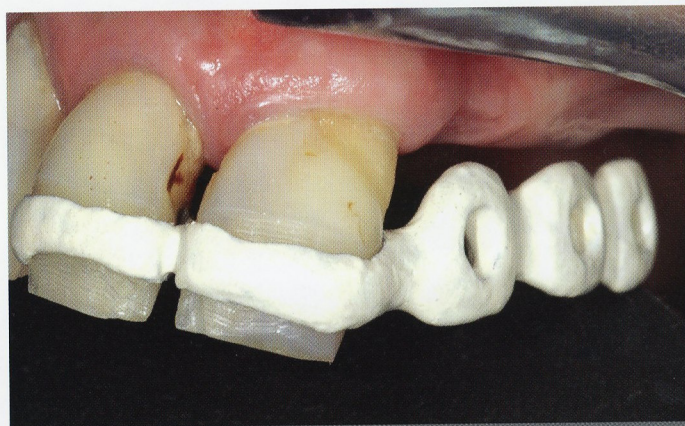


Fig 3. Try-in of framework prior to cementation

- Trichloroacetic acid was placed sparingly on the cervical gingivae of the abutment teeth to prevent crevicular exudates and the central incisors were etched for five seconds with 37% phosphoric acid, washed and dried with oil-free air;
- Following this, the metal frame was cemented onto the abutments using a capsulated resin modified glass ionomer cement (RMGIC) as the luting agent;
- After excess cement had been removed, the surface of the central incisors were covered with a RMGIC bonding agent;
- After the bond had cured, a white tint was placed over the facial surfaces of the abutments to mask the highly opaque supporting framework (Fig 4).

## LAMINATE CONSTRUCTION

- RMGIC bonding agent was painted over the framework and cured for five seconds;
- An opaque shade of composite resin was placed thinly over the facial aspect of the abutments and the facial and lingual surfaces of the pontics;
- The gingival margins were created by inserting RMGIC onto sectional matrices placed at the gingival margins. Using RMGIC to form the gingival margin prevents plaque formation and is much easier to contour than composite resin (Fig 5);





Fig 4. Framework cemented into place with opaque tint applied



Fig 5. Opaque composite and RMGIC framework in place prior to laminate construction



Fig 6. Laminate construction

• Once the opaque framework was in place, direct laminate veneers were fabricated using a micro-fill resin (Aesthetic Update, November 2008 and March 2009) to form the abutment and pontic teeth (Fig 6);

• Finally, a diligent occlusal analysis was carried out to make sure there were no interferences on the opposing teeth in centric occlusion or lateral and protrusive movements.

The patient was recalled the following week to check that the 'bite' was correct and the margins correctly contoured. Following this, a polishing was carried out to finalize the lustre of the micro-fill resin.

Figure 7 shows a lateral view of the bridge and Figure 8 shows a frontal aspect demonstrating how the three pontics are able to create an acceptable 'smile' for the patient.



Fig 7. Lateral view of bridge one week after construction



Fig 8. Frontal view of bridge showing 'smile' creation



Fig 9. Occlusal view of bridge

It is essential that patients are aware that these cantilever bridges are purely aesthetic and play no role in improving mastication (Fig 9).

The use of indirect and direct techniques enable dentists to expand the options available for aesthetic solutions to patient's problems within the philosophy of minimal intervention dentistry.

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