AESTHETIC UPDATE

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Technological initiatives have swept through dentistry, as with all areas of human endeavour, and dentists are enjoying an increasing range of treatment options to meet the challenges that patients present to them. There is a tendency to direct new technological initiatives to increasingly complex procedures. While this is a legitimate application, there is a need to balance this with technology that can simplify procedures to create biological and fiscal savings over conventional techniques.

The immediate cantilever resin bridge

Case report

A patient presented with a dilemma. The upper right central incisor had been crowned four years beforehand and the root had split, necessitating the removal of the remaining tooth (Fig. 1). He had been given the option of an implant or a conventional 3-unit bridge. His unfortunate experience with the crown had sensitised him to further tissue preparation and he was uncomfortable with the thought of a remov- able prosthesis.

One solution available to a patient with a fractured root is an immediate resin bridge. Such a prosthesis rectifies a patient's problem, without preparation of adjacent teeth and savings in laboratory costs makes this option more affordable than established procedures.

There are no universal solutions to any of the problems of dentistry and this bridge is no exception. Closed bites with heavy wear facets are contraindicated and even then about 5 per cent of cases will have occlusal anomalies that may cause the bridge to fracture. A small proportion of direct bridges may be made using pre-cast metallic reinforcing as shown in Fig. 2.

There are dentists who may consider such a bridge little more than an intermediate solution for a patient's problem. However, as long as the pontics are free from para functional occlusal loading these bridges are capable of lasting for many years. Figure 3 shows two such bridges replacing lateral incisors that have functioned successfully without repair for over 20 years.

The clinical evolution of this technique has established significant advantages by using cantilevered pontics as they experience less functional stress, enable patients to floss without special aids and are simpler and more time efficient to produce than bilaterally anchored bridges.

The clinical situation depicted in Fig. 1 is well suited for the placement of such a bridge, that once integrated into the occlusion, will offer a conservative long term solution with maximum future restorative options.

Patients should fully understand the limitations of this type of prosthesis. On the positive side it is the simplest and most conservative option available, yet there are occlusal limitations that may predispose to alternative procedures.

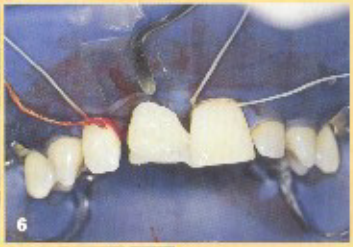
Technique

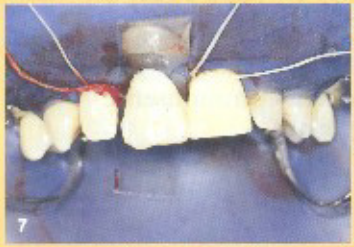
- After the root had been anaesthetised, the body and cervical shades were taken from the adjacent incisor and the width of the pontic determined with a Boley gauge.

The occlusion should be checked in centric position to determine if there is enough space available to build resin out onto the lingual aspect of the abutment. The occlusion must be examined over a full range of mandibular movements to determine the absence of potentially damaging interferences.

- The root was removed, rubber dam was applied and the teeth adjacent to the extraction site were tied with floss ligatures to seal the area. The rubber dam acts as a pack and reduces bleeding from the socket (Fig. 4).
- The abutment tooth was cleaned with a pumice and water slurry, etched with 37 per cent phosphoric acid for 15 seconds, washed and dried with oil free air before applying enamel bond over the proximal and lingual surfaces.
- A mylar strip was positioned on the lingual surfaces of the adjacent teeth and a small increment of posterior composite resin was then placed on the proximal and lingual surfaces of the abutment and puddled over the mylar strip to within 1 mm of the adjacent surface (Fig. 5). A reinforced composite such as Nulite F* is ideally suited for this purpose.
- A further mylar strip was cut on the long axis at about 20 degrees and passed under the resin span against the gingivae until the edges touched the abutment and the adjacent tooth. The strip was held firmly against the gingival floor with a Ward's carver and an increment of resin was placed and shaped so as to form the gingival margin of the pontic (Fig. 6).
- Microfil resins were then laid over the facial surface to form a pontic that matched the adjacent central incisor (Fig. 7).
- A mylar strip was next placed at the proximal margin and an incisor shade Microfil resin was puddled ►

*Nulite Systems International Pty Ltd, Hornsby, NSW 2077.





interproximally. The strip was then wrapped around the margin and the resin cured to form the distal perimeter of the pontic. Care must be taken to avoid excess resin being forced through to the lingual aspect of the bridge (Fig. 8).

• The pontic was then shaped with course diamond points and abrasive discs prior to removing the rubber dam and adjusting the occlusion of the bridge (Fig. 9).

• Fig. 10 shows the palatal aspect of the bridge demonstrating the extension of resin over the lingual surface of the abutment to maximise the strength of the cantilever.

Results

Three months after insertion the patient returned for a review visit. It was noted that there had been some resorption of the alveolar ridge and the colour of the pontic did not match the adjacent central incisor (Fig. 11).

However, the versatility of this technique is such that minor faults may be corrected simply by cutting back the facing of the pontic and sandblasting the surface to increase composite adhesion (Fig. 12). A new facing was prepared as described earlier to correct the colour discrepancy and created a cervical contour that abutted firmly against the gingivae (Fig. 13).

Three major advantages

A direct bonded cantilever bridge has three major advantages over one bonded between two adjacent teeth. Firstly, as the bridge has been attached to a single pontic there is a greater availability to flex within the occlusion like a natural tooth. This technique has resulted in far fewer fractures than the dual abutment system. The second benefit enables patients to floss under their bridges and against the abutment teeth without having to resort to complex floss threading systems. Finally, cantilever bridges have superior aesthetics and are more time efficient to produce.

Need for balanced approach

Dentistry is moving into new and exciting areas of practice. There is a need to adopt a balanced approach between treatment options that require a significant biological and fiscal cost and those that are less invasive and able to be provided for less expense than traditional solutions. Increasingly aware patients are demanding to know the range of options that are available to them in order to make informed decisions, within their value systems, of the solution that best suits their individual needs.

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