Occlusal Reconstruction Using Minimal Intervention Dentistry

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Minimal Intervention is an emerging concept of dental care, driven by improvements in equipment and materials that have enabled dentists to recognize and conservatively manage incipient decay, minimize the surgical management of established caries and in many instances improve oral esthetics without preparation of healthy tooth structure.

MI direct placement techniques require minimal tooth preparation; have low biological costs, low fiscal costs without the lab bill and importantly low emotional costs due to the reversibility of these procedures.

The Patient
A male patient aged 72 years presented with a broken down dentition and a history of bruxing (Fig. 1). He spoke of waking up occasionally with a bitter taste in his mouth, suggesting a mild gastric reflux that may have been exacerbating his occlusal wear. His periodontal health was good despite average oral hygiene.

Treatment Plan
The treatment plan involved building up the occlusal table, using direct composite resin, on the canines and first bicuspids teeth to establish a function vertical dimension and then placing direct composite resin crowns on the eight incisors.

This procedure effectively creates an anterior occlusal splint, stabilizing the vertical dimension yet allowing a small amount of occlusal wear for patients to “bed in” group function guide planes. Depending upon the patient’s age, the remaining teeth in the lateral segments move into the occlusion within three years.

Figure 2 shows a patient 11 years after a composite resin reconstruction. While there is occlusal wear, the esthetics remains significantly better than when he first presented. As with most splint therapy, associated symptoms such as TMJ disorders and neck pain predictably resolve.

Clinical Technique
Minimal tooth preparation involved plaque and pellicle removal with prophylactic paste and light abrasion of the cervical margins with a slow speed diamond burr to optimize adhesion.

Composite resin cores were constructed using a micro hybrid resin. These materials have high strength and excellent optical properties.

Facial and proximal surfaces were then covered with a thin layer of Microfill composite resin. Unlike Micro Hybrid resins, Microfill resins can be polished to a high sheen that will maintain their luster for many years.

After anatomical contouring and polishing, the clinical result has fulfilled the outcomes the patient required (Figs. 3A and 3B).

Patients may be recalled after 1 week to adjust the occlusion and further polish the composite surfaces. A final recall is suggested after a further three months for fine tuning the occlusion and final polishing.

Conclusions
There is little doubt, the future will see less surgical intervention in dental procedures as new materials, and techniques become available. Better informed patients asking for MI care will provide practice building opportunities for dentists who offer an expanded range of treatment options to them.

Geoff Knight, BDSc, MSc, MBA, FICD, is a general dentist from Melbourne, Australia. A noted lecturer, Geoff will be presenting seminars in Missouri and Pennsylvania on minimal intervention techniques during September. He’ll be in St. Louis Sept. 26 and Philadelphia, Sept. 27. For additional information on the seminars, phone 1-800-554-6394 or fax your request to 800-552-0222. You can also contact him by email at geoffbds@dentalk.com.au. Or visit his website at: www.dentalk.com.au.