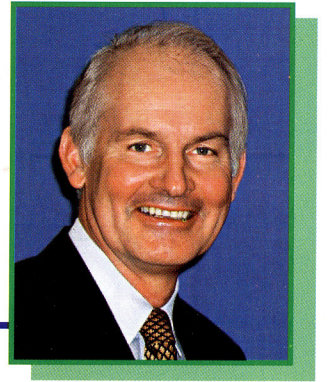


AESTHETIC Update



Compiled by Geoffrey M. Knight

Managing occlusal problems with composite resin

The nociceptive reflex described by Jeffrey Okesen explains why clinicians can successfully open bites on the anterior teeth using composite resin. Wear rates are minimal because the reflex response to occlusal loads in the anterior dentition inhibits the initiation of parafunctional masticatory patterns.

Building up the anterior teeth slightly stretches the muscles of mastication and causes the alveolar plates to converge. It takes about 18 months to create a functional lateral occlusion, depending upon the age of the patient. In essence patients receive the benefits of full mouth reconstructive dentistry without having to undergo extensive tooth preparation. Figure 1 shows a patient prior to building up his 16 anterior teeth between his upper and lower first bicuspids. Figure 2 shows the same patient 11 years later still with a functional anterior and lateral occlusal. No tooth preparation was required. However, the process is not reversible due to the convergence of the lateral alveolar plates.

CLINICAL CASE 1

The first clinical example shows a patient who presented with an edge-to-edge occlusion. After deprogramming he was able to move his teeth back into a retruded position suggesting that over time he had developed a habitual anterior positioned occlusion (Fig 3).

The four upper incisors had direct laminates placed that extended slightly in the labial and incisal direction with a ramped lingual surface that would ease his occlusion back into a retruded position (Fig 4).

The direct laminate was attached to the porcelain crown (12) by preparing three undercut grooves into the facing to the depth of the metal coping. The metal was masked out with a white tint and the direct laminate was placed so that it locked mechanically into the porcelain. Hydrofluoric acid and silane treatment of the porcelain has proved unsuccessful in attaching direct laminates.

CLINICAL CASE 2

The second case is slightly more complex showing a patient with extensive occlusal wear on the lingual surfaces of the upper anteriors, particularly #22 (Fig 5).

Management of these clinical situations requires establishing a new plane of occlusion. This is achieved by creating occlusal platforms on the occlusal surfaces of all four first bicuspids, the lingual surfaces of the upper canines and the labial surfaces of the lower canines. When a bite is opened the mandible tends to move downwards and backwards, requiring occlusal stops on the linguals of the upper canines and stops on the labials of the lowers.

Once the canines and bicuspids have been built up, the occlusion is determined by asking patients to place their tongues on their soft palates and closing. This inevitably brings the mandible back into a retruded position.

Occlusal indicator paper is used to determine that occlusal forces are shared equally over each occlusal platform.

Once a centric occlusal has been established patients are asked to make lateral and protrusive movements enabling a clinician to spheroid over the platforms so that contacts occur tangentially towards the centre of the occlusal stop. This enhances patient comfort and reduces the chance of fracturing because of high occlusal loads at the margins of the buildup.

Figure 6 shows the completed case after one week. As the patient's main concern was restoring his upper teeth and protecting them from further wear, laminates were not placed on the lower incisors. This will have no effect on the long-term stability of his occlusion.

CONCLUSIONS

Managing occlusal problems with composite resin has three distinct advantages:

- There are low biological costs to the teeth leaving more future treatment options available for a patient.
- There are reduced time and fiscal costs to both patient and dentist.
- Finally, and importantly, there are low emotional costs as the reversible nature of the treatment enables a clinician (to deal with a patient whose expectations have not been met) to simply remove the laminates, refund the patient and put the whole episode down to experience.

As patients question the rationale of extensive tooth preparation to create a temporary change in aesthetics, dentists offering conservative alternatives are finding an increased demand for their services and a better return on their time than conventional procedures.



Fig 1. Pre treatment showing patient with extensive occlusal wear.



Fig 2. Same patient 11 years post buildups. While there has been some occlusal wear the patient still retains a functional anterior occlusion compared to presentation.



Fig 3. Patient presented with a habitual edge-to-edge occlusion.



Fig 4. Placing laminates with lingual ramps on the upper incisors guides the occlusion back into a standard Class I profile.



Fig 5. Patient presented with severe occlusal wear on the lingual aspects of upper incisors.



Fig 6. Establishing a new occlusal plane on the canines and first bicuspid enables laminate placement to repair damaged upper incisors.