Treating generalised erosive tooth wear

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Introduction

A 48-year-old man presented with severe generalised erosive tooth wear. A maxillary rehabilitation in ceramics was planned as a long-term outcome.

The complexity and severity of his tooth wear, as well as bruxism concerns, favoured a trial therapy with injectable composites as long-term provisional restorations. Moreover, due to cost implications, the patient preferred to delay the ceramic rehabilitation for a few years in order to make it more affordable.

Eight resin composite restorations were planned as transitional restorations, using the injection moulding technique. An upgrade to ceramics would then be provided two to three years after that.

Facially driven smile design

Facially generated treatment planning helps the clinician and lab technician to decide where the teeth need to be (Figures 1a to 1c). This process is performed irrespective of the restorative materials to be utilised.

A digital, additive wax-up was ordered at an increased occlusal vertical dimension. After verifying the aesthetic and functional outcome through a process of an additive, diagnostic mock-up, the eight injectable restorations were carried out using monoshade A2 G-aenial Universal Injectable with the alternate tooth technique.

Figures 1a to 1c: Facially driven smile design

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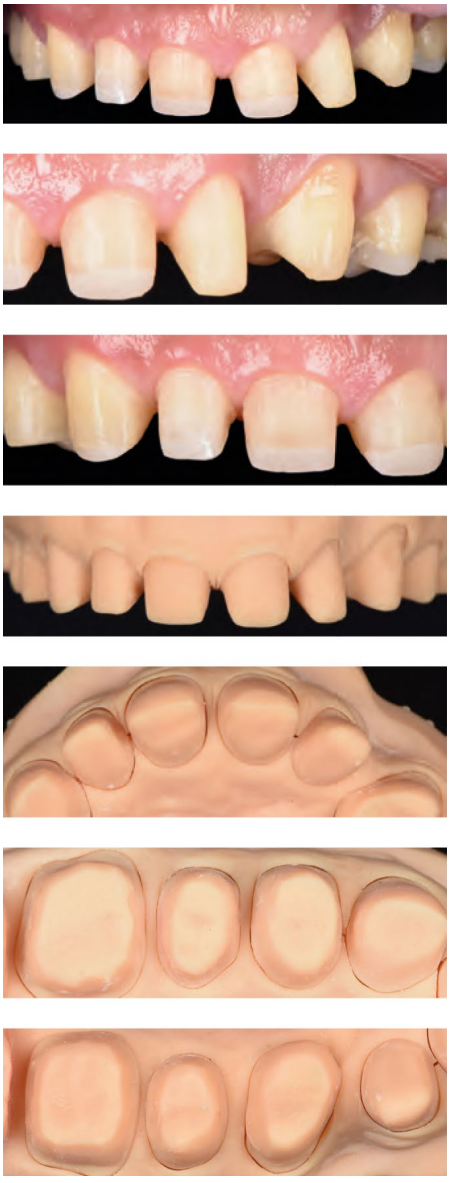
Figures 2a to 2c: Injectable composites at two-year review



Figures 3a to 3g: Preparations and models for indirect crowns

Figures 4a to 4c: Provisional crowns

Figures 5a to 5d: Layered zirconia crowns (technical work by Joao Martins)

Two-year follow-up

Two years after placing the resin restorations, some wear and chippings were evident and the patient felt ready to upgrade to the long-term ceramics (Figures 2a to 2c).

The injectable composites offered valuable information regarding the patient's functional and parafunctional habits. Some features were replicated with an incisal guidance table and others were altered to avoid ceramic fractures.

Figures 6a to 6c: Two-year review of final ceramics

Injectable composites offer an advantage over PMMA or bisacryl long-term provisional restorations. Any loosening of PMMA/bisacryl provisionals may not be related to occlusal problems and will act as a false negative 'alarm' regarding the ceramics.

Injectable composites have a favourable flexural strength and wear properties to act as excellent diagnostic tools to help us design the final ceramics.

The injectable composites had a dual function regarding tooth preparation for ceramics:

1. Provided an outcome based on which the preparation was guided
2. Provided a core material.

As the composite build-ups were full contour and old proximal restorations were present, full crown preparations were carried out with a 0.3mm chamfer based on a layered zirconia material (Figures 3a to 3g).

Provisional crowns, stained and glazed with various shades of Optiglaze, were provided for a few weeks and were copied on the final zirconia crowns (Figures 4a to 4c).

The zirconia crowns were surface treated with 29-micron alumina powder and an MDP-10 Primer from G-Multi Primer prior to cementing with G-Cem One resin cement (Figures 5a to 5d).

In summary, the injection moulding technique, albeit a direct restorative technique, can also be used in conjunction with indirect restorations as a long-term provisional restoration (Figures 6a to 6c).

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