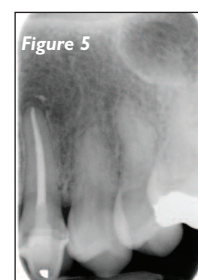
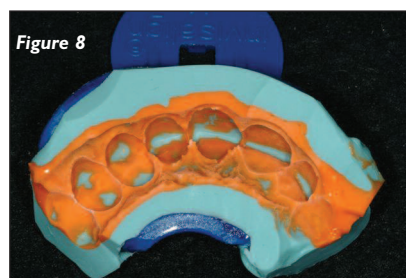


Adjunctive treatment to enhance aesthetic results

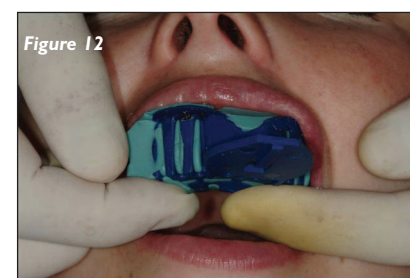
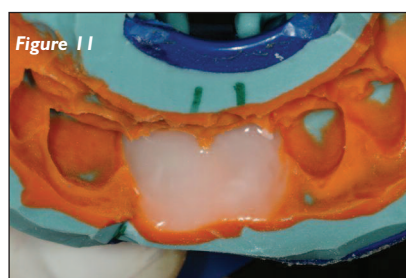
Dr Basil Mizrahi shows the benefit of minor orthodontic and periodontal treatment to enhance the aesthetic outcome of a case



Figures 1-5: Pre-op photos and X-rays



Figures 6-8: Wax up with matrices for temporary crowns and preparation guides



Figures 9, 10: Underlying tooth preparations showing inadequate labial space on 21



Figures 11-14: Fabrication of acrylic resin temporary crowns

Figure 15: Upper removable orthodontic appliance to retrude 21

Figure 16: Result following orthodontic treatment

When looking to achieve good aesthetic results, it is important to use adjunctive treatments to supplement the restorative treatment.

The case

The patient presented unhappy with the appearance of her upper left anterior teeth.

Clinical examination and dental history revealed that the patient was missing an upper left central incisor and had undergone orthodontic treatment to move the adjacent teeth into the missing space. Following the orthodontic treatment, teeth 21 and 22 had been crowned to try to improve their appearance. Tooth 22 had been endodontically treated sometime

after the crown was placed. Tooth 21 was labially proclined with a poor colour and shape match to the adjacent tooth 11. Tooth 22 had an exposed crown margin and a poor colour and shape match to the contra-lateral tooth 12. In addition, the gingival margin of tooth 22 was far more coronal than that of tooth 12. The lower incisors were slightly crowded with the tooth 31 slightly proclined and occluding against the proclined tooth 21 (Figures 1-5).

A wax-up was carried out on the anterior teeth. Matrices were made on the wax-up for use in fabrication of the chairside temporary crowns and for use as preparation guides (Figures 6-8).

Following removal of the existing crowns, it was

evident that there was insufficient room labially for a new crown to be brought back into alignment with the adjacent teeth (Figures 9, 10). Temporary crowns were made using methylmethacrylate resin (Figures 11-14).

To create this space two solutions were offered:

- 1) Elective endodontic treatment to allow additional preparation of the labial tooth surface
- 2) Orthodontic treatment to reduce the labial proclination of tooth 21.

The patient elected to have the orthodontic treatment. An upper removable appliance was made to correct the labial proclination of tooth 21 (Figures 15, 16). It was also necessary to reduce the labial proclination of the opposing tooth 31 (Figure 18). For



Figure 17: Additional labial space following orthodontic treatment on 21. Compare to Figure 10



Figure 18: Crowded lower incisors with proclined 31

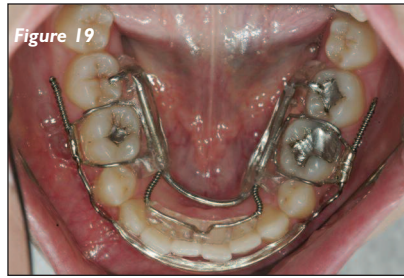


Figure 19: Removable orthodontic appliance in place



Figure 20: Result following orthodontic treatment



Figure 21: Measurement of biologic width prior to crown lengthening = 3mm



Figure 22: Simple gingivectomy to excise attached gingivae



Figure 23: Measurement of biologic width following gingivectomy = 1.5mm



Figure 24: Use of a sickle scaler for subgingival bone curettage to recreate the original biologic width



Figure 25: Recreation of original biologic width = 3mm



Figure 26: Extension and remargination of margin on 22



Figure 27: Establishment of soft tissue health and stability following 3 month healing and refinement period

this, a lower removable appliance was made and used in conjunction with interdental stripping (Figures 19, 20). The appliances were worn for four months after which there was sufficient labial space to avoid further tooth preparation (Figure 17).

Following the orthodontic treatment removable retainers were made for the patient. The upper retainer was modified/remade as treatment continued.

The next stage involved correcting the disparity between the gingival margins of teeth 12 and 22. A simple gingivectomy was carried out to raise the gingival margin to the desired level. In order to recreate the patient's original biologic width of 3mm, a closed curettage technique was used for bone removal

(Figures 21-25). The margins of tooth 22 were reprepared and the temporary crown remargined (Figure 26).

Following three months of healing and minor refinements of the preparations and temporary crowns, the definitive impression was made. A special tray was used together with polyvinylsiloxane impression material. Heavy body material was used in the tray and light body material was syringed around the teeth (Figures 27-29).

Two Empress Esthetic crowns were made and were bonded with a resin luting cement, individually, under rubber dam. Figures 30-40 describe the cementation and finishing process.

Figures 42-45 show the finished case.



Figure 28: Retraction cord in place prior to impression

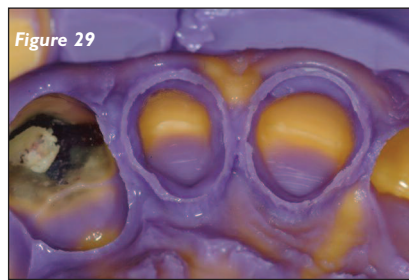


Figure 29: Impression in special tray using polyvinylsiloxane impression material



Figure 30: Empress Esthetic crowns



Figure 31: Sanblasting of preparation prior to bonding

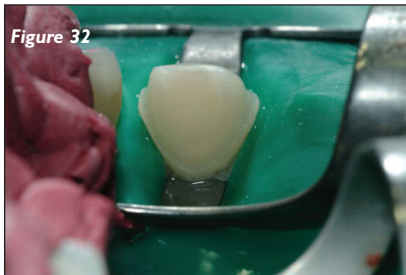


Figure 32: Palatal aspect of preparation



Figure 33: Etching of tooth



Figure 34: Etched tooth surface. Note enamel margins and excellent retraction obtained from rubber dam



Figures 35, 36: Cleaning of any cement remnants with scaler followed by polishing strip

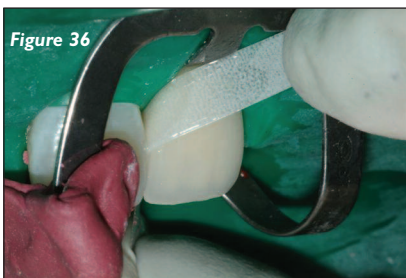


Figure 36



Figure 37: Rubber dam removed from 21 following bonding of crown



Figure 38

Figures 38, 39: Tooth 22 ready for bonding of crown. Note enamel margins and rubber dam retraction

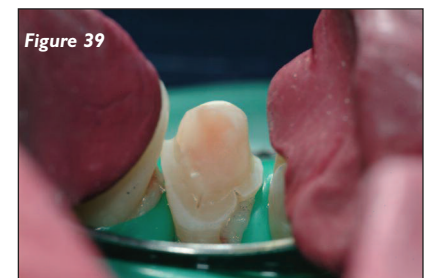


Figure 39



Figure 40

Figure 40: Crown margins following bonding. Note good fit and lack of excess cement due to good visual access provided by rubber dam



Figure 41

Figure 41: Appearance immediately following bonding of crowns and removal of rubber dam from tooth 22



Figure 42



Figure 43



Figure 44



Figure 45

Figures 42-45: Final results one week later



Dr Basil Mizrahi runs a full-time referral private practice specialising in complex rehabilitation and aesthetic cases and dental implants. He is recognised by the General Dental Council as a specialist in prosthodontics and restorative dentistry, and is an honorary clinical lecturer at UCL Eastman Dental Institute. He is a fellow of the American College of Prosthodontists and also runs a 10-day hands-on course in Advanced Aesthetic and Restorative Dentistry.

Basil Mizrahi is presenting his seminar, *Predictable biomechanical and aesthetic precision*, on Friday 18 September in London. To book your place, call Independent Seminars on 0800 371652 or visit www.independentseminars.com.

Dr Mizrahi is also running a hands-on course on Advanced Anterior Aesthetic and Restorative Dentistry from January-July 2010. Please turn to our 2009/2010 Course Feature in this issue (after page 95) for the advert with further details.



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