A challenging task
Prof Dr Liviu Steier discusses how to restore the aesthetic zone with implant-supported restorations

Restoring the anterior aesthetic zone using implant-supported restorations is one of the most challenging tasks. Knowledge of related literature, impeccable skills, a lot of experience and a well-trained team compliment a successful treatment. Different implant systems claim to offer the only technology leading to success. The author describes a case where an “outdated” system, external hex implant system offers a similar success rate, by only following a correct protocol.

Aesthetic 3-dimensional requirements
For optimal aesthetics, some literature suggests some key factors to be respected as they play an important role for long-term success:

• Availability of two mm buccal bone plate
• Implant tooth distance should be 1.5mm
• Implant to implant distance three mm
• Biologic width is indicated with two-three mm

Clinical case
A 45-year-old male has been referred to the practice for rehabilitation of the anterior aesthetic zone. His medical and dental history, as well as his treatment desires, were recorded.

Dental history
The patient lost tooth 11 due to trauma about 17 years ago. He was advised to restore the gap with a PFM bridge. He also reported multiple recementation sessions. Later, insufficient root canal treatments (X-rays) seemed to have weakened the remaining tooth structure. The clinical picture below demonstrates also fractured adhesive posts.

X-ray diagnosis proved vertical root fracture of both teeth. Poor prognosis led to immediate extraction recommendation, to avoid further infection (leakage) and optional bone loss.

Treatment plan
The following treatment options were identified and discussed with the patient:

• Extraction and no treatment
• Extraction and a removable device
• Extraction and immediate implant placement.

Benefits and disadvantages of different treatment options

Extraction and no treatment
Benefits
• Fast
• No cost implication
Disadvantages
• Aesthetic breakdown of the anterior area
• Function and speech alteration

Extraction and a removable device
Benefits
• Fast
• Minor cost implication
Disadvantages
• Aesthetic breakdown of the anterior area
• Function and speech alteration.
• Removable device acts as an impediment

Extraction and immediate implant placement
Benefits
• Preservation of bone
• Optimal functional and aesthetic rehabilitation
Disadvantages
• Cost implication
• Extended treatment need

Patient decided to go for the extraction and have im-

Direct clinical view of fractured teeth 12 and 21 (including adhesive posts).

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mediate implants placed. Impressions were taken so the patient could be offered a removable temporary device once extraction and implants performed for the healing time.

**Treatment procedure**
Retained roots were extracted in local anesthesia (four percent Articain) using minimal invasive procedure. The alveolae were thoroughly scooped and cleaned. Available bone was sounded and found adequate for immediate implant placement. Two Biohorizons Ø 4.0mm x 12mm external implants were inserted in the alveolae. The remaining buccal gap to the buccal bone wall was less than 1.5 mm so that no further attention (fill) was requested.

Implant in position 11 was performed ad modum flapless surgery. Once drill protocol as recommended by the manufacturer has been performed a Biohorizons Ø 4.0mm x 12mm external implant could be seated.

Successful three-dimensional implant placement was performed following the criterias mentioned in the introduction. Bony and soft tissue healing went extremely well also due to available thick gingiva phenotype.

**After treatment**
Allocated healing time was five months. Second stage surgery was performed under local anesthesia. Temporary abutments were screwed in place and temporary crowns performed. The emergence profile could be nicely shaped during the next visits.

Impression was taken once optimal conditions were achieved. The technician manufactured three zirconia abutments. The final impression was taken and the final restoration were delivered after a try-in session with bisque bake.

The final crowns were cemented while a retraction cord in place to enhance cement excess removal. Occlusion was checked and patient received hygiene instructions. Recall sessions were scheduled.

**Conclusion**
It is of course only of anecdotal value to use a case presentation to exemplify the achievement of predictable aesthetics with conventional implant systems, but doubts might raised today about statements and claims made by modern implantology.

The author recommends the following criteria as mandatory:
- Good treatment planning
- Adequate protocols
- An excellent team (surgeon, restorative and laboratory technician) for predictable long-term success