

Clinical Showcase

Clinical Showcase is a series of pictorial essays that focus on the technical art of clinical dentistry. The section features step-by-step case demonstrations of clinical problems encountered in dental practice. This month's article is by Dr. Elliot Mechanic, a speaker at the FDI World Dental Congress, which will be held August 24 to 27 in Montreal, Quebec (pre-Congress courses will take place August 22 and 23). For more information on the Congress, visit www.fdiworldental.org.



Creation of an Esthetic Ovate Pontic

Elliot Mechanic, BSc, DDS

On occasion, an adult patient presents with a retained primary tooth that has become loose and is ready to fall out. Such patients are often between 50 and 60 years of age, and a lower second deciduous molar or an upper canine is usually involved.

Flexibility and predictability in the placement of dental implants make them an ideal final solution to this problem, as an implant can usually be placed at the same time as the deciduous tooth is removed. Furthermore, implants do not require any tooth preparation that might damage the adjacent teeth. With proper planning, a dental implant can be placed in precisely the same position as the missing tooth with the esthetic appearance that nature intended.

Sometimes, however, placement of an implant is simply not possible. The surrounding dental anatomy may not provide a suitable site for implant placement, or the patient may decline an implant as a means of tooth replacement.

Case Study

A 53-year-old man presented with a loose deciduous canine (Figs. 1 and 2). Radiographs revealed a large, horizontally impacted permanent canine angled directly at the roots of the adjacent lateral and central incisors (Fig. 3). Surgical exposure of the permanent canine and an attempt to extrude it orthodontically into function was considered too unpredictable and would have required too long to achieve. Extraction of the impacted permanent canine would have created a defect far too large for immediate implant placement. The option of performing the extraction, allowing the bone to heal and fill, and then grafting additional bone to enable placement of an implant was presented to the patient. However, he refused to have a foreign object (the implant) placed in his body, so this option was ruled out.

After presentation of these and other treatment alternatives, the patient chose installation of a fixed bridge. He was comfortable with this choice because the outcome was predictable, the method had been tested over time, he was not intimidated by the procedure and it allowed immediate

temporization and hence he did not anticipate feeling any different than before.

The impacted permanent canine was surgically extracted by palatal access. Although we might have been tempted to leave it alone, we needed to be sure that no damage had been done to the adjacent lateral and central incisors; we also wanted to prevent the possibility of damage in the future.

Figure 4 depicts the creation of a diagnostic wax-up, to be used in creating a putty template for the provisional implant (Fig. 5).

The deciduous tooth was extracted, and the adjacent teeth were prepared with shoulder margins for subsequent restoration (Fig. 6). The ovate pontic site was prepared with a pear-shaped diamond bur 2 mm subgingivally to accept a pontic resembling the larger end of an egg. A Luxatemp provisional implant (Zenith/DMG, Englewood, N.J.) was fabricated over the prepared teeth using the diagnostic wax-up and putty template (Fig. 7). Matrixx microfill resin (Discus Dental, Mississauga, Ont.) was used to create the underside of the pontic in ovate form, to project approximately 2.5 mm subgingivally (Fig. 8).

The underside of the pontic was highly polished and was then coated with Luxaglaze varnish (Zenith/DMG) for improved compatibility with the ovate site and to allow the gingival tissues to return to optimal health (Figs. 9 and 10). When the pontic was placed at the site, blanching of the gingiva occurred because of pressure from the ovate form. The blanching disappeared within minutes, and pressure was applied to the ovate site to create support for the gingival tissues and to allow subsequent preservation of the interdental papilla.

After several months, healing had occurred around the Luxatemp provisional implants (Zenith/DMG) and gingival health had been restored (Fig. 11). The temporary implant was removed, and final impressions were taken with Honigum impression material (Zenith/DMG) (Fig. 12).

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Figure 1: Loose deciduous canine.



Figure 2: Palatal view of deciduous canine.

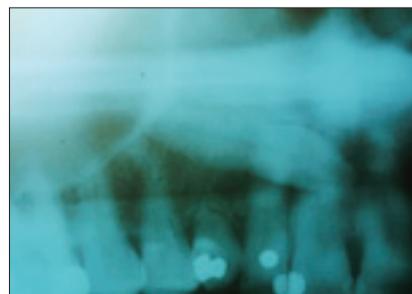


Figure 3: Radiograph showing impacted canine.



Figure 4: Diagnostic wax-up.



Figure 5: Siltek putty (Ivoclar Vivadent, Amherst, N.Y.) is used to fabricate the provisional implant.



Figure 6: Preparation of the bridge and the ovate pontic site.

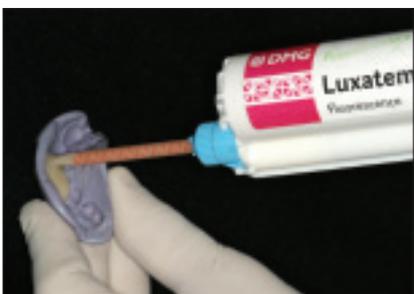


Figure 7: Injection of provisional material.

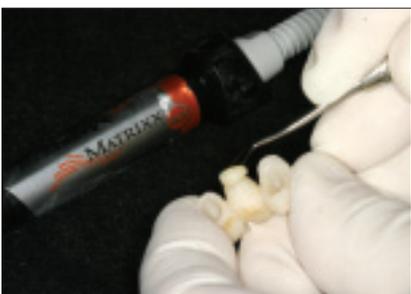


Figure 8: Creation of the ovate pontic with microfill.

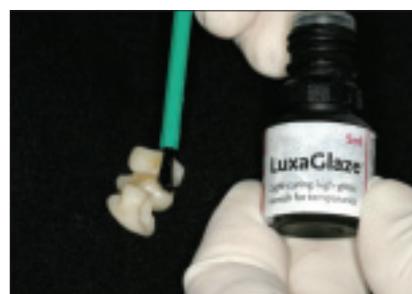


Figure 9: Glazing of the provisional implant.

A pressed ceramic bridge with a lingual metal frame was chosen for the final restoration (Figs. 13, 14 and 15). The porcelain was cut back and layered to achieve translucency and transparency. The porcelain was etched and silanated, and bonding agent was placed on its internal surface. It was then cemented to the etched and bonded abutments with Variolink composite (Ivoclar Vivadent, Amherst, N.Y.). The restoration had a realistic appearance, was extremely biocompatible and satisfied the needs of the patient (Figs. 16, 17 and 18).

Conclusion

Today's dentistry offers many treatments to solve dental

dilemmas. Often, we attempt to perform "dental heroics," aiming for the perfect restoration. However, do these efforts really satisfy our patients' needs, or are we simply trying to see how far we can push the limits of our own skills? It is important for us to carefully listen to our patients and determine their treatment objectives, in terms of the time and money they wish to invest in treatment, and the discomfort they are willing to endure. In many cases, a treatment plan that might not have been our initial preference turns out surprisingly well, and the patient is extremely satisfied, as occurred in the case reported here. ♦



Figure 10: The ovate pontic is ready for placement.



Figure 11: Temporary bridge in place.

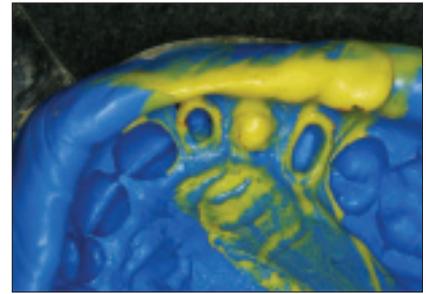


Figure 12: Final impressions of the preparations and the ovate site.



Figure 13: Creation of the porcelain bridge.



Figure 14: Working model showing bridge.



Figure 15: Working model showing preparations.



Figure 16: The final result.



Figure 17: Porcelain bridge in place.



Figure 18: The bridge has a realistic appearance.

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The author has no declared financial interests in any company manufacturing the types of products mentioned in this article.

Dr. Mechanic's full-day lecture at the FDI meeting, titled "Advanced esthetic dentistry I and II," will be presented on Monday, August 22, as part of the pre-congress courses.



The mission of the Canadian Academy for Esthetic Dentistry (CAED) is to work with Canadian dentists and dental team professionals for the advancement of esthetic dentistry in Canada and elsewhere, including developing affiliations with other dental societies and academies. For more information on the CAED, visit www.caed.ca or call 1-866-755-2233.

The 2005 annual meeting of CAED will be held in Montreal from August 26–28, jointly with the FDI World Dental Congress. The CAED program includes presentations by Drs. Michael Miller, Karl Leinfelder, Edward Lowe, Gary Radz, Howard Glazer, Jordan Soll, Tony Mancuso and Brian Saby.