Controlling tissue contours with a prosthetically driven approach to implant dentistry

By Timothy F. Kosinski, DDS, MAGD

With continual improvements in the design and production of implant systems and restorative components, the consistent results, predictability and long-term prognosis offered by implant therapy is making the treatment an increasingly popular technique for replacing missing teeth.

The esthetics, durability and precise customization offered by modern prosthetic components enable clinicians to provide ideal final restorations their patients can depend on. For the best results and maximum efficiency, implant therapy should be approached comprehensively, with the final result visualized from the outset. Technology has advanced to the point where smile design, emergence profile and margins can be established prior to any surgical intervention, giving clinicians a clear picture of the optimal prosthetic outcome that can be carried through each phase of treatment.

The Inclusive Tooth Replacement System (Glidewell Laboratories, Newport Beach, Calif.) simplifies this approach by providing everything needed for an implant case in a single package, building toward the final restoration with patient-specific components that begin shaping the patient’s soft-tissue contours immediately following surgery.

Experienced dental technicians use the latest in CAD/CAM technology to design custom abutments that sculpt the gingival contours during the healing phase, setting up a smooth, predictable transition to the final custom abutment and crown. Until recently, surgical placement of the implant was the primary concern. Improvements in dental implant design have led to better initial stability and less crestal bone loss over time. While positioning and angulation are crucial, achieving the most esthetic final result possible is also now of paramount importance if seeking to meet or exceed patient expectations.

The Inclusive Tooth Replacement System takes significant strides in facilitating the creation of superior, more predictable esthetics. With the optimal emergence profile driving the design process, clinicians now have the necessary tools to manage soft-tissue contours with custom components that approximate the root design and structural anatomy of a natural tooth.

The case that follows illustrates how an all-inclusive, prosthetically driven treatment protocol assists the clinician in achieving an excellent clinical outcome while streamlining the surgical and restorative phases of treatment.

Because the case involves the replacement of a central incisor in the anterior, where creating an ideal emergence profile is especially important, the esthetic benefits of this approach are particularly evident.

Case report
A 55-year-old female presented with a fractured maxillary left central incisor (Fig. 1). After careful intraoral and radiographic examination, it was determined that an implant could be predictably placed in the bone without complication. The primary goal was for the ultimate emergence profile of the final restoration to match that of the natural tooth being replaced and that of the adjacent central incisor.

A flapless surgical protocol was selected to retain as much gingival tissue as possible. The laboratory produced a surgical stent to assist with the initial orientation of the pilot drill. A radiograph was taken to ensure proper mesial-distal positioning and equal spacing between the adjacent natural teeth. Once proper angulation was verified, typical implant techniques were used.

Treatment began with the atraumatic extraction of the root. Maintaining the facial plate of bone was critical to facilitating optimal tissue healing and allowed for flapless placement of the dental implant.

Digital radiographs were used before, during and after surgery to ensure ideal implant angulation and depth. A pilot drill established the desired depth, and the apex of the implant was safely and effectively positioned in line with the roots of the adjacent teeth.

Following implant placement, the choice was made to not immediately load the implant with a transitional crown because sufficient primary stability was not achieved.

The custom healing abutment was placed (Fig. 2), and because the tooth being replaced was in the esthetic zone, a removable partial denture was used as a transitional appliance. The custom contours of the healing abutment effectively managed the patient’s soft tissue. For added esthetics, the maxillary right central incisor crown was replaced following preparation.

Upon completion of the healing phase, ideal gingival contours were evident (Fig. 3), which made delivery of the final restoration a smooth endeavor that was comfortable for the patient and required no chairside adjustments (Fig. 4).

Conclusion
As demonstrated by the natural margins, soft-tissue contours and emergence profile achieved in this case, a prosthetically driven approach to implant dentistry provides excellent clinical outcomes. Visualizing the final restoration from diagnosis and treatment planning through delivery of the final abutment and crown helps to ensure a predictable result.

The Inclusive Tooth Replacement System simplifies this approach by harnessing patient-specific tissue contouring and an all-inclusive clinical protocol to guide cases toward a functional and aesthetic conclusion, with each step of the restorative process setting up the next for success.