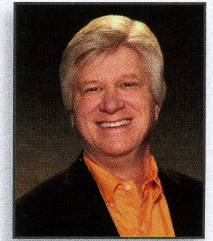


# Atraumatic Extractions and Socket Preservation – Renewed Profitability



by Dr. Timothy F. Kosinski

Patients often present to our office in emergency situations where they are in discomfort due to an infection, fracture or some other reason relating to their natural teeth. Some dentists see difficult extractions as a reason to refer to more experienced specialists. However, with the advent of new instrumentation and their associated techniques we can confidently and predictably remove teeth atraumatically.



Dr. Tim Kosinski instructing dentists on atraumatic extraction and grafting techniques at one of his recent live patient courses where 65+ patients are seen and over 200 teeth are removed by the course attendees in Detroit, Michigan. For more information contact Golden Dental Solutions.

I mean atraumatically in three respects. First, atraumatic to the patient, which means a positive experience during the extraction. This is certainly a viable marketing tool. A pleased patient will speak highly of the practitioner and office, often returning for more procedures when the time arises.

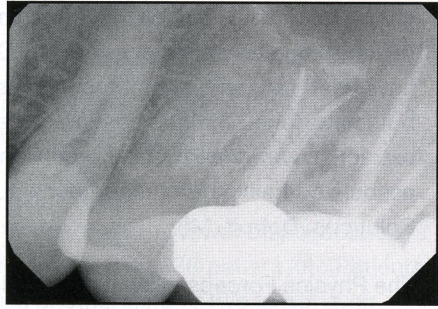
Second, I mean atraumatically to the surrounding bone structure. If we can maintain the bone around the socket site, we have an opportunity to fill that socket easily with a grafting material that will aid in the transition of material to the patient's own bone, following the osteoclast and osteoblast activity. In a reasonably short amount of time we can create a foundation that is proper for implant placement.

This is especially true in the two sites that most general dentists are concerned about treating. The maxillary sinus area often collapses or enlarges following tooth removal. I like to use the analogy of a tent pole holding up a tent. If the tent pole is removed, what happens to the tent? It collapses. This results in inadequate vertical height of bone to accept a dental implant without a more invasive sinus lift or augmentation procedure.

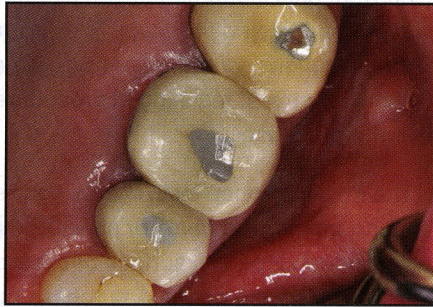
If we are able to create a socket with all four walls intact, we can easily and predictably build that bone up and reduce bone loss both vertically and horizontally.

Finally, we owe it to ourselves and our bodies to have the extraction be atraumatic for the dentist. We have all had negative experiences removing

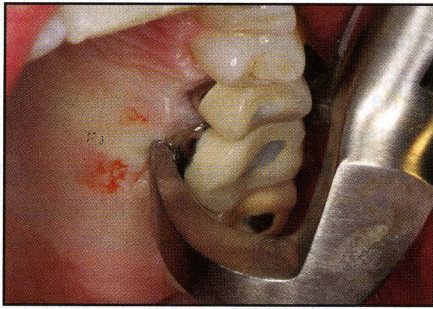
**Figure 1:**  
Preoperative digital radiograph of symptomatic tooth deemed non restorable by our endodontist



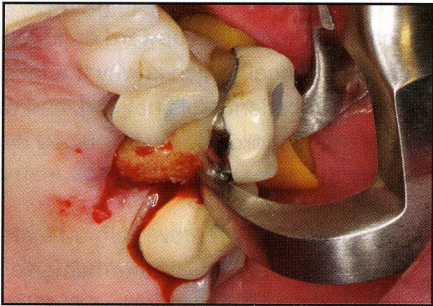
**Figure 2:**  
Occlusal view of old crown. Note the compromised crowns on either side of tooth to be extracted. Conventional extraction techniques may make removal tenuous.



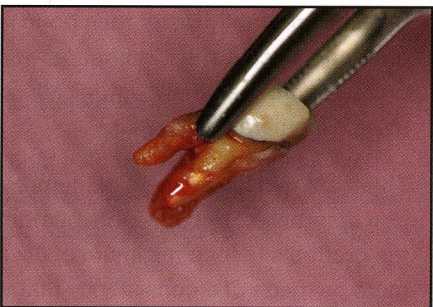
**Figure 3:**  
The beak of the Physics forcep (Golden Dental Solutions) engages 1-3mm subgingival on the palatal surface of the root. This is the working end of the instrument that creates tension and enzymatic release by the body resulting in disintegration of the periodontal ligaments.



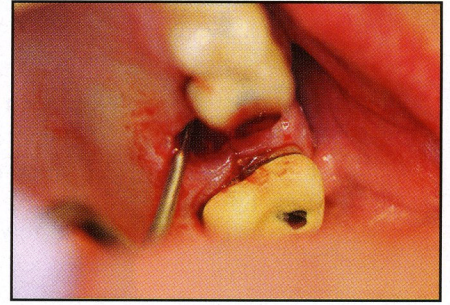
**Figure 4:**  
With simple wrist rotation and no squeezing of the instrument, the tooth lifts up and out of the socket (not straight buccally, it does have occlusal lift) with minimal trauma to the tissue, bone. The patient's response is positive because no force is placed on the tooth.



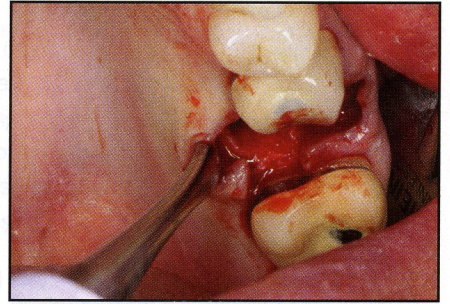
**Figure 5:**  
The three rooted maxillary molar tooth has divergent roots, but was atraumatically removed with minimal force.



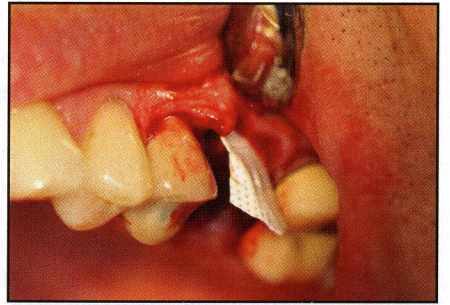
**Figure 6:**  
The socket is curetted for any excess granulation tissue



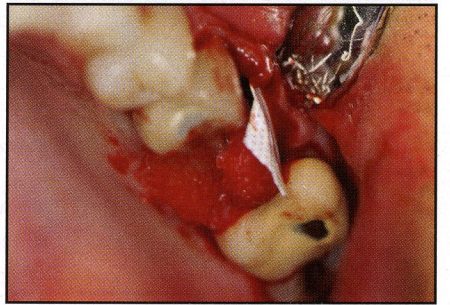
**Figure 7:**  
The facial and palatal attached gingiva is elevated using an envelope flat (no vertical incisions) showing the four preserved walls. The flap allows for laying of the membrane passively on at least 2mm on facial and palatal bone.



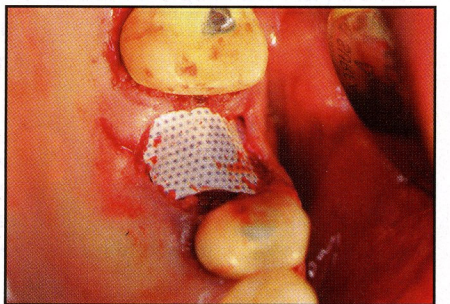
**Figure 8:**  
Here a non resorbable membrane (Cytoplast, Implant Direct, Thousand Oaks, CA) is passively positioned.

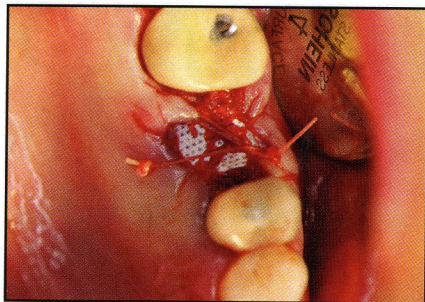


**Figure 9:**  
Allograft bone graft is placed into the socket. The material is condensed firmly, but not packed like amalgam. (Gold Oss Allograft, 250-1000 microns, Golden Dental Solutions, Detroit, MI)

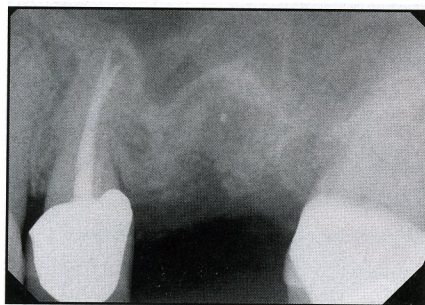


**Figure 10:**  
Cytoplast membrane is passively positioned facial and palatal and will not easily dislodge.

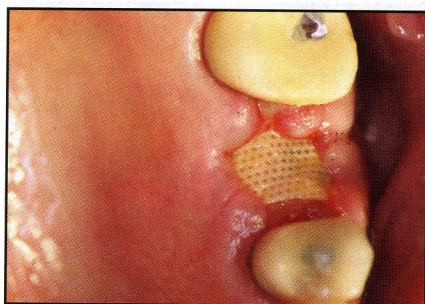




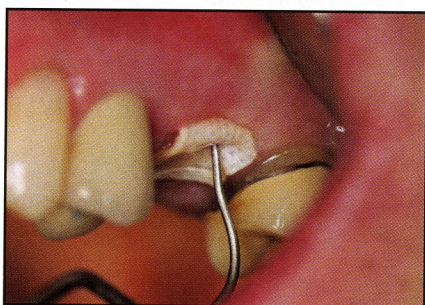
**Figure 11:** Vilet Polyglactin resorbable sutures (Implant Direct, Thousand Oaks, CA) are placed over the membrane to help keep it in position during the initial healing period of about one week.



**Figure 12:** Immediate digital periapical radiograph of grafted site.



**Figure 13:** After approximately one week, the sutures are removed and the membrane remains in position preventing epithelial invagination into the bone substitute.



**Figure 14:** After approximately 6 weeks the non resorbable membrane is simply removed with an explorer. No anesthesia is needed.



**Figure 15:** Osteoid is created under the membrane. This is a bone precursor which will be covered over with epithelium in a very short time.

challenging teeth. So how do I meet these three aspects of achieving atraumatic extractions? Over the years I have used several different techniques to remove teeth, but I have found that the best advancement relating to extractions are the Physics Forceps instruments and their associated beak and bumper technique (Golden Dental Solutions, Detroit, MI).

The Physics Forceps allow the practitioner to remove teeth with minimal force placed on the tooth structure, unlike conventional instruments. The extractions are atraumatic to the patient and the bone. They do not require typical forcep squeezing of the hands or forearm, bicep or shoulder stress, resulting in procedures being atraumatic to the practitioner.

The Physics Forceps instruments consist of two components. The beak, or shovel shaped end engages the lingual or palatal surface of the tooth one to three millimeters subgingival. A purchase point may be necessary so the instrument does not slip off the root, which can be easily done with a bur at the expense of the tooth, not the bone.

The bumper is positioned into the vestibule and simply acts as a fulcrum. The working end of the instrument, the beak, following wrist motion, creates tension on the lingual or palatal part of the root resulting in the physiologic response of enzyme release. This will destroy the periodontal ligaments, allowing the tooth to be avulsed up and out of the socket, following the unique curvature of the instrument.

Again, the tooth lifts upward at first, it does not move straight buccal, which is why the facial bone is preserved. Often the patient feels nothing, and certainly not the tremendous force normally placed by conventional extraction forceps.

Once the tooth is removed a graft material such as an allograft (bone from another human source) or an alloplastic material (a synthetic material such as Tricalcium Phosphate) can be placed into the socket. Epithelial tissue grows significantly faster than bone regeneration, so when grafting a socket site it is imperative that the graft be protected from epithelial invagination. This is completed by using a membrane or barrier.

There are two basic types of membranes, resorbable and non resorbable. Because the membrane is retained over the grafted site for a minimum of 6 weeks, a membrane must be made of a consistency that will be maintained for

a period of time. It is imperative to know the resorption rate of your membranes. There are several resorbable membranes that last up to 4 months intraorally.

The positioning of the membrane is critical. It must be positioned at least 2mm onto solid facial and palatal or lingual bone. This will eliminate the membrane dislodging at suture placement, removal or prematurely.

If the membrane is prematurely removed, the graft procedure becomes unpredictable, meaning the site may heal fine or it may not. I do not like to take that chance and believe that atraumatic extraction, simple socket preservation and proper placement of a membrane for the proper healing time ensures a good result allowing me to predictably torque a dental implant into place and eventually fabricate an implant retained crown. What a wonderful service to our patients and a tremendous profit source for any dental practice that all starts with an atraumatic extraction. With advancements in the instruments available, all general practitioners should feel comfortable removing difficult teeth for their patients, but of course, still use specialist where appropriate.

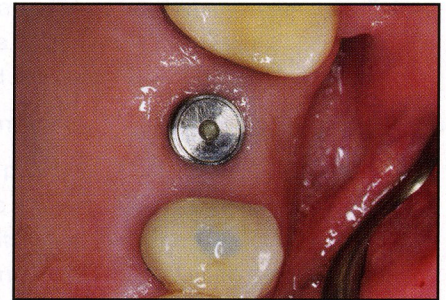
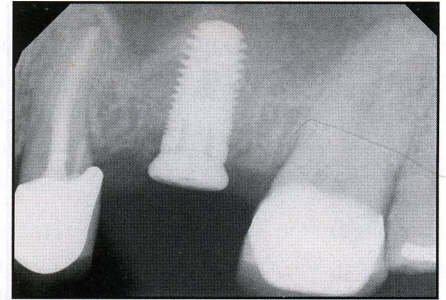
Following integration of the grafted site for 4-6 months, we can surgically place a dental implant and expect initial stability and eventual osseointegration of the implant. Following another healing period of approximately 4 more months, depending on initial torque, final impressions are made of the implant internal connection using a transfer assembly. This information is relayed to our dental laboratory (Glidewell Dental Lab, Irvine, CA) either digitally or using conventional vinylpolysiloxane impression material (Kettenbach LP, Hauppauge, NY). A model is created and our technicians prepare a stock or custom abutment. The final implant retained crown is created allowing for proper emergence profile, function and final esthetics.

Implant dentistry has become a viable alternative to conventional crown and bridge dentistry and our patients have become very aware of the benefits of this type of therapy. Creating single tooth replacements that are easily maintained is wonderful. The procedures have become very predictable and the prognoses are wonderful.

To create the final result depends on creating the proper bed to accept the implant. Atraumatic extractions, simple socket grafting using a proper membrane and dental implant reconstruction should be examined by every

**Continued on page 34.**

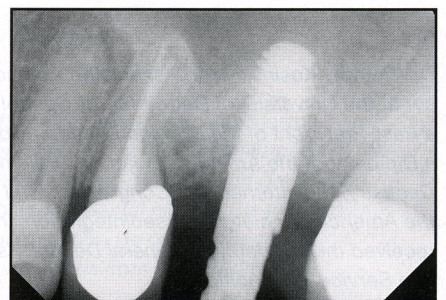
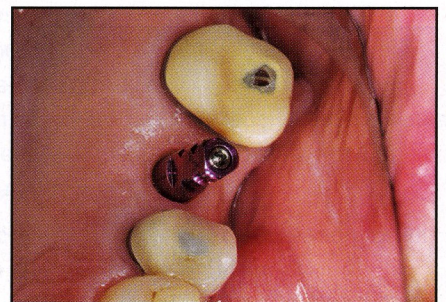
**Figures 16 and 17**  
After approximately 5 months on allograft healing, a 4.7mm X 10mm Glidewell Inclusive tapered implant (Glidewell Lab, Irvine, CA) is torqued to 30Ncm and a 2mm tall healing abutment is immediately placed, making this a one stage surgical procedure.

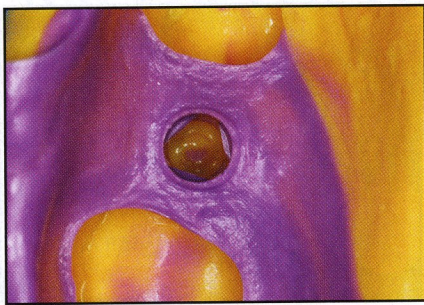


**Figure 18:**  
Following an additional 4 months of integration of the dental implant, the healing abutment is removed prior to impression making. Note the nice, healthy gingival cuff formed.

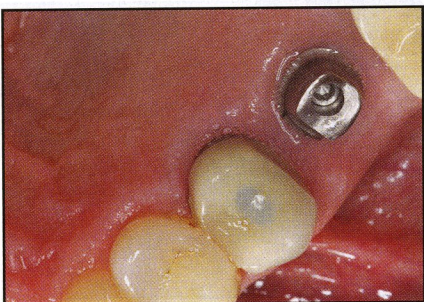


**Figures 19 and 20**  
A transfer assembly engages the internal hex of the implant and is checked for complete seating with a digital radiograph.

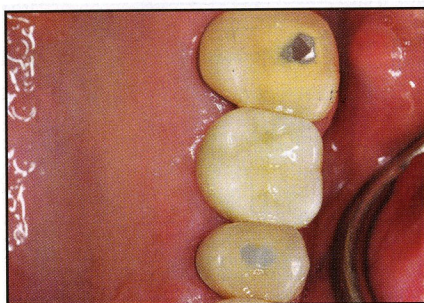




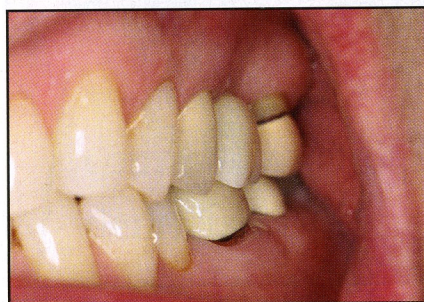
**Figure 21:** A clean impression is made using Kettenbach LP (Hauppauge, NY) polyvinyl siloxane light and medium body impression material. Note there are no voids.



**Figure 22:** A custom titanium abutment is fabricated and torqued to 30Ncm. Note the margins of the abutment is just slightly subgingival allowing easy cement clean up.



**Figure 23:** A Bruxzir monolithic zirconia crown (Glidewell Lab, Irvine, CA) is fabricated and cemented using Improv implant provisional cement. (Alvelogro Inc., Washington)



**Figure 24:** Emergence profile is created with a proper foundation of atraumatic extraction, grafting, membrane protection and implant placement.

*Dr. Timothy Kosinski is an Associated Adjunct Clinical Professor at the University of Detroit Mercy School of Dentistry. He is a Past-President of the Michigan Academy of General Dentistry, a Diplomat of the American Board of Oral Implantology/Implant Dentistry, the International Congress of Oral Implantologists and the American Society of Osseointegration. In 2009 and 2014 he received the Academy of General Dentistry's "Lifelong Learning and Service Recognition."*

dentist professional. Education as to the protocol, techniques and materials is essential to providing the best dental therapy available to our patients and serve as a new and dynamic profit margin for our practices.

If you can't predictably and atraumatically remove a tooth, the grafting and potential implant placement procedure is also lost from the practice – most often to another practitioner that is already utilizing these techniques.

It is imperative that dentists get involved in this aspect of treatment, if you are not already. It may seem trite, but if we can perform some of the most basic dental procedures, such as extractions, in an atraumatic and efficient manner it can become one of the best marketing tools. "I find my patients amazed at how quickly and atraumatically the extraction procedures are performed in comparison to what they expect from past negative experiences." It may seem silly, but these instruments have been one of the best marketing investments I have made because the patients response is incredible and they are loyal for life.

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