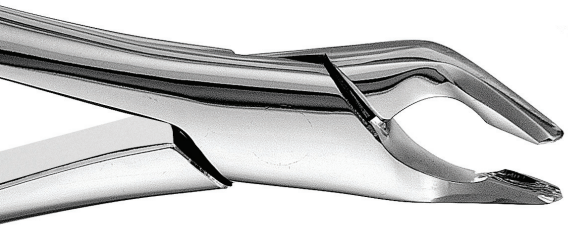
Extraction Socket Preservation: The Time is Now



by Dr. Kevin Frawley

As dentists, we hear a lot about implants and bone grafting. We hear a lot about sinus lifts and ridge grafting. Extraction socket preservation has not been given the attention it deserves. Unfortunately for our patients, most of us are not grafting extraction sites to preserve the alveolar bone.

The following discussion should help to answer some basic questions about socket preservation and hopefully help us all to consider providing this as a service to our patients.

There are 7 important questions to this discussion:

1. What is extraction socket preservation?
2. What is the benefit to the patient?
3. What are the consequences of not grafting?
4. Is it a difficult procedure?
5. Who should be performing this procedure?
6. What is the benefit to the dentist?
7. Is socket preservation the standard of care?

In consideration of these questions we should all decide whether or not grafting extraction sites is something we want to make part of our practices. I believe that anyone who is extracting teeth is capable and should be doing extraction socket preservation. It is good for our patients and good for the bottom line in our practices.

1 What is extraction socket preservation?

The process begins with atraumatic tooth extraction. Every attempt is made to preserve the surrounding bone and soft tissue, with an emphasis on being careful not to fracture the delicate buccal plate. There are a number of techniques and instruments that aid in this process. In general, one never wants to elevate so that force is directed toward the buccal plate. Once the tooth is extracted, all the granulation tissue is removed from the socket. It is important that good bleeding is established in the socket. Next, a bone graft material is placed into the socket.

There are a number of different types of graft materials. I prefer an **allograft** *(human)* bone graft over a **xenograft** *(other species)* or a synthetic bone graft. There are different types of allografts. There are mineralized and demineralized bone, cortical and cancellous bone, bone putties and bone sponges. Generally speaking, mineralized cancellous bone is appropriate for most socket preservation cases. There are some new bone sponges and putties that have unique applications and will facilitate difficult clinical situations. The ideal bone graft maintains the space of the extraction socket during healing while acting as a scaffold for new bone formation. Allografts have been shown to minimize ridge width and height loss compared to not grafting. [(1)]Allografts

will remodel more completely than xenografts over time. [2, 3, 4]I have used all three types of graft materials over the years.

In my experience, the allografts have the most complete turnover and for me, are most predictable. After the graft material is placed in the socket, it is then covered with a resorbable or non-resorbable membrane and sutured. Primary flap closure is not ideal in these cases. The graft will support the soft tissue during healing. [5]If one advances the flap to achieve primary closure, the blood supply to the buccal bone is disrupted and will result in more buccal remodeling and subsequent bone loss. [6]In addition, the soft tissue architecture, the amount of keratinized tissue, and the vestibule are adversely affected. There is also more chance of post-operative swelling and potential hematoma during healing. [7]For these reasons we use a membrane or covering without advancing the flap or attempting primary closure. The healing is generally uneventful, and the results are predictably excellent.

2 What is the benefit to the patient?

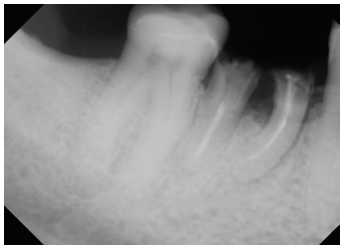
Most importantly, socket preservation helps to maintain the alveolar architecture. Socket preservation significantly reduces the loss of ridge width and height following tooth removal. [1, 5, 7, 8, 9]The result is that more costly secondary augmentation procedures are generally not necessary. [7]When implants are placed, the site will be more ideal. If bone augmentation is required during the implant placement, then it will be a simpler procedure. Furthermore, minimizing post extraction bone loss will also result in better esthetics whether the area will be restored with an implant or a traditional fixed bridge. Socket preservation will allow for a pontic with a more esthetic emergence profile or an implant crown that will mimic natural dentition.

Below is an example of an esthetic dilemma that is the result of the failure to place a bone graft at the time of tooth removal.

3 What can be the consequences of not grafting?

The loss of ridge width and height following tooth removal is well documented in the literature. [7, 8, 9, 10]Schropp showed a ridge width loss of 50% over a 12-month period with two thirds of the loss occurring in the first three months following tooth removal. The corresponding dimensional change was between 5 to 7 mm. [11]Therefore, without grafting, there is a higher likelihood that a ridge lap type restoration or a "long pontic" would be necessary to fill in the space of the resorbed socket and ridge. We do not have to accept these compromised esthetic results. We have all dealt, prosthetically, with the effects of a ridge collapse. The surgery to correct these defects is many times more difficult, expensive and less predictable than grafting the socket initially. These defects are preventable for the most part.[7,8,9]

The following is an example of a socket graft procedure:



Patient presents with fractured #30 tooth that has suffered bone loss in the furcation.

Tooth Roots are removed and the area is thoroughly debrided. Minimal flap refection has been performed, 3-5mm to place the acellular dermis under the tissue.

4 Is it a difficult procedure?

Absolutely not! It is much more difficult to do a good composite restoration than it is to graft a socket.

5 Who should be performing this procedure?

Every practicing dentist is capable of socket preservation procedures. If you are comfortable extracting a tooth, you 100% can and should graft the socket. Every dentist owes it to their patients to offer this service.

A bone graft, mineralized, particulate bone allograft has been placed. The dermis membrane has been placed over the graft and the just under the buccal and lingual flaps. The flaps are not advanced (no primary closure). Excellent osseous and soft tissue healing was achieved.

At five weeks post-operatively, the site has healed uneventfully. The graft material has supported the soft tissue growth over the site. Note how the mucogingival position has been maintained

Three-month reentry photo demonstrates excellent bone formation. A new cortical plate has formed with the absence of residual graft particles. Note the thick band of keratinized tissue, important for implant esthetics and function that has formed with the accellular dermis membrane.

6 What is the benefit to the dentist?

You are providing the best possible care to your patients. The result will be fewer restorative challenges and better functional and esthetic results. It is what we all strive to achieve. You are learning a new and interesting procedure, which is something we all like to do. Socket grafting will also add significantly to your income.

7 Is socket preservation the standard of care?

As of now, each practitioner must answer this question for him or herself. Based on the points in section one, If it were you, would you want a ridge preservation procedure performed at the time of tooth removal? In my practice, it is the standard of care to offer socket preservation and to explain the potential consequences of not grafting. If someone chooses not to graft an extraction site, I am careful to clearly document it in his chart. It is only a matter time that it will become the standard of care. In the current Dental Economics, Gordon Christensen stated that he felt it should be the standard of care. He also stated that it would add about $500 to the procedure.[13]

TWO MONTHS
following implant placement.

ABOUT

Dr. Kevin Frawley is a general dentist who has practiced for 27 years in Beverly Hills, Ca. He went to the UCLA School of dentistry and taught there for 15 years. He has lectured on implant and regenerative dentistry and has an ownership interest in Surgical Esthetics ™.

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