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PERIODONTAL IMPLANT CENTER NORTH

AUGUST 1, 2015

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Periodontal News



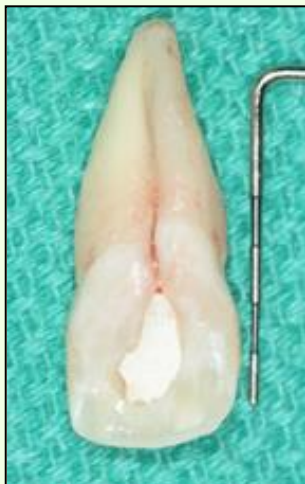
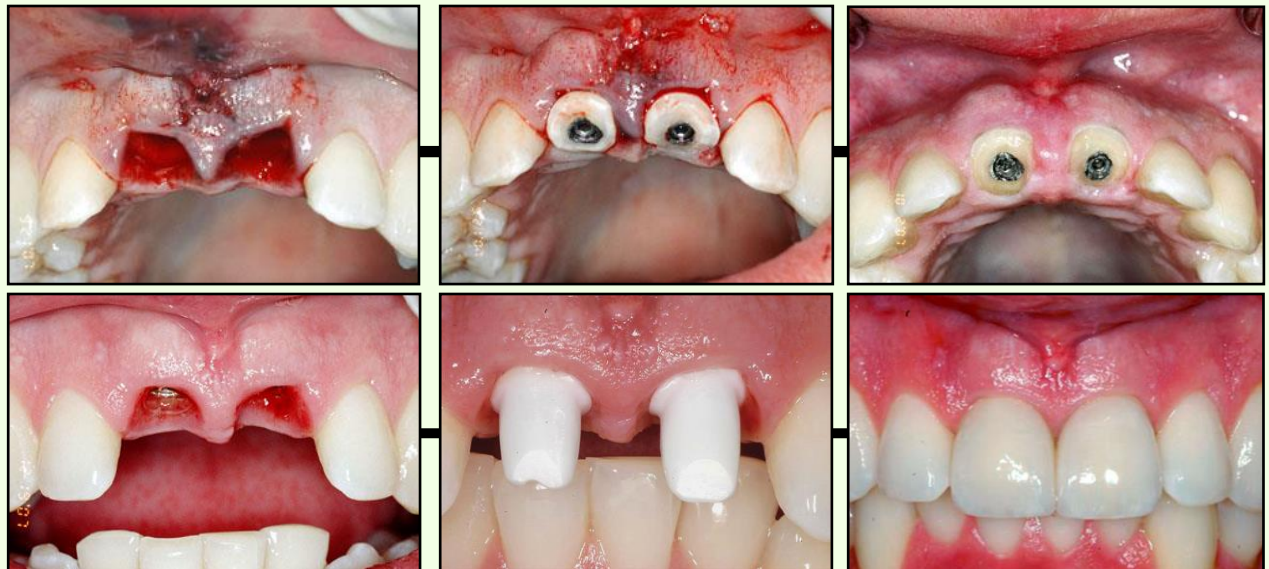
A Recurring Publication from the Periodontal Implant Center ♦ No. 15, April 2015

Jacob Hager, DDS, MS and Blaire Bowers, DDS, MS

Our Specialty – Immediate Anterior Implant Placement

Our office offers a full array of periodontal services ranging from treatments for severe periodontal disease, tissue grafting for gingival recession, esthetic crown lengthening, functional / pre-prosthetic crown lengthening, frenectomies, canine exposures, surgical extractions, socket grafting, bone grafting procedures for implant site development including sinus augmentations and dental implant placement. One particular class of procedures that we have focused on intently over the last decade is implant placement in the esthetic zone at the time of extractions. We take pride in our commitment to preserving the integrity of the socket structure at the time of extractions and take the time necessary to fabricate custom healing abutments for nearly all of our anterior cases to sculpt and preserve ideal soft tissue architecture. This commitment to excellence is carried through the impression process and fabrication of custom abutments that match the created peri-implant tissue profile.

This case was managed with immediate implant placement following trauma and removal of the fractured incisors. The contours of the surrounding gingiva were preserved with custom healing abutments fabricated chair-side at the time of implant placement.



Tooth #8 removed due to periodontal abscess associated with a radicular groove. Dental implant was placed immediately following extraction. A custom healing abutment was fabricated to support the soft tissue contours during healing. Final impression was taken after 14 weeks of healing carefully capturing the soft tissue profile and enabling the laboratory to fabricate a precisely matching final abutment.

Grafting the Maxillary Sinus

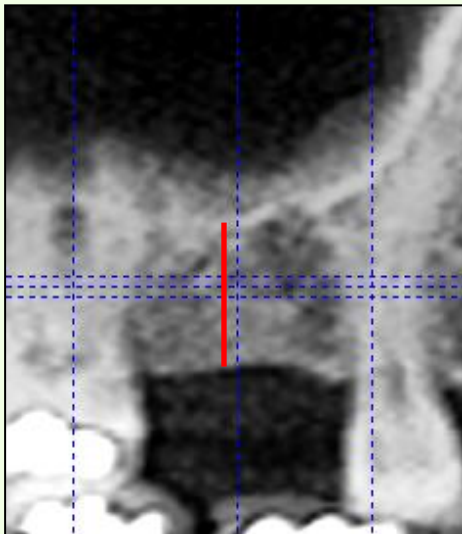
Augmenting the maxillary sinus in preparation for implant placement has been in practice since the late 1970's. Today, one of two techniques is most commonly utilized to increase the vertical dimension of bone in areas where the maxillary sinus has pneumatized or encroaches into planned implant positions: 1) Raising or "up-fracturing" the position of the sinus floor with osteotomes, or 2) Elevating the sinus floor with a lateral window approach. Both techniques can be employed safely with high success rates. Many long term studies have evaluated the success of implants placed in grafted maxillary sinuses and found that the success rates are the same as those for implants placed in native alveolar bone. In most instances, dental implants are placed at the same time as the sinus grafting procedure. For severely enlarged sinuses, when there is less than 3mm of remaining native alveolar bone height, implants may be delayed for a period of 5-8 months following a sinus grafting procedure. In our office, sinus grafting procedures are rarely completed at the time of any dental extractions in the same area – a healed alveolar ridge is usually preferred. CT scans are always taken prior to any type of sinus augmentation to ensure the sinus is free of pathology or infection, that the sinus opening into the nasal cavity is clear and to record accurate pre-operative measurements.

Raising the Maxillary Sinus Floor – Osteotome Technique

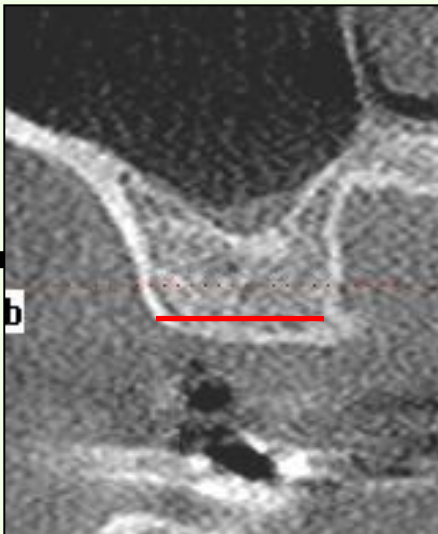
Sites that require no more than 3mm of vertical augmentation are often candidates for an osteotome sinus grafting procedure. The implant site is initiated in the normal fashion and stopped before penetrating the floor of the maxillary sinus. An osteotome is then utilized to raise or up-fracture the sinus floor the necessary height.



Attempting to raise the sinus floor more than 3mm with this technique will greatly increase the risk of tearing or perforating the thin tissue membrane that lines the sinus cavity. In most cases, particulated bone graft material is placed ahead of the implant to help support the elevated sinus membrane and offer a scaffold for native bone cells to form new alveolar bone above the apex of the implant. This technique is most often utilized in healed extraction sites with adequate width to the alveolar ridge. Implant fixtures are most commonly placed at the time of grafting and four months of healing is customary following an osteotome grafting procedure.



Periapical view of missing tooth #3. CT scan reveals 7mm of residual alveolar height. This site is planned for a 10mm implant fixture. A 3mm sinus augmentation is planned via an osteotome technique.



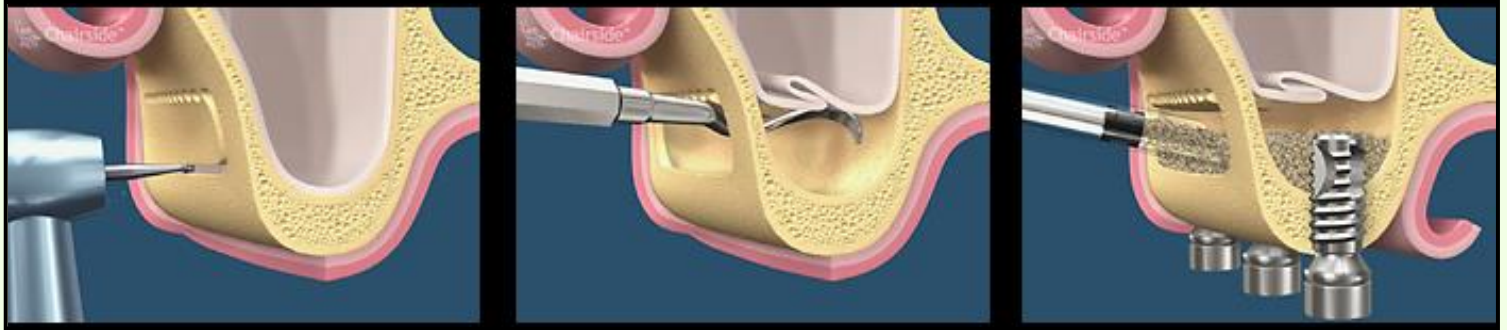
This cross-sectional view of the #3 site from the CT scan shows 8mm of alveolar ridge width and confirms ideal socket healing. The scan also confirmed an absence of any sinus infection and a clear opening in the nasal cavity.



This cross-sectional view of the implant was taken after four months of healing and shows good integration of the implant and good healing of the sinus graft beyond the apex of the fixture.

Raising the Maxillary Sinus Floor – Lateral Window Technique

For patients that require more than 3mm of vertical augmentation to prepare a maxillary posterior site for dental implant placement, a lateral window sinus augmentation is commonly employed. A healed alveolar ridge is preferred for this technique. Implant fixtures may or not be placed at the time of grafting. Usually, if there is less than 3mm of remaining alveolar ridge height, implants will be delayed until the sinus graft has healed sufficiently (5-8 months).



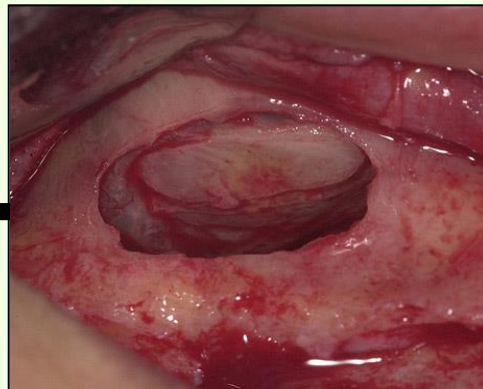
Initial preparation of the site involves reflection of the tissue and removal of a bony window in the lateral wall of the posterior maxilla. Care is taken not to perforate the membranous lining of the sinus.

After creation of the access window, specialized instruments are utilized to elevate the membranous lining of the sinus. If needed, small perforations to the membrane can be repaired at the time of the grafting procedure.

Particulated bone graft material from either a human donor source or bovine source is utilized to fill the void created below the elevated sinus membrane and around the apical portion of the implant fixtures.



Periapical view of missing tooth #14. CT scan reveals 3mm of residual alveolar height. This site is planned for a 13mm implant fixture. A lateral window sinus augmentation is planned at the time of implant placement.



Clinical view of the window created in the lateral wall of a maxillary to gain entrance to the membranous sinus lining. The lining is gently elevated away from the sinus floor and walls to a level 3-5mm further than the anticipated implant length.



Final periapical radiograph after 6 months of healing shows good integration of the implant good density of the surrounding sinus graft. As in most sinus grafting cases, this implant was allowed to heal submerged under the tissue for the entire 6 months.

Risks and Complications

As with any surgical procedure, there are inherent risks associated with grafting the maxillary sinus. Infection and post operative bleeding are the two most common complications. The risk of infection, and other complications, can be greatly reduced by proper patient selection. Poorly controlled diabetics, severe osteoporosis, patients with a history of chronic sinusitis, current sinus infections, adjacent teeth with current apical infection or patients that smoke more than ½ packs of cigarettes a day are not ideal candidates for sinus grafting procedures. With proper patient selection and ideal surgical technique, the rate for post operative infections following a sinus grafting procedure should be less than 4%. Patients are routinely placed on systemic antibiotics and nasal decongestants prior to and following a sinus augmentation. Treatment with additional systemic antibiotics may be required if a post operative infection is suspected, and in severe cases, evacuation of the graft material and removal of the implant fixtures may be necessary (*a very rare occurrence*).



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