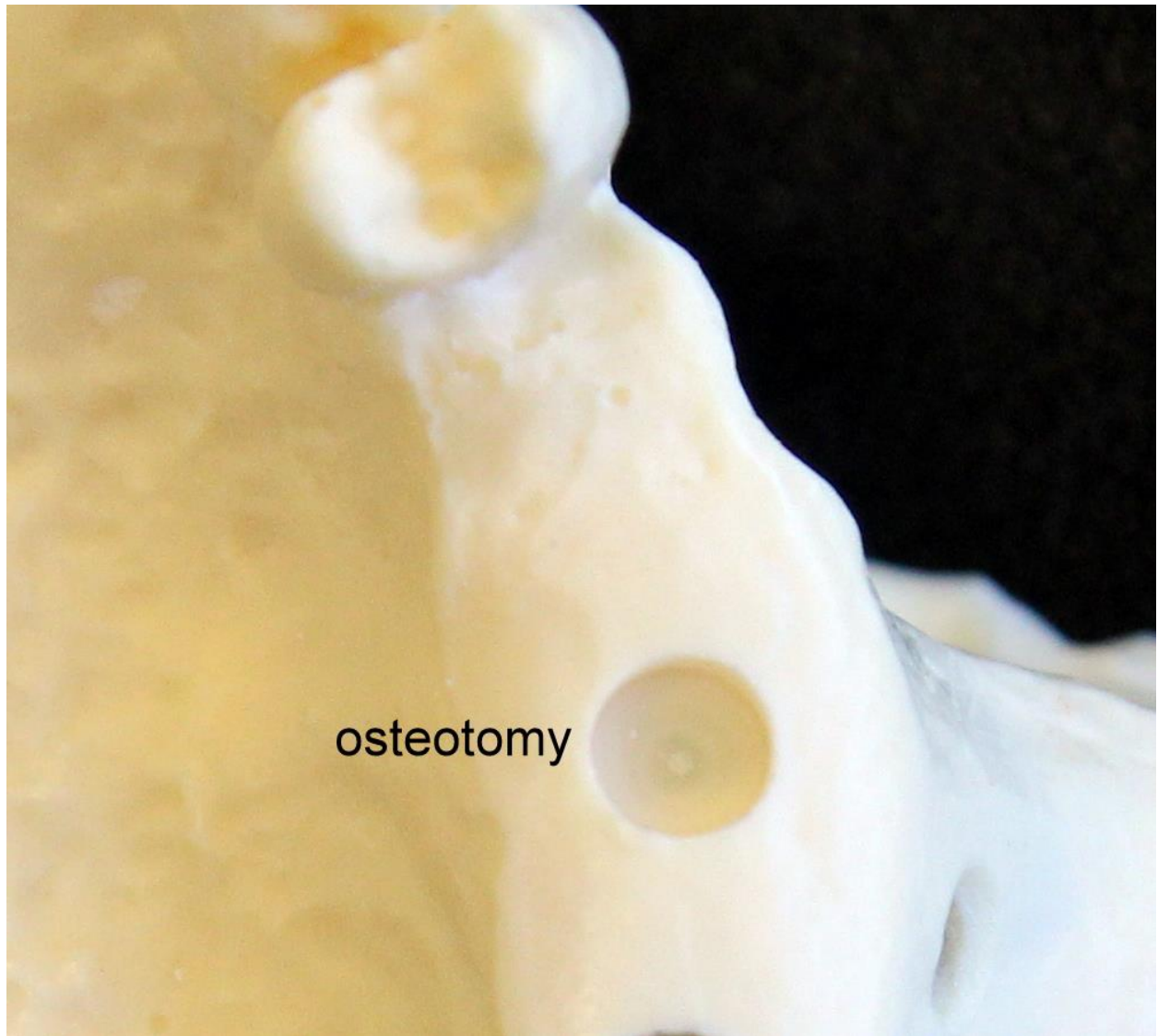
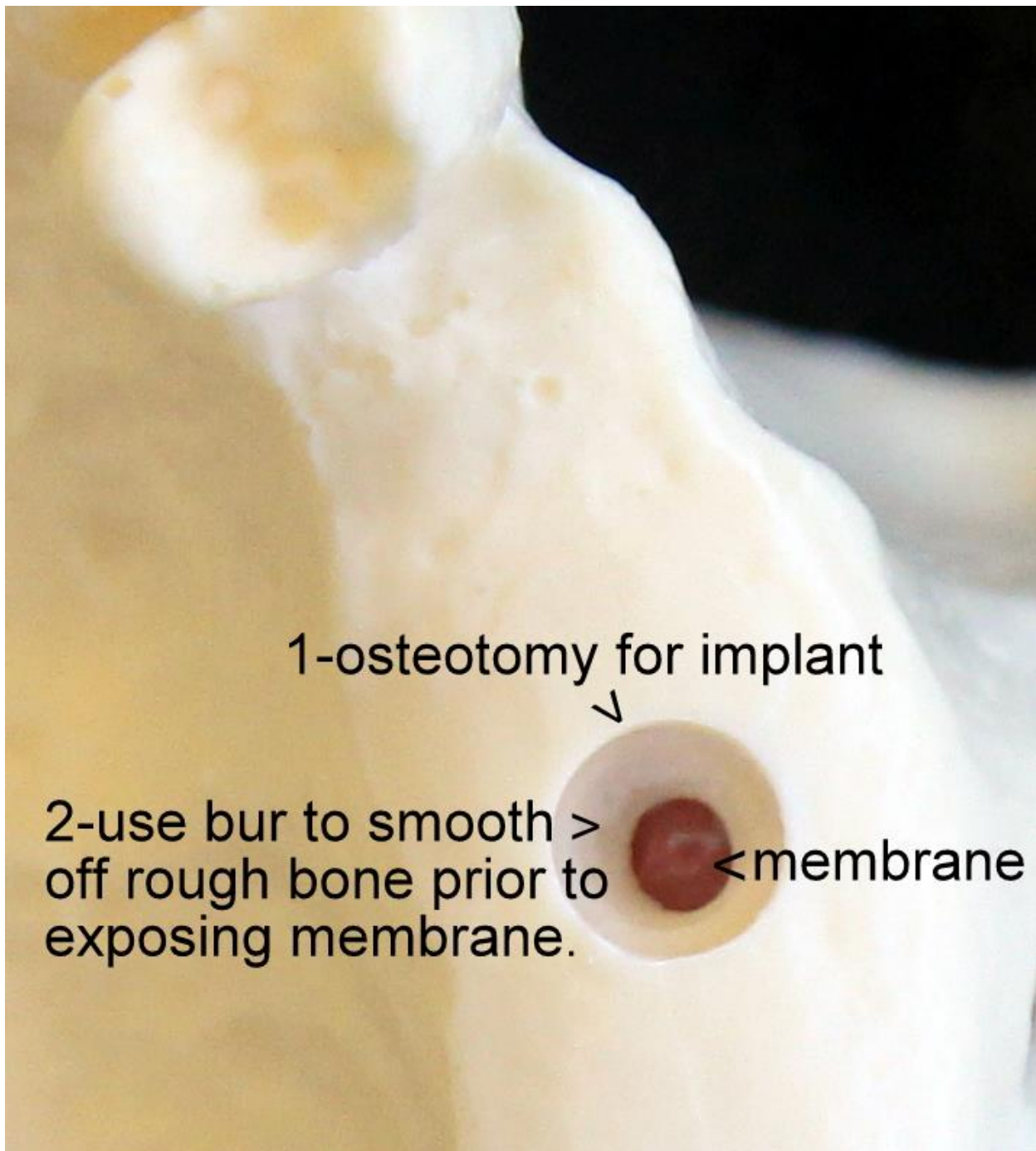


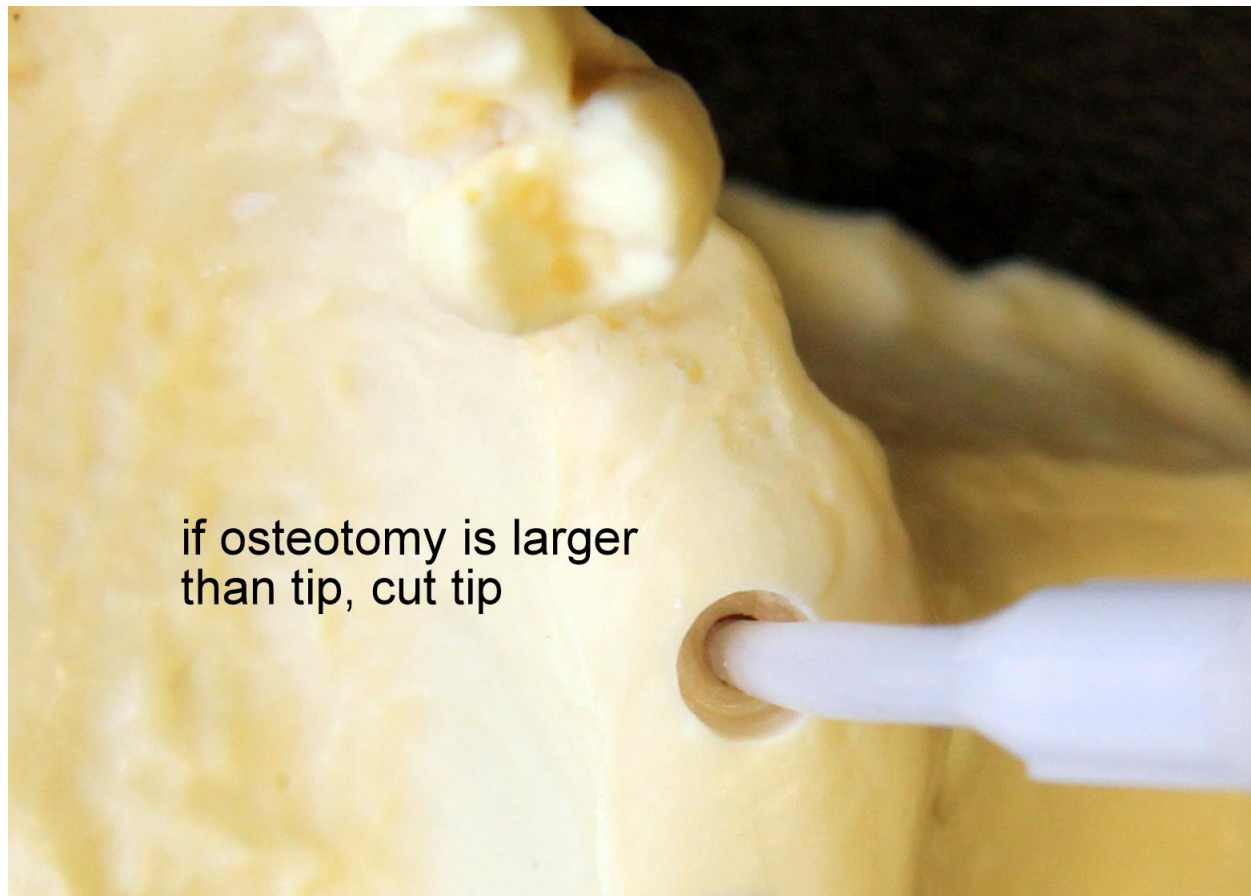
Steiner Sinus Bump Technique Using Sinus Graft



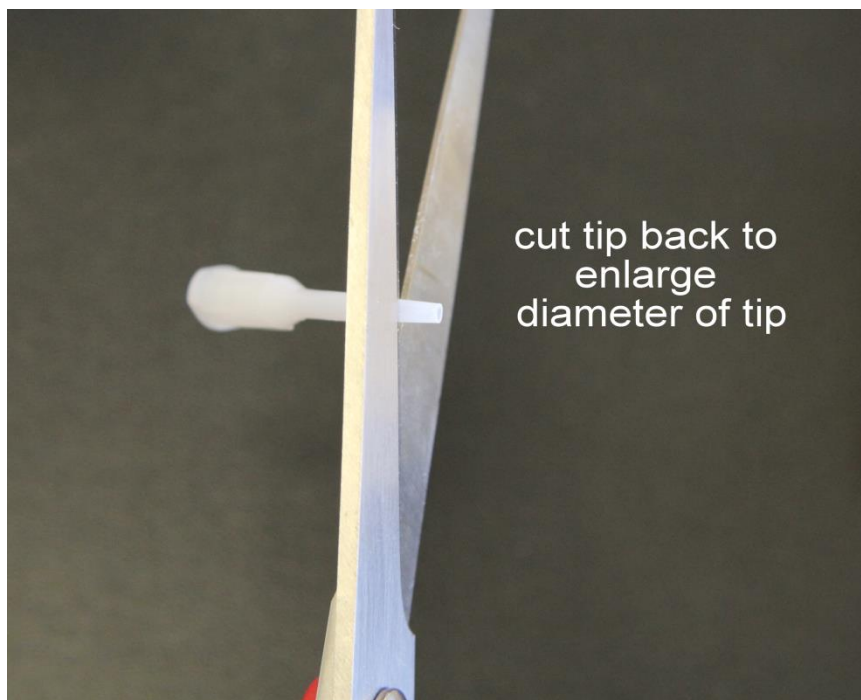
Create the osteotomy. Drill without causing an opening into to sinus.

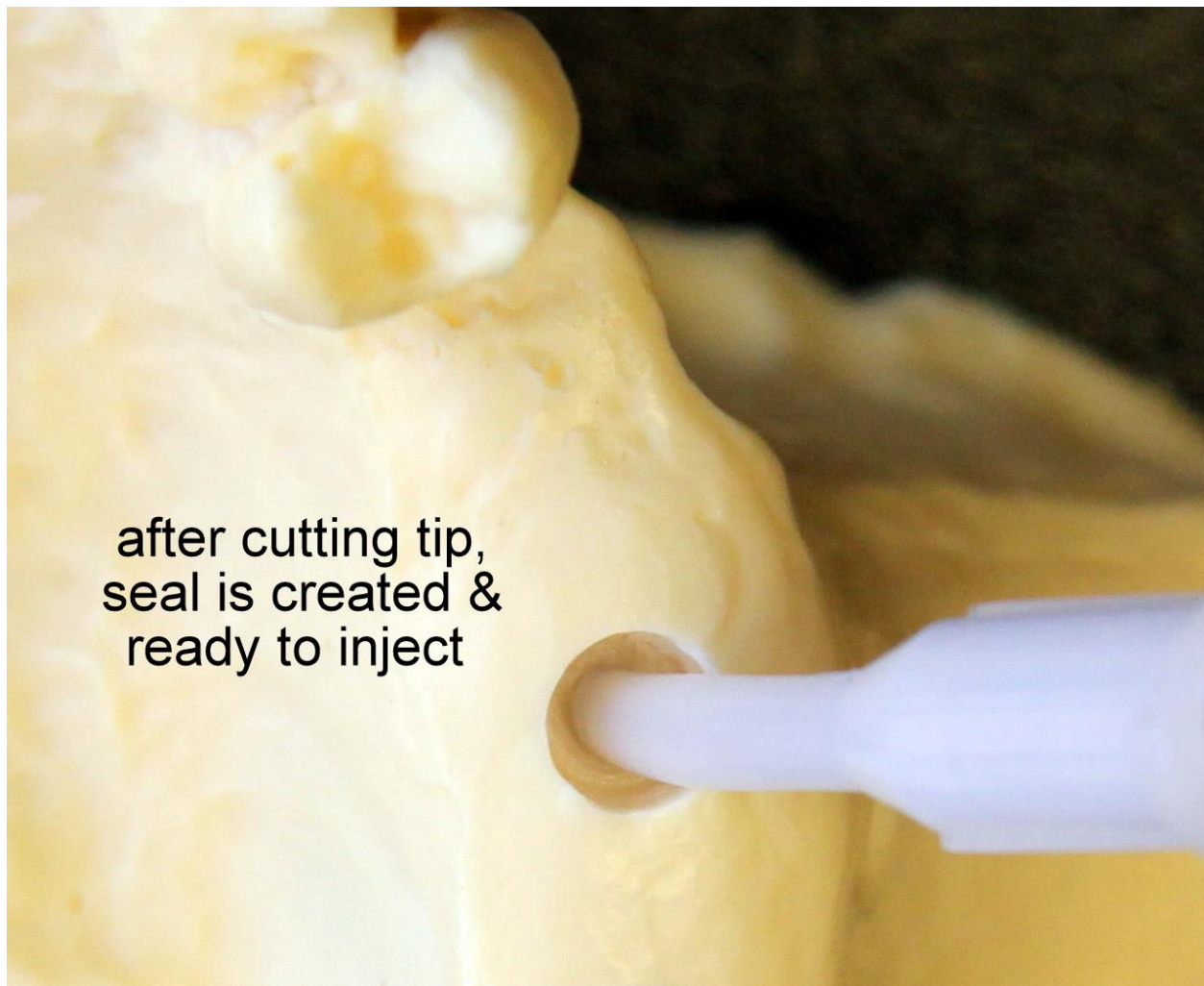


At this point, we recommend you use a small round #6 bur, multi-fluted or a fine round diamond bur to remove the remaining bone and to create a smooth seal for the syringe tip. Use a very light touch to avoid over drilling into and tearing of the membrane.



If the membrane exposure is larger than the tip, cut the tip so it contacts the bone but does not enter the sinus as shown here.





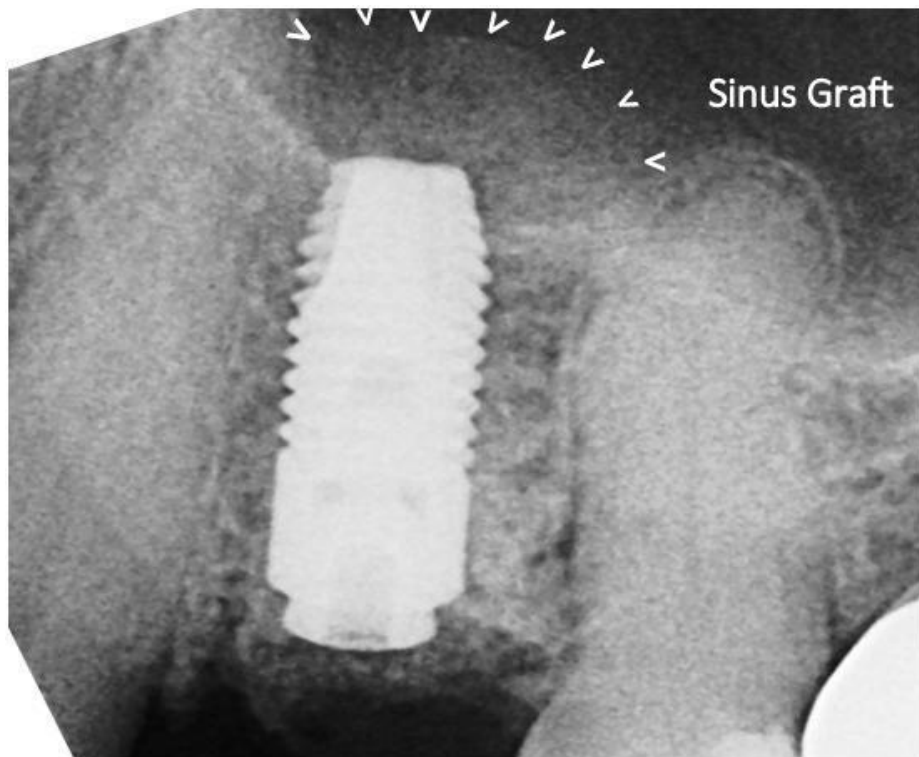
After the tip has been cut, the tip will lay against the bone creating a seal.
Express Sinus Graft™ to hydraulically lift the sinus membrane.

See 5 Clinical Cases Below

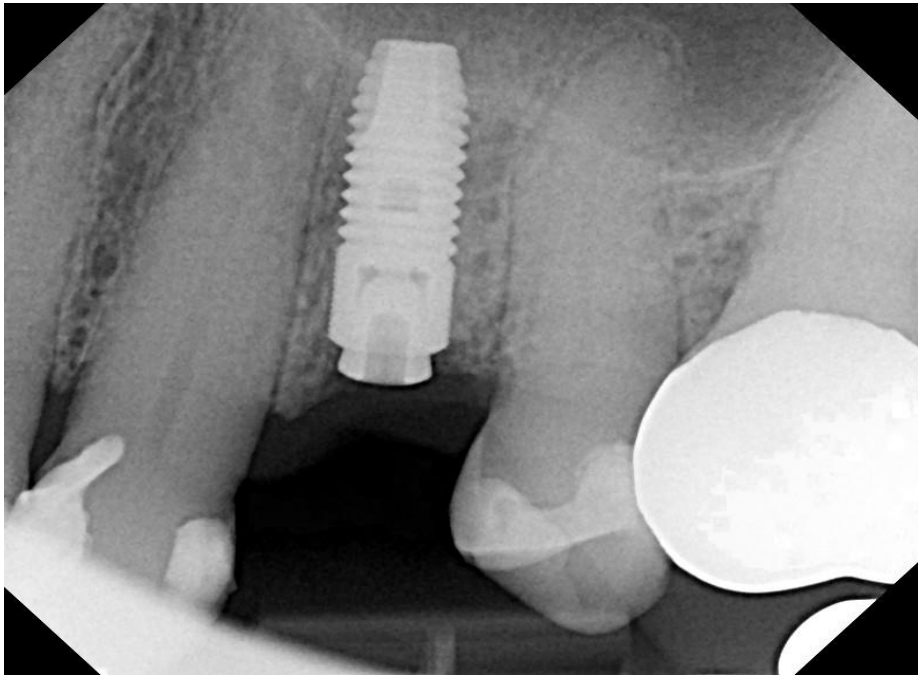
Case #1



Tooth #12 is extracted. An extra, long round multi-fluted or fine round diamond is used to remove bone from the bottom of the socket and expose the membrane. Only a very small penetration is needed.



If it is not possible to visualize the bottom of the osteotomy, use a perio probe or an endo plugger to expose the bottom of the osteotomy. If a soft area is found the membrane is exposed and no further drilling is needed. Do not manipulate the membrane. Insert the Sinus Graft tip and inject Sinus Graft to lift the membrane. If the bottom of the osteotomy is not smooth, Sinus Graft may flow back out of the osteotomy. In that case, smooth the floor of the osteotomy to get a seal with the tip and bone and inject the graft material. For a sinus bump, one syringe will be adequate but the sinus membrane can be lifted as much as is desired by injecting more graft material. The above picture is the day of surgery.



The above radiograph is from the healing abutment appointment. This shows that the regenerated bone fills the floor of the sinus and the membrane is above the view of the radiograph.

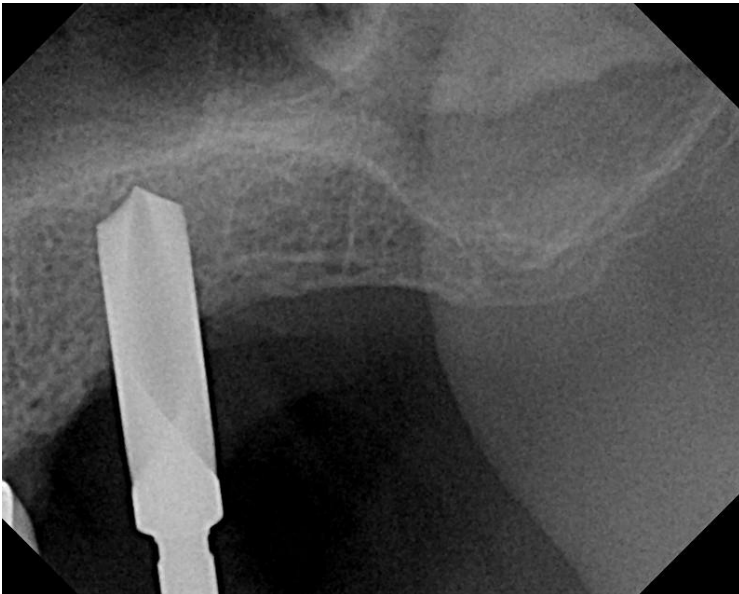


This same case required regeneration of the buccal wall which is shown at the healing abutment appointment. Socket Graft Putty was mixed with OsseoConduct BTCP granules.

Case #2

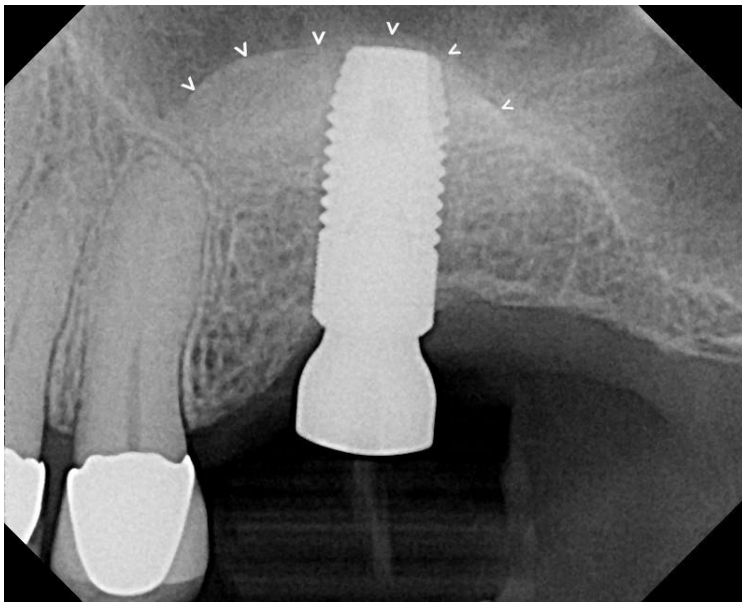


A 2 mm pilot drill is placed to locate the floor of sinus. The diameter of the osteotomy is not a critical factor when using Sinus Graft to hydraulically lift the sinus membrane. An extra-long round diamond bur or any instrument of choice can be used to expose the sinus keeping in mind that only a small perforation is needed once the membrane has been exposed. A large perforation is not indicated because the tip of the syringe needs to seal at the bone level. The sinus bump only requires using the tip of the syringe without having to use instruments to contact the sinus membrane and the dispensing tip of Sinus Graft also does not enter the sinus. (Please see illustration) Once the sinus membrane is exposed, it is not touched because Sinus Graft will dissect the membrane from the sinus with hydraulic pressure as the graft is injected. The amount of lift is determined by the amount of Sinus Graft injected.





Here, the sinus membrane has been exposed and Sinus Graft has been injected to gain the desired lift. The implant is always placed at the time of the sinus bump procedure.



This is a radiograph 3 months post op when the healing abutment is placed. The graft material is completely resorbed in two months. Bone grafts have two main purposes. One, is to maintain volume and the other is to increase the amount of mineralization per area. In this radiograph, there has been no shrinkage of the graft and the mineral density is greater than the patient's bone. Another critical characteristic of the graft material when placing immediate implants, is that the graft material must facilitate integration to the implant in the grafted area. Sinus Graft, Ridge Graft and Socket Graft Putty are the only bone grafts on the market that produces integration in the grafted area. The osteoid layer secreted by the osteoblast mineralizes and bonds to the implant surface. Because we are the only bone graft company with this technology, we are able to make this claim.

CASE #3



Due to the proximity of #4 to the root of #5 and the significant bone loss distal to #4, a delayed implant was planned.



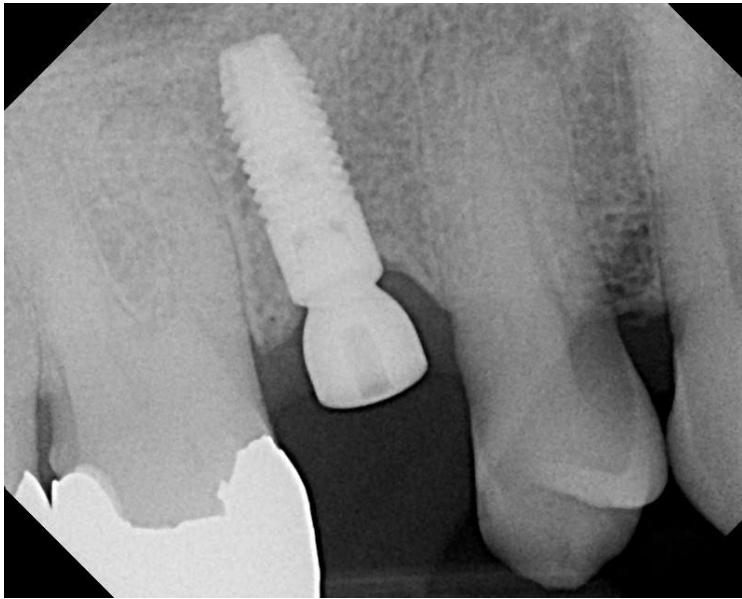
Pilot drill in position to identify the base of the sinus.



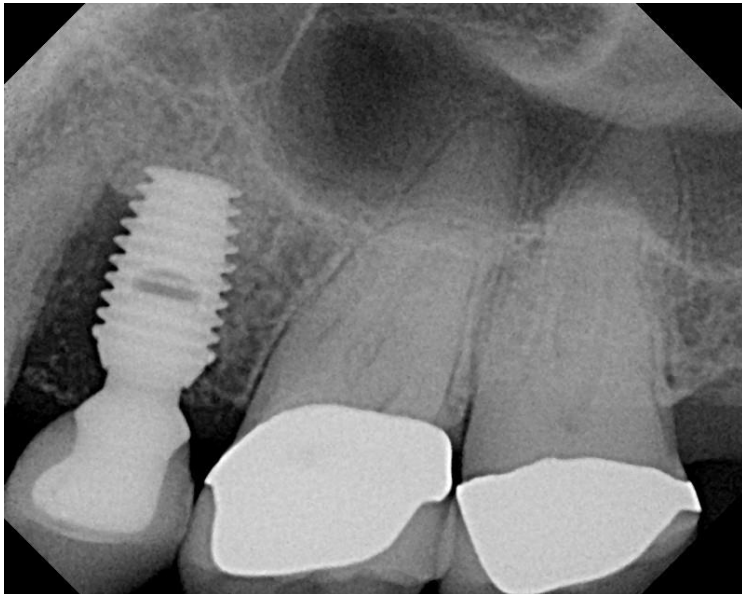
In this case, confirmation of exposure of the membrane could be confirmed by the use of a periodontal probe. Sinus Graft is then injected through the pilot drill osteotomy and the membrane is hydraulically elevated via the Sinus Graft pressure. In this case, 1 syringe of Sinus Graft was injected. The amount of lift is determined by the amount of graft injected.



Day of sinus lift and implant placement.



Healing abutment placement. The sinus is filled with healthy vital bone integrated to the implant.

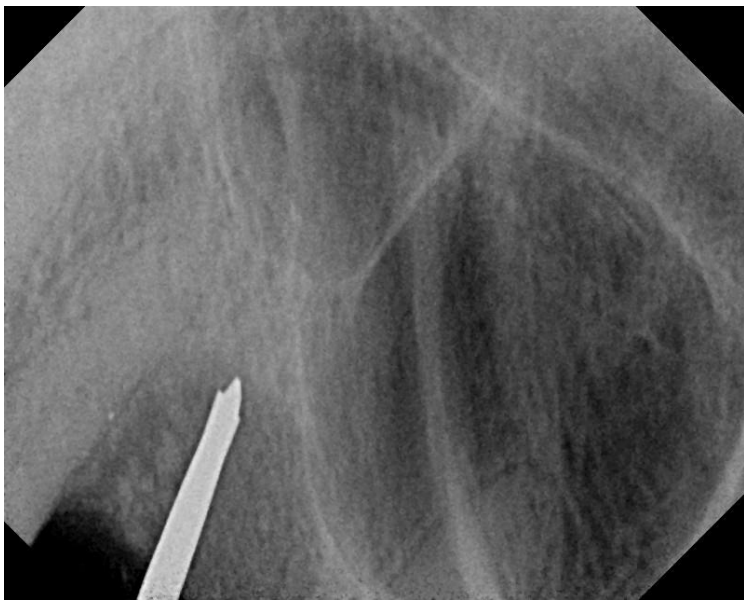


CASE #4

This implant site was first grafted with an allograft and the implant was placed after healing of the extraction site. The sclerotic bone produced by the allograft broke down and the implant failed. An attempt to remove all of the allograft required extensive bone removal which results invariably in mediocre regeneration plus the possibility that the surrounding bone has been compromised by the antigenic allograft material.



Healing of the site after implant removal requires sinus augmentation.

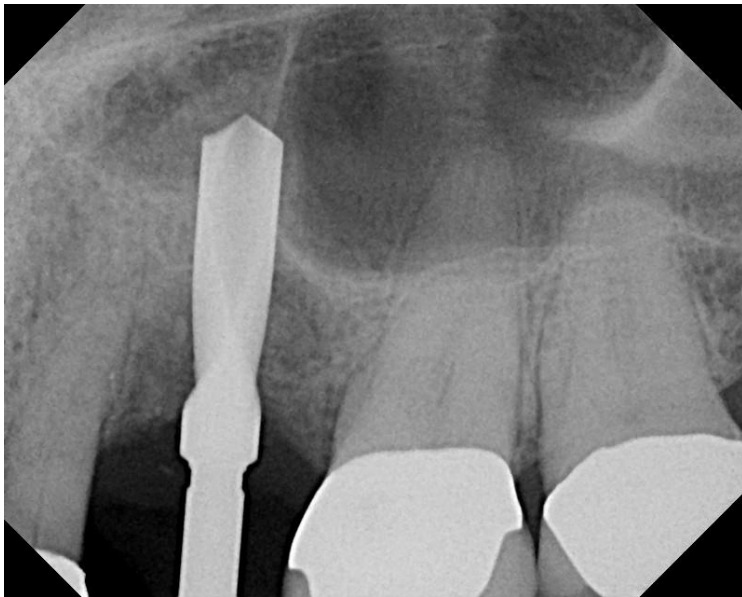


Initial pilot drill radiograph

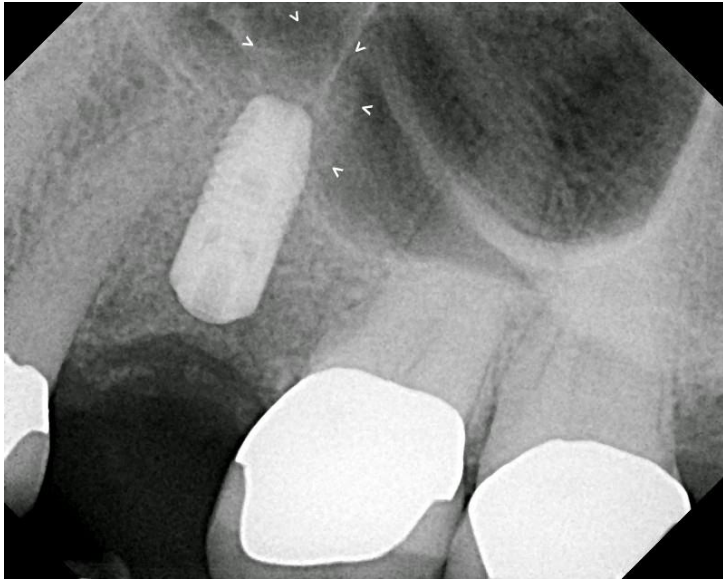


Pilot drill used to expose the membrane which is confirmed by examination with periodontal probe.

The sinus augmentation was complicated by a sinus septum. Augmentation of the sinus required exposing the sinus membrane both mesial and distal to the septum.



After grafting with Sinus Graft, the final osteotomy is prepared to the full depth of the implant placement. This is required because the graft material will set and the implant can displace the graft if the osteotomy is not the full length of the implant.

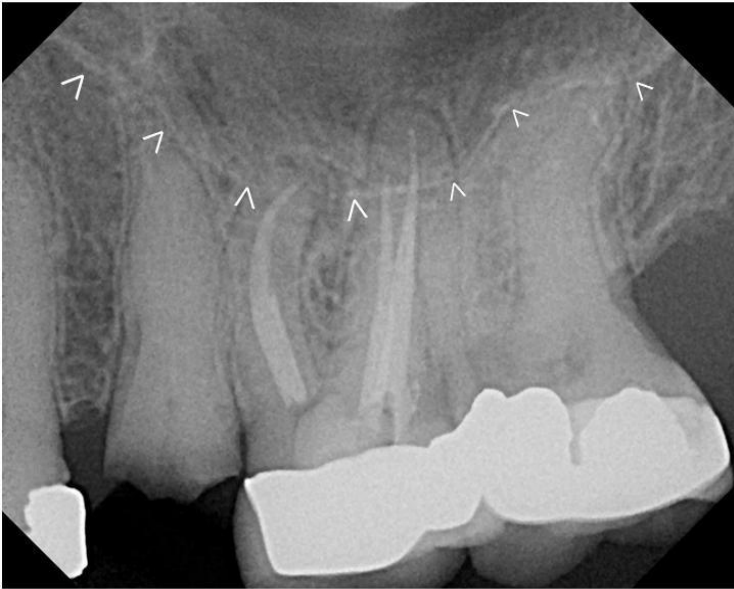


Day of sinus bump with implant placement.



Day of healing abutment placement. Note, that where the graft is placed it is converted into bone without loss of volume.

Case #5



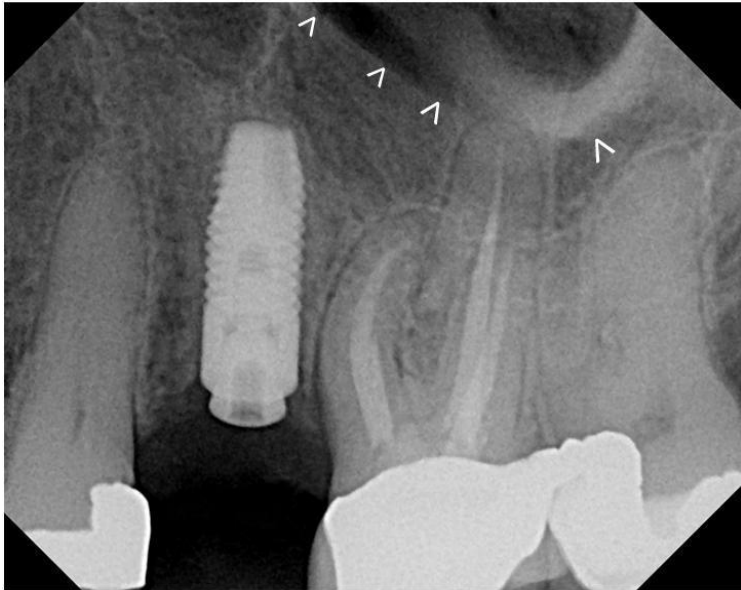
Failed #13 is positioned near #14 making delayed implant preferable.



Extraction of #13 and grafted with Socket Graft Putty



Osteotomy to base of sinus. Exposure of sinus membrane confirmed by a periodontal probe.



Day of surgery, the floor of the sinus is identified with arrows.



9 weeks post-op, healing abutment in place. Arrows show level of the floor of the sinus which is in the same location as the initial level of the graft.

Note, it does not matter how the graft material is delivered to the sinus whether it be through the osteotomy or thru the lateral wall. There are circumstances when the lateral microsurgical Steiner Sinus Lift (lateral approach) is preferable and other instances when thru the osteotomy works just as well.