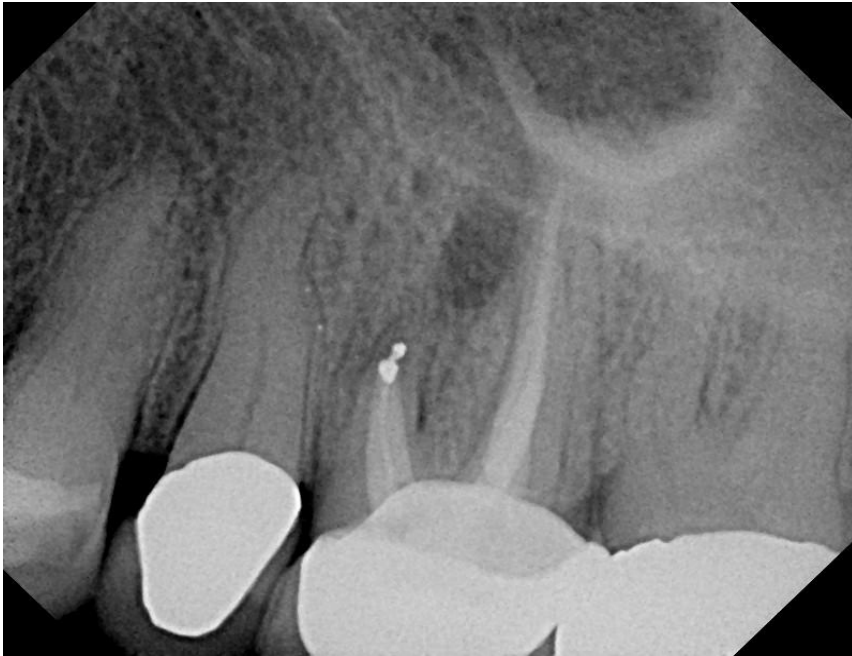


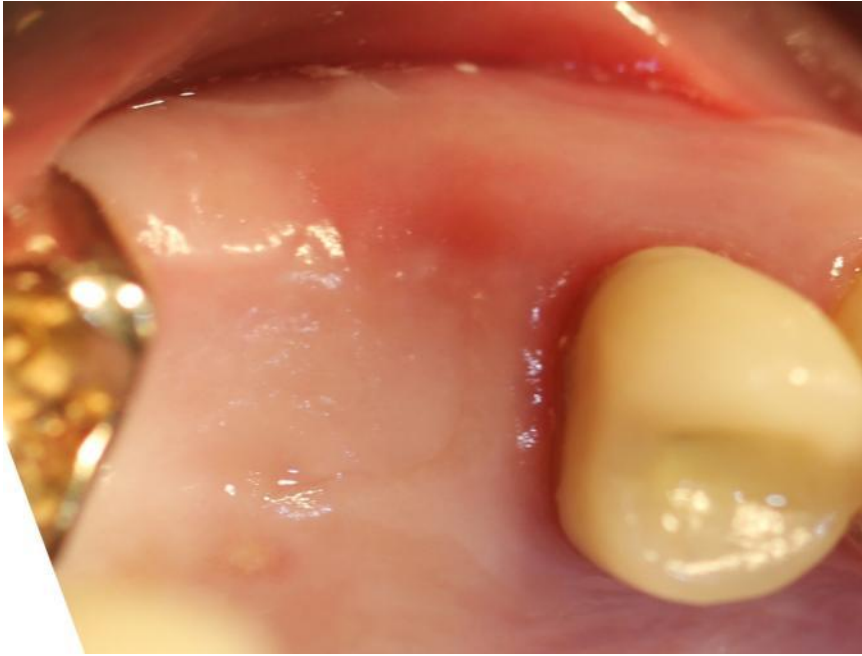
Case #1 of 10 consecutive extraction sockets grafted with Socket Graft Putty, covered with Socket Seal and sealed with Periacryl. I D # HEU This patient is a 66 year old female.



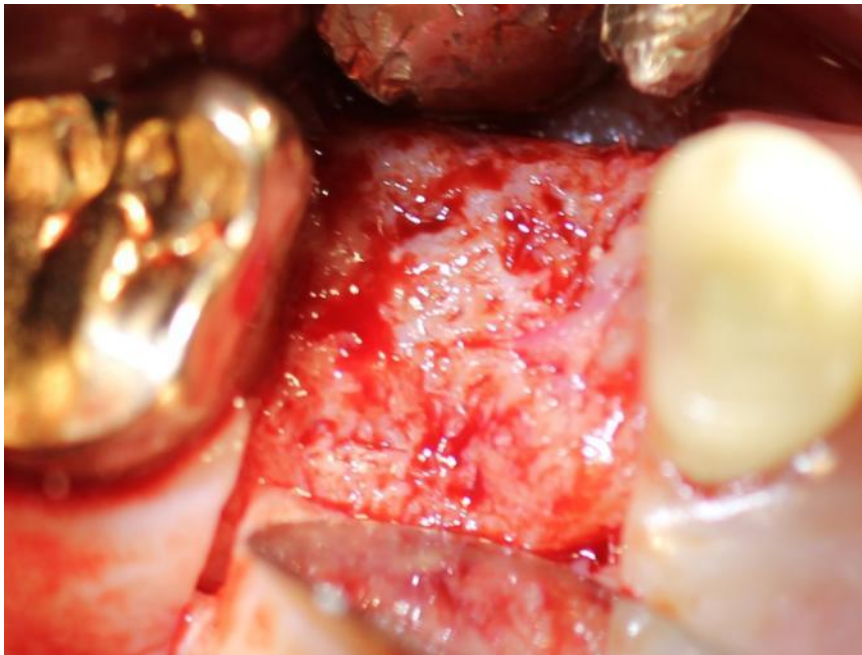
Pre op Failed endodontic treatment with sinus involvement.



#14 extracted, grafted with Socket Graft Putty, covered with Socket Seal and glued with Periacryl. We now advise a couple more passes through the Socket Seal in criss-cross fashion. The seal is removed in one week



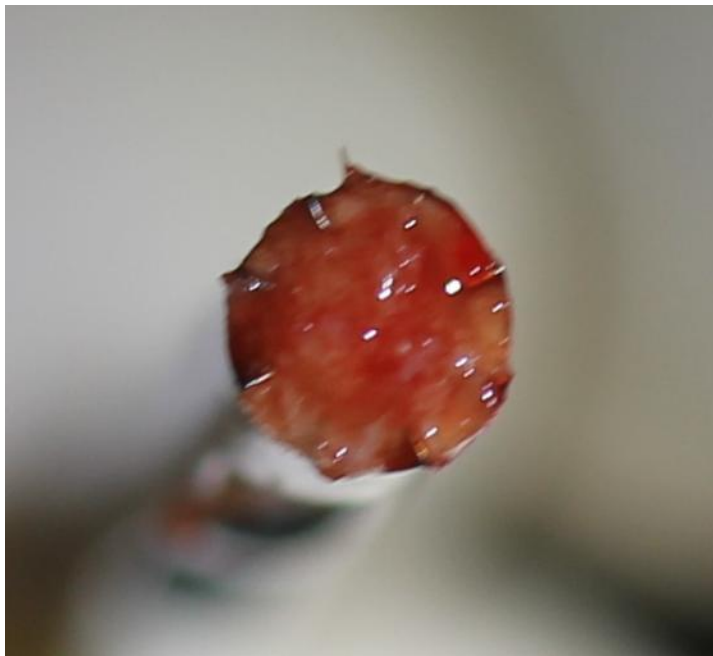
The patient was advised she could have the implant 8 weeks after extraction and grafting. She presents here at 10 weeks.



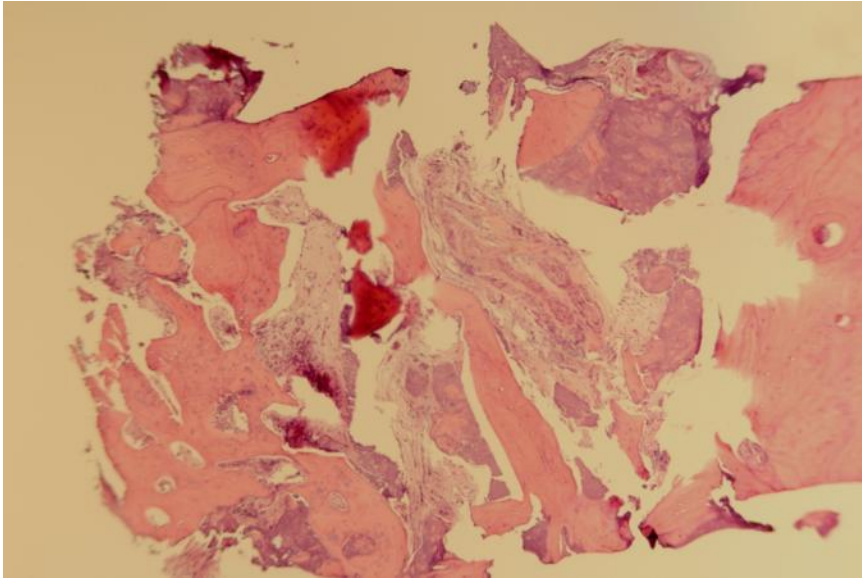
Alveolar ridge at 10 weeks post extraction.



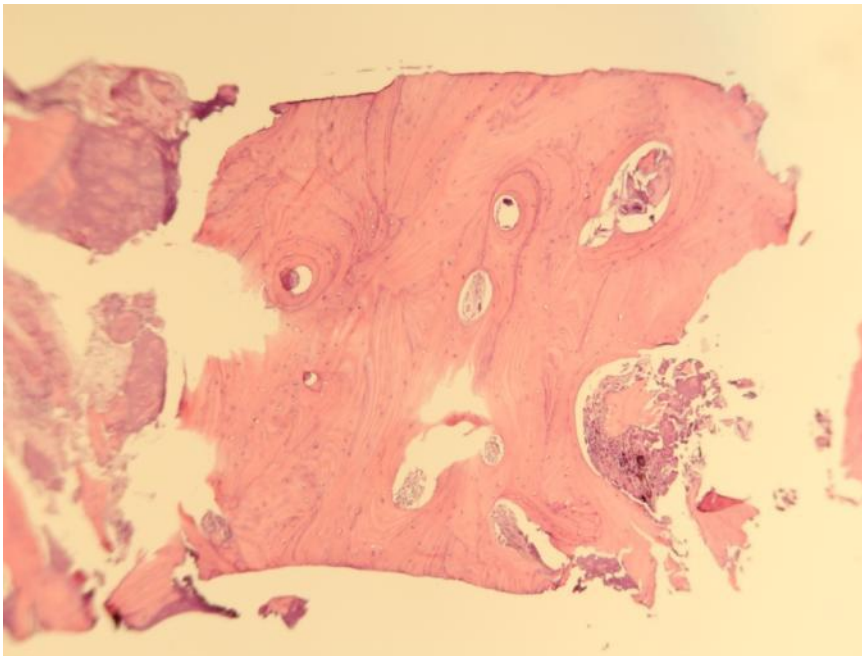
Radiograph at 10 weeks.



Core sample shows well vascularized vital bone. You might want to compare this tissue with a core sample taken from a Bio-Oss graft site that can be seen at <http://www.steinerlabs.com/bioosslecturehistology.shtml>



In this histology the core laying on its side with the crest on the left. The crest is densely mineralized with cancellous bone.



This is the apical portion of the core sample. At this point the spaces between the trabeculae have filled to produce a solid mineralized structure with the exception of the vascular supply. Over time due to the stimulation of the osteoblasts Socket Graft Putty graft sites mineralize completely with the exception of the vascular supply. However when the bone is loaded the bone remodels and trabeculae form according to the load placed on the tissue.



The sinus did not permit for an 11 mm implant. The sinus was grafted through the implant osteotomy with Sinus Graft raising the sinus membrane approximately 4 mm.



2nd Consecutive Socket Graft Putty with Periacryl. Case ID# LAT This is a 72 year old male.



Failing #13 with low sinus.



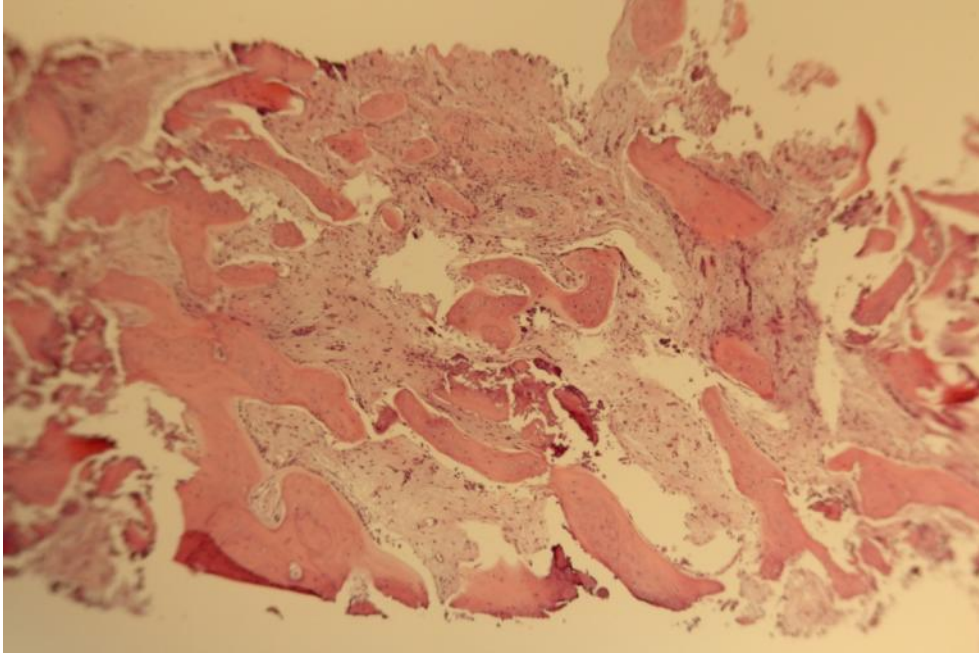
The patient returned for implant placement 8 weeks after extraction.



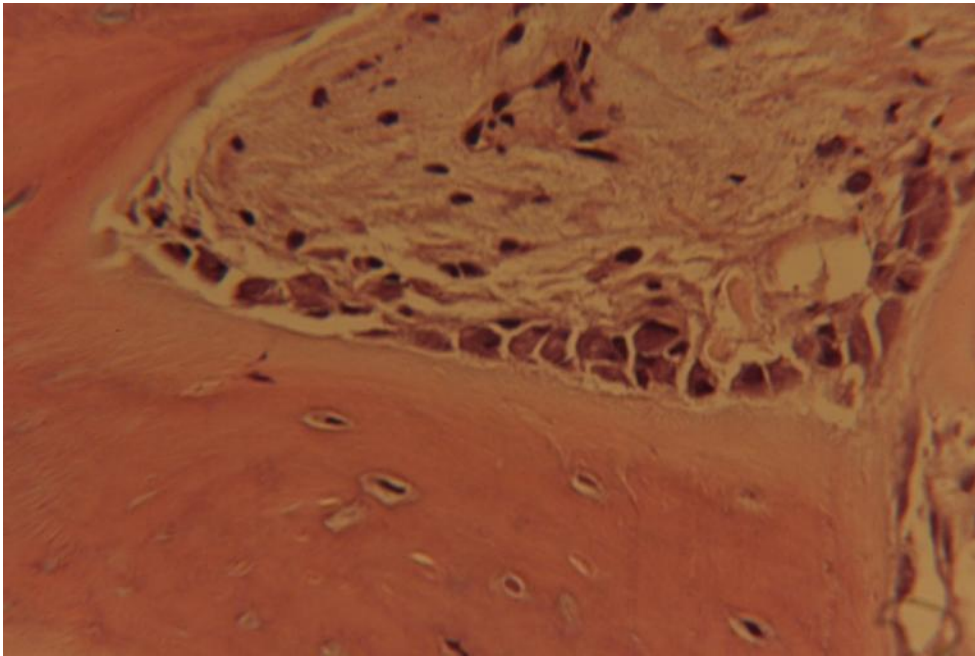
Gingival ridge 8 weeks post extraction



Alveolar ridge 8 weeks post extraction.

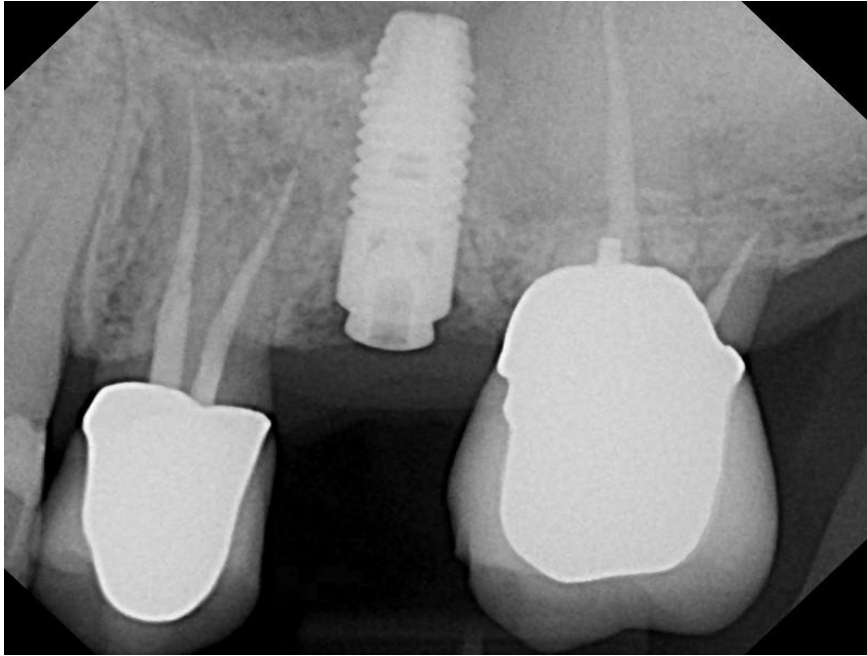


After 8 weeks woven bone is forming with no inflammatory cells. Virtually all of the graft material has been resorbed.



A high power of the previous histology shows a proliferation of osteoblasts lining recently formed osteoid.





After preparation of the osteotomy an inadequate amount of bone existed for an 11 mm implant. The sinus was grafted through the implant osteotomy with Sinus Graft

3rd consecutive extraction socket grafted with Socket Graft Putty and sealed with Periacryl.  
ID #STA This patient is a 43 year old female.



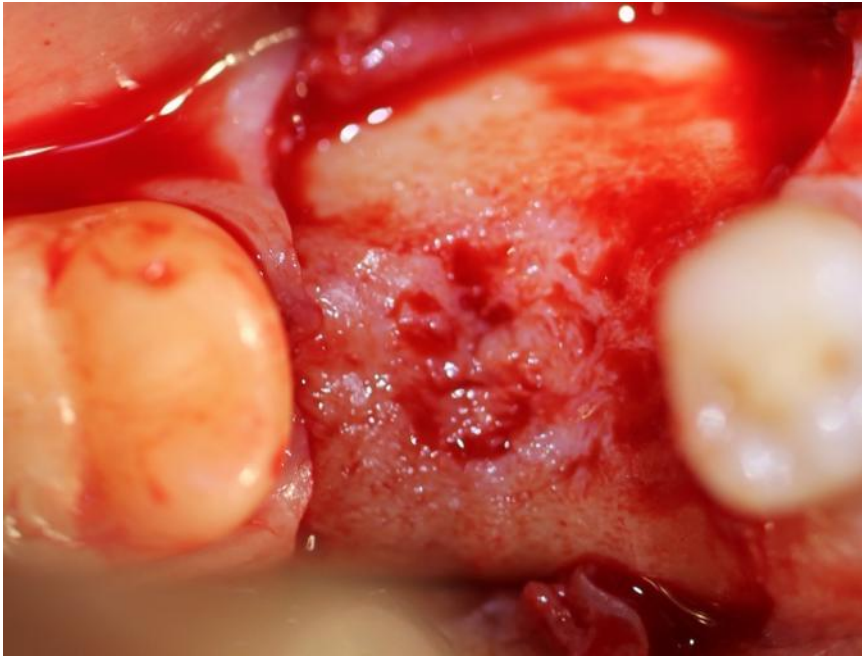
Fractured #30



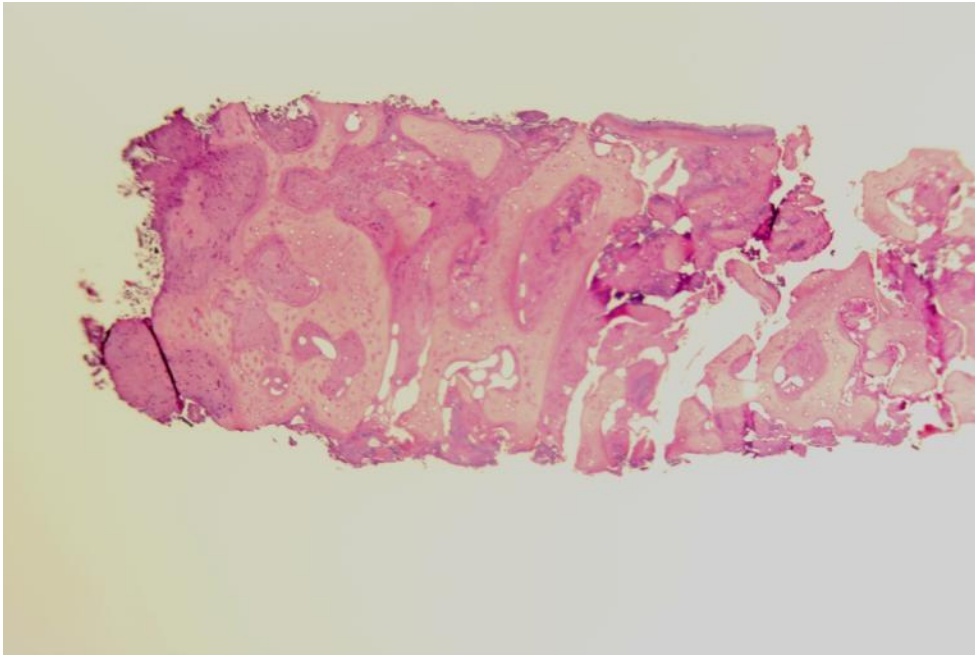
Socket Seal removed one week post extraction



Post op radiograph 11 weeks after extraction and grafting with Socket Graft Putty, covering with Socket Seal and sealing with Periacryl.



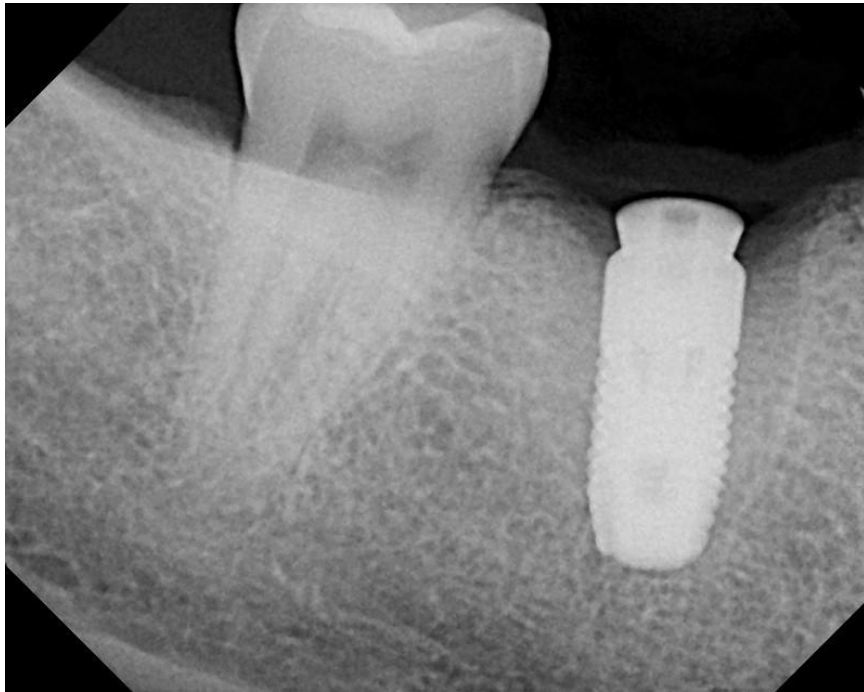
Alveolar ridge 11 weeks after grafting.



This shows the histology of the coronal portion of the core sample. The alveolar crest is on the left. When grafting with biocompatible bone grafts the surrounding bone remains intact so the bone on this portion of the core sample has formed over the interradicular bone. The bone on the left of this section is newly formed woven bone.



This histology is from the apical portion of the core sample. The bone in this section is laminar bone from the preexisting interradicular septum.



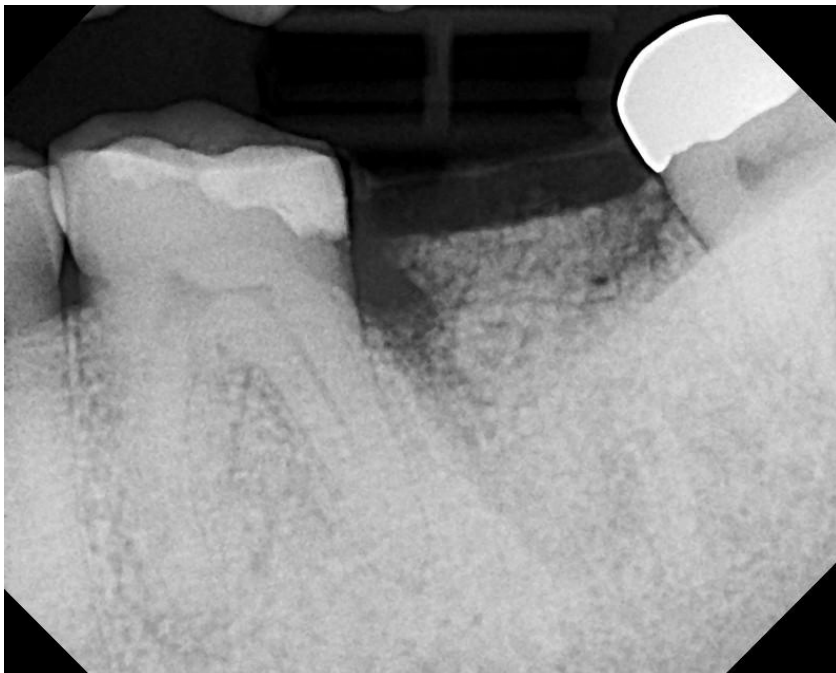
Day of implant placement. With the implant in place the original lamina dura can be seen to the mesial of the implant as the implant is located in the area of the original interradicular septum. At this stage of bone maturity the radiographic bone density in the grafted area is equal to or greater than the surrounding bone.



#4 of 10 Consecutive Socket Graft Putty Grafts.



#18 presents with a fractured mesial root and loss of the buccal wall.

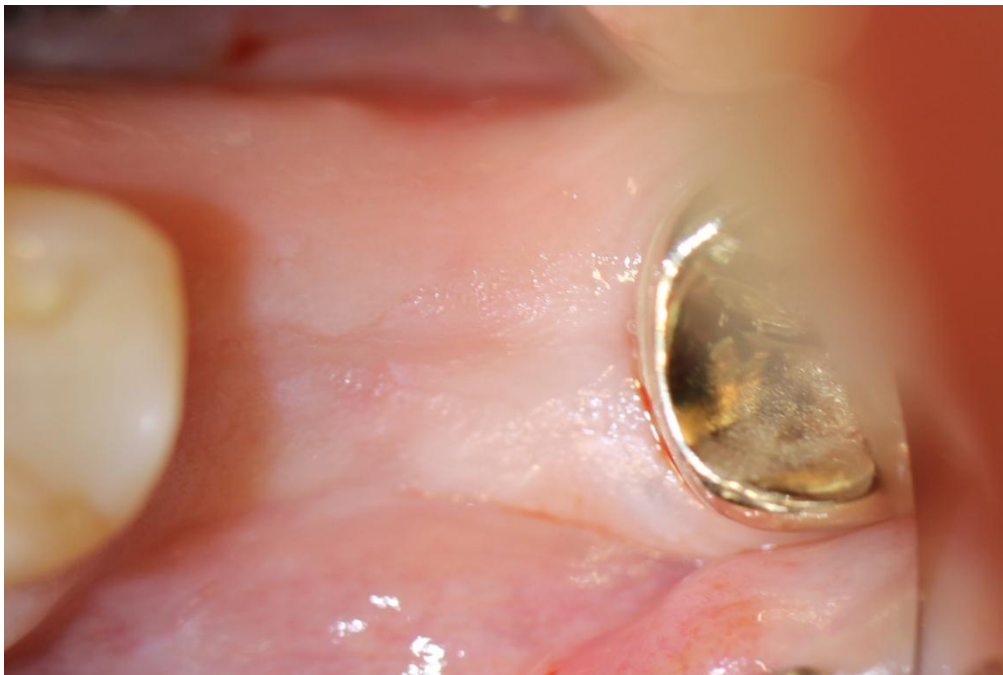


The tooth was extracted and the socket was curetted with granulation tissue removed from the buccal gingiva where

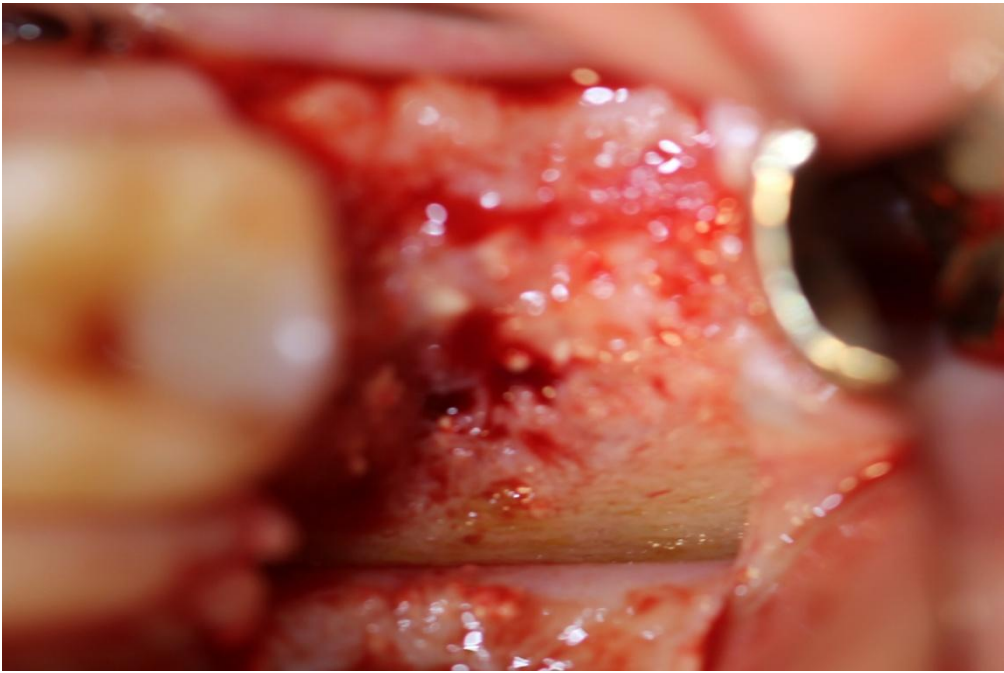
the buccal wall was missing. The site was grafted with Socket Graft Putty mixed with Osseograft standard granules. Use a ratio of one half of the Socket Graft Putty syringe to .5 cc granules. The site was covered with a Socket Seal and fix in place with PeriAcryl. The Socket Seal was then secured with a criss-cross suture and removed after one week. No incisions were made, no flaps were raised and no membrane was used. The radiographic space distal to tooth #19 is the interproximal gingiva.



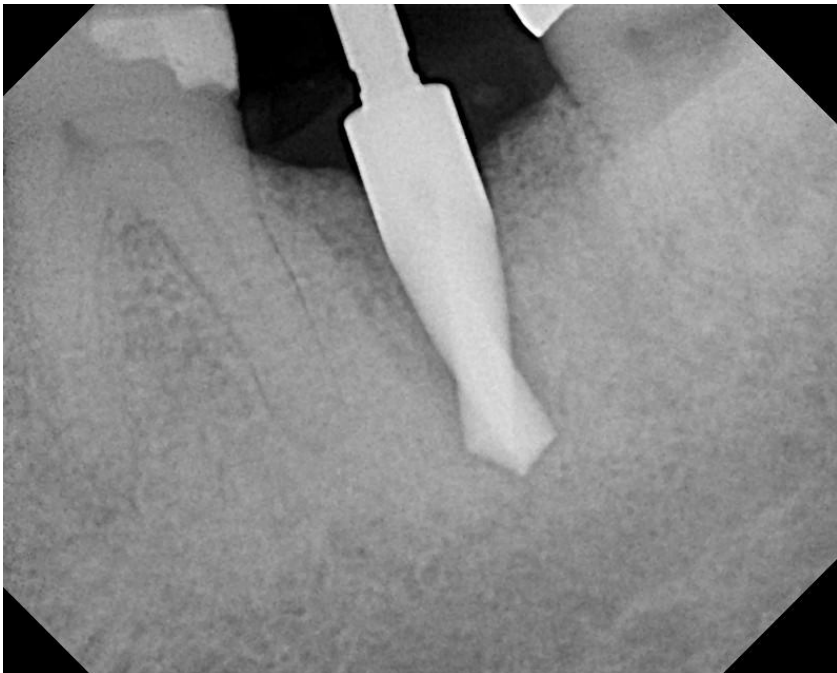
11 weeks post op



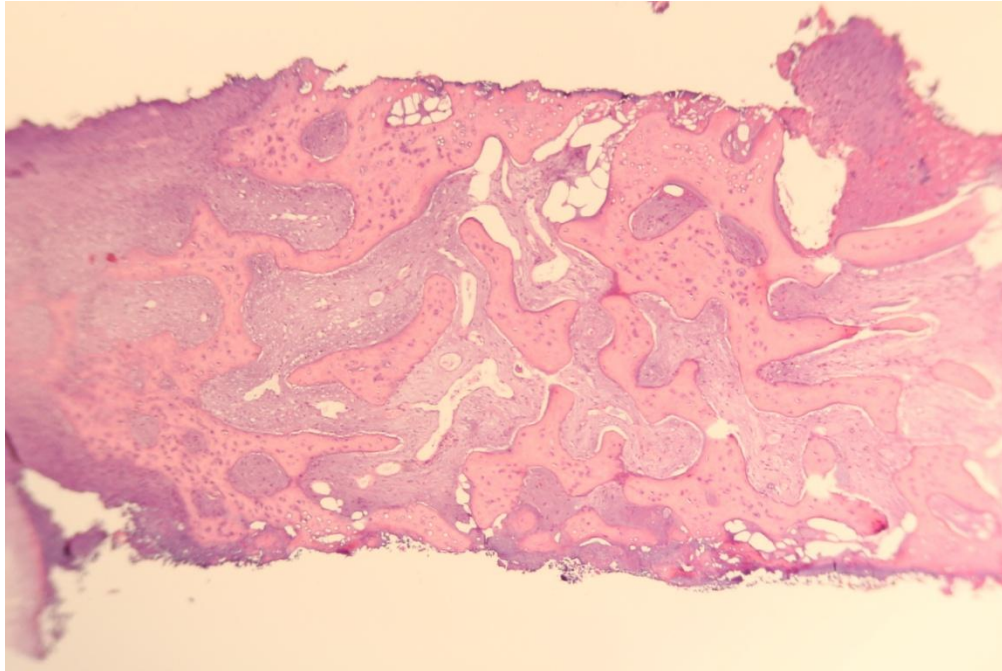
11 weeks post op



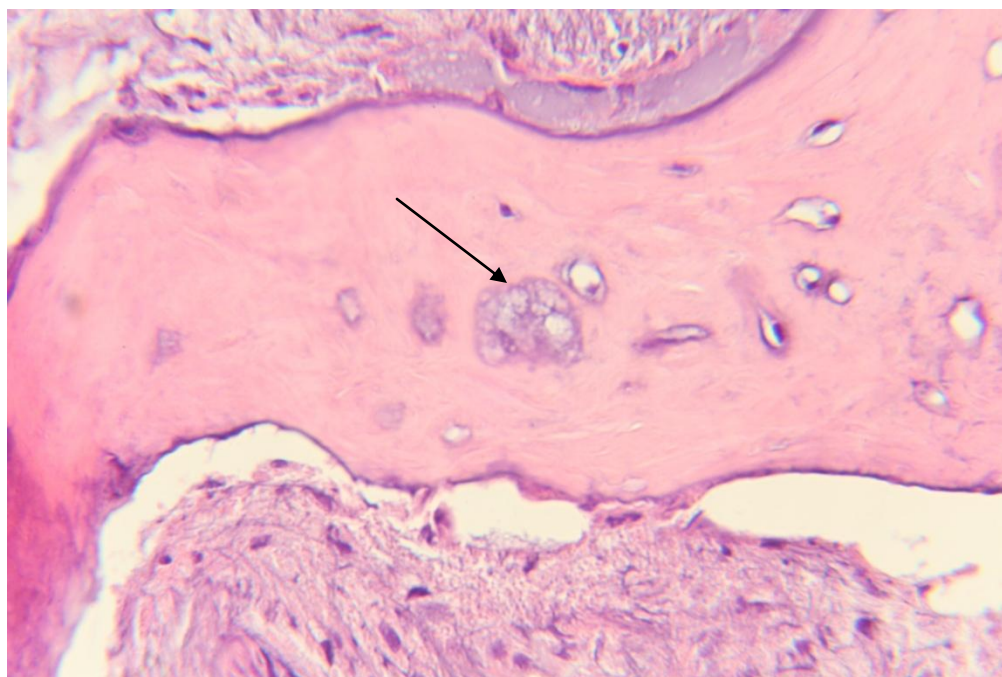
The majority of the buccal wall has regenerated with the crest still mineralizing.



A bone core sample was taken in the area of the mesial root to examine the regenerative process in the mesial root after 11 weeks.

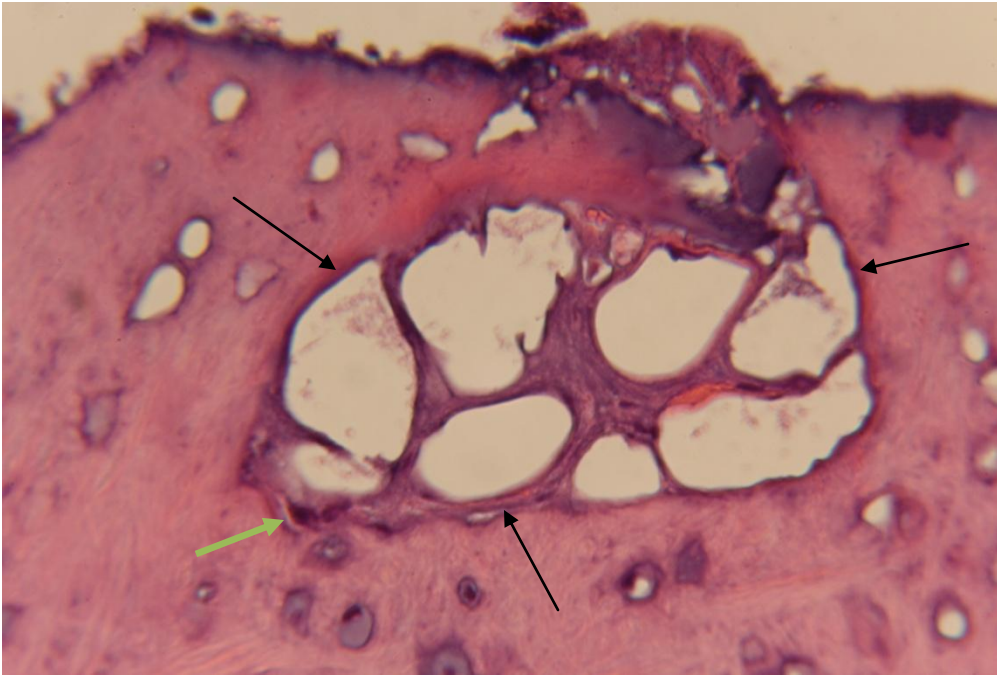


The crest is on the left. The bone core sample at 11 weeks shows approximately 50% mineralization with newly formed woven bone. Only traces of the putty and granules remain.



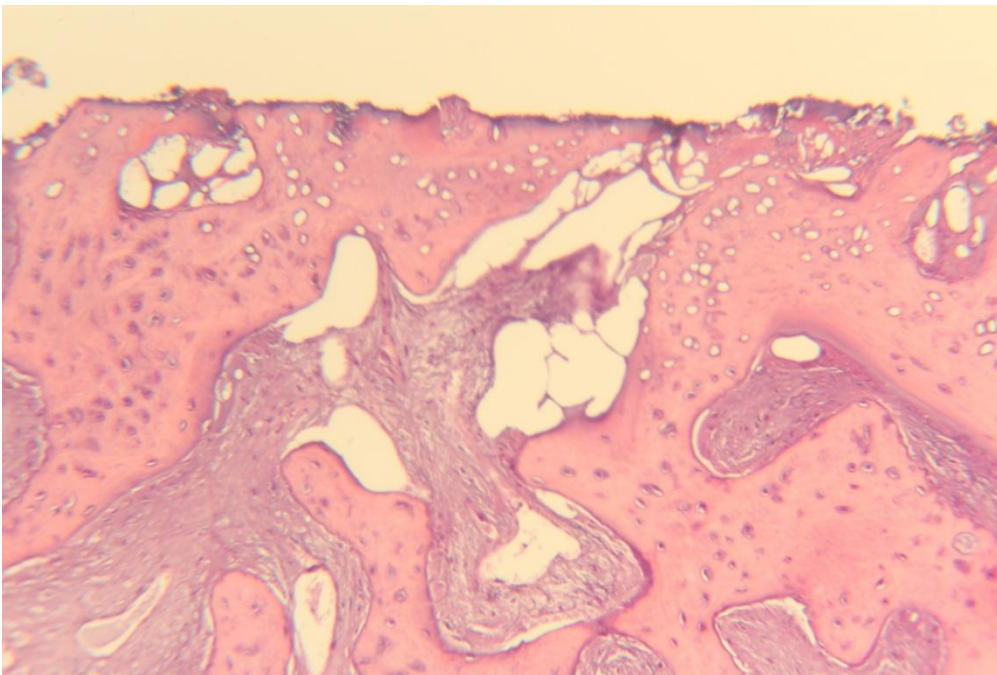
The arrows show remaining Socket Graft Putty graft material.





Because the core sample has been demineralized, the Osseoconduct

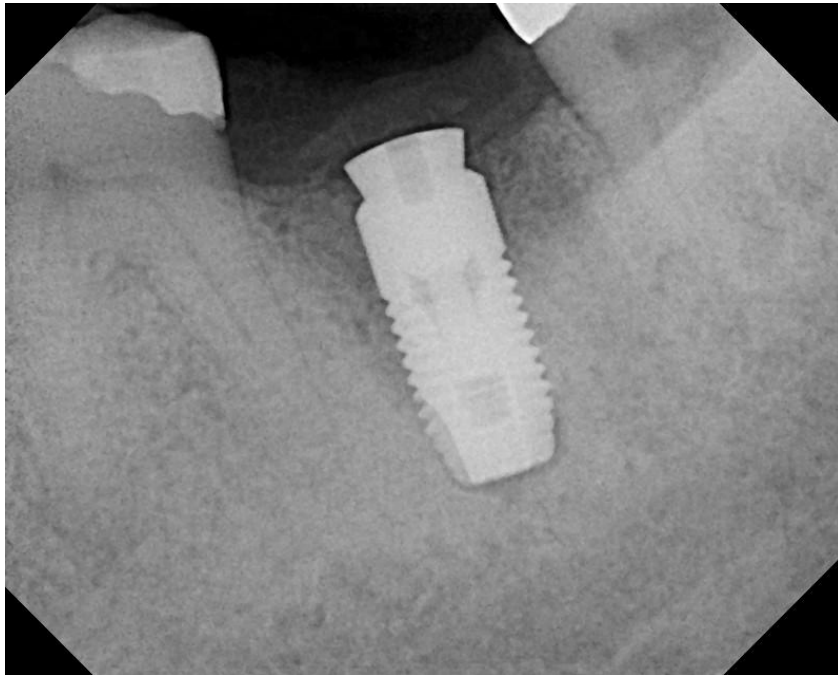
BTCP granule shows as a void as identified by the black arrows. This is one granule that is being resorbed and the histology demonstrates how the soft tissue grows through the granule as it is being resorbed. The yellow arrow appears to be an osteoclast. The process needs to be envisioned from a 3D perspective.



As a note of interest the upper portion of the core sample shows the portion of the

core closest to the trephine. The area of bone along the edge of the core sample shows osteocytes (small white spots) void of cellular contents. Further into the core sample the osteocytes are filled with cellular contents. The heat generated by the trephine kills the osteocytes (bone burning) and in the process the cellular contents degenerate leaving a void.





Implant in placed 11 weeks after extraction and grafting.

Case DAV



Tooth #3 presents with root fracture



13 weeks after extraction and grafting with Socket Graft Putty.

**Resorb-X**

Buccal and lingual walls were injected with Resorb-X to prevent buccal and lingual ridge resorption. (not for sale at this time)



13 weeks post extraction. Good apical mineralization with decreasing degree of mineralization in the coronal direction radiographically.



Ridge showing good maintenance of buccal and lingual ridge.



Implant placed with crestal sinus augmentation using 2cc's of Sinus Graft.

Case HAL Patient presents with root fracture due to lack of restoration post endodontic therapy



Significant alveolar bone loss due to root fracture.

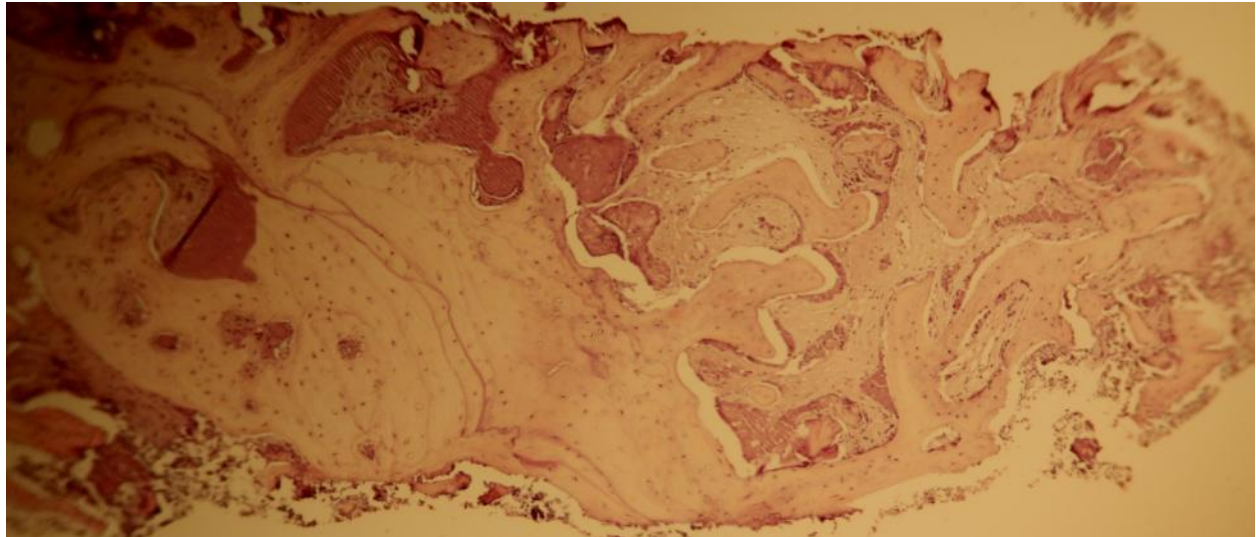


Tooth fracture

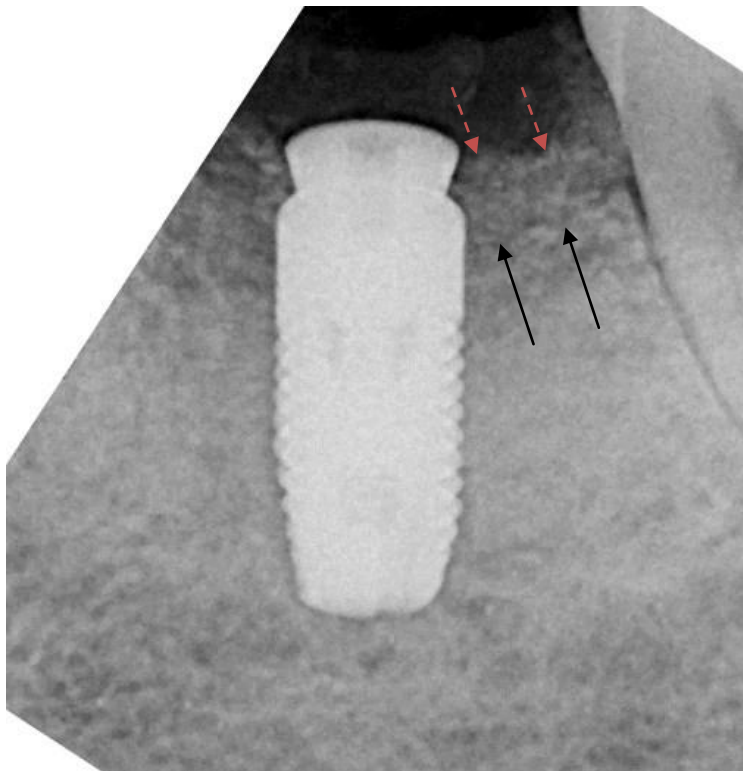


8 weeks post extraction at implant placement appointment.



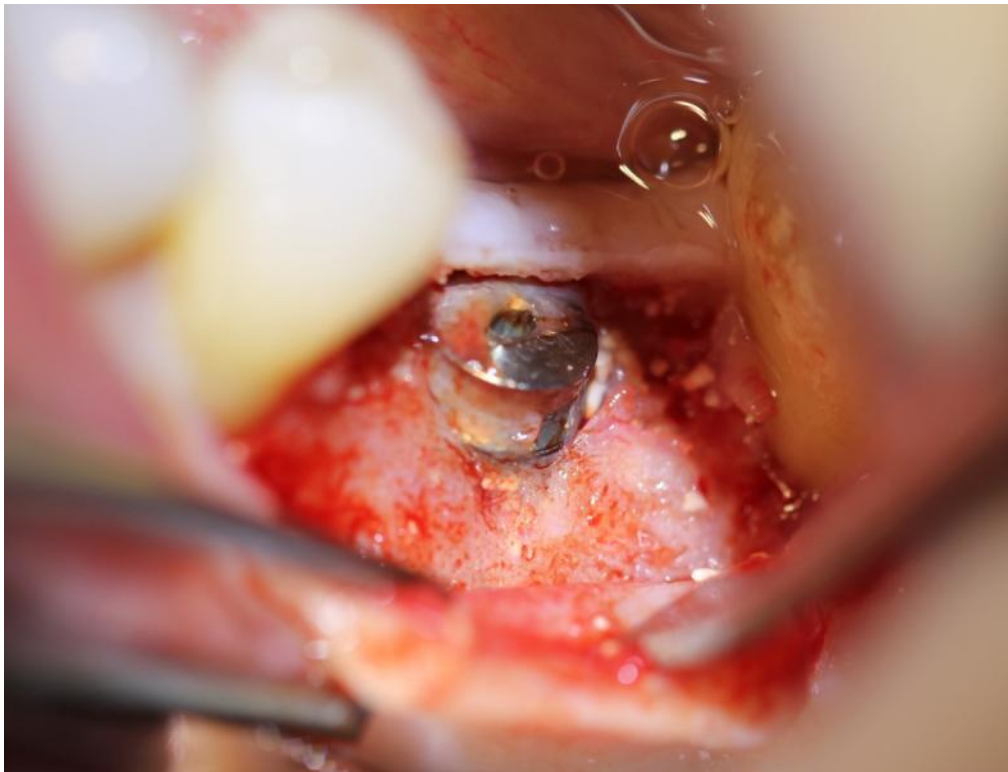


Core sample. The crest is at the right of the core sample. The core sample consists of newly formed woven bone.

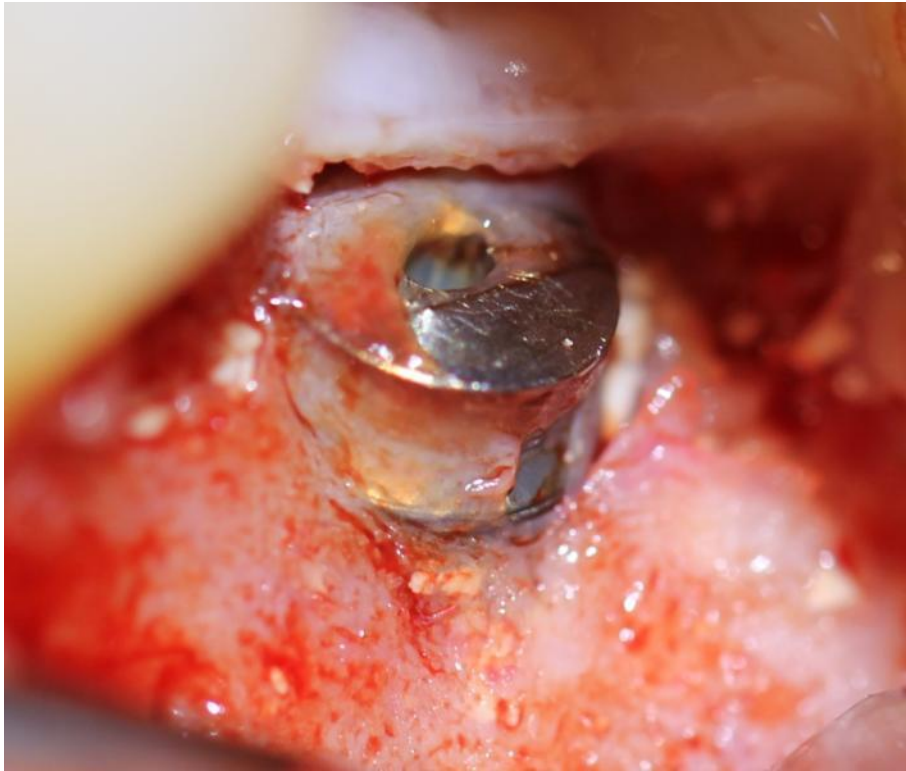


Day of implant placement.  
Implant spun upon torqueing leaving approximately 3mm of exposed threads.

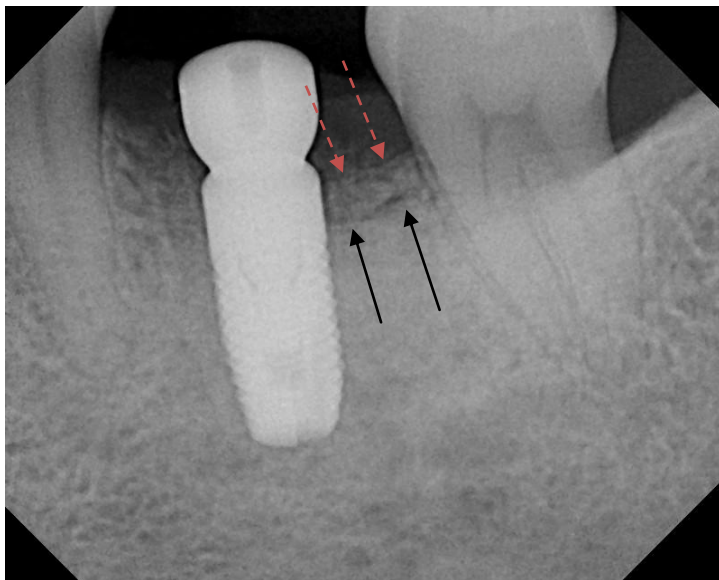
Arrows indicate area of grafted threads with Regen Biocement Putty mixed with Osseconduct perio size granules no membrane was used .



Nine weeks after implant placement and grafting the threads are covered with the exception of the 1<sup>st</sup> buccal thread. Residual Osseous granules can be seen in the newly formed bone around the coronal portion of the implant.



Magnification of crestal regeneration prior to placement of the healing abutment.



Healing abutment placement, nine weeks after implant placement. The previous alveolar crest can be seen as noted by the black arrows. The area grafted at the time of implant placement can be seen between the arrows.

Irrespective of implant spinning at time of placement, the implant was well integrated at time of healing abutment placement.

Case ALE

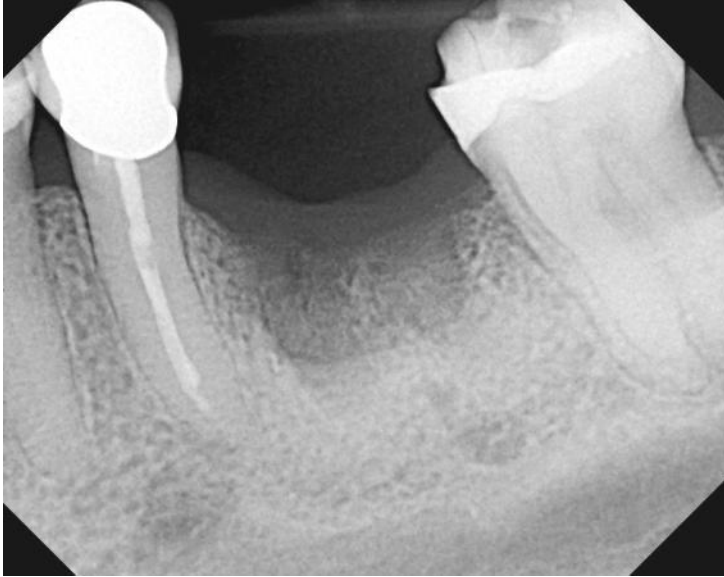


This patient was referred for extraction of #19 and implant placement. The extraction was traumatic due to long bulbous roots. The roots were sectioned but still required troughing around both roots & near apex for complete removal. During sectioning the lingual cortical plate was perforated in the area of the furcation.

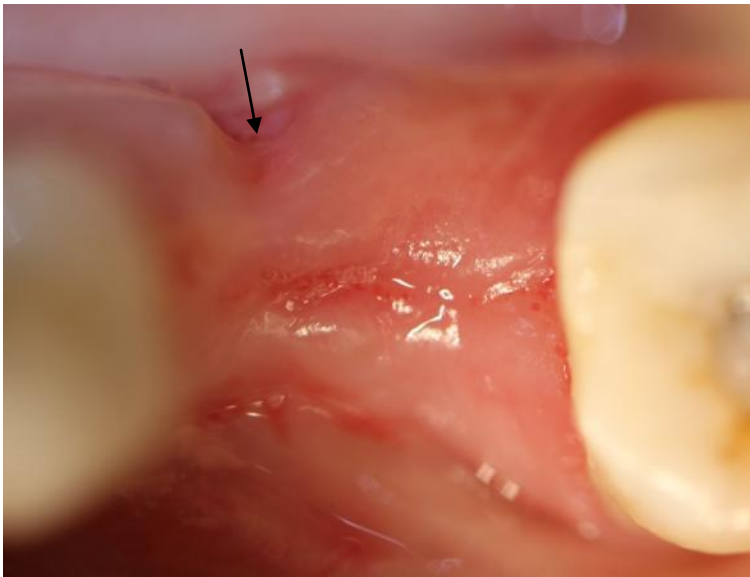


After extraction and grafting the socket was covered with a Socket Seal, bonded to the gingiva with PeriAcryl and then sutures were placed in the event the bond was lost. After suturing additional PeriAcryl was placed to secure the suture and knot.



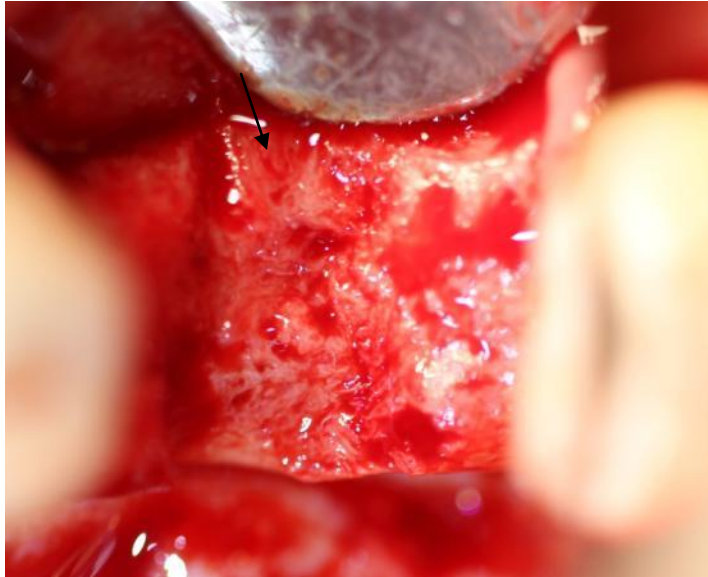


Day of implant placement 10 weeks after extraction and graft with Socket Graft Putty.

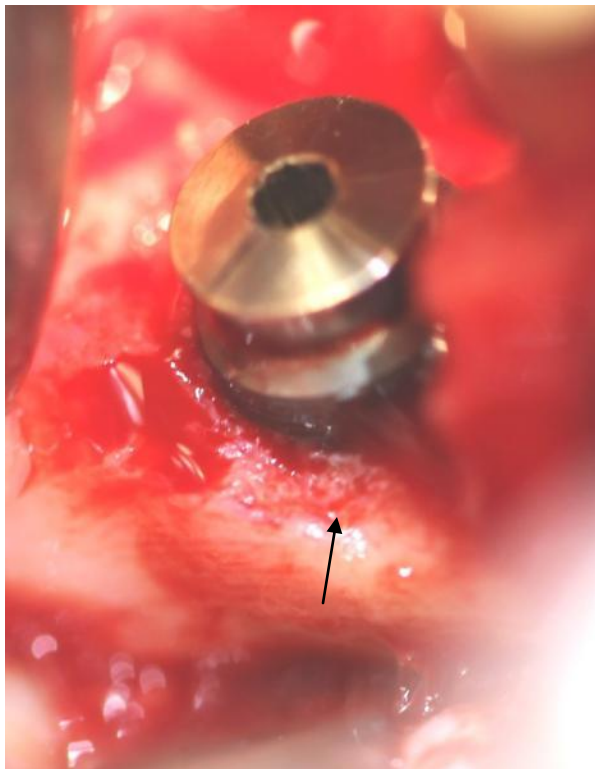


10 weeks post extraction. Lingual cleft remains (arrow indicates) in the area of lingual cortical bone perforation that occurred during extraction.

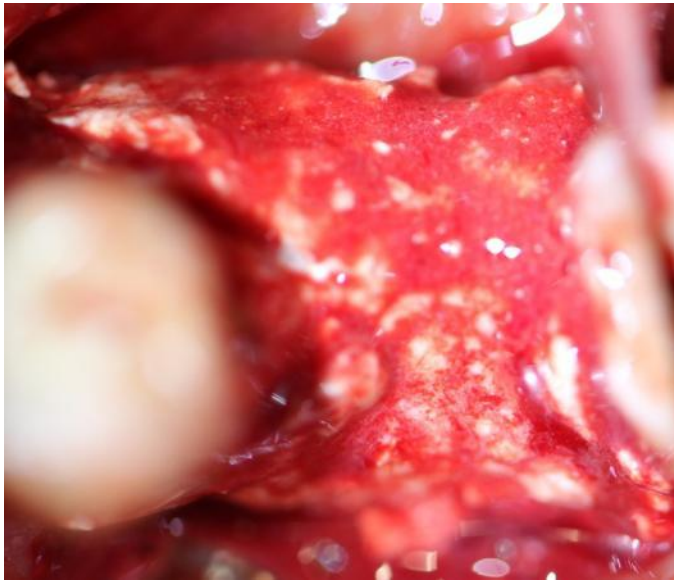




The crest is well mineralized but a ledge is present in the area of the gingival cleft on the top left area of this photograph.



Exposed threads are shown in the area of the osseous defect associated with the gingival cleft.



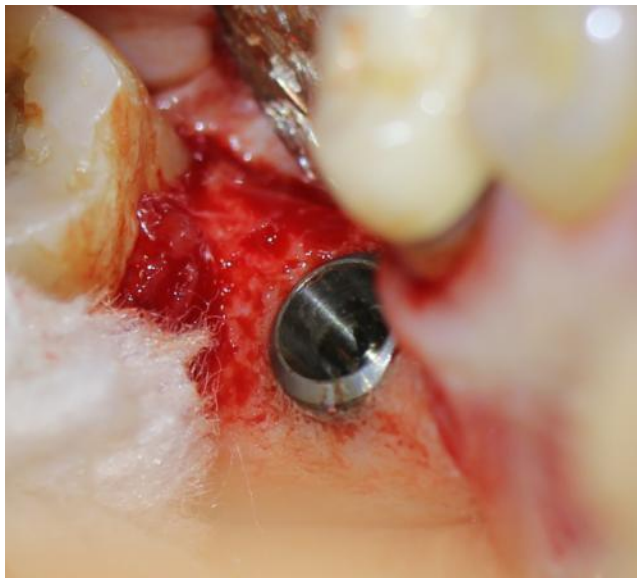
The site was grafted with Socket Graft Putty. One half syringe of Socket Graft Putty was mixed with .5cc OsseoConduct Perio granules. The implant was covered with graft material and closed with primary closure. No membrane was used.



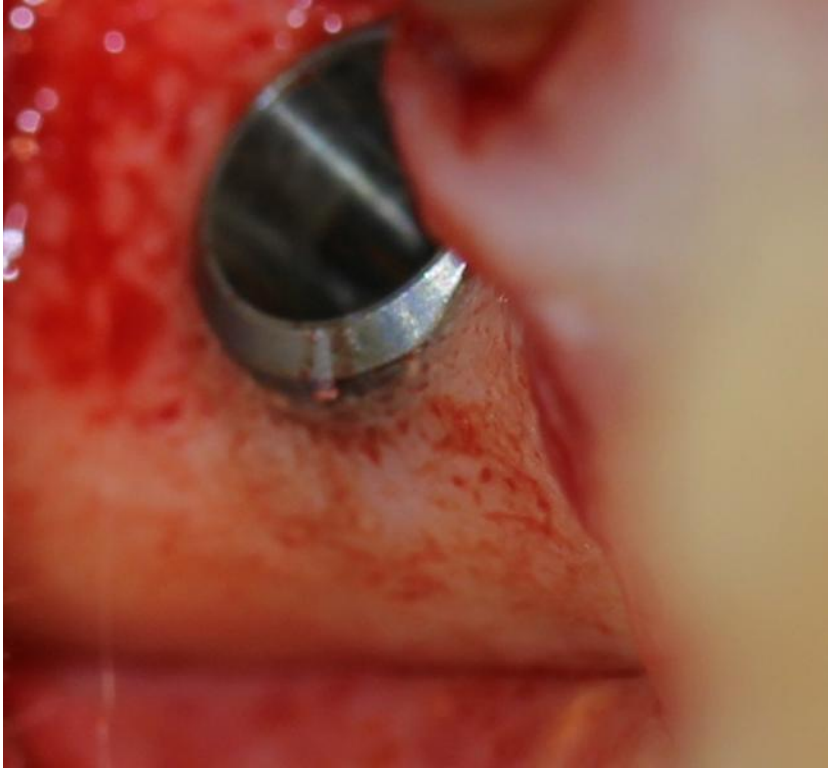
Day of Implant placement and graft.



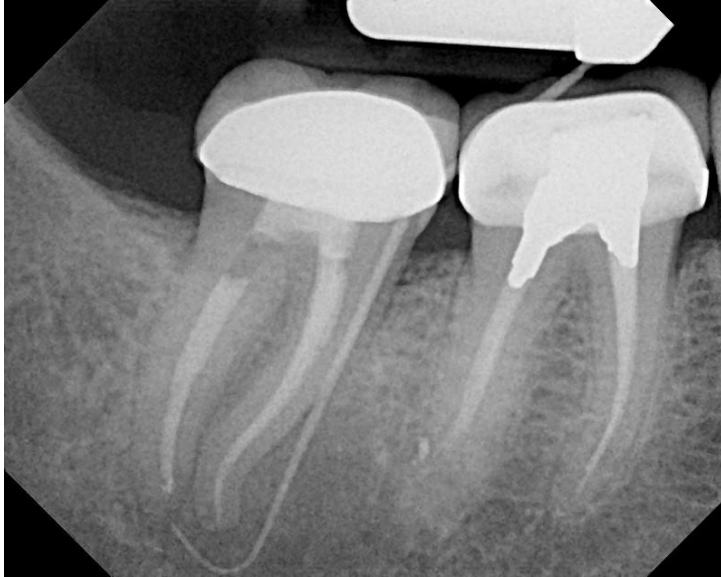
Day of healing abutment. 12 weeks after implant placement.



Cover screw removed. Exposed threads covered.



Magnification of grafted area.  
Day of healing abutment  
placement.



Failing #31 extracted and grafted with Socekt Graft Putty.



Removal of Socket Seal

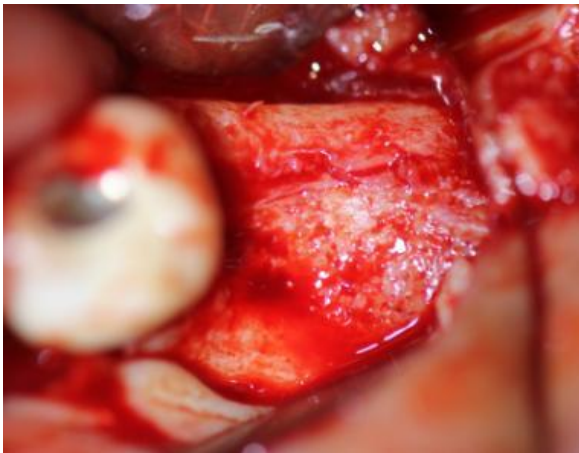


Day of implant placement

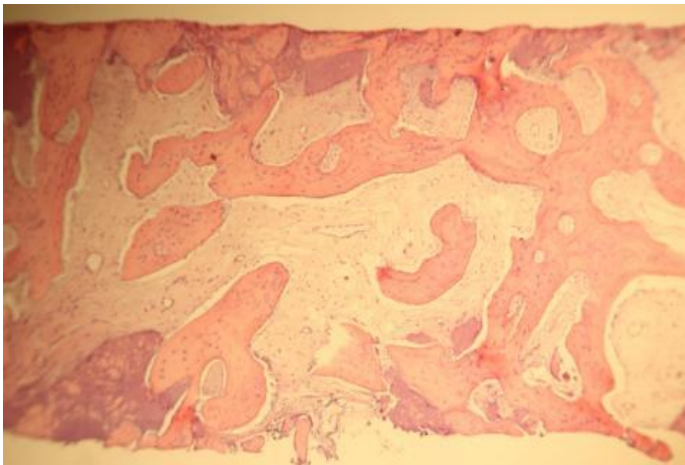




Ridge 14 weeks after grafting

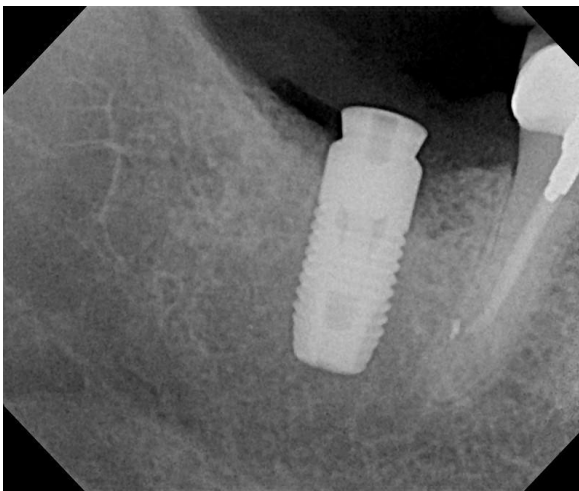


Implant placement



At 14 weeks

Bone regeneration without inflammation





A 76 year old female presents with severe bone loss and mobility



The tooth was extracted and the granulation tissue was removed. Care was taken to limit the instrumentation of the mesial root of #14. The site was grafted with Socket Graft Putty and covered with a Socket Seal. In retrospect it appears that all of the granulation tissue was not removed from the apex of the lesion as it is not filled with graft material.



Socket Seal removed after one week.



After a suitable healing period the 76 year old female patient presents for implant placement. Gingival tissue is cyanotic.

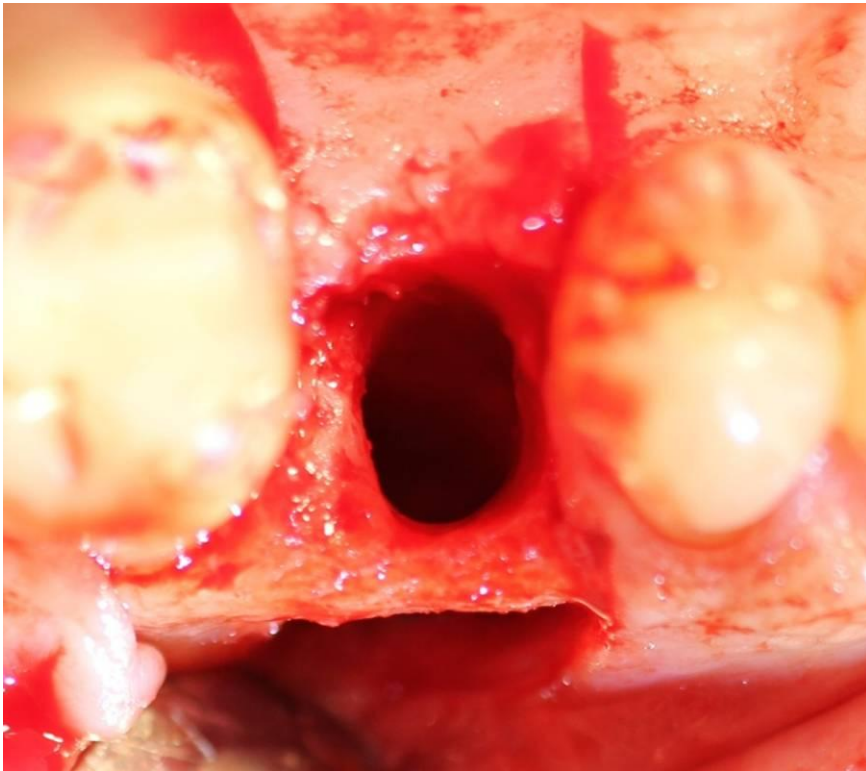


The radiograph shows poor mineralization.

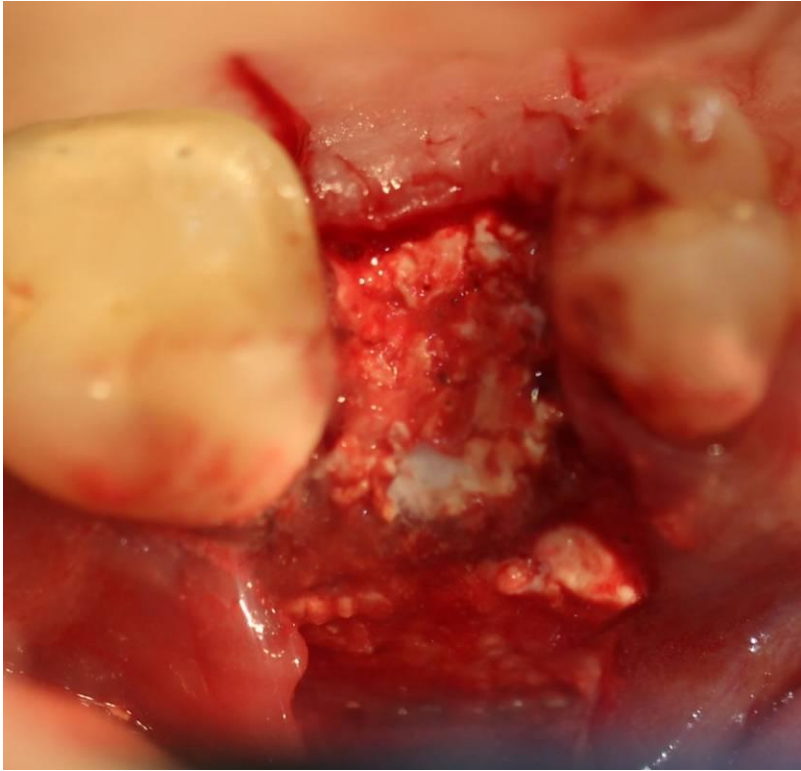




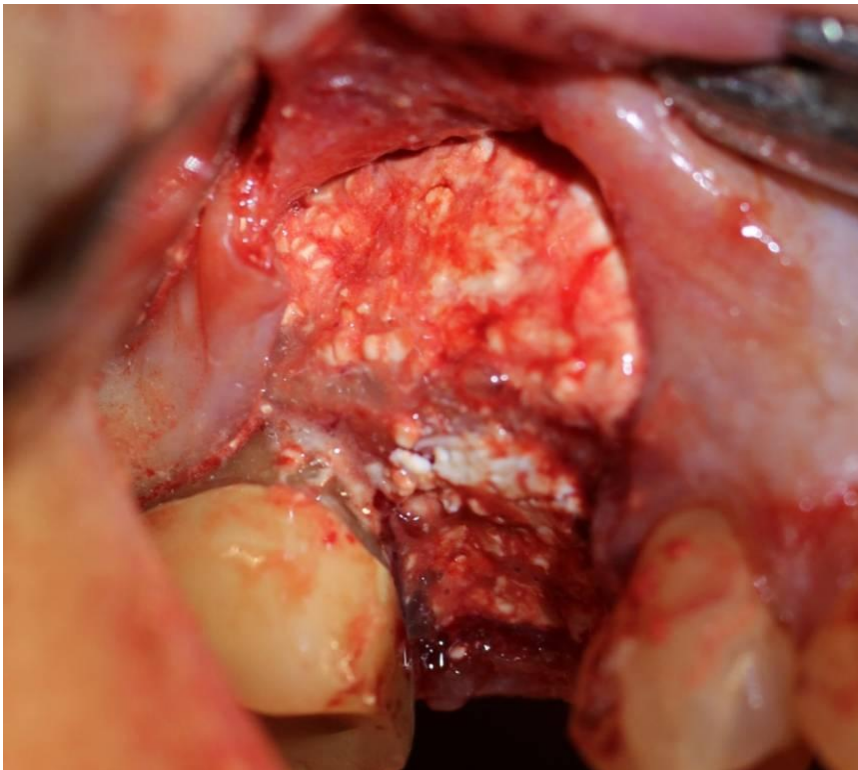
Granulation tissue is removed and no bone has formed in the extraction site.



Occlusal view of implant site.



The implant site was grafted with Socket Graft Putty mixed with OsseoConduct Standard BTCP granules. Mixture of Half of syringe of Socket Graft Putty to .5cc standard OsseoConduct BTCP granules.

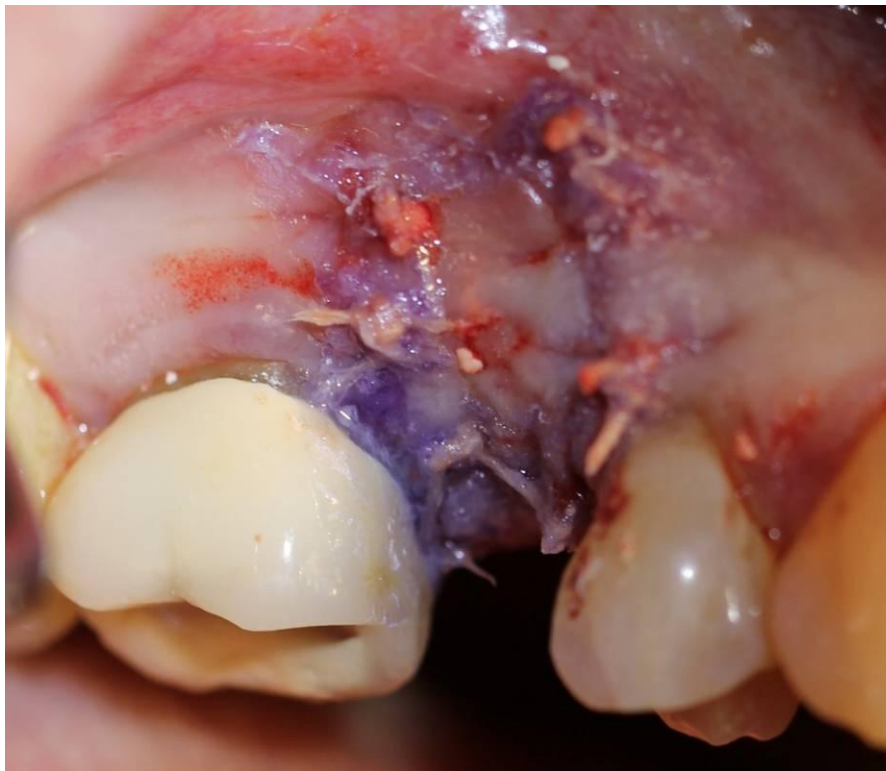


Buccal view of implant site. The implant was placed in the graft material at the time of grafting. A 4mm x 11 mm Astra implant was placed in the graft material with no bone contact. The graft material and implant was placed on December 18, 2013.

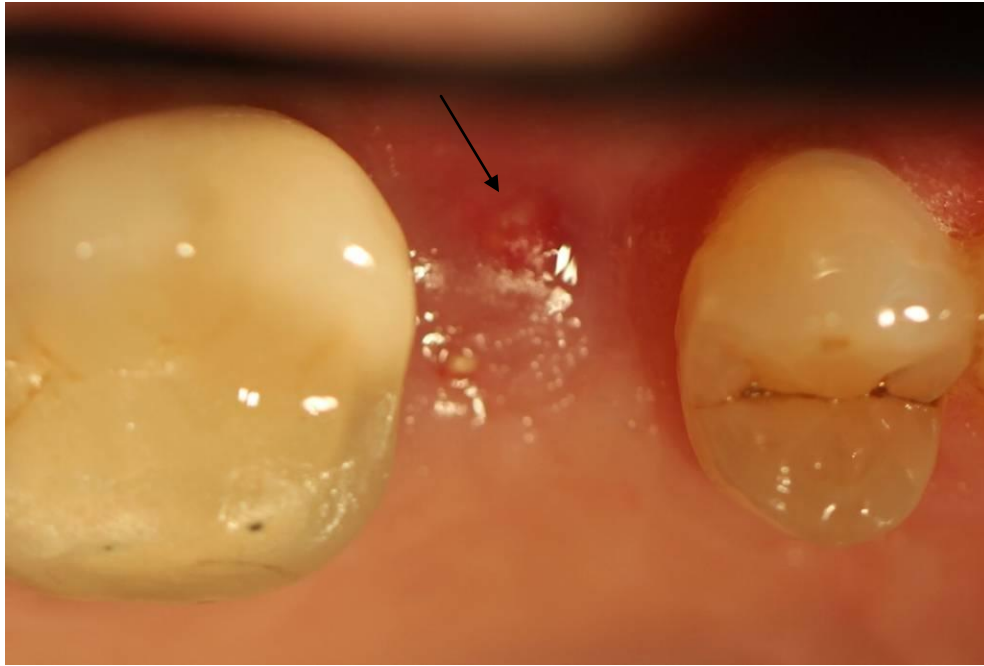




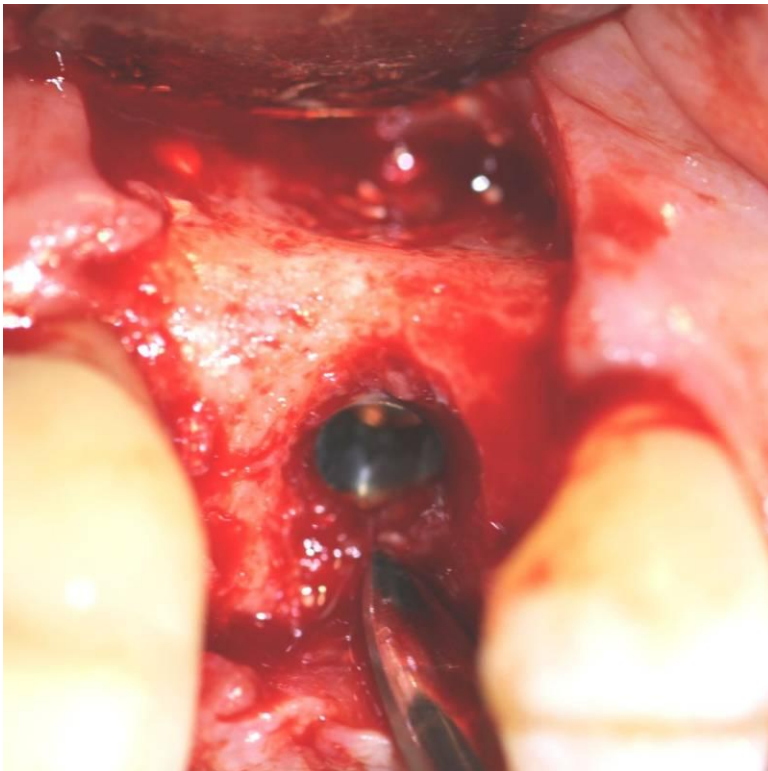
Radiograph shows implant placement in graft material only with no bone contact.



The surgical site was sutured and bonded with an adhesive.



Day of healing abutment placement. During the integration phase a fistula persisted noted by the arrow. The fistula is assumed to have been formed due to a loose cover screw. During the time of implant placement the cover screw was unable to be tightened due to the implant floating in graft material and not having bone retention.



Healing abutment appointment. The implant is fully covered with bone and solidly integrated. The healing abutment was placed on March 19, 2014. Three months after implant placement.



Healing abutment  
appointment  
radiograph. This  
case demonstrates  
that regenerative  
therapy will always  
have occasional  
failures. When the  
flap was opened at  
the implant  
placement  
appointment  
polyps were noted  
at the base of the  
buccal flap and  
failure to  
completely remove  
the infection  
resulted in failure

of the graft. This case demonstrates the ability of Steiner Laboratories regenerative products to produce integration through graft material.

No other graft material has shown the ability to integrate through graft material even when the implant has primary stability in bone.

10 consecutive Socket Graft Putty cases.

We have recently introduced the use of Periacryl to bond Socket Seal to the gingiva after grafting with Socket Graft Putty. Our original intent was to make covering the graft easier by reducing the amount of suturing needed. We always critically evaluate the results before we introduce a new technique. In this case we wanted to insure that using Periacryl did not interfere with the regenerative process. However to our surprise we have seen a significant improvement in the crestal mineralization and percent mineralization found at early time periods. In order to share this with you we are compiling 10 consecutive Socket Graft Putty cases using Periacryl so you can see what our routine findings are in all types of socket grafting. I have attached the first three cases and the rest will follow. If you want to see a video on the use of Periacryl to bond Socket Seal you can view this on our Socket Graft Putty web page.  
Aloha Steiner Laboratories