



# Anterior Ridge Augmentation utilizing Regenaform<sup>®</sup> with Histological Analysis

Series A, Number 1

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## **Presentation**

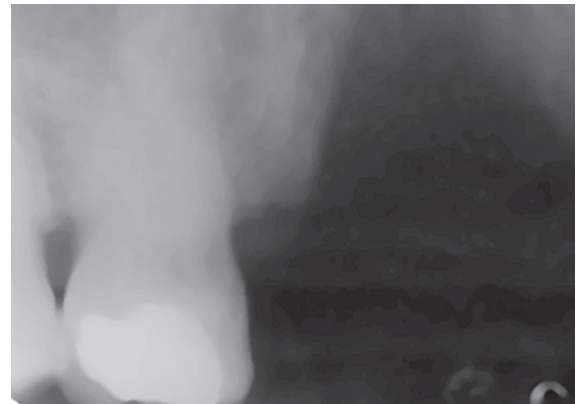
A 62 year-old non-smoking male presented with a significant bone defect secondarily to chronic infection caused by a failed attempt to expose and orthodontically erupt an impacted cuspid #6. This lesion resulted in significant bone loss of the adjacent teeth #5 and #7. Initial treatment consisted of removing teeth #5-#7. Complete deterioration of the anterior bony sinus was discovered at the time of extraction. It was agreed upon that second-stage treatment would allow healing of sinus (and infection) prior to grafting.

## **Operation**

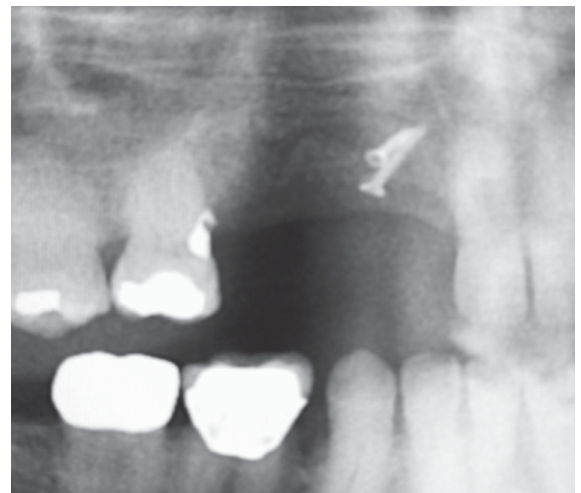
Exposure of the right alveolar ridge was achieved using a mucoperiosteal flap and a releasing flap on the palatal aspect to allow for easier closure and tucking of the pericardium barrier membrane. Two screws were placed in the crestal ridge, with the heads being left at the desired height of bone regeneration. These screws were also intended to support the graft as well as relieve pressure from the overlying soft tissue at closure. A 2cc block of Regenaform<sup>®</sup> was molded around the screws and grafting site. This was then covered with a 30mm x 30mm pericardium membrane (no tacks were utilized). Near primary closure was achieved using a combination of 3-0 and 4-0 chromic suture.

## **Outcome**

Initial post-operative evaluation showed the surgical area healing well and incision intact. Evaluation at three weeks showed a slight dehiscence of the incision allowing exposure of the pericardium. Evaluation at six weeks post operative showed one screw head exposed, which was removed. There was no discernible difference in bone regeneration where the screw was removed compared to the area of continued screw support.



*Fig 1. Radiograph taken five months post removal of teeth #5, #6, #7 showing insufficient bone volume to support implant reconstruction of the missing teeth.*



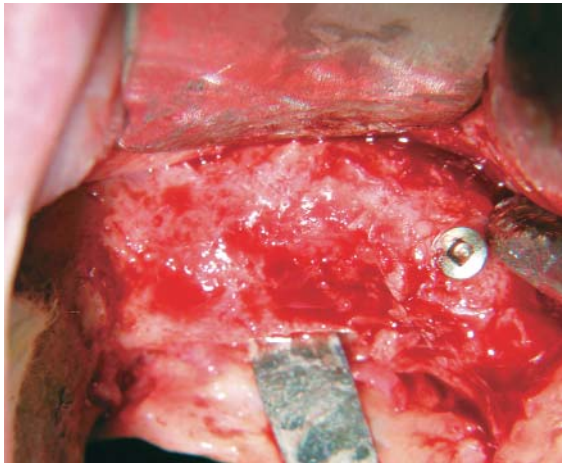
*Fig 2. Radiograph taken day of graft placement.*

Six month re-entry of the surgical site via mucoperiosteal flap exposed the grafted area revealing minimal if any resorption noted by the height of bone in relation to screw head. The graft appeared to demonstrate vitality with good bleeding. The hard tissue structure appeared to be mature bone and quite dense. A sample of this hard tissue was taken farthest from the host bone for histological evaluation. Three implants (12mm, 12mm and 10 mm) were placed into the graft reconstructed ridge.

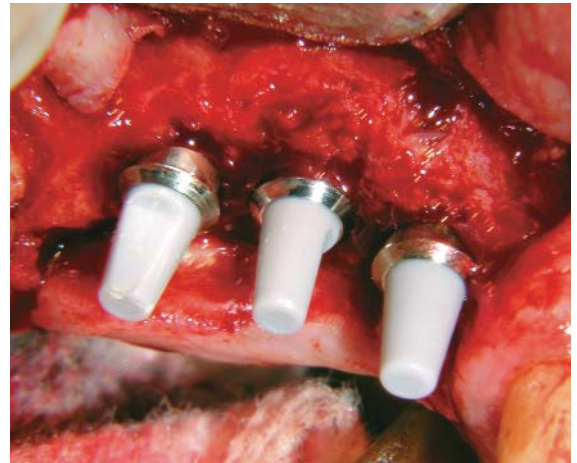
Bone regeneration with Regenaform promoted both horizontal and vertical bone growth allowing for stability and longevity of the restored implants, as well as a more aesthetic and functional restoration for the patient.

### **Microscopic Examination**

Examination revealed multiple sections of a decalcified specimen consisting of bone and associated soft tissue. The bone appeared within normal limits displaying typical resting and reversal lines plus well developed haversian canals and peripheral osteoblastic rimming. A few focal areas exhibited lacunae devoid of viable cells and those could potentially be remnants of freeze-dried bone surrounded by new bone.



*Fig 3. Six month follow up surgery reveals graft present to head of screw, minimal if any resorption of Regenaform graft.*



*Fig 4. Implant placement*



*Fig 5. Histology: AmeriPath Central Florida; Baughman, Ronald DDS, MSD Hematoxylin-eosin stain, 50x magnification*

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by RTI Biologics, Inc.  
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