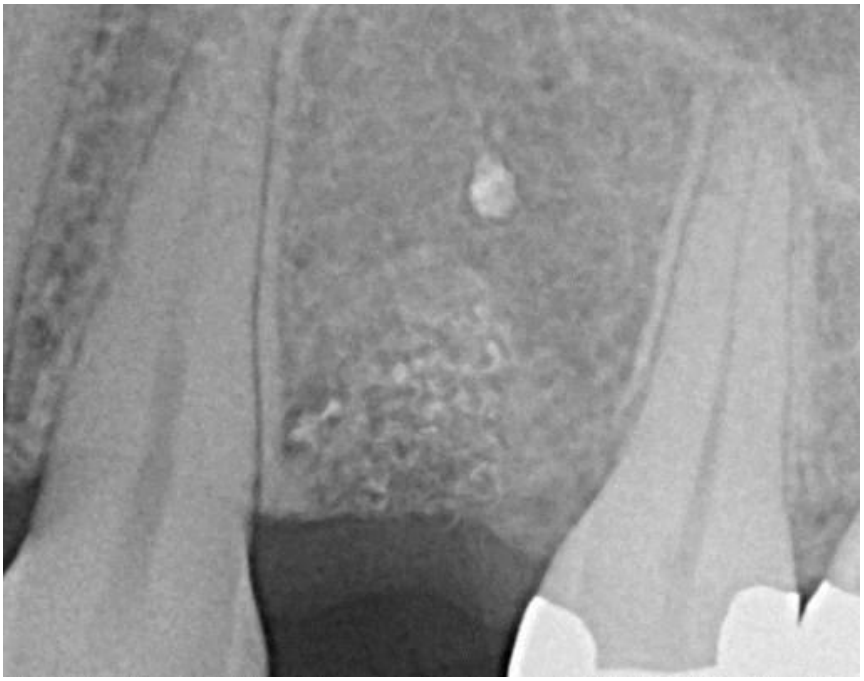
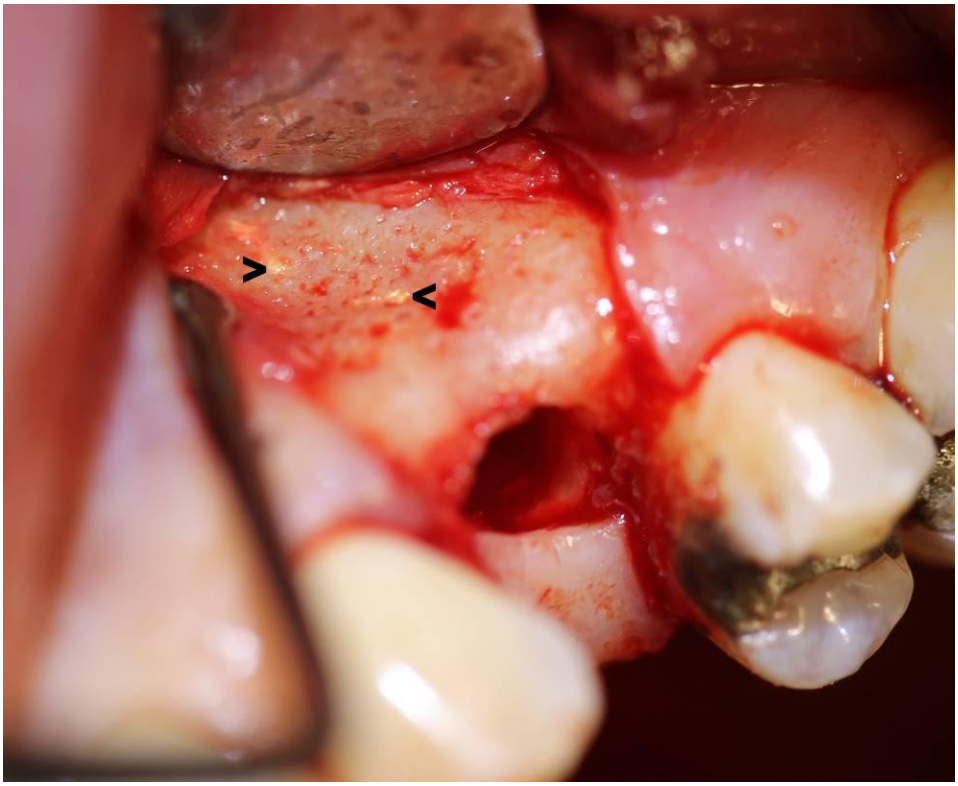
BioPlant Removal

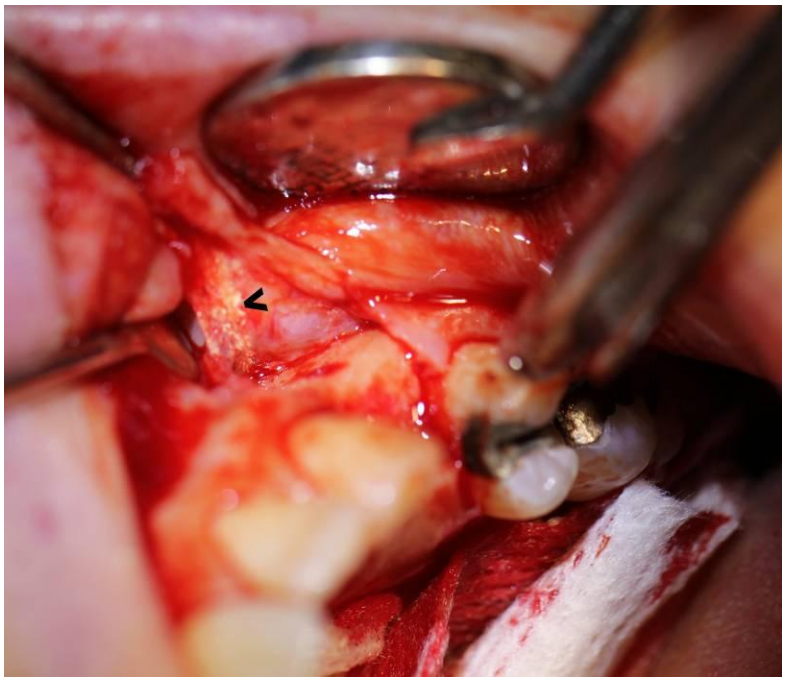


The patient presented 3 years after extraction and grafting with Bioplant. The patient was informed that the FDA does not permit implants to be placed in this material and that she could have the material removed or she could find another clinician to place the implant. She chose to have the material removed.

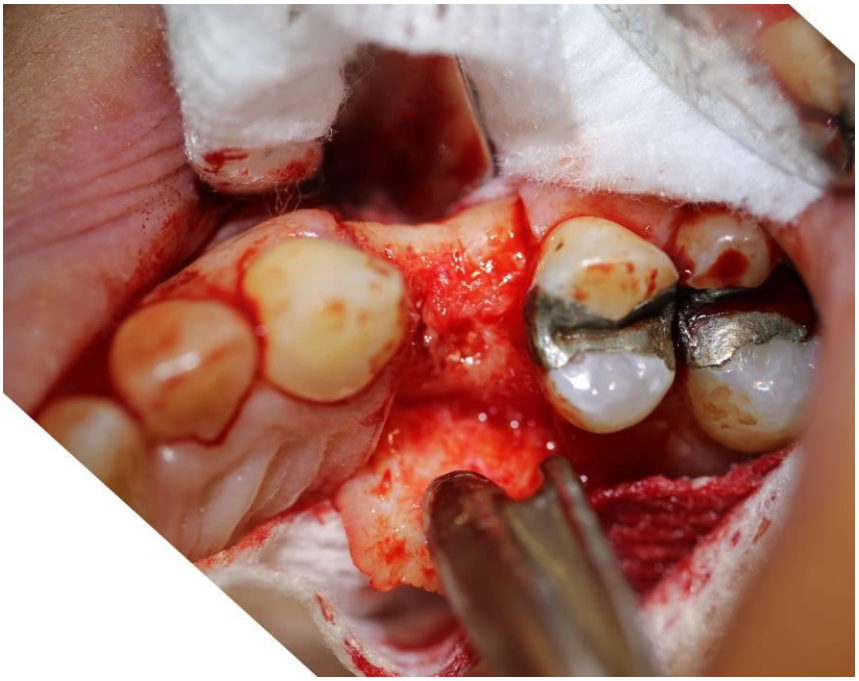
The primary component of Bioplant is poly methylmethacraylate and because this is known to be bioinert it was assumed that the material would be confined to the extraction socket and could be removed from the crest and because of this assumption a conservative flap design just to provide access to the crest was used.



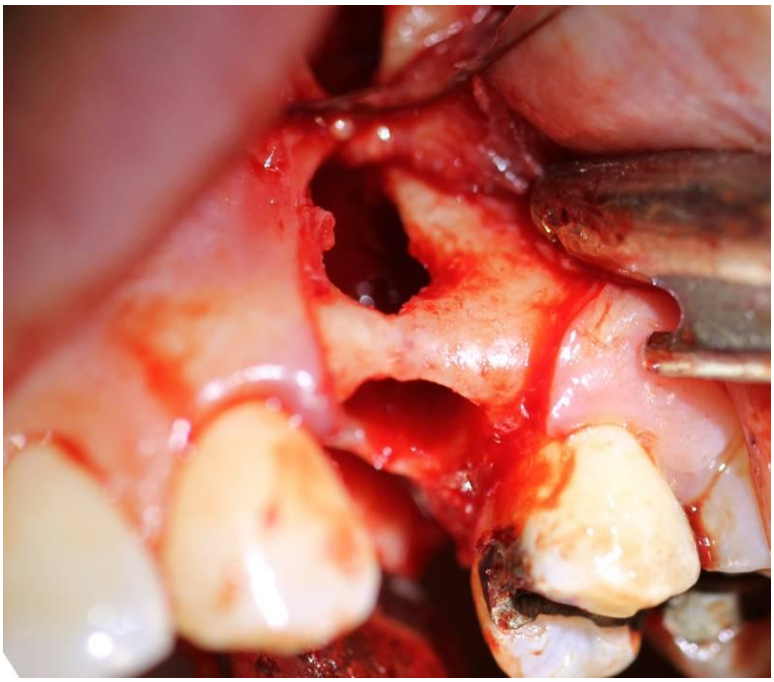
However, when the flaps were raised it was obvious the material had spread throughout the bone. The arrows point to the white graft material on the surface of the buccal wall. The bone bleed profusely.



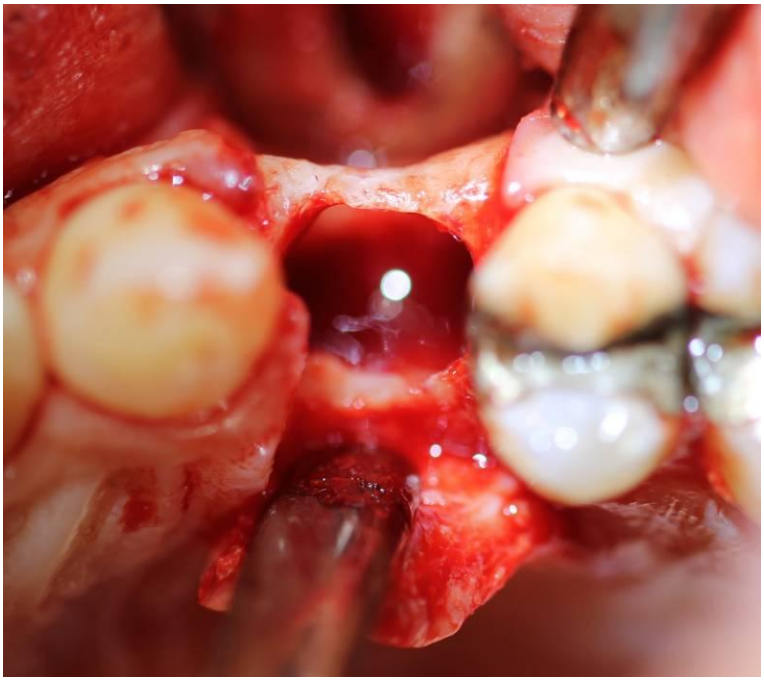
This photograph shows graft material had migrated into the buccal flap.



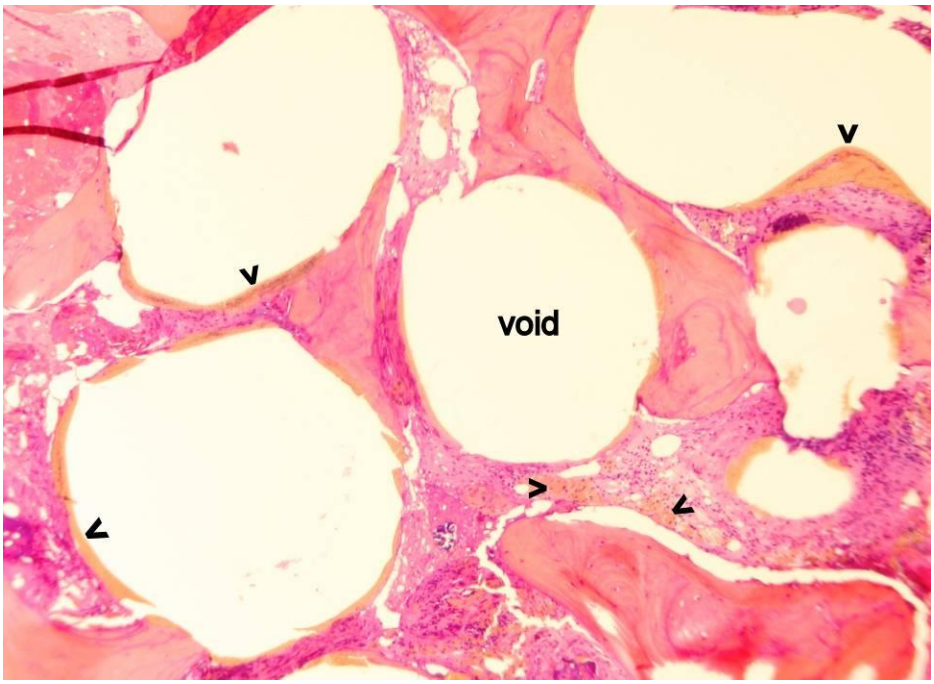
The crest was poorly mineralized. When the initial incisions were made the incisions bleed profusely. Gauze was needed throughout the surgery to assist in controlling the bleeding.



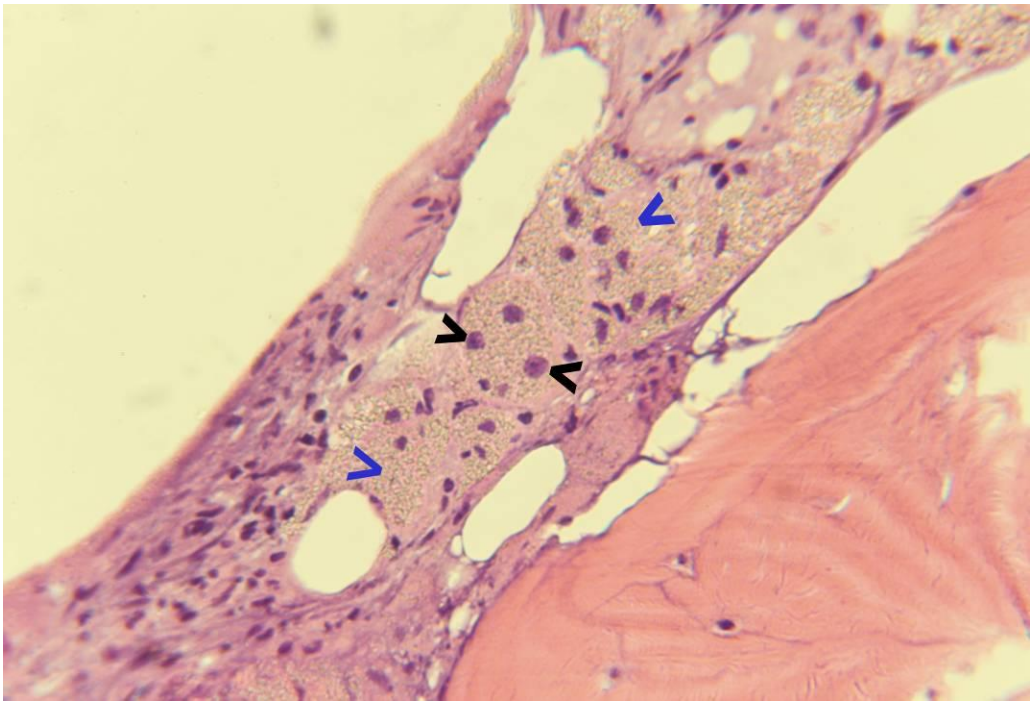
With the intense bleeding it was clear this material was not biocompatible and the only chance for normal bone to form it would be necessary to completely remove all of the graft material that was causing the inflammation. The buccal wall needed to be completely removed and the graft material was dissected out of the buccal flap.



The graft material had migrated throughout the alveolar ridge and the bone needed to be removed from the laminar dura of #11 to the lamina dura of #13. At this point with nearly complete removal of the graft material the bleeding from the gingiva and bone stopped abruptly.

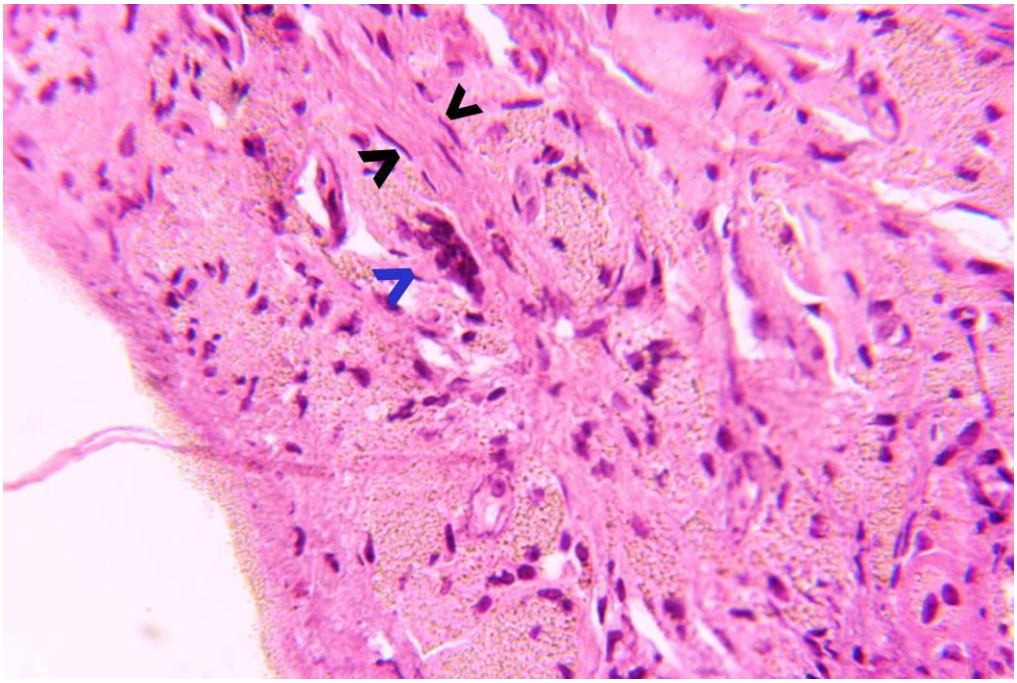


This is a low power photomicrograph of the core sample taken with a long narrow bur. The voids are where the plastic beads were dissolved for processing the specimen for microscopy. A surprising finding was the presence of granular material that coated the beads (black arrows) and spread throughout the tissue. The bone formed is sclerotic bone.



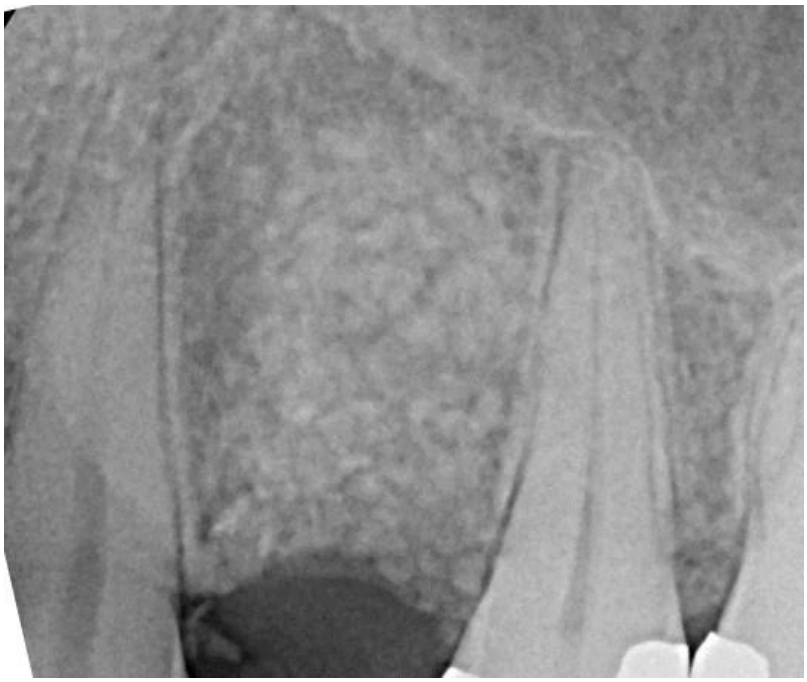
This high power photomicrograph shows classic histiocytes filled with the nonresorbable material that coated the plastic beads. Black arrows show histiocytes nuclei.

Blue arrows show histiocyte cytoplasm filled with the granular foreign material.



The blue arrow points to a multinucleated giant cell which is the result of histiocytes joining together. The black arrows point to fibroblasts that have laid down fibrous barriers in an attempt to contain the material that coated the plastic beads.

The intense bleeding during surgery was a result of the foreign body reaction to the nonresorbable material that coated the plastic beads and spread throughout the tissue. Once the material was removed it was surprising how quickly the bleeding stopped not only in the bone but also the surrounding gingival tissue.



The site was grafted with resorbable biocompatible graft materials approved for implant placement.

The assumption that the material was biologically inert lead to the conservative flap design which resulted in the mistake of placing the incision over the area being grafted. The cardinal sin of bone grafting.

The mesial buccal incision opened and a significant amount of graft material was lost which will surly compromise the graft result. It is not surprising why the FDA does not allow implant placement in this material.

A few lessons learned from this biopsy are that nonbiocompatible material can spread throughout bone and into the surrounding soft tissue. The nonbiocompatible nonresorbable material creates a foreign body reaction resulting in permanent chronic inflammation.