

GBR and simultaneous implant placement in the mandible



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“ The handling of the membrane is easy and at six months, we still see some remnants of the membrane which is very interesting for guided bone regeneration. Soft tissue healing seems predictable and I did not see any exposure of the membrane on all the cases we performed ”



Patient:

Male
82 years old, ASA I

Tooth position:

Posterior mandible, 46 (ADA #30)

Surgical solution:

Brånemark System MK IV TiUnite 5 x 11.5 mm
Xenogenic bone substitute and
autogenous bone chips
creos xenoprotect collagen membrane
4.0 Vicryl sutures

Restorative solution:

NobelProcera Titanium Abutment and
a screw-retained crown

Surgery date:

September 2, 2013

Total treatment time:

8 months



Initial situation

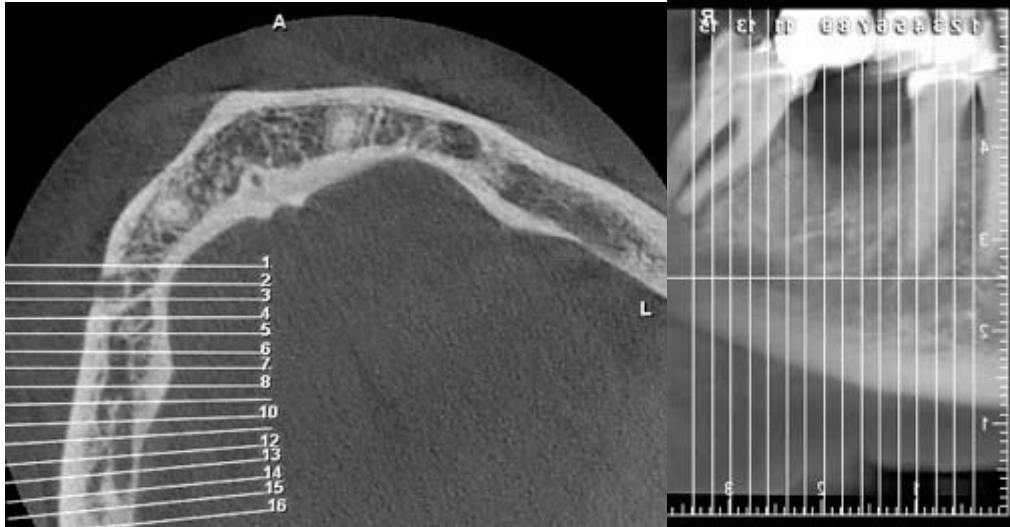


A healthy patient presents at the private practice complaining of pain and chewing difficulty in the lower-right sextant.

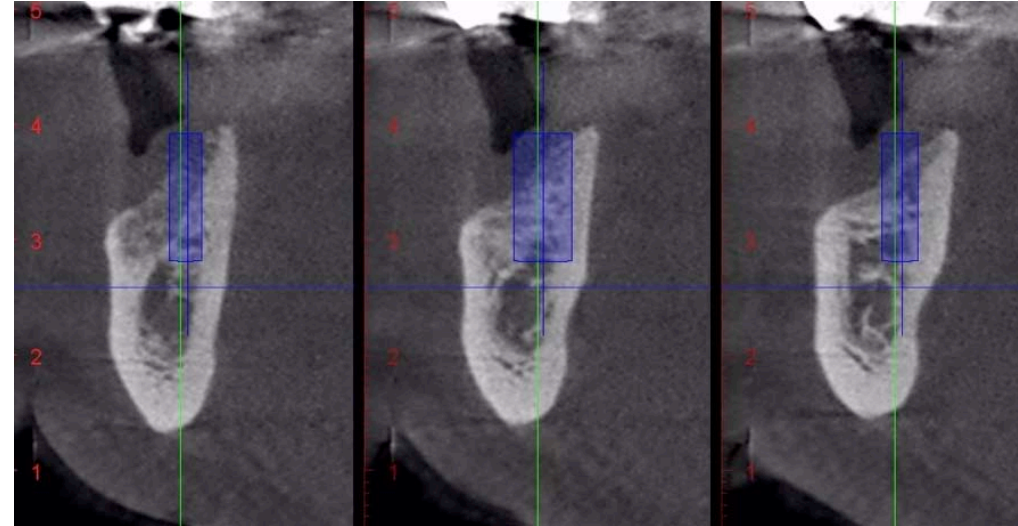


Preoperative panoramic radiograph reveals extraction of 46 and 47 (#30 and 31) is indicated.

Treatment planning

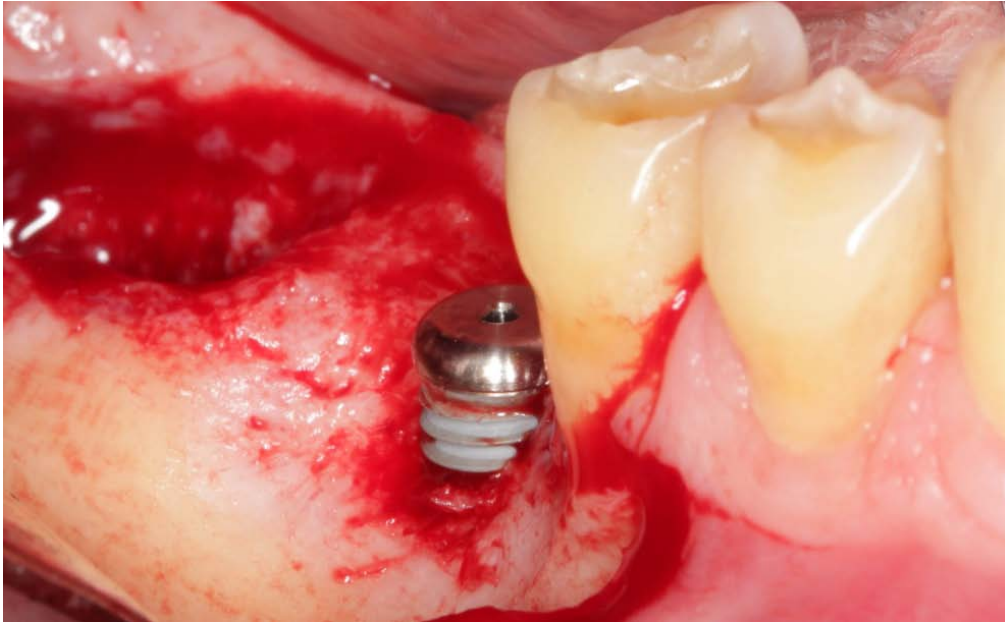


CBCT scan three months post extraction of 46 (30).



CT scan confirming limited bone volume in the region of 46 (30).

Implant placement and graft material preparation



A 4 mm vertical bone defect is evident after implant placement: Brånemark System MK IV TiUnite 5 x 11.5 mm.



The same access flap can be used for reconstructive surgery and autogenous bone harvest.

Graft material preparation



Bone chips collected by bone scraper.

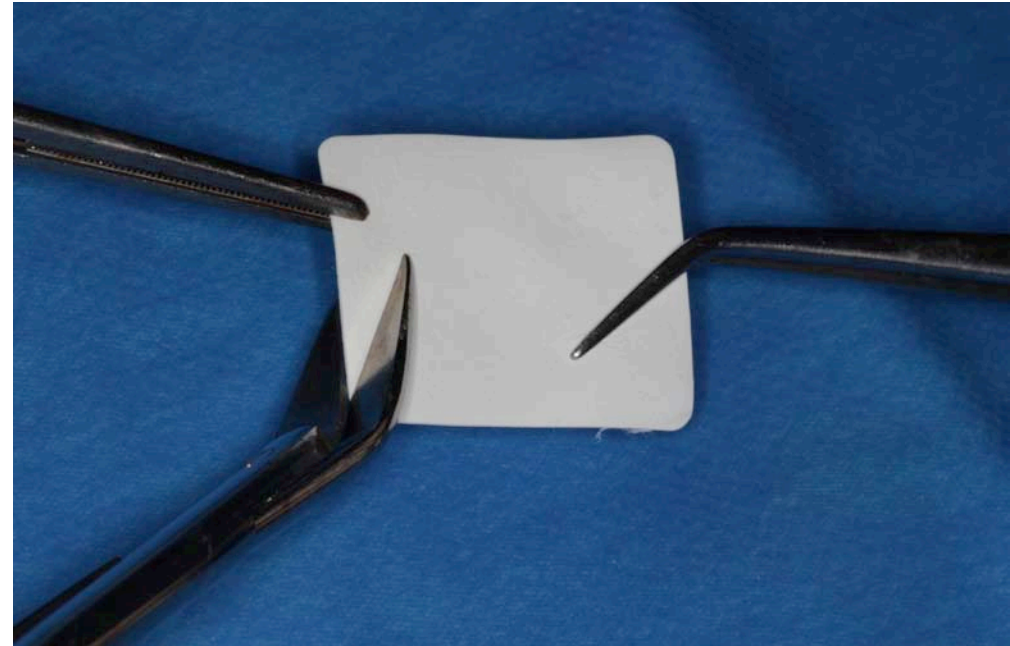


A 50/50 mixture of xenogenic bone substitute and autogenous bone chips is prepared.

Graft material preparation

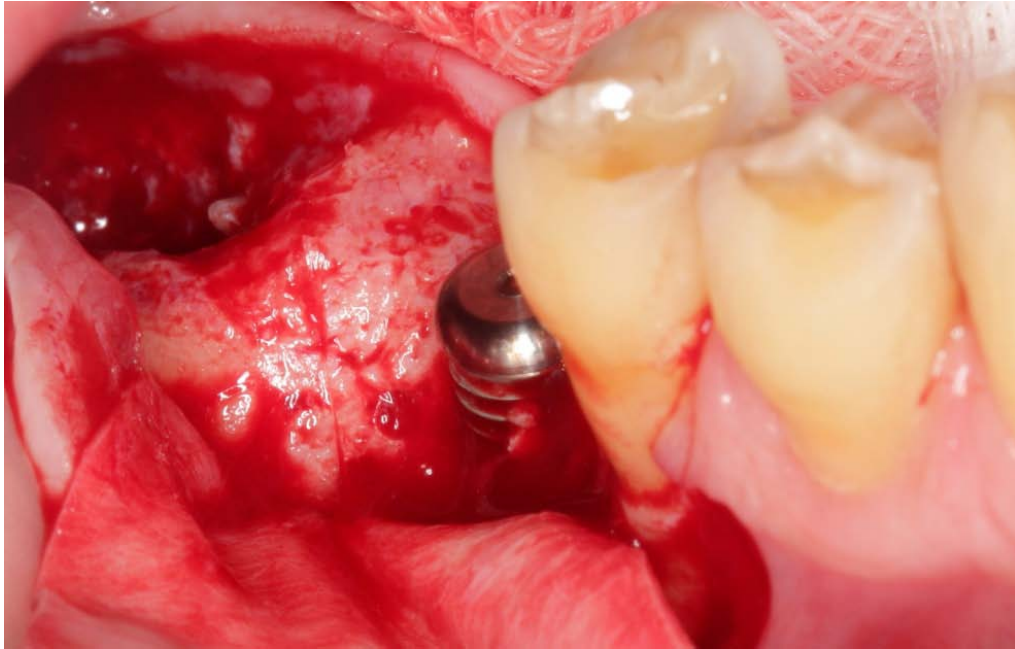


The xenogenic bone material and autogenous bone chips are mixed.

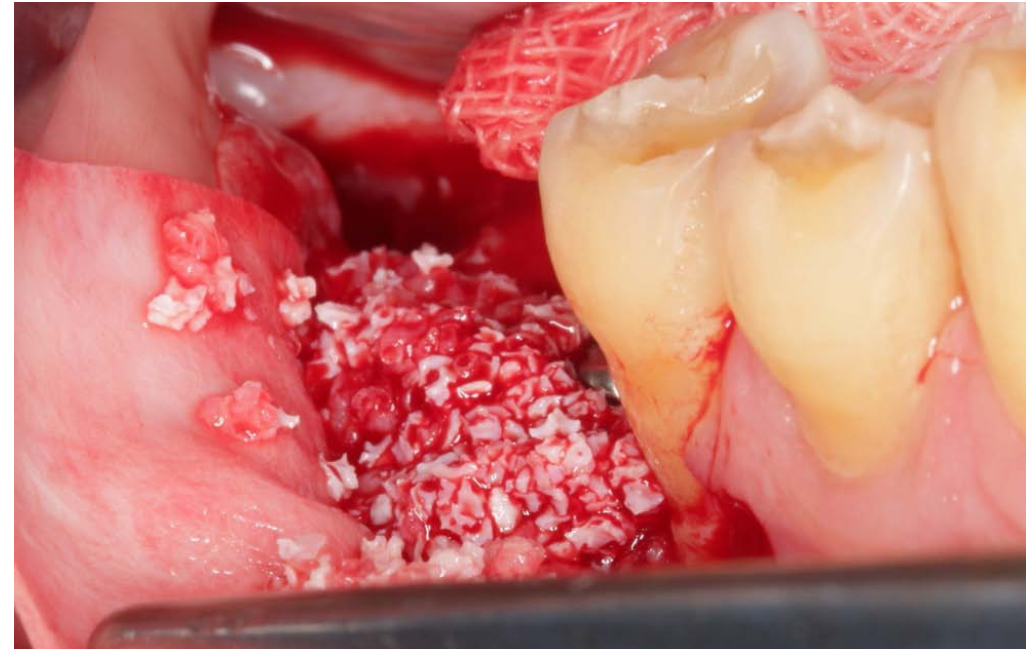


The resorbable porcine collagen membrane creos xenoprotect is trimmed to cover the defect and the applied bone substitute.

GBR procedure

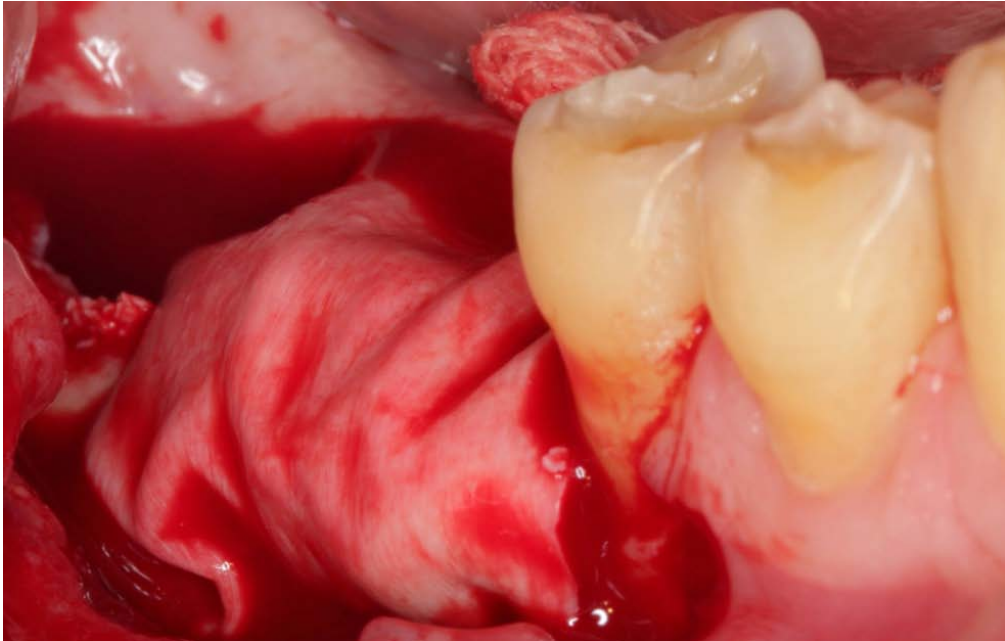


The membrane is appropriately adjusted to cover the defect. It is also fixed to the buccal plate using two titanium pins.

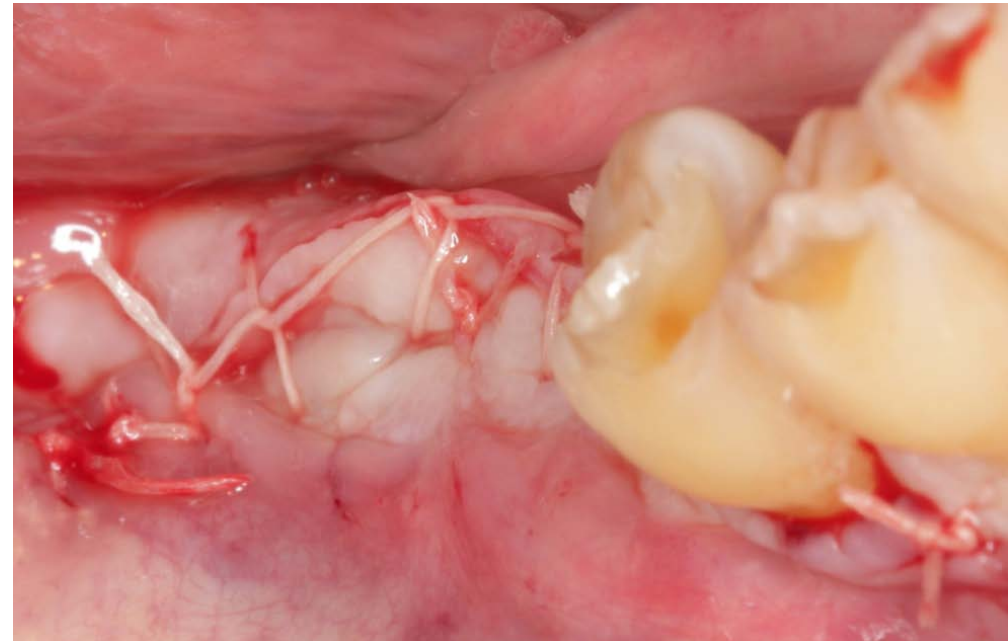


The defect is completely filled with xenograft substitute and autogenous bone.

GBR procedure

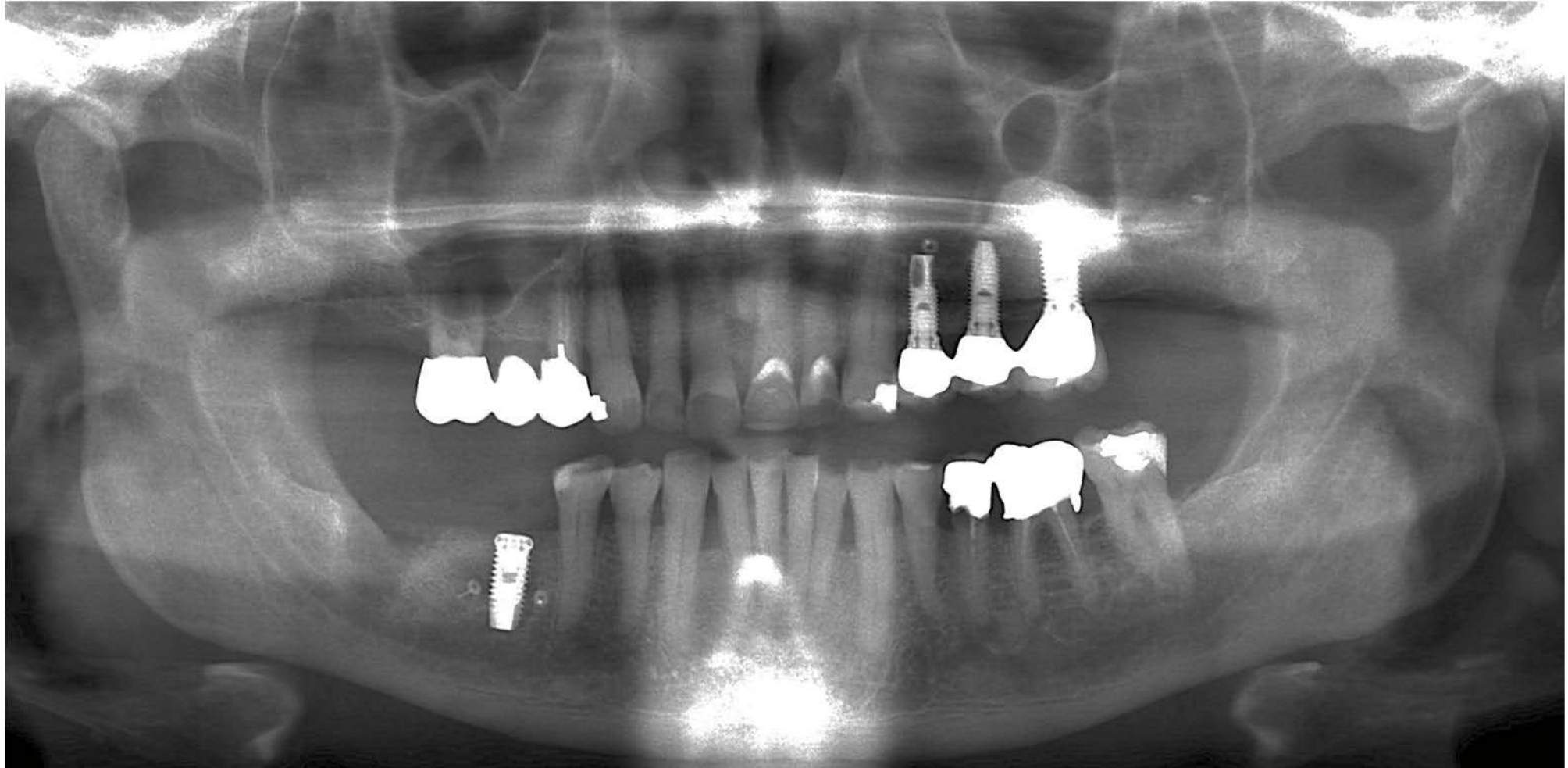


Blood from the surgical area is used to obtain optimal adaptation of the membrane to the bone defect.

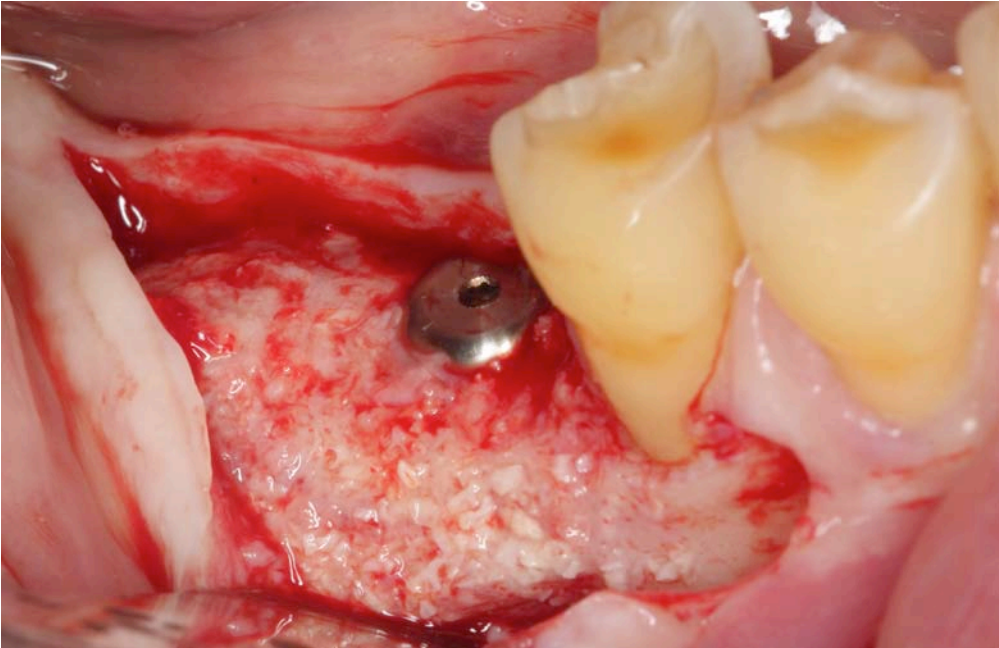


Resorbable sutures are used to complete soft tissue coverage of the site.

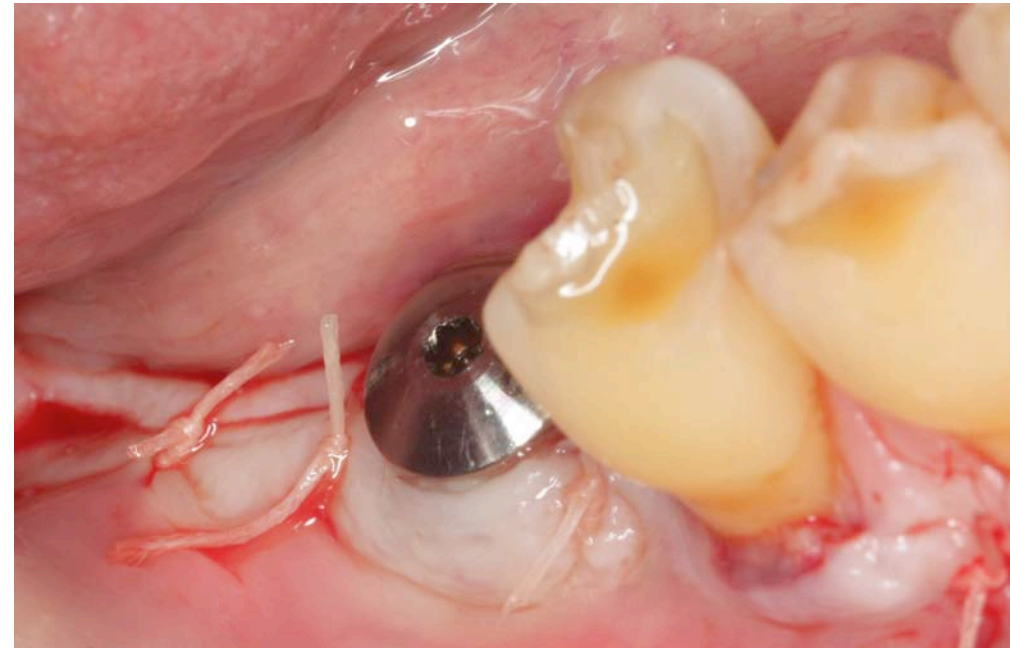
Post-op radiograph



Second stage surgery six months post-op

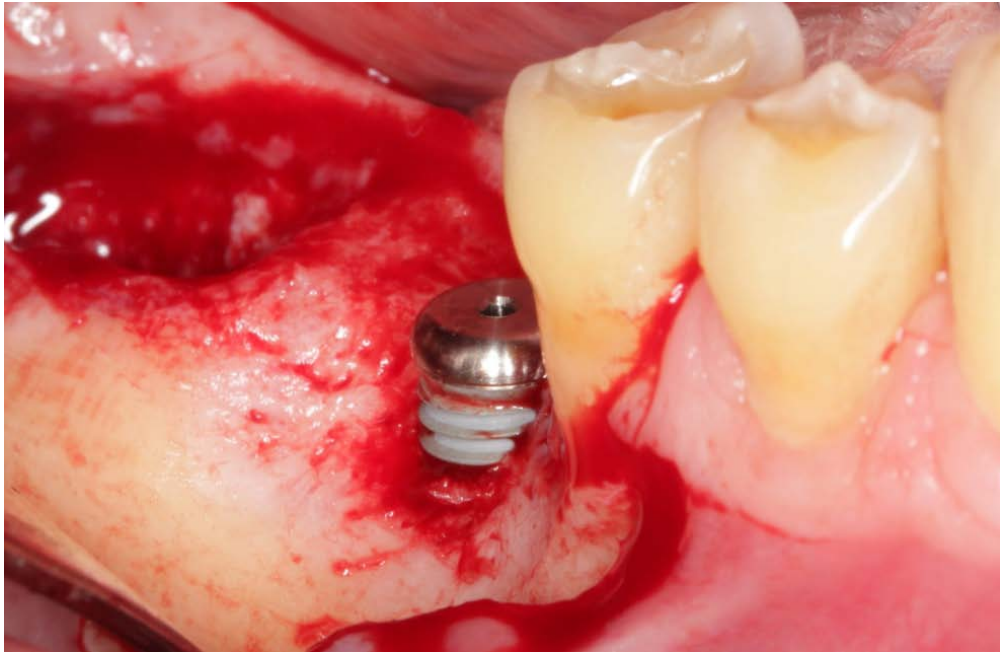


Access to the treated area reveals complete bone regeneration of the previous defect, and shows the width of new bone formation.

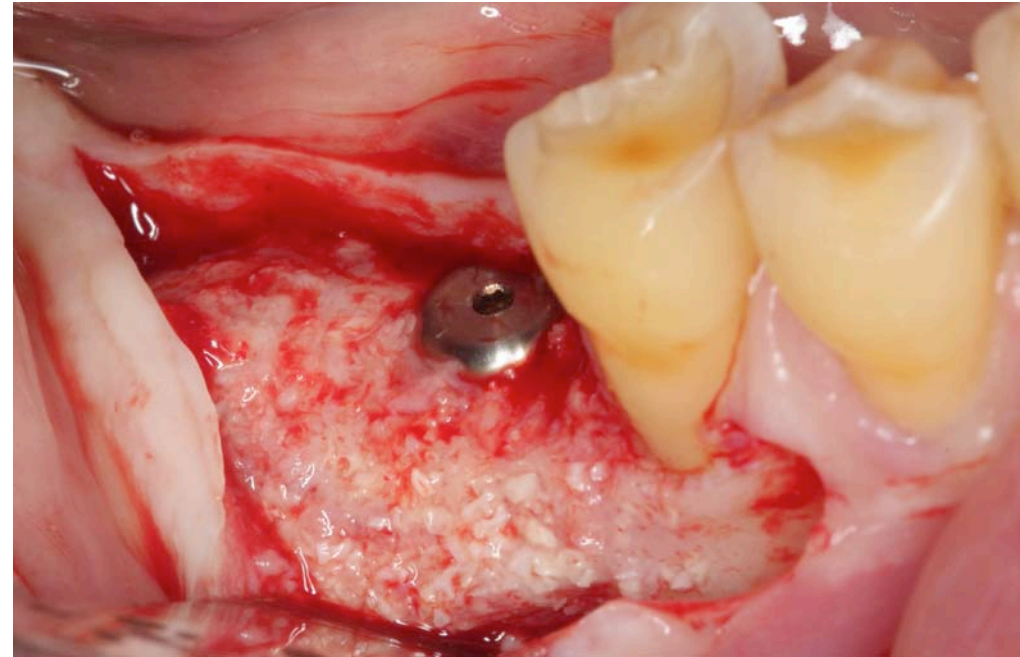


The cover screw is replaced by a healing abutment and resorbable sutures are placed.

Result of bone regeneration

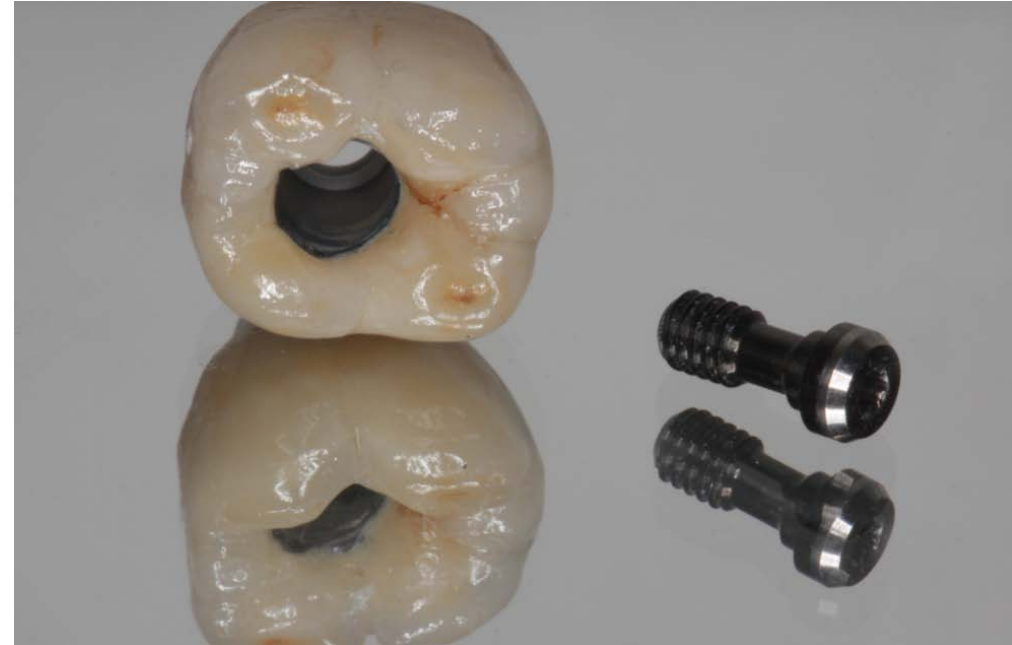


Before.



After.

Final restoration

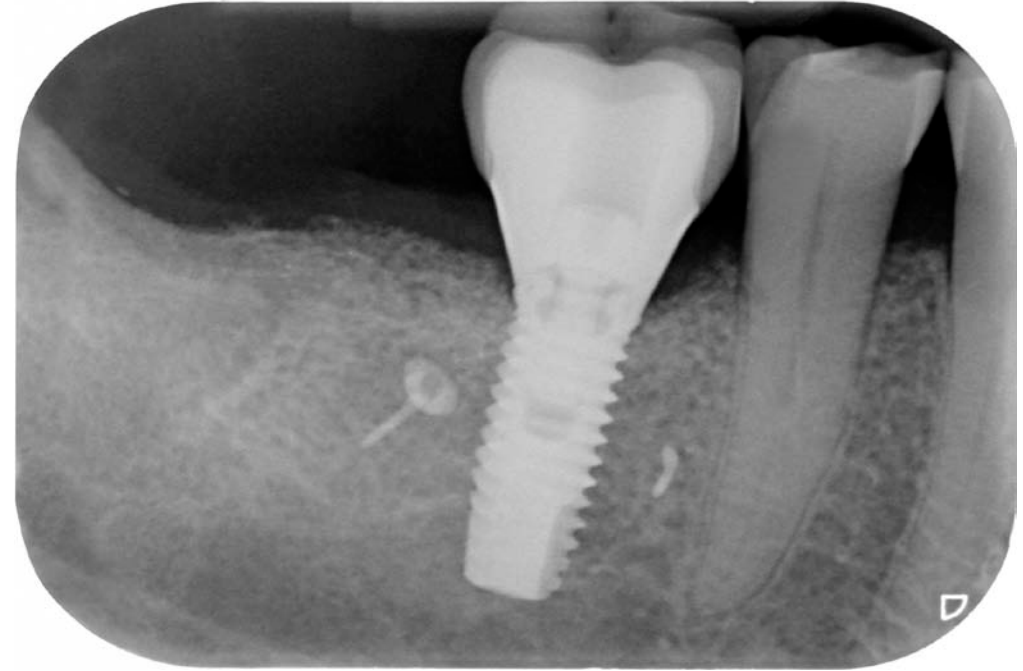


NobelProcera Titanium Abutment and veneered with dental ceramics; screw-retained implant-supported restoration.

Final result



Buccal view of final clinical situation at site #46 (30).



One-year post-op radiograph showing proximal bone stability at implant restoration. The two titanium pins used to fix the membrane were not removed at re-entry to avoid bone removal.