

Histological Research of Dog's Jaw Bone Regeneration by HA Coating Titanium Frame Matrix

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Purpose :

With the Custom made Titanium Frame which coated with hydroxyapatite (it called HA), till now we were using PRP together in GBR, and we announced the clinical response of Custom Endosteal Implant which acquired biointegration in the part of bone and the bottom part of periosteum.

As the first report, this time we used a beagle (dog) and examined the possibility and was able to get an interested result, so we made report whether implant becomes as matrix of the jawbone reproduction.

Manufactured of HA Coating Titanium Frame

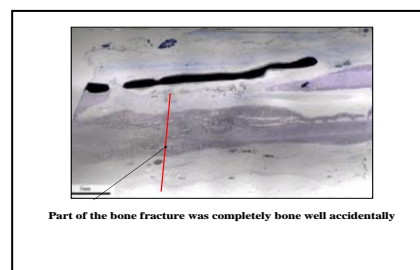
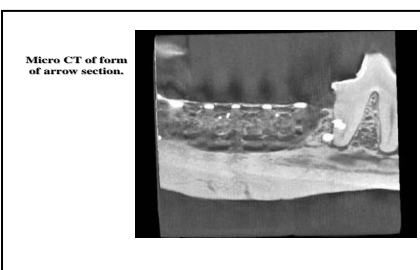
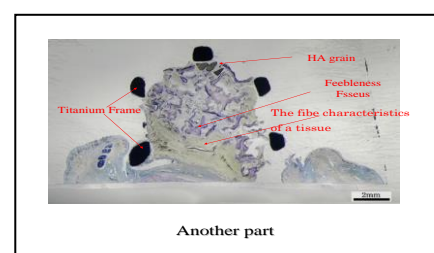
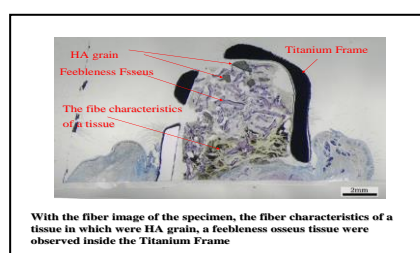
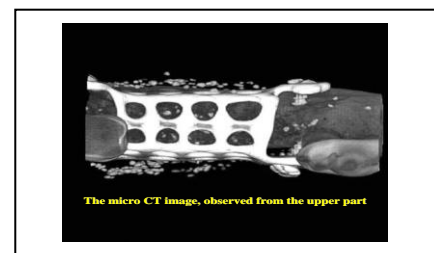
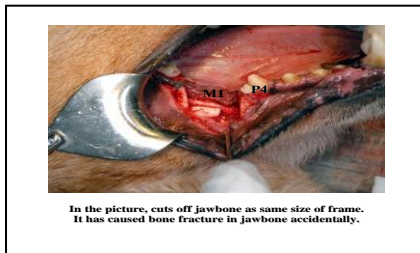
- 1) Produced a replica model made by plastic, based on CT analysis part of the lower jaw molar.
- 2) Partial excision that followed peripheral osteotomy in the above model on the right side part of molar.
- 3) Production of HA Coating Titanium Frame which coating of the excision part.

Setting of Frame to the experiment animal

- 1) Based on CT analysis of jawbone of dog, after remove of mucoperiosteum valve, and give peripheral osteotomy and the excision.
- 2) Injected PRP and HA mucoperiosteum materials (Calcitite, Zimmer(Co) in the removal part.
- 3) We restored cover by Titanium Frame, sewed and closed the above part by mucoperiosteum valve.

The manufacture of the non-decalcification specimen.

- 1) We killed the dog in postoperative six months extract HA Coating Titanium Frame with circumference bone.
- 2) We worked to perform dehydration, fat removal processing fixation, foil by epoxy resin.
- 3) We used 0.5% toluidine blue dyeing and make a non-decalcification specimen.



Consideration :

In animal experiment of HA Coating Titanium Frame which we used this time as platform of the jawbone reproduction, it was affected by cleavages of bone fracture / the mucous membrane of the experiment part, and enough quantity of formation and bony-hardness of the jawbone which predicted it was not seen.

However, the possibility to be able to perform the recovery of the chewing function at the same time was shown in HA Coating Titanium Frame by giving abutment not only to the reproduction of the jawbone but also to the frame when we completely achieved the purpose.