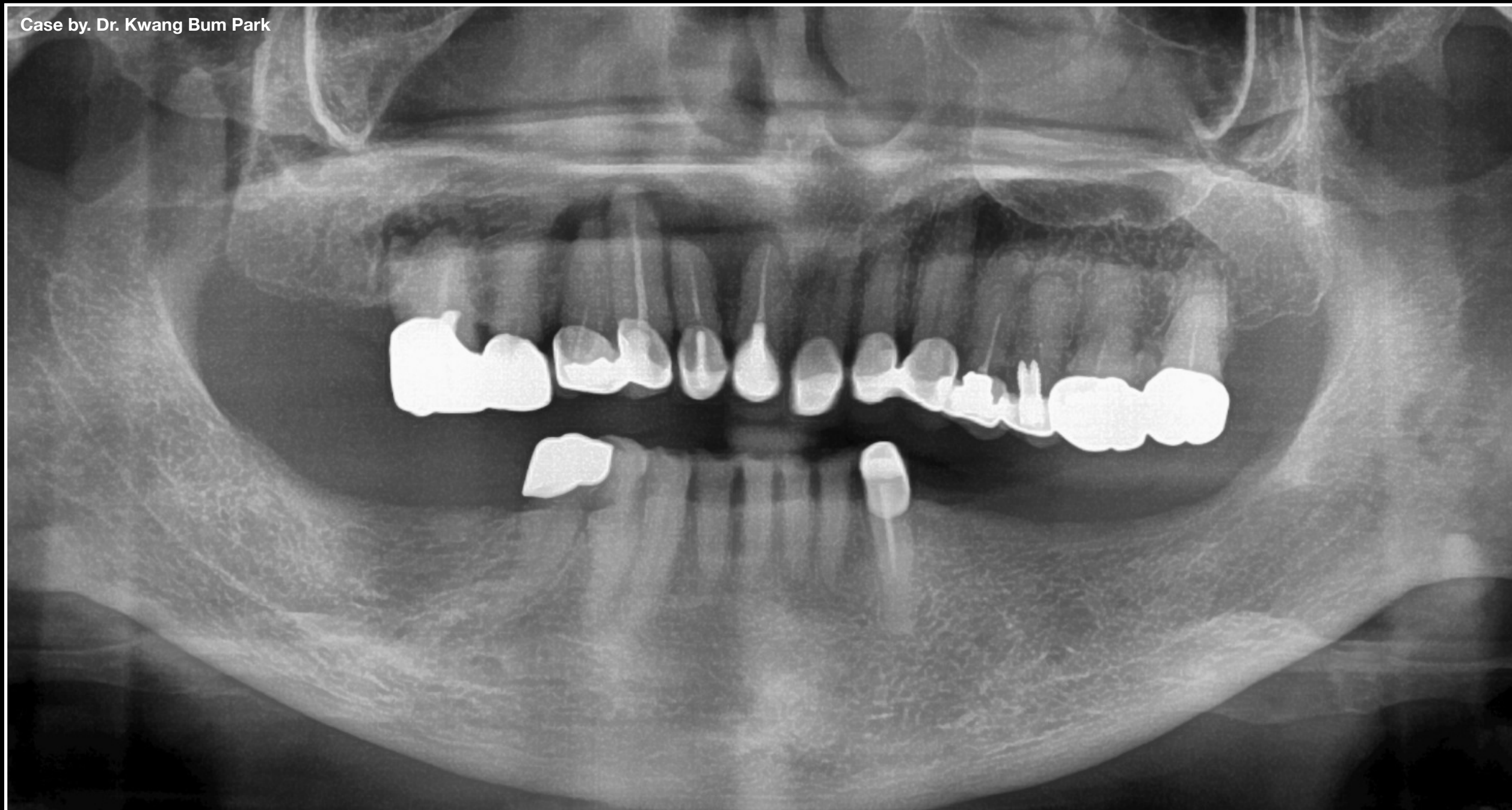


**The advantage of
SmarThor Piezo machine
and AnyRidge implant
system at the Mandibular
thin ridge case (I)**

Dr. Kwang Bum Park

Case by. Dr. Kwang Bum Park

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A 79 year-old female patient visited my office with her son and daughter-in-law. She had a chief complaint of chewing difficulty on both sides. She used a partial denture for more than 30 years, and had unilateral chewing habit on the right. Upper right incisors, canine and a premolar showed severe bone destruction due to periodontitis and concentrated chewing forces.

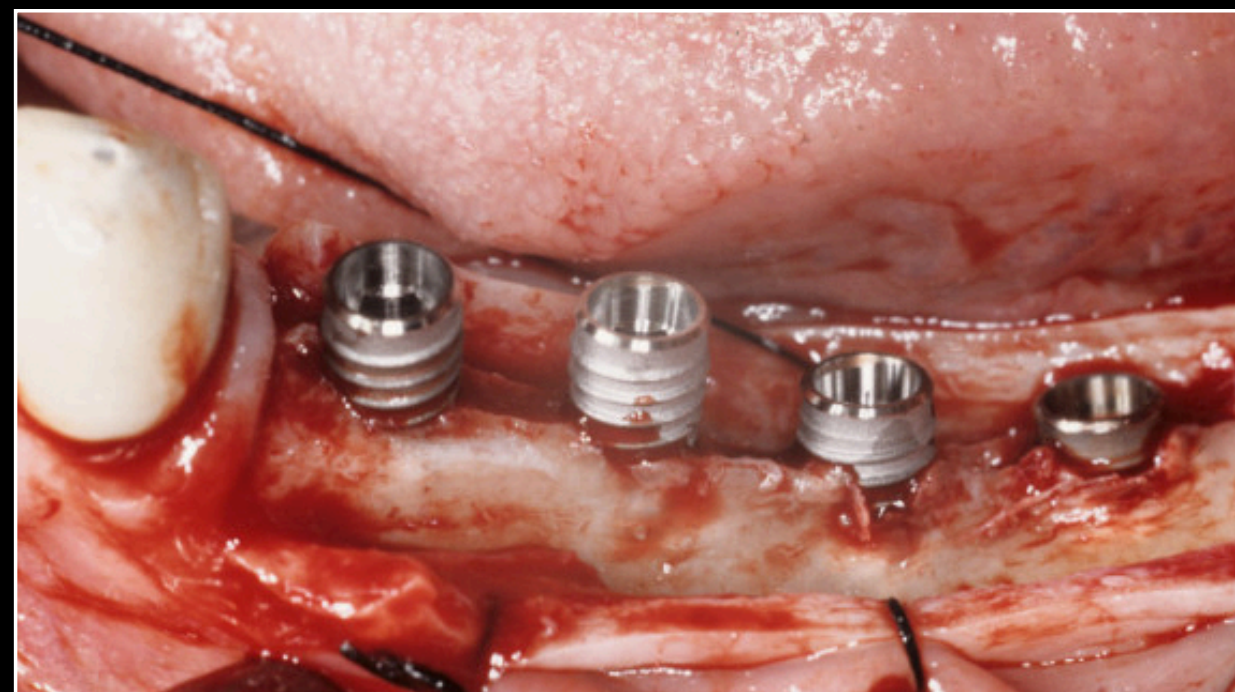
Due to lack of occlusal stops at the molar, I recommended her to have implant treatment on the mandible first. The ridge condition on the recipient site was thin because of long-term use of ill-fitting partial denture. Considering her age, I decided to use the ridge split technique which can give us minimally invasive and faster bone regeneration.

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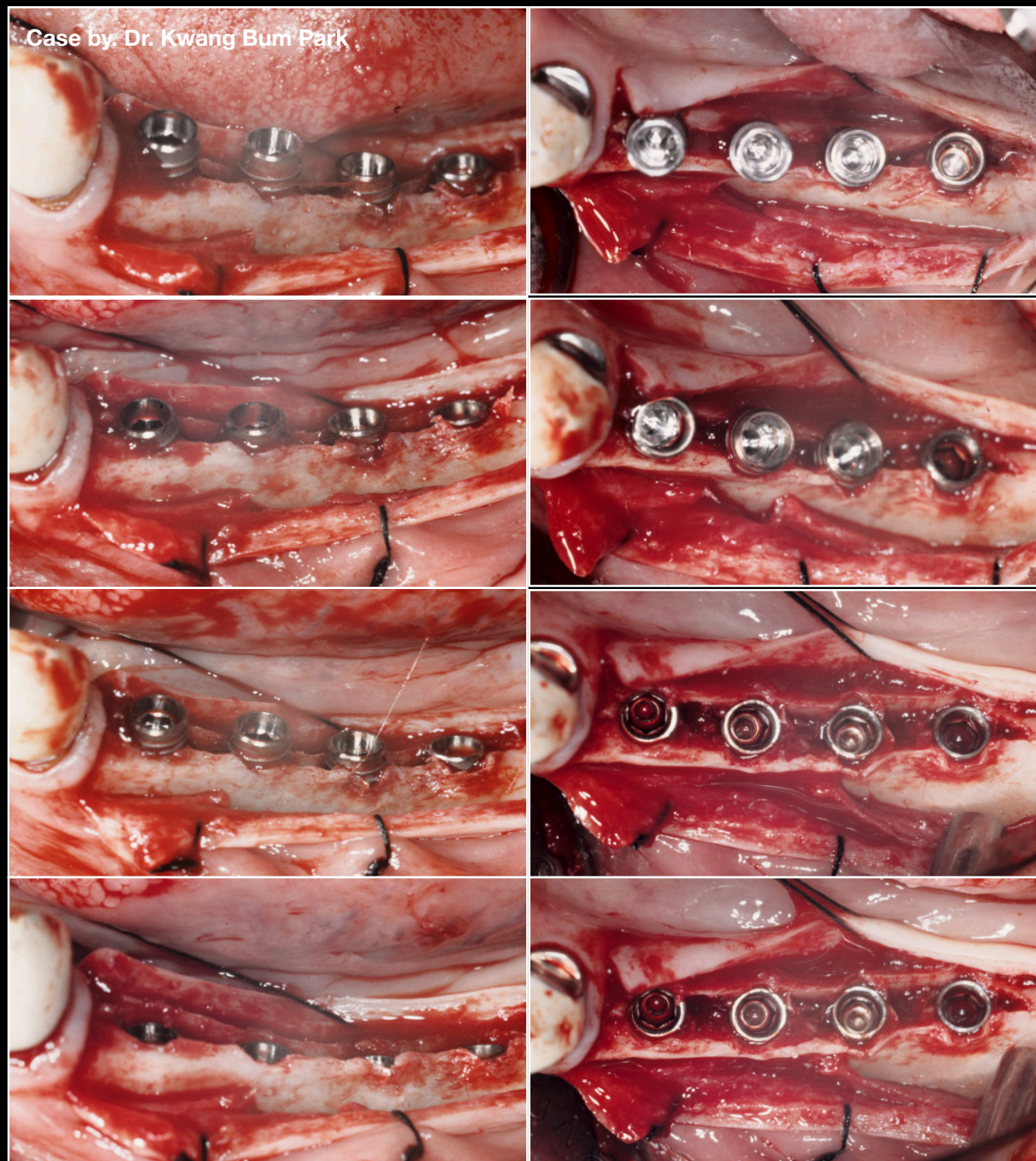


When flap was opened, very thin crestal bone was exposed. The ridge width was a little bit more than 2mm at the crest.

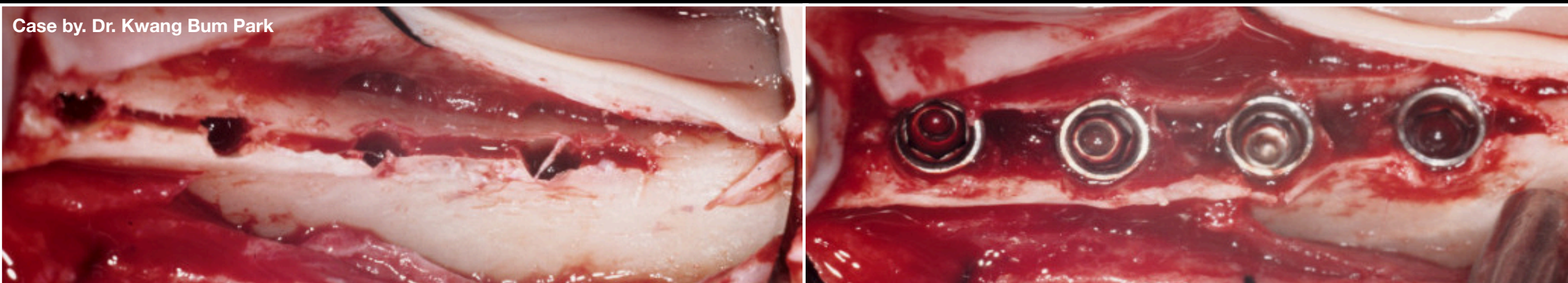
The horizontal bony cut was made with a saw tip of SmarThor. Due to thinness of the saw tip (0.36mm), the bony incision could be minimally invasive preserving as much bone as possible. The saw tip reached to the depth of implant fixtures on each site. The distal extension for about 5 mm was made to enhance the ridge splitting. And 2 mm drilling was made on each implant site to guide the fixture placement.



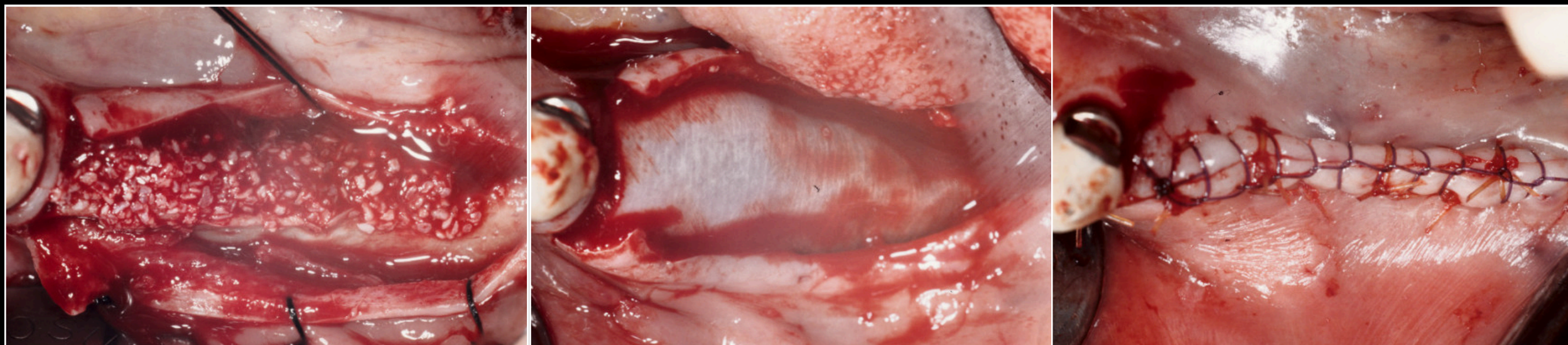
Four 3.5mm AnyRidge fixtures were placed with a handpiece which was set by 40 Ncm torque force. The fixtures were stopped at this position due to resistance. From this point, we can use a hand wrench for further insertion. It is recommended to make a full turn on each implant at once to minimize the stress on the cortical bone.



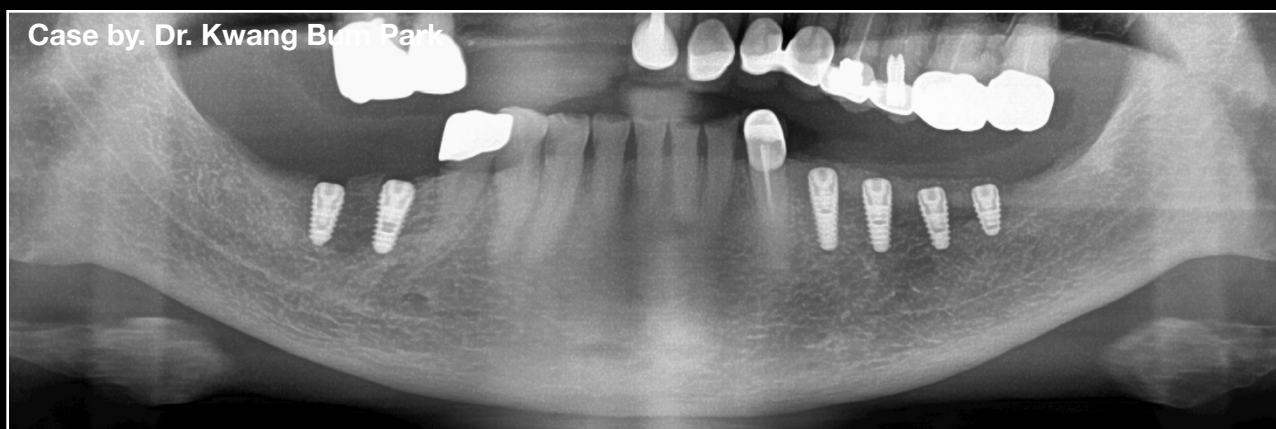
With the placement of implant insertion into the bone, the thin ridge started to be expended as we wanted. The most important point we need to see in this case is that there was no vertical bony cut. Almost all the articles we have so far on this surgical technique recommend to make two vertical bony cuts at the end of horizontal cut. That recommendation was made due to implant design which had flat bottom and straight shape. So we had to split thin ridges at least to the size of flat bottom of a fixture to be engaged to the split we made. However, with the new implant design concept on AnyRidge system, it became possible to start fixture placement only after 2mm drilling. This change made a revolution on the solution of Mandibular thin ridges.



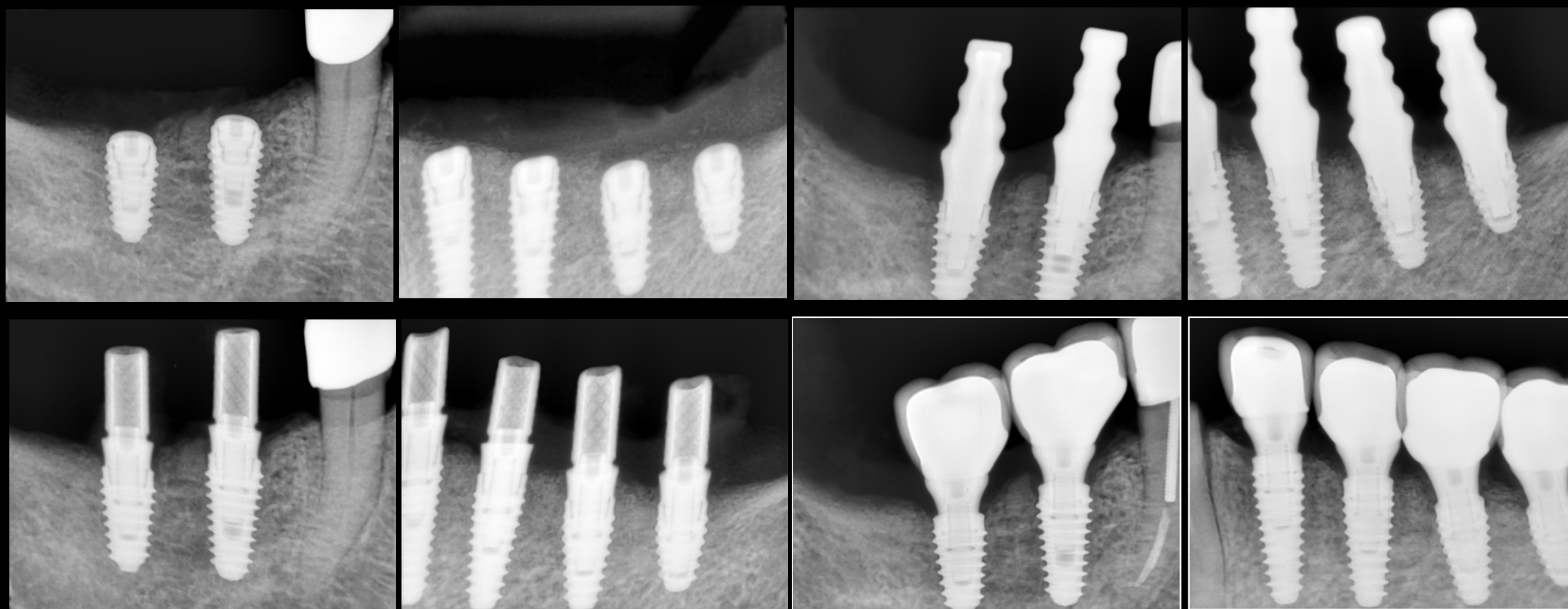
Two intraoral photos before and after implant placement. If a surgeon acquire the whole concept of this surgery, it would take less than 20 minutes to place 4 fixtures in the case like this. Of course, it will make minimally invasive yet more efficient result.



Bone grafting with any kind of grafting material is recommended into the gap between fixtures. In this case, Mega-Oss allograft was used. A collagen membrane placement on the top of implant and bone graft, and primary closure are also recommendable to enhance bone regeneration.

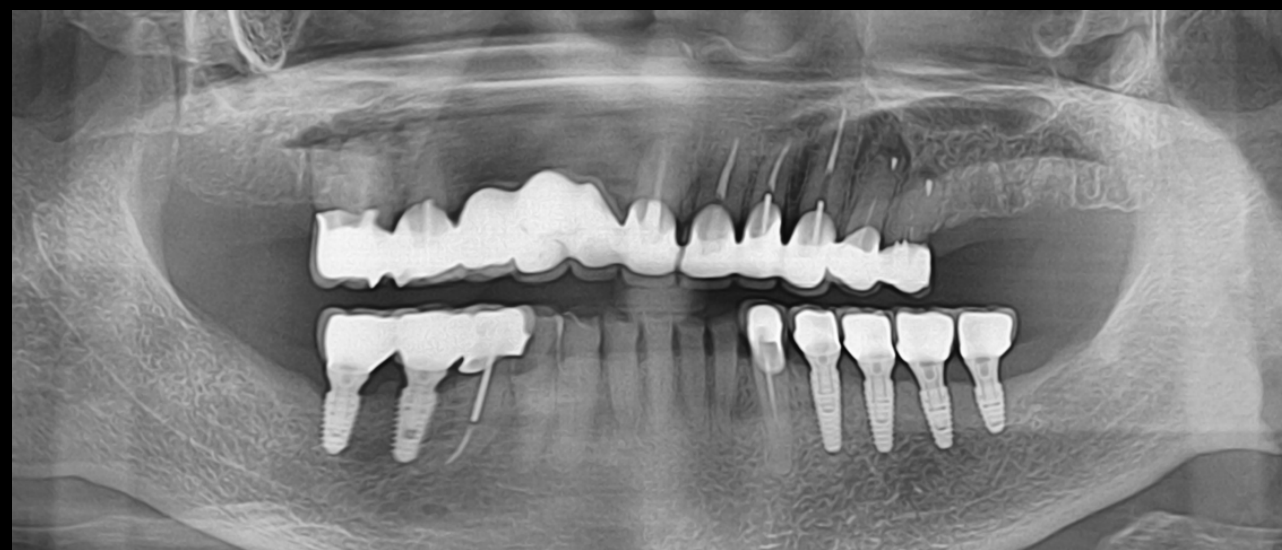


A panoramic radiograph after surgery.
The right side had same ridge splitting



Intraoral radiographs from 6 weeks after surgery to final restorations. The second surgery was made at around 3rd months and impression for implant supported provisionals was made at 4th month . The final restorations were delivered at 6th month in this case. As seen in these radiographs, the crestal bone level was maintained excellently. The patient was very satisfactory with the result.

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**A comparison on panoramic radiographs between preop. and postop.
The hopeless teeth of maxillary arch were extracted and covered as
pontics of long bridges.**

