

Digital Technology for Good Clinical Practice in Implant and Prosthetic Dentistry

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MINIMALLY INVASIVE TECHNIQUES TO SOLVE A MAXILLARY BILATERAL EDENTULISM: THE UTILIZATION OF TILTED IMPLANTS AND CANTILEVER EXTENSIONS BY MEANS OF PROSTHETICALLY DRIVEN AND COMPUTER ASSISTED SURGERY. TWO YEARS FOLLOW-UP

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OBJECTIVE

The objective of this case is the description of the resolution of distal bilateral edentulism with severe bone resorption using minimally invasive techniques and prosthetically guided implants positioning.

CASE PRESENTATION

In September 2011 an healthy 52 years old male patient came to our observation. He presented a bilateral distal edentulism in the upper jaw associated with a reduced bone availability.

For a proper assessment of the case a scan prosthesis was realized: it was a barium sulphate duplicate of patient dental set-up in order to perform a correct CT DentaScan for a computer case planning. We analyzed the CT images using SimPlant software (Materialise Dental- Leuven, Belgium) in order to discuss with the patient about the use of alternative techniques to the sinus lift outlining the advantages and disadvantages of different approaches. By means a computer and prosthetically driven surgery we planned to insert 4 implants with a tilted fixture in region 2.5 to preserve the sinus, foreseeing the use of prosthetic distal cantilever. In this case we didn't prefer to perform a flapless surgery so, after the pilot drill use, we preferred to elevate a full-thickness flap to control the bone anatomy considering the reduced width of edentulous ridge.

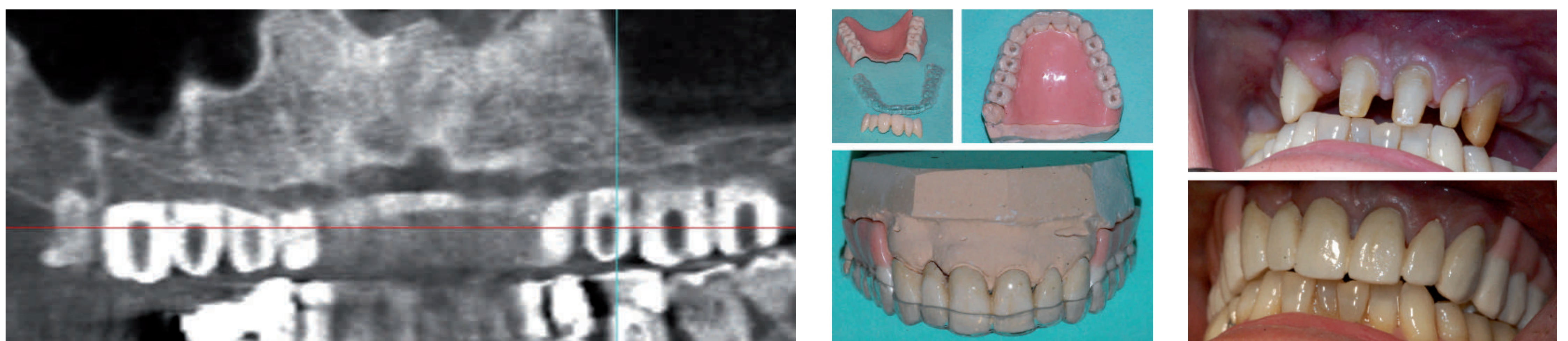
All implants had a diameter of 3.75 mm. Two mesial fixtures had a length of 11.5 mm, even the two distal fixtures were 10 mm (Mozo-Grau, Valladolid-Spain). The prosthetic loading was performed 90 days after the surgery.

RESULTS

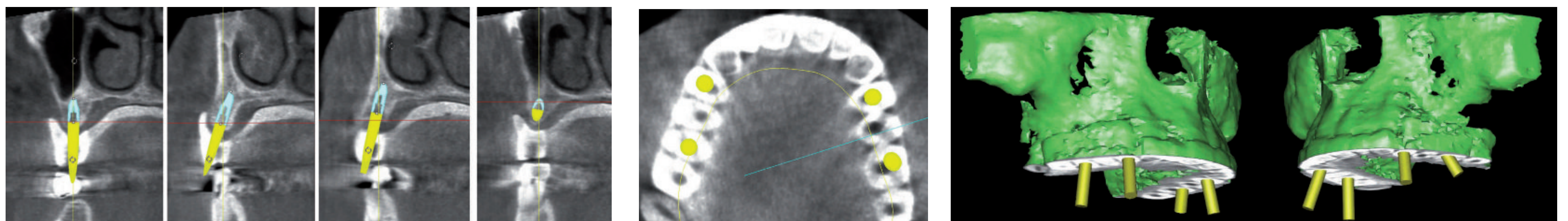
After a clinical and radiographic two years follow up, the patient presented the soft tissues in perfect conditions and an excellent maintenance of marginal bone.

CONCLUSIONS

By means of cad/cam procedures, using tilted implant and cantilever extension we solved a complex clinical case from the surgical and prosthetic points of view performing a minimally invasive surgery with a satisfactory functional and esthetic result.



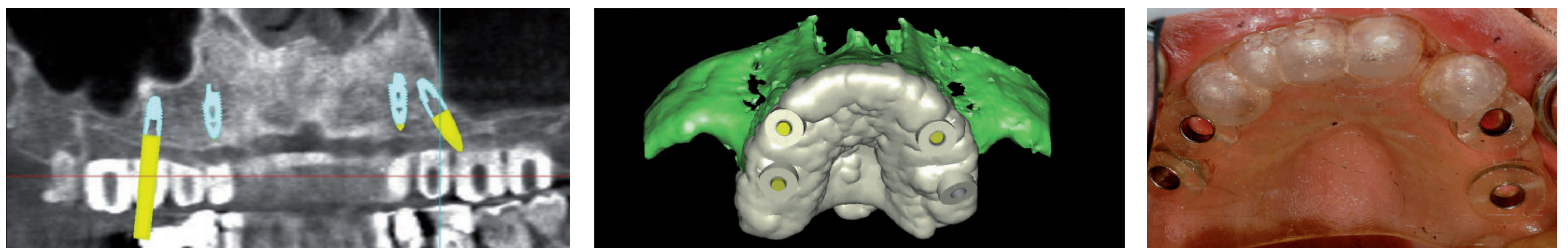
Initial CT and clinical images with scan prosthesis



Virtual Planning in lateral view (Implants 1,6,1,4,2,4,2,5)

Virtual Planning in occlusal view

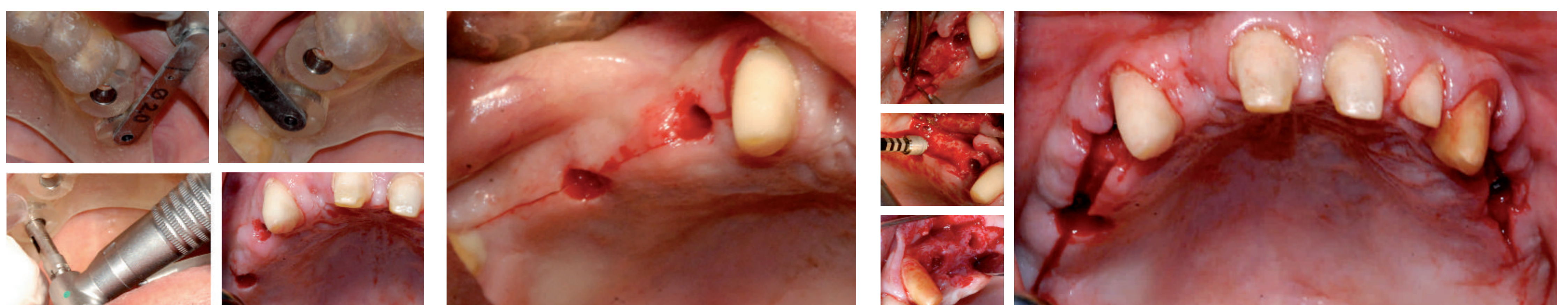
Virtual Planning in 3D model



Virtual Planning in frontal view

Virtual surgiguide

Teeth and mucosa supported surgiguide in clinical images



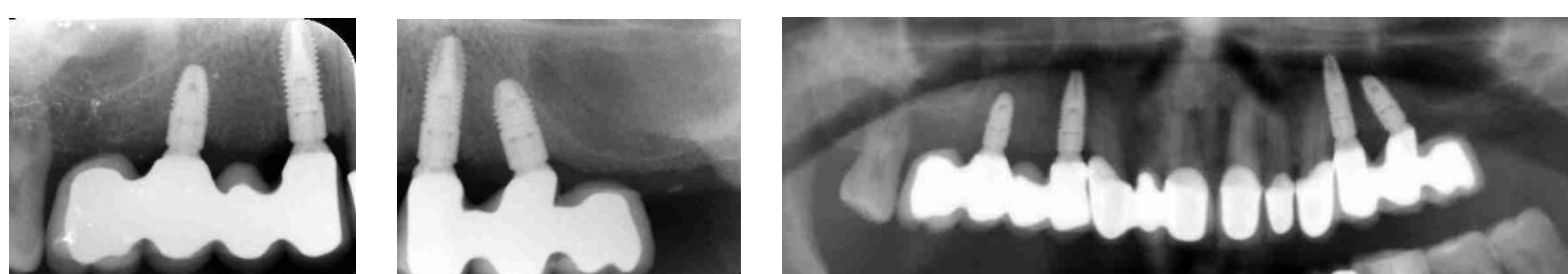
Some steps of the surgery (Computer assisted drilling, full thickness flap and implants insertion)



The prosthetic abutments in clinical images (lateral and frontal view)



Prosthetic baseline (lateral and frontal view)



2-Year radiological follow-up

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