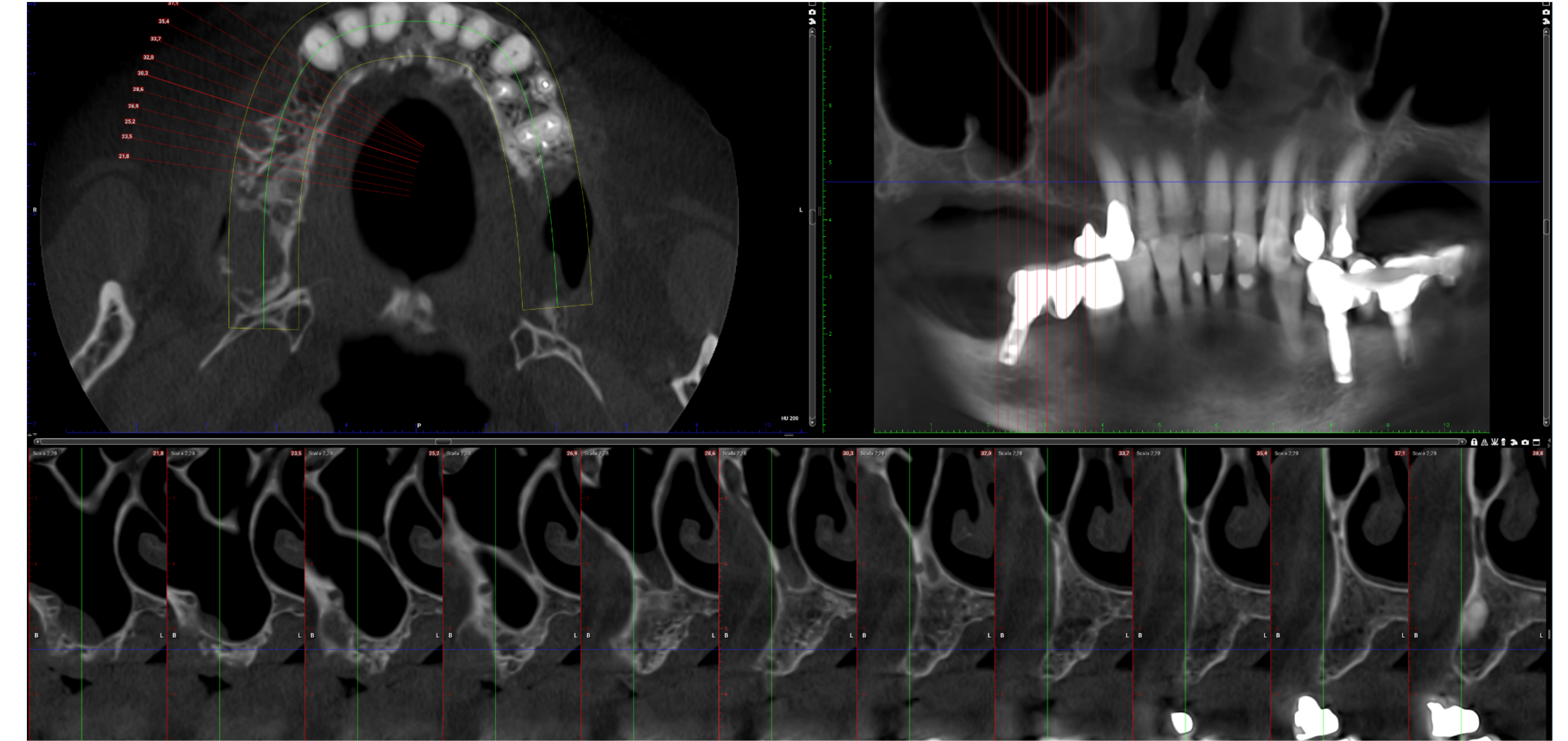


Guided Bone Regeneration With FIRST Technique (Fibrin-Induced Regeneration Sealing Technique) A New Protocol With Histological Evidence



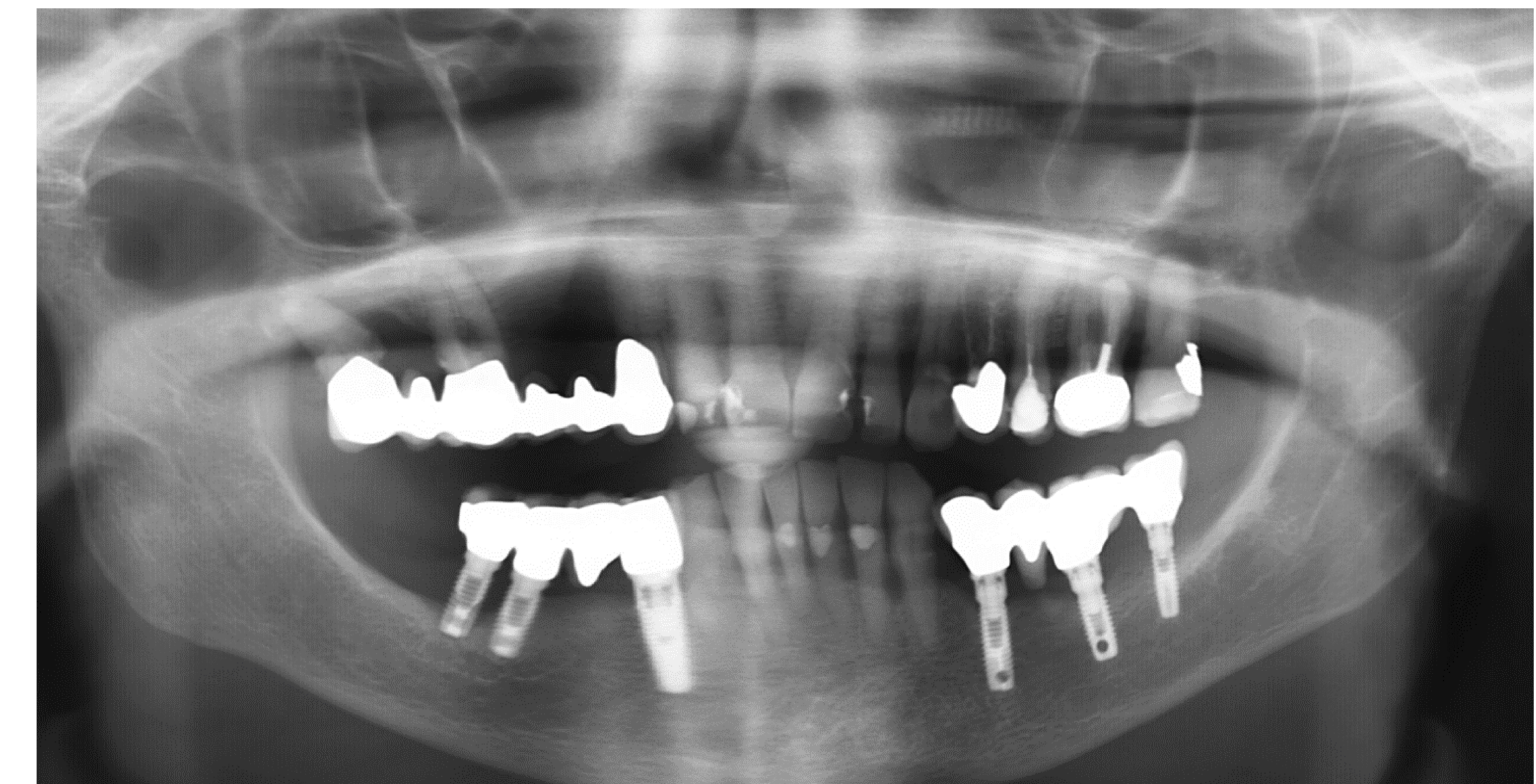
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INTRODUCTION: Correct implant positioning presupposes adequate bone volume. In the past, the position of the implant was chosen based on the quantity of available bone. Currently, a prosthetically guided positioning is preferred in order to obtain the best possible aesthetic and functional result. This choice is currently preferable thanks to the greater predictability of bone regeneration techniques. The aim of the present study is to describe our clinical experience with the F.I.R.S.T. technique. (Fibrin-Induced Regeneration Sealing Technique) created by Foti & Rossi.



CASE PRESENTATION: A 62-year-old female patient came to our attention with a request to rehabilitate the first quadrant. The patient provided informed consent for the clinical procedures.

Elements 16 and 18 were deemed unmaintainable so were removed. After 4 months, a CBCT was performed then the implants were positioned in guided surgery with simultaneous horizontal regeneration. A mix of biomaterial (OsteoBiol® Gen-Os® and OsteoBiol® Apatos®, Tecnoss®, Giaveno, Italy) and fibrin glue (Tisseel®, Baxter Healthcare Corporation, Deerfield, IL, USA) was applied. Then the cortical lamina (OsteoBiol® Lamina®, Tecnoss®, Giaveno, Italy) was stabilized with fibrin glue. The patient was closely monitored over the following weeks.



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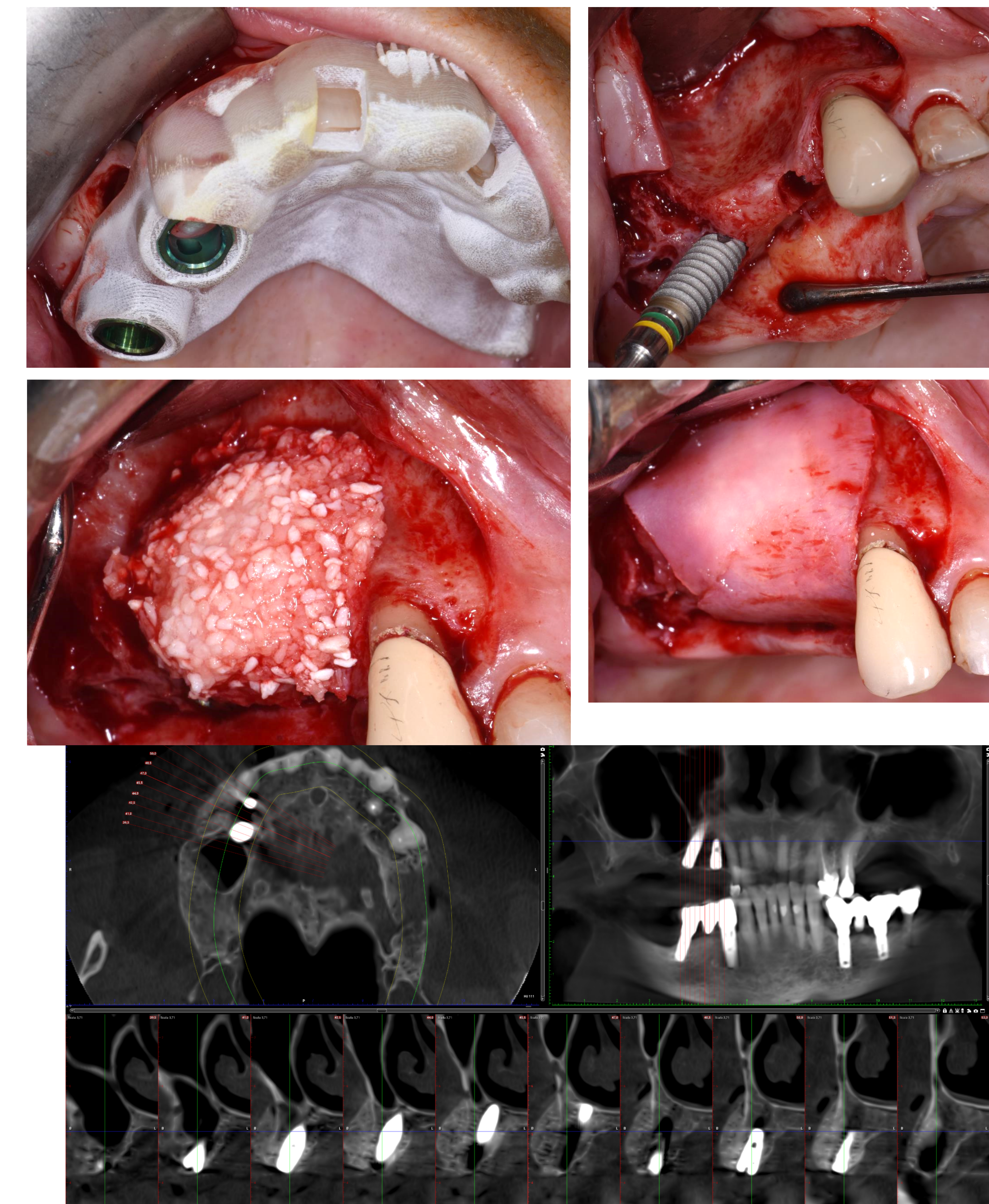
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CASE PRESENTATION:

A mix of biomaterial (OsteoBiol® Gen-Os® and OsteoBiol® Apatos®, Tecnoss®, Giaveno, Italy) and fibrin glue (Tisseel®, Baxter Healthcare Corporation, Deerfield, IL, USA) was applied. Then the cortical lamina (OsteoBiol® Lamina®, Tecnoss®, Giaveno, Italy) was stabilized with fibrin glue. The patient was closely monitored over the following weeks. Five months later, a new CBCT was performed which showed considerable horizontal increase in the bone crest. During the second surgical phase, a sample was taken from the regenerated area. The block was then placed in a 4% paraformaldehyde solution and subsequently decalcified in EDTA (10%) for a period of 7-10 days. After successive passages in solutions of increasing alcohol concentration, the preparations were embedded in paraffin, sectioned, and stained with hematoxylin-eosin. The sections allowed us to observe the presence of new blood vessels and newly formed bone. A close proximity between the newly formed bone and the bone substitute particles was detected. No clear demarcation line was detected between the cortical plate and the newly formed bone.

Once the healing of the soft tissues was complete, we first moved on to a phase with provisionals before delivering the definitive prosthetic product.



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HISTOLOGICAL RESULTS: The histological analysis of the sample taken demonstrated the absence of inflammatory infiltrate in the connective and hard tissue, nor in the surrounding vessels. The sections allowed us to observe the presence of new blood vessels and newly formed bone, testifying to the successful bone regeneration. The maturation process of the regenerated bone was confirmed by the presence of osteons. In addition, a close proximity between the newly formed bone and the collagenous bone substitute particles was detected

CONCLUSIONS: The F.I.R.S.T. technique it has proven effective in the management of a horizontal bone defect treated at the same time as the insertion of implants in guided surgery. Histological analyzes confirmed the osteoconductive properties of the cortical plate which allowed the regeneration of the treated area.

REFERENCES:

1. Testori T, Weinstein T, Scutellà F, Wang H-L, Zucchelli G. Implant placement in the esthetic area: criteria for positioning single and multiple implants. Periodontol 2000 2018; 77:176–196.
2. Foti V, Rossi R. Fibrinogen-Induced Regeneration Sealing Technique (F.I.R.S.T). An Improvement and Modification of Traditional GBR: A report of Two Cases. Modern Research in Dentistry 2020; 5:476-485.

