

LEADING REGENERATION

Geistlich

BioBrief

Major Bone Augmentation



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Dr. Paolo Casentini, DDS

**Prosthetically Guided
Regeneration (PGR) in
the posterior maxilla.**

The Situation

The 60 years-old female patient's chief complaint was represented by unsatisfactory esthetics and function, related to loss of multiple maxillary teeth. Her request focused on improving esthetics and function by means of a fixed reconstruction.

The patient presented 5 residual anterior maxillary teeth (from 6 to 10) that could be maintained. After preliminary periodontal diagnosis and treatment, specific diagnostic steps for implant treatment demonstrated inadequate bone volume for implant placement.

The Risk Profile

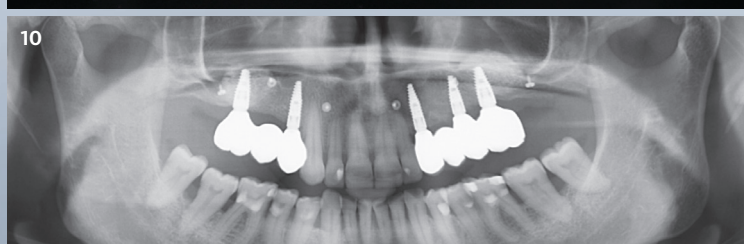
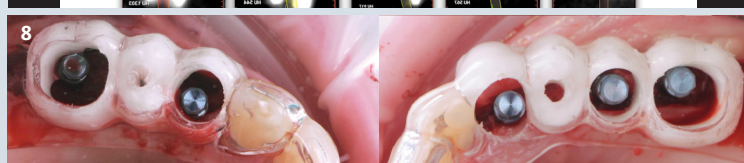
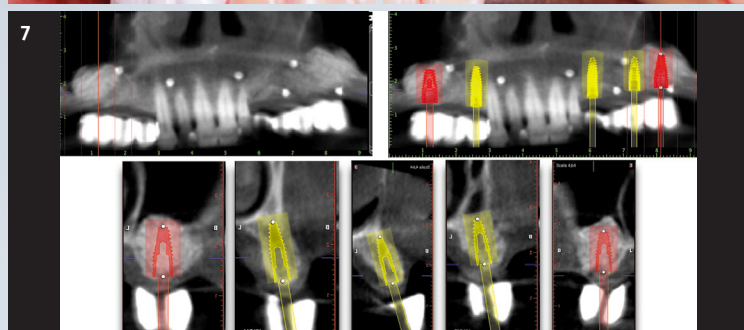
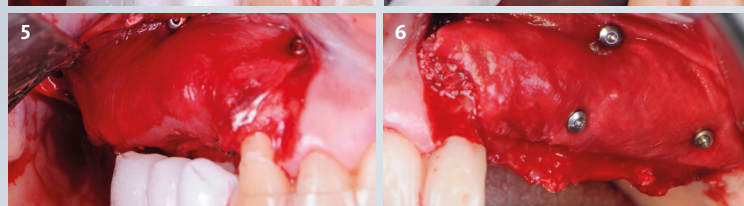
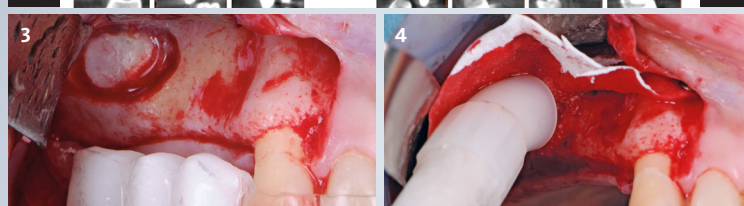
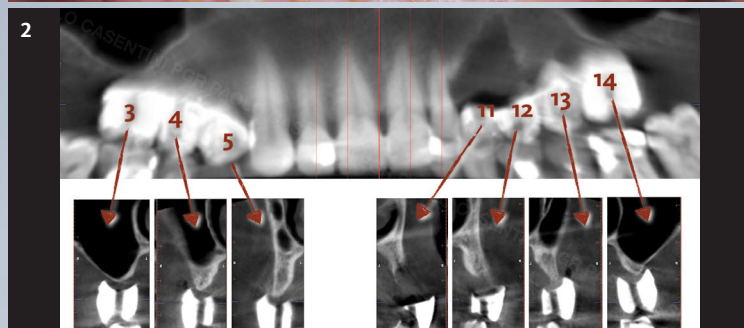
	Low Risk	Medium Risk	High Risk
Patient's health	Intact immune system/ Non-smoker	Light smoker	Impaired immune system/ Heavy smoker
Patient's esthetic requirements	Low	Medium	High
Height of smile line	Low	Medium	High
Gingival biotype	Thick – “low scalloped”	Medium – “medium scalloped”	Thin – “high scalloped”
Shape of dental crowns	Rectangular		Triangular
Infection at implant sight	None	Chronic	Acute
Bone height at adjacent tooth site	≤ 5 mm from contact point	5.5 - 6.5 mm from contact point	≥ 7 mm from contact point
Restorative status of adjacent tooth	Intact		Restored
Width of tooth gap	1 tooth (≥ 7 mm)	1 tooth (≤ 7 mm)	2 teeth or more
Soft-tissue anatomy	Intact		Compromised
Bone anatomy of the alveolar ridge	No defect	Horizontal defect	Vertical defect



Dr. Paolo Casentini, DDS

Graduated in Dentistry at the University of Milan, Fellow and Past Chairman of the Italian section of ITI, Active member Italian Academy of Osseointegration. Co-author of 10 text-books including ITI Treatment Guide volume 4 translated in 8 languages and “Pink Esthetic and Soft Tissues in Implant Dentistry” translated in 5 languages. His field of interest is advanced implantology in complex and esthetically demanding cases. He has extensively lectured in more than 40 Countries.

Using a diagnostic template during the GBR procedure helps to highlight the presence of bone defects in relationship to the restorative plan and future position of implants.



The Approach

Bi-lateral sinus lift with Geistlich Bio-Oss Pen® and horizontal bone augmentation with a 1:1 mix of autogenous bone and Geistlich Bio-Oss® were performed 6 months prior to implant placement, following a Prosthetically Guided Regenerative (PGR) approach. The augmented sites were protected with Geistlich Bio-Gide® stabilized with titanium pins. The template utilized for radiographic diagnosis and GBR was then used to guide the implants placement.

The Outcome

After a healing period of 6 months, adequate bone volume was achieved for the placement of 5 implants. Geistlich Fibro-Gide® was also used to optimize soft tissue volume at the buccal aspect of implants.

Implants were early loaded with a temporary screw-retained fixed prostheses 6 weeks after placement. The final prosthetic reconstruction included ceramic veneers of the frontal residual teeth and zirconium-ceramic screw retained fixed prostheses on implants.

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| 1 Baseline full mouth intra-oral view: the residual maxillary teeth were preliminarily reconstructed with a composite mock-up. The horizontal atrophy of the posterior areas of the maxilla is clearly visible. | 2 The cone beam, realized with a radio-opaque diagnostic template, shows inadequate bone volume for implant placement in all the analyzed sites. | 3 The use of the diagnostic template during the augmentation procedure helps to highlight the presence of bone defects in relationship to the restorative plan and future position of implants. | 4 Large Geistlich Bio-Oss® particles are directly applied inside the sinus with Geistlich Bio-Oss Pen®. | 5 The Geistlich Bio-Gide®, fixed with titanium pins is used to protect and stabilize the augmented site. As the surgical template shows, the bone augmentation is based on the future restorative project following the principle of PGR. | 6 The same surgical procedure is performed on the left posterior side of the maxilla. | 7 Cone-beam 6 months after surgery and prior to implant placement. The relationship between the template used for diagnosis and the bone crest reveals adequate bone volume to place implants in the correct prosthetically driven position. | 8 Implant placement was guided by the same template utilized for diagnosis and bone augmentation. | 9 Final view of the prosthetic reconstruction demonstrates bio-mimetic integration of implant-supported prostheses and ceramic veneers bonded to residual natural teeth. | 10 The panoramic radiograph shows adequate integration of the implants and absence of peri-implant bone resorption.

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Keys to Success

Open communication with the patient and expectations management

Prosthetically Guided Regeneration (PGR): use of the same template from the preliminary prosthetic project to the actual bone augmentation

Prosthetically guided implant placement for a correct implant positioning and restoration

Geistlich Biomaterials for a predictable regeneration



“Patient’s satisfaction is my driver for excellence. That’s why I always apply the Prosthetically Guided Regeneration principle together with Geistlich Biomaterials: proven and predictable long-term patient success”.

Dr. Paolo Casentini, DDS

