



Is it possible to re-create esthetics in atrophic posterior maxilla? 3-step surgical protocol.

A case report.

Lucia Tedeschi¹, Sofia Bettini², Raffaele Donati³, Andrea Gerardi, Alessandro Cucchi⁵

¹ Department of Biomedical and Neuromotor Sciences (DIBINEM), University of Bologna, Bologna, Italy

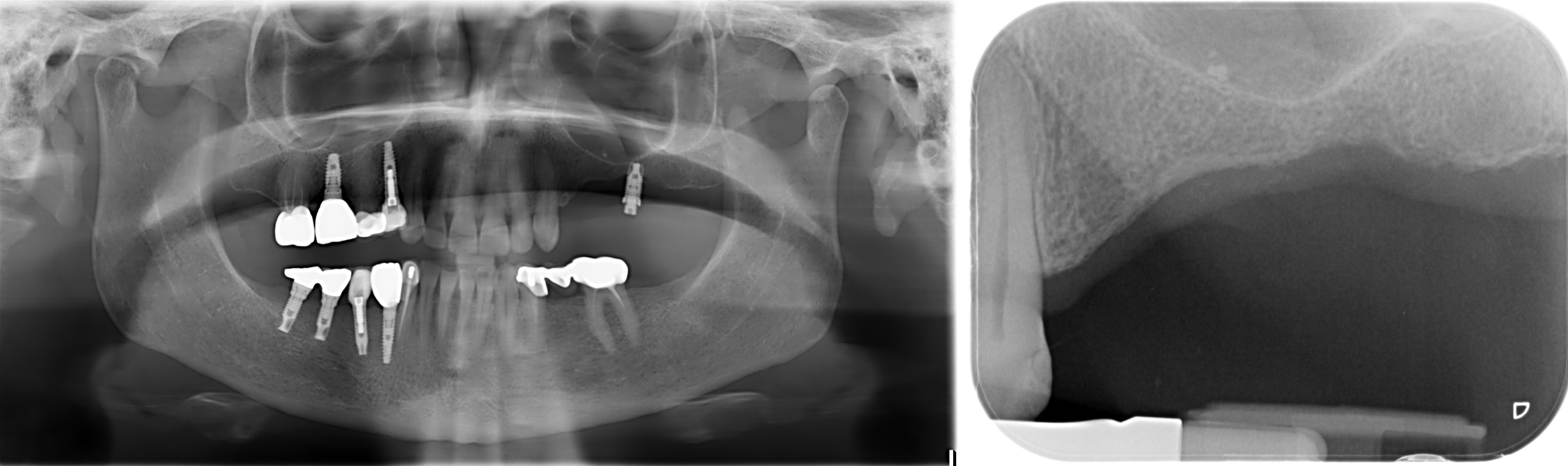
² Maxillofacial Surgery and Odontostomatology Unit, Implant Center for Edentulism and Jawbone Atrophies, University of Milan, Milano, Italy

³ Private practice, Lucca, Italy

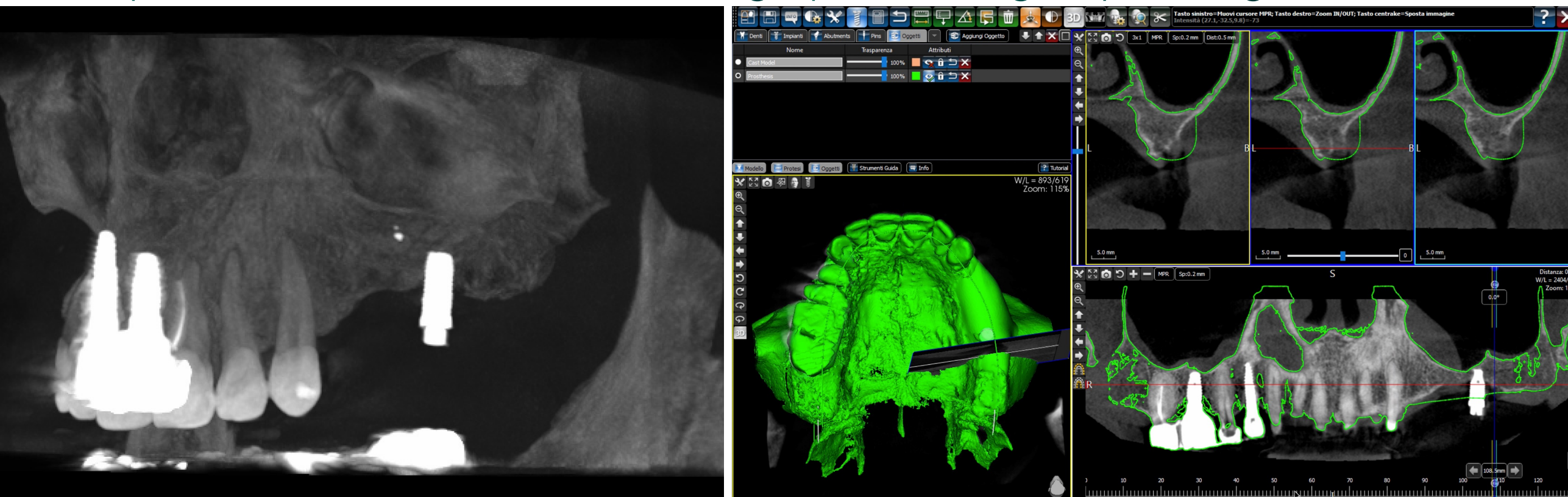
⁴ Private practice, Vicenza, Italy

⁵ Private practice, Bologna, Italy

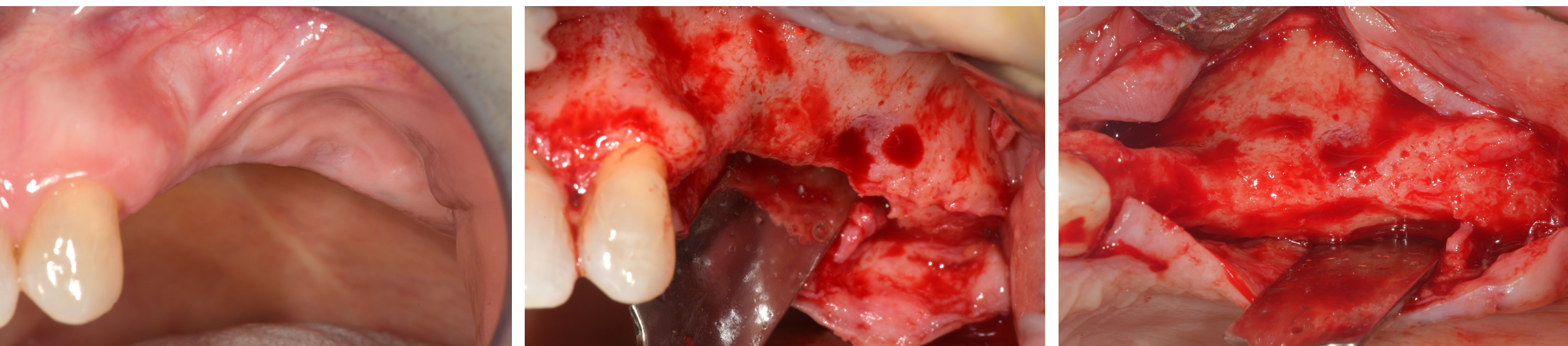
Pre – operative two dimensional radiographs



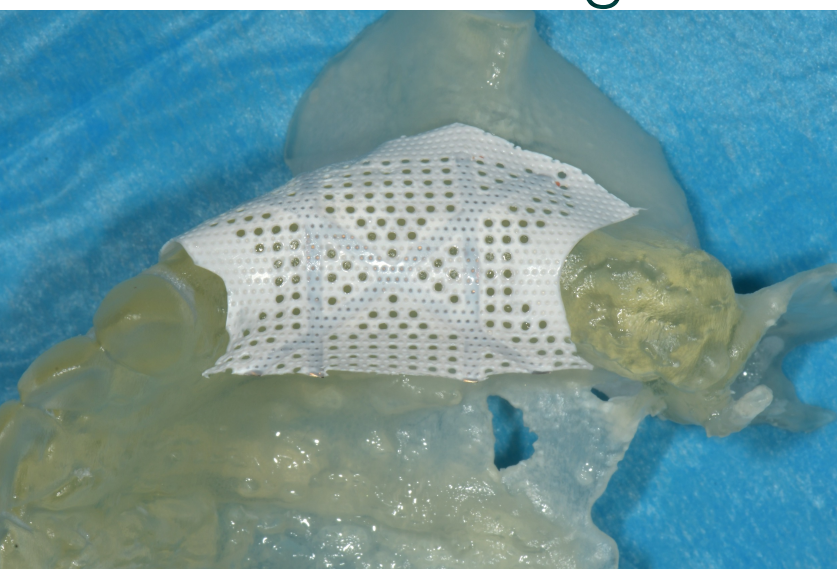
Pre – operative three dimensional radiographs and digital planning



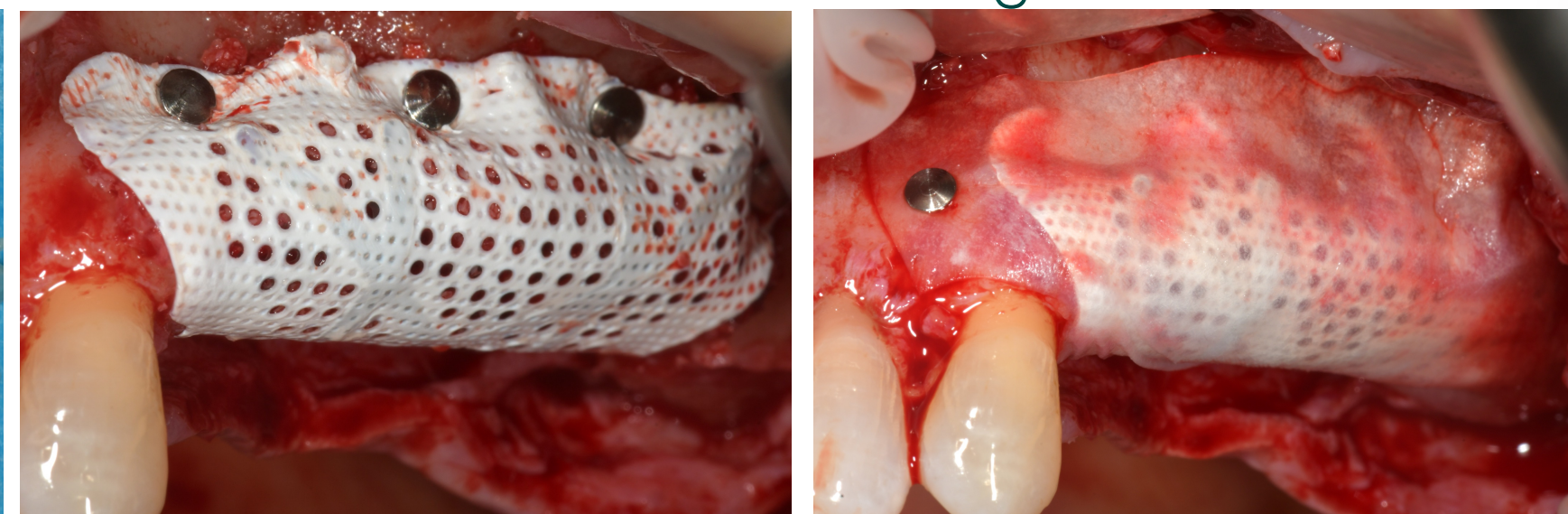
Clinical bone defect



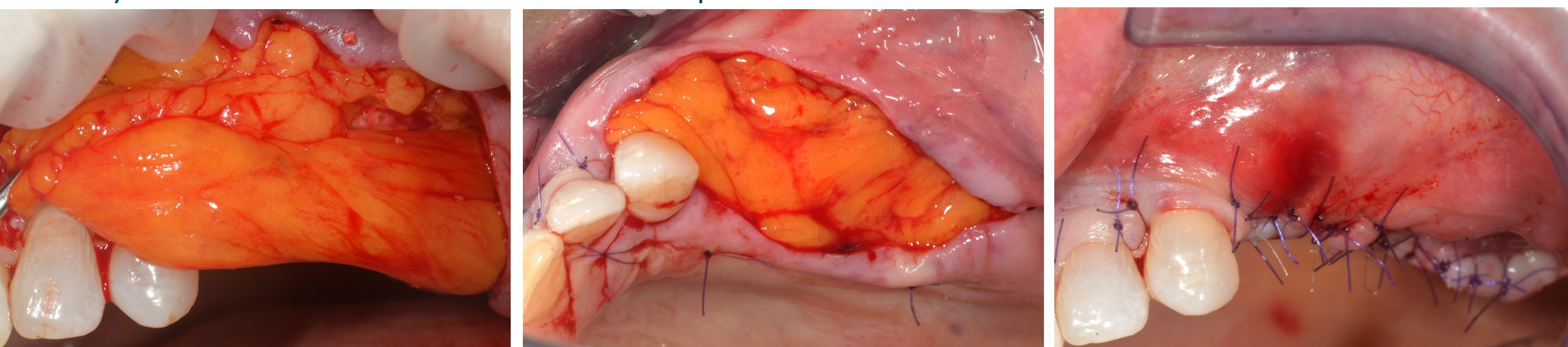
PTFE mesh modeling



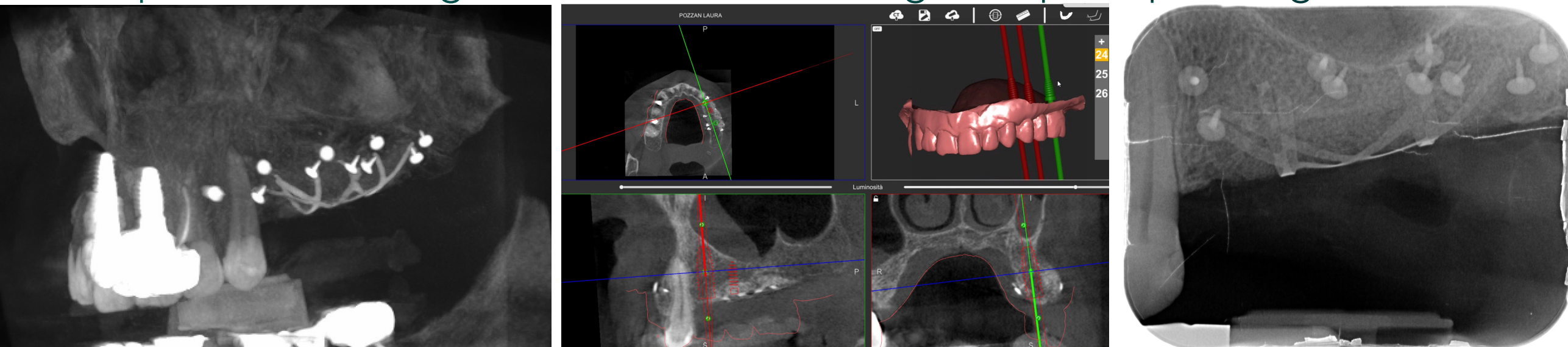
Fixation of the PTFE mesh and collagen membrane



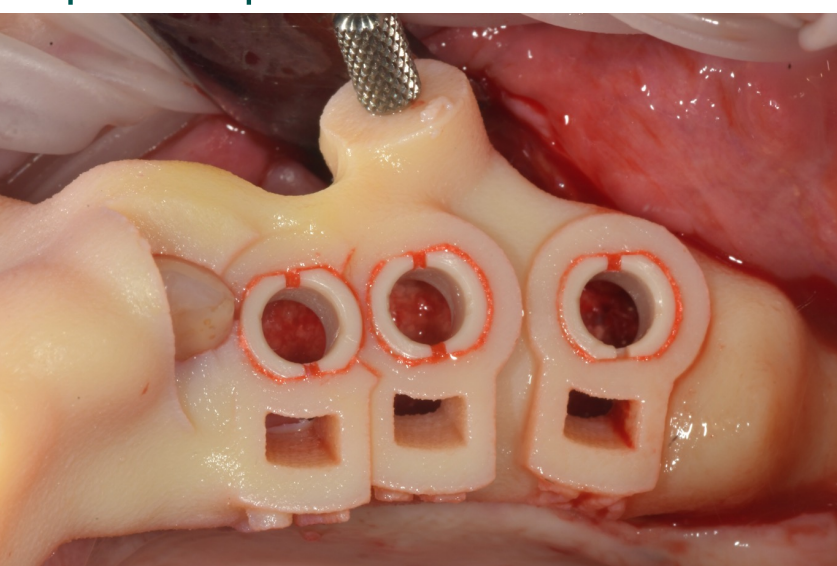
Primary closure with Bichat buccal flap



Post – operative radiological assessments and digital implant planning



Implant placement with 3D printed template



Primary closure



Definitive crowns



BACKGROUND AND AIM

Guided bone regeneration using titanium-reinforced PTFE membranes is one of the most documented techniques for achieving vertical ridge augmentation. Nowadays a fully-digital approach permits to realize a resin template to obtain an accurate and precise modeling of the membrane and a predictable result. This clinical case aim to demonstrate the possibility to restore aesthetics and function of an atrophic posterior maxilla obtaining a complete “restitutio in integrum”.

METHODS AND MATERIALS

A 64-year-old woman, ASA-2, non-smoker, non-diabetic, with osteoporosis and gastroesophageal reflux was treated for the restoration of posterior maxilla.

Digital planning of bone augmentation, manufacturing of 3D-printed models and mesh replica, modelling of a customized reinforced-PTFE-mesh (RPM) was accomplished before surgery.

During surgery, RPM was filled with a 50:50 mixture of xenograft and autogenous bone and fixed with miniscrews and tacks, covered with a pericardium membrane. Finally, a double primary closure was achieved using Bichat's buccal flap.

After 9 months, computer-guided surgery was planned, RPM was removed, and implants were placed using fully-guided surgical template in augmented site. After 3 months, soft tissue management was performed using a collagen-matrix. Finally, definitive crowns were realized using a digital approach.

RESULTS

No healing and surgical complications were observed, patient-related outcomes were always favourable (VAS<2) as well as clinician-related outcomes. Vertical bone defect was 5.5 mm and vertical bone gain was 5.5 mm, a medium bone density and a pseudo-periosteum class 1 were achieved. An increase of tKT and wKT were obtained (wKT was 7 mm and tKT was 2 mm) Mean PES e WES were 8 and 7, respectively.

CONCLUSION

The presented clinical case has showed that implant-prosthetic restoration after bone and soft tissue augmentation allows to achieve a good esthetic results in a severe 3D defect in the posterior maxilla

Mesh removal



Soft tissue management with collagen - matrix

