Clinical case

Immediate implant placement and loading of a full-arch restoration supported by 4 Axiom X3® implants

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axiomX3®

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A Straumann Group Brand

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CASE PRESENTATION

This 73 year old female patient is healthy. She has no general treatment, no pathology, and she is non smoker.

She is complaining about functional and esthetic issues.

According to the patient wishes, it has been decided to restore esthetic and function of the missing teeth by two full-arch implant supported prostheses with an increase of the vertical dimension.

At the mandible, an immediate loading procedure will be performed using 4 Axiom X3® implants (3.4 x 12 mm) and Multi-Unit abutments (2 straight and 2 angulated), with a full-arch immediate temporary prosthesis and followed, after 3 months of healing, by a final Simeda® titanium bridge frame with acrylic teeth.

The upper jaw will be further equipped with a quad zygoma procedure.

Initial situation

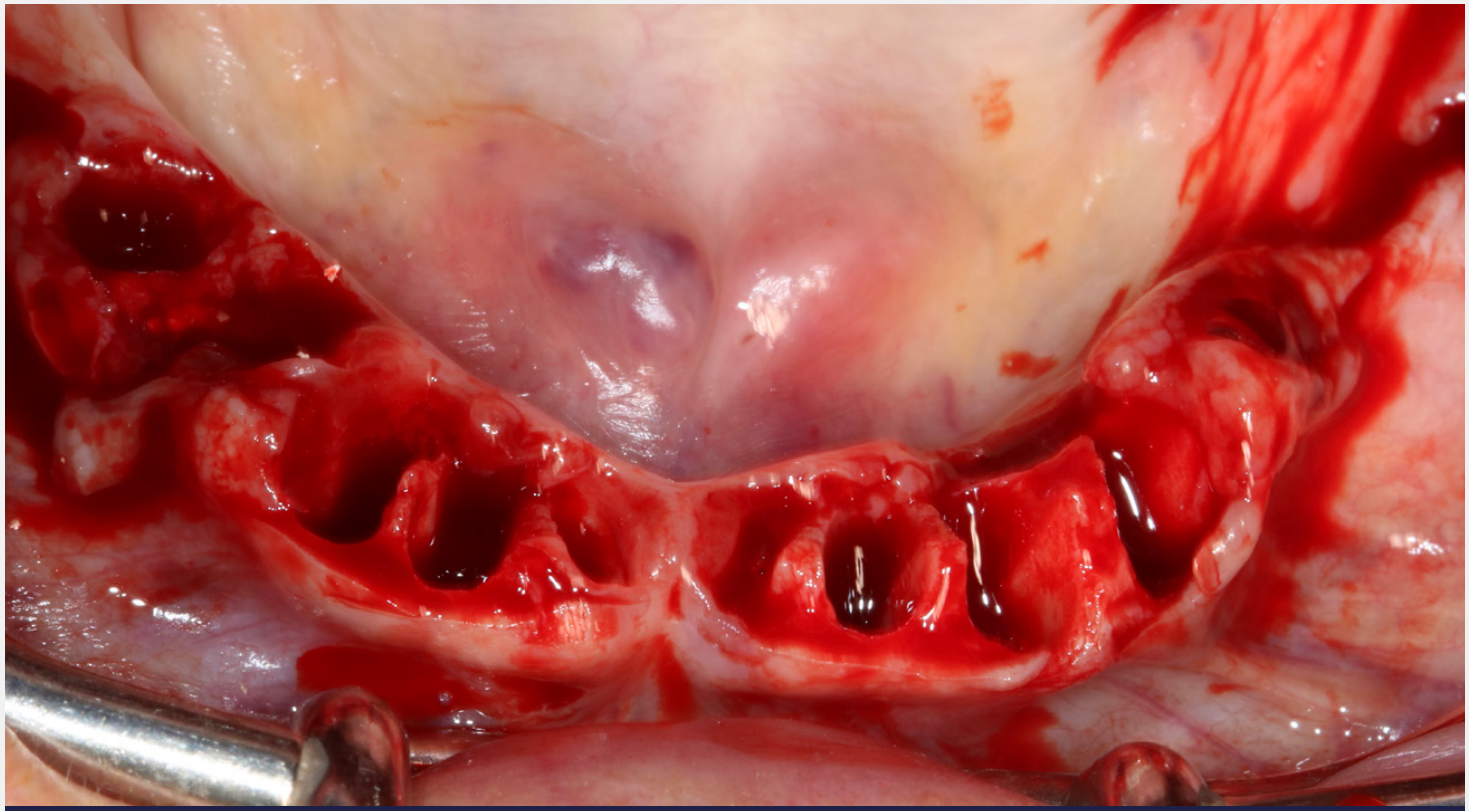
1. Front view of the patient.

2. Lateral view, showing the lack of vertical dimension and the wrong position of the prosthetic teeth: notice the flat upper lip and the proeminence of the chin.

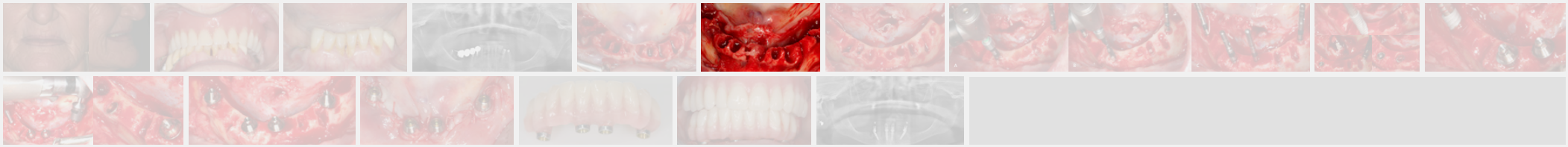
3. The patient has an old maxillary complete denture, with damaged and weared prosthetic teeth.

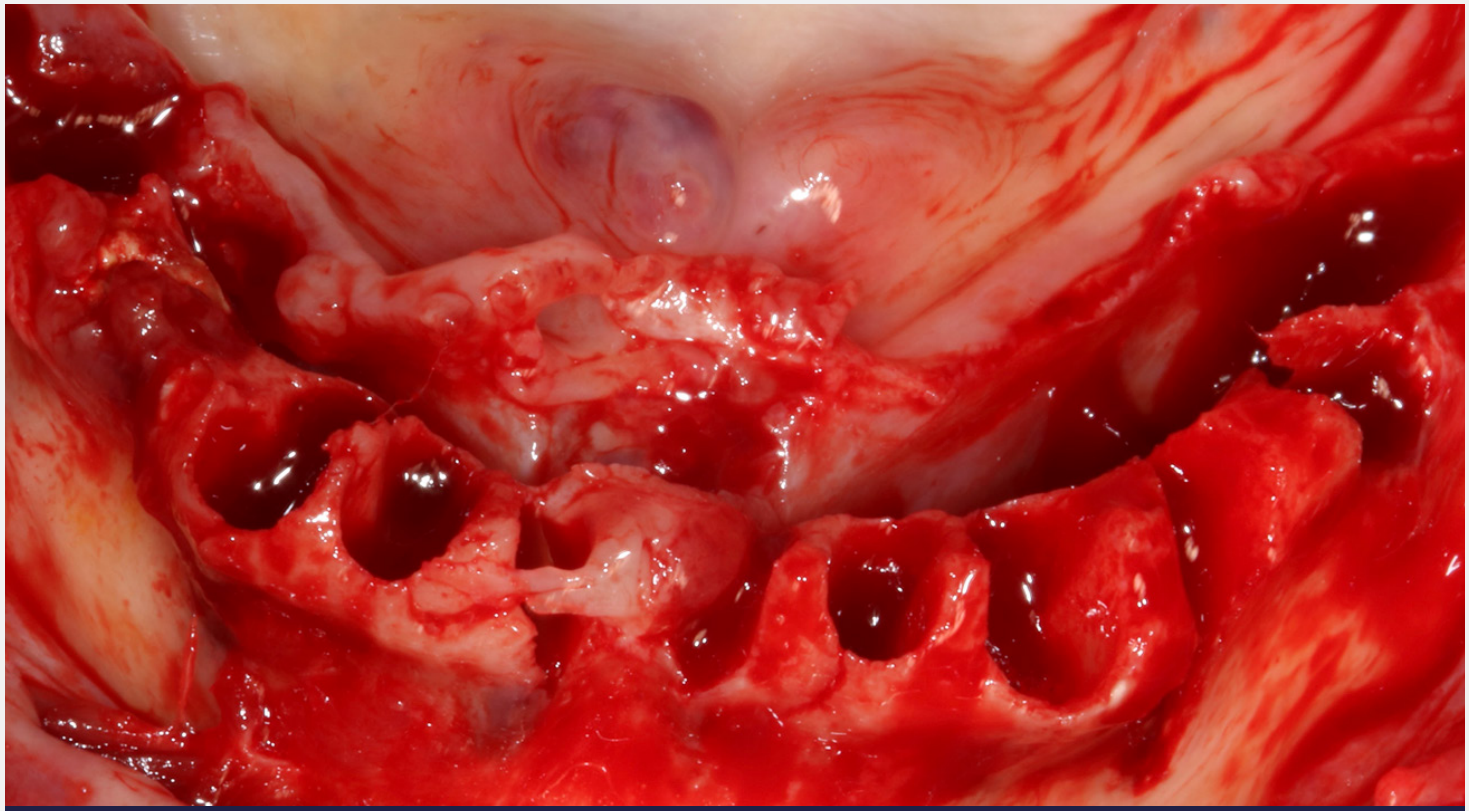
4. The anterior mandibular teeth are remaining, with periodontal issues but an egression of the bony process can be observed. There are no teeth on the left side and there is an hopeless fixed restoration on the right side.

5. The panoramic radiography confirms the capacity of placing implants in the symphysae, in between the mandibular nerve. The posterior parts of the mandible show a high level of bone resorption. This will be confirmed by the CBCT analysis. There is no available bone in the upper jaw.

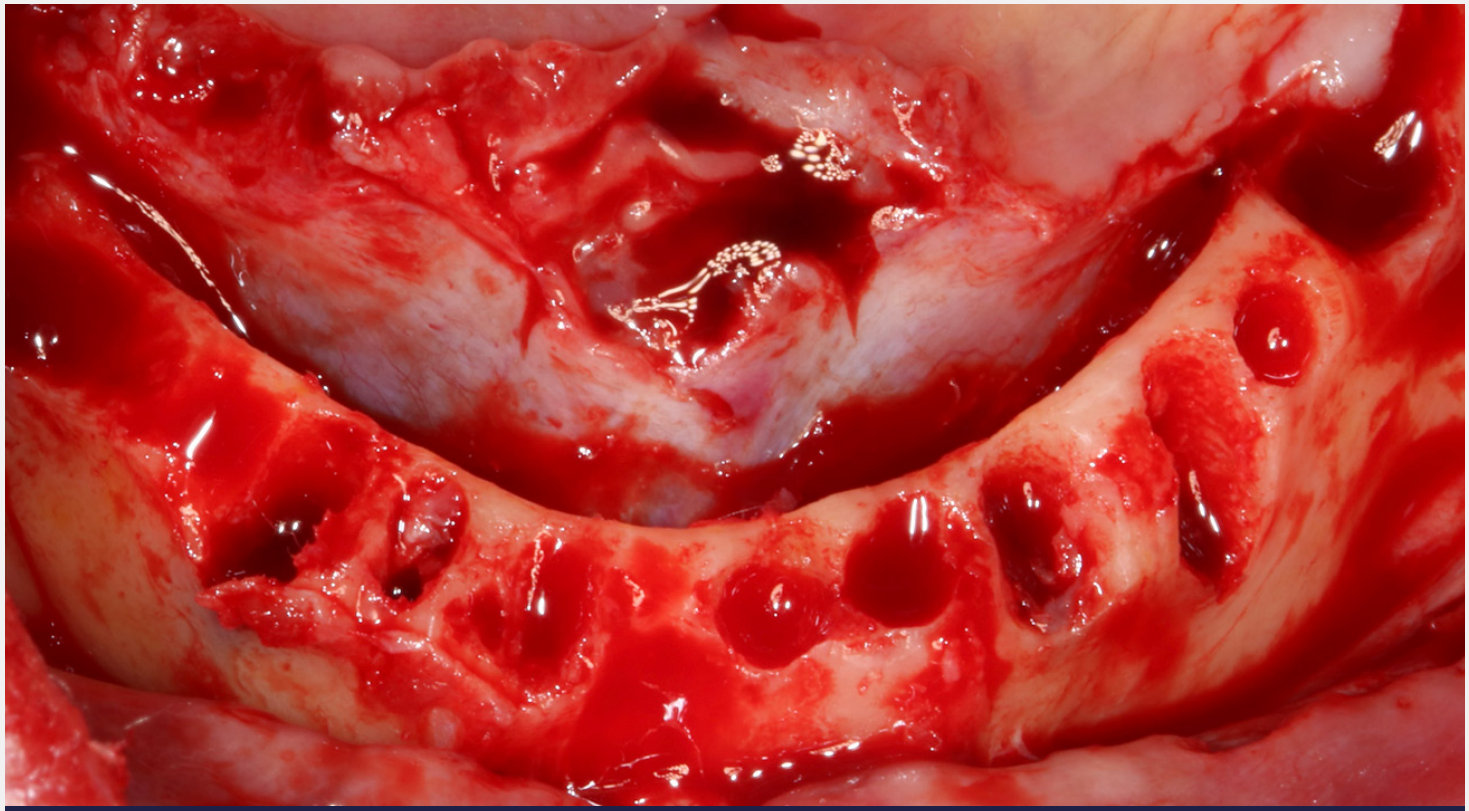


6. The surgical procedure is done under local sedation. All the remaining teeth are extracted.

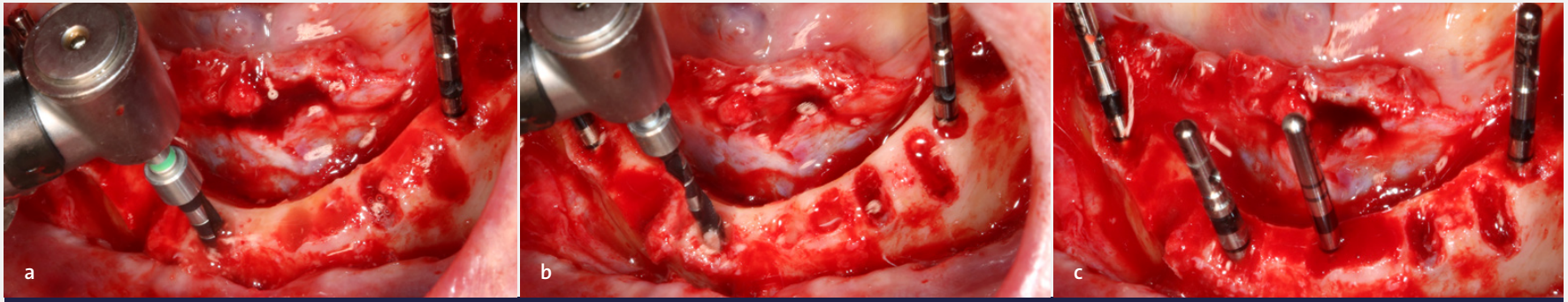




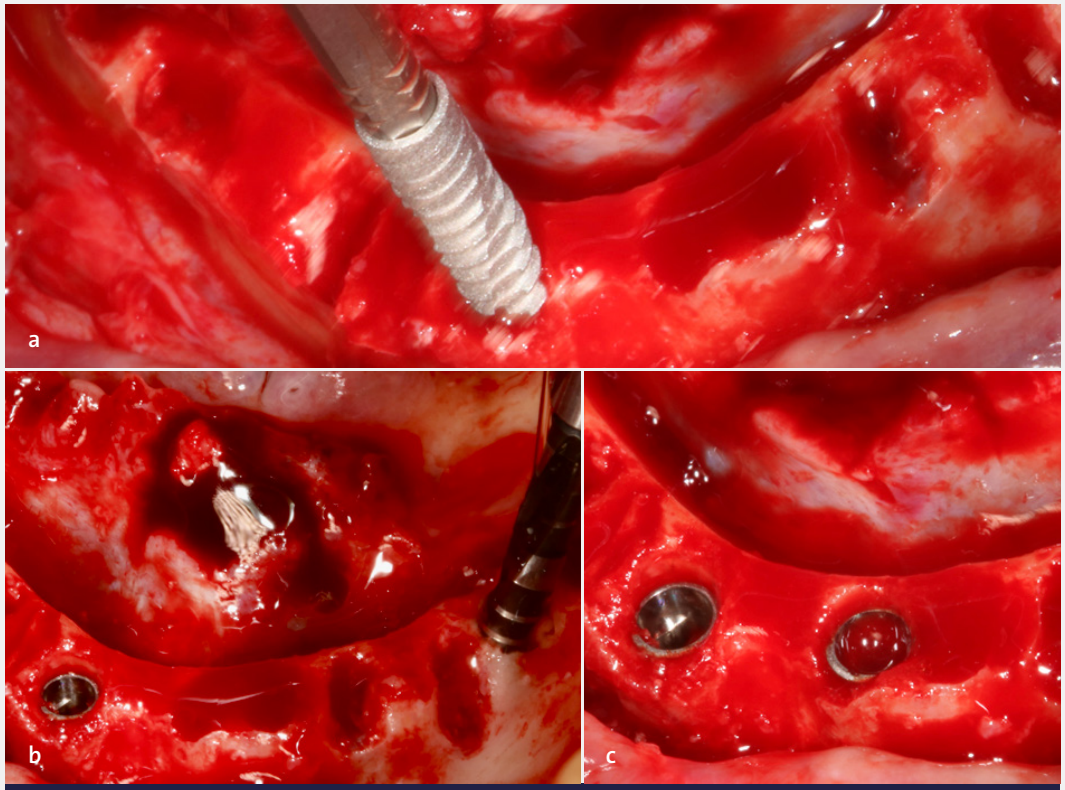
7. A large flap is opened , in order to evaluate the bone shape and to check the emergences of the mandibular nerve.



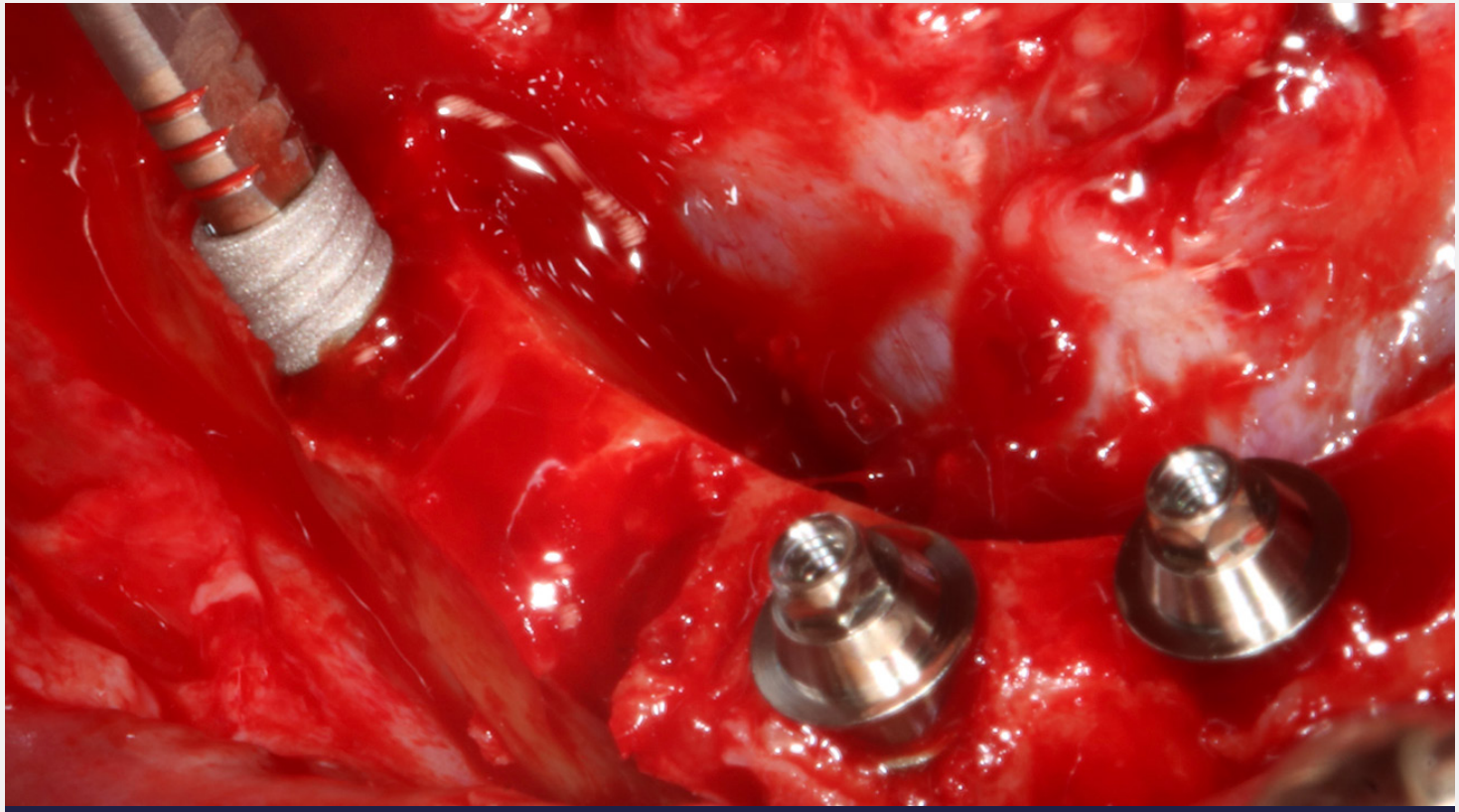
8. A large part of the remaining alveolar bone is withdrawn, in order to provide a better emergence profile for the future prosthesis.



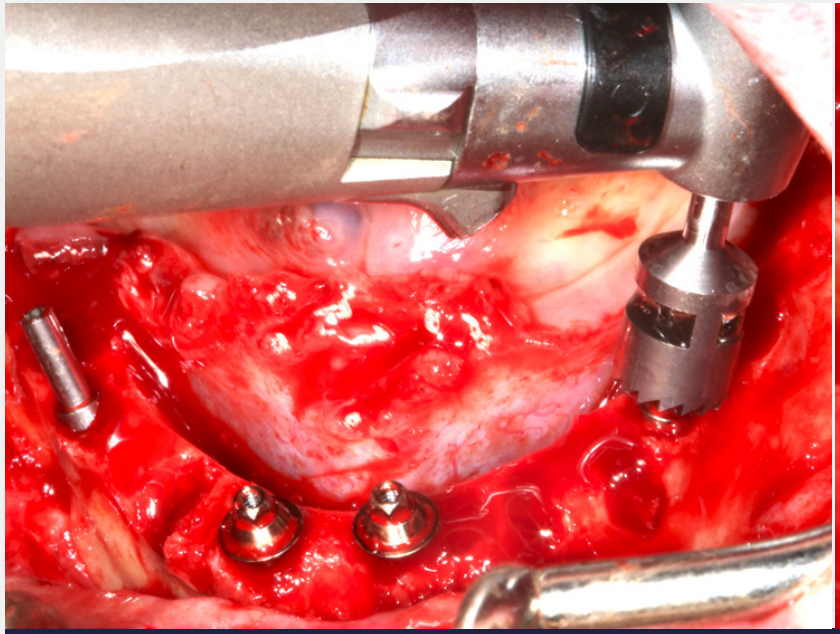
9.a The two distal osteotomies are performed with a 2 mm diameter drill , on a tilted direction (from distal to mesial) in order to place the emergence of the implant as distal as possible, to be able to provide cantilevers according to the biomechanical principles. Then, the two mesial osteotomies are done. Each one is done up to 12 mm depth.
b. A second 2.4 mm drill is used to allow the implant placement. The implant design improves ease of insertion of the implant in dense bone, wider drills are no longer necessary.
c. The 4 implants axes are checked with gauges.

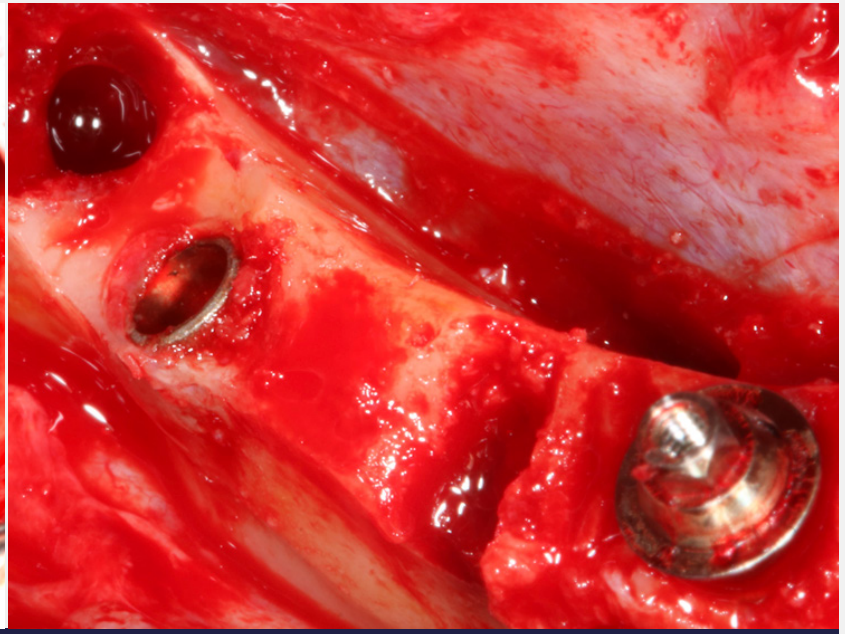


10a. The mesial implants are placed and a 45 N.cm final torque is obtained.
b. Due to a high density of the crestal bone around the two distal osteotomies, a 3.0 mm drill (red tag) is used up to 6 mm depth in order to avoid excessive stress on the cortical bone.
c. As soon as the implants are in place, the final depth of the implant neck, 0.5 mm below the crestal bone is checked.

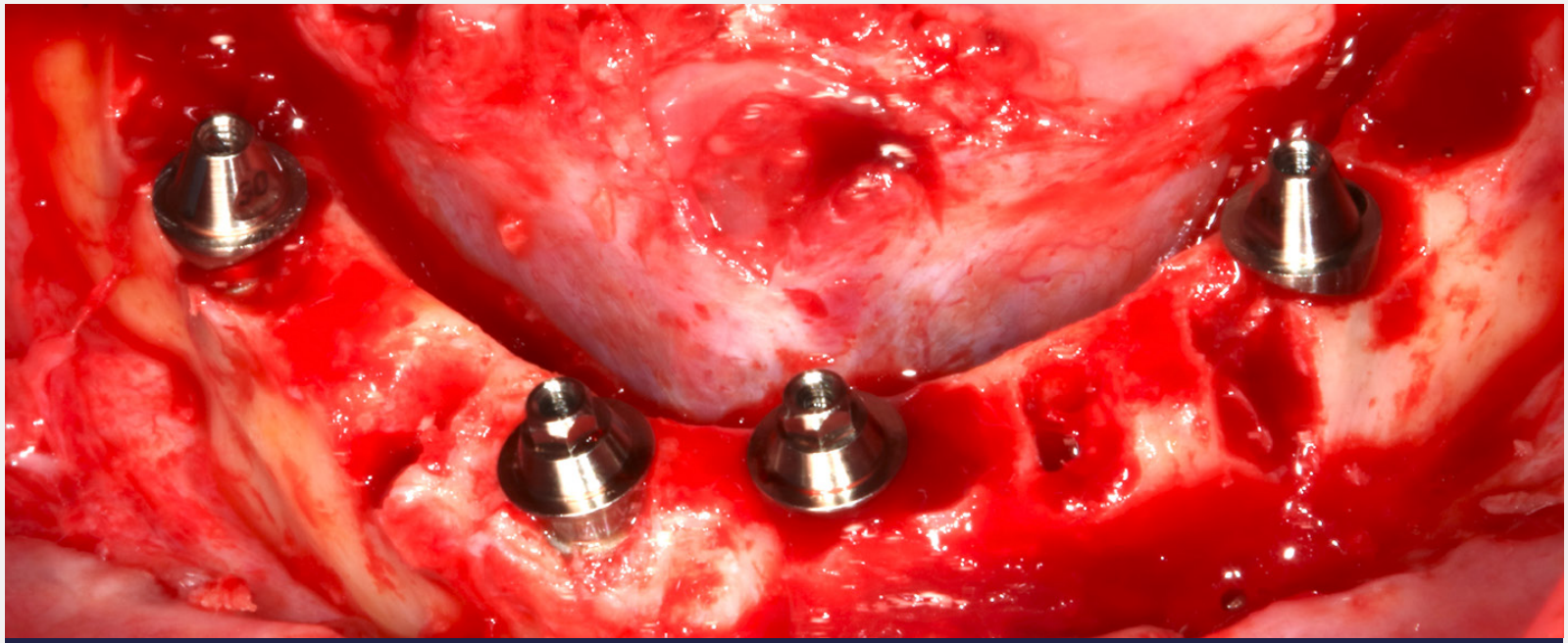


15. The two distal implants are also placed and a 45 N.cm torque is obtained. Two straight Multi-Unit abutments (4.8 mm wide/2 mm height) are immediately screwed and tightened up to 25 N.cm.

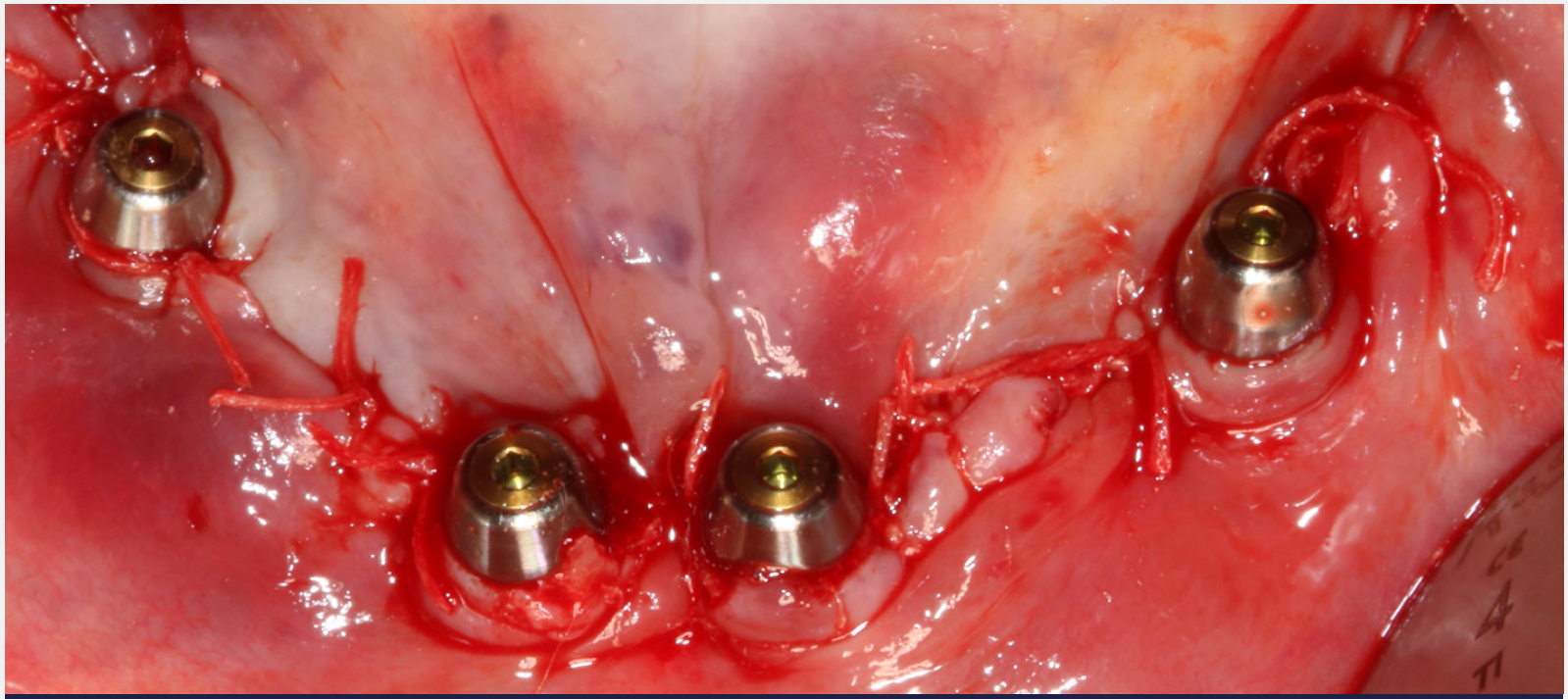




16a. 16b. Due to the angulation of the distal implants, the mesial part is 0.5 mm below the crestal bone but the distal part is deeper, up to 1.5 mm. To avoid any difficulties to place the angulated abutments, an Axiom® BL countersink with pin is used to properly remove the excess of bone.



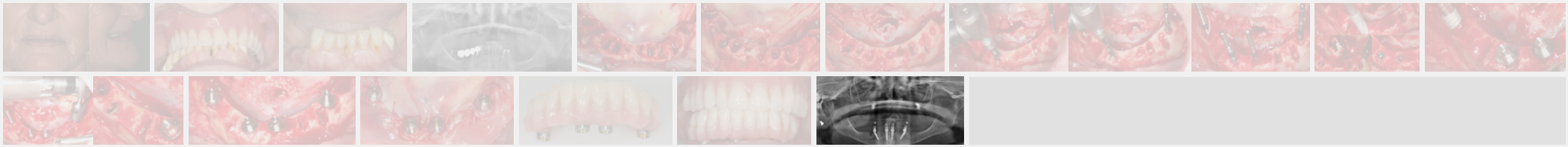
17. Two angulated Multi-Unit abutments are screwed and tightened up to 25 N.cm , a 18°/1.5 mm on the left side and a 30°/2.5 mm on the right side.



18. Healing screws are placed and the flap is sutured with 3.0 resorbable sutures.

19. An impression is taken with Snow White™ plaster (Kerr®) using screwed transfers and an open tray, and the occlusion is registered with an acrylic device and Bite registration paste (Coltene®). A full acrylic temporary bridge is made chair side, using temporary cylinders, with no cantilever to avoid any excess of forces on the implants during the healing period.

20. The bridge is screwed 2 hours after the surgery, a new temporary maxillary denture has been provided to the patient, in order to match with the new vertical dimension and the new esthetic.



21. The accuracy of the bridge is checked with a new panoramic radiography.

The new design of the Axiom X3® implant presents several surgical advantages, such as:

- Simplified drilling procedure
- Easy-to-reach initial stability in post-extraction situation
- Bone preservation due to minimalized drilling procedure.
- Overall it contributes to the efficient realization of this full-arch procedure where the focus can be directed not only to implantation but also on tissue preparation in view for the best long-term outcome.

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Provisional prosthesis

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