



Case report

Full-arch restoration on 4 Axiom X3® implants

Dr. Damien Carrotte
France



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Dr. Damien CAROTTE

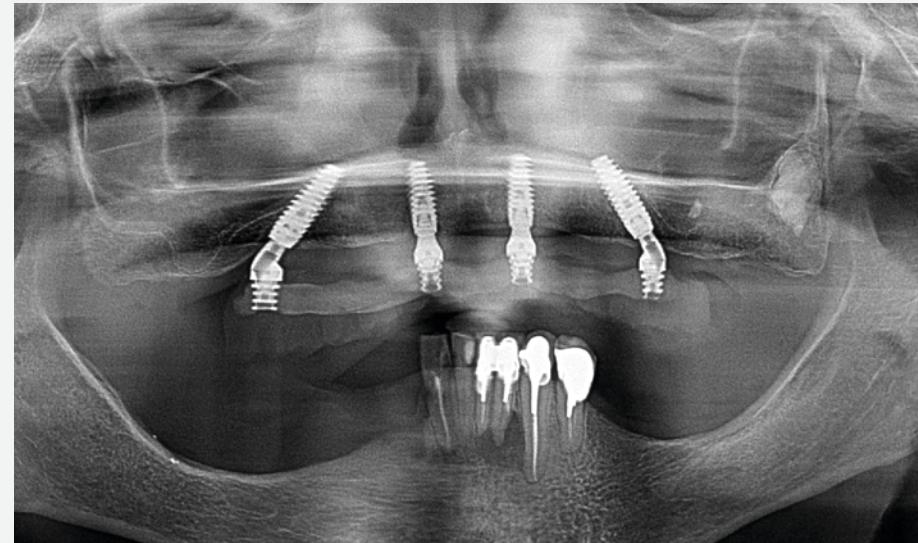
France

CASE PRESENTATION

This 71-year-old patient was sent to us in early 2019 for a restoration of the upper jaw. We operated on her on March 20, 2019, using a technique of full-arch restoration on 4 implants.

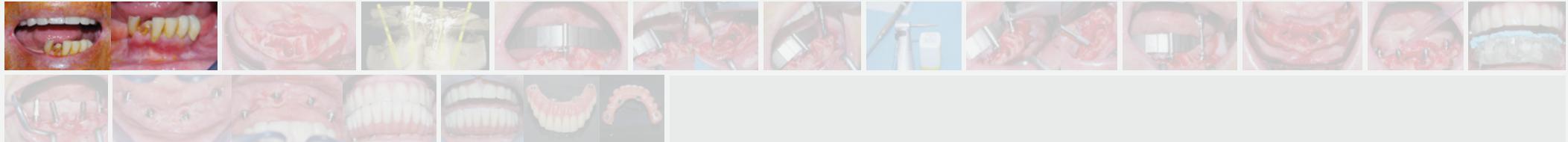
Satisfied with the functional and esthetic restoration achieved by this first treatment, she consulted us again two years later to perform the same procedure on the lower jaw after losing an important tooth for the stability of her removable overdenture.

Considering the low bone height above the inferior alveolar nerve, and the more than adequate interforaminal volume, a full-arch restoration on 4 implants was planned.



1. Preoperative X-ray.





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Initial
situation



Surgery

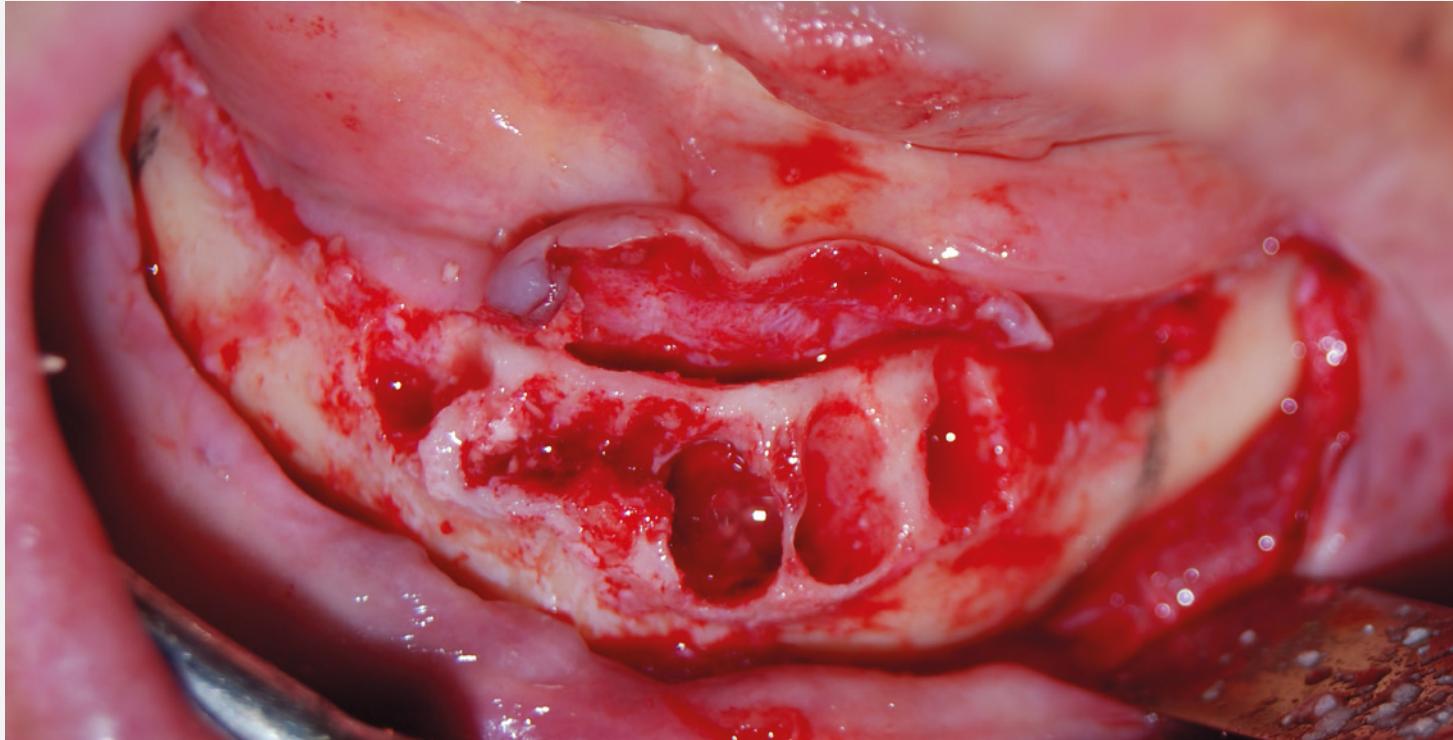
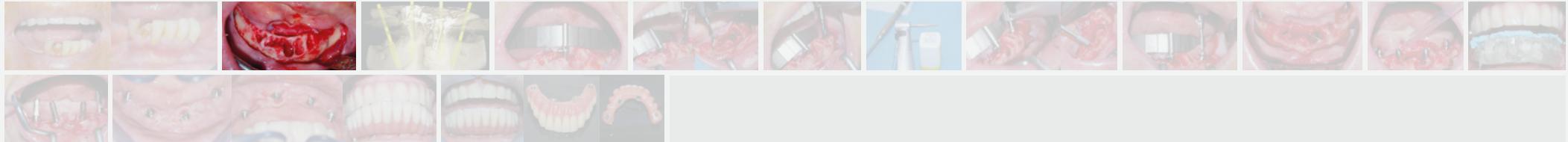


Prosthetic
restoration



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3. After bone extraction and resection, bone debridement and regularization of the ridge to obtain at least 5 mm of width and a flat bone allowing flat healing of the mucosa, facilitating access for the patient's hygiene (no retention of plaque or food).



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Initial
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Surgery

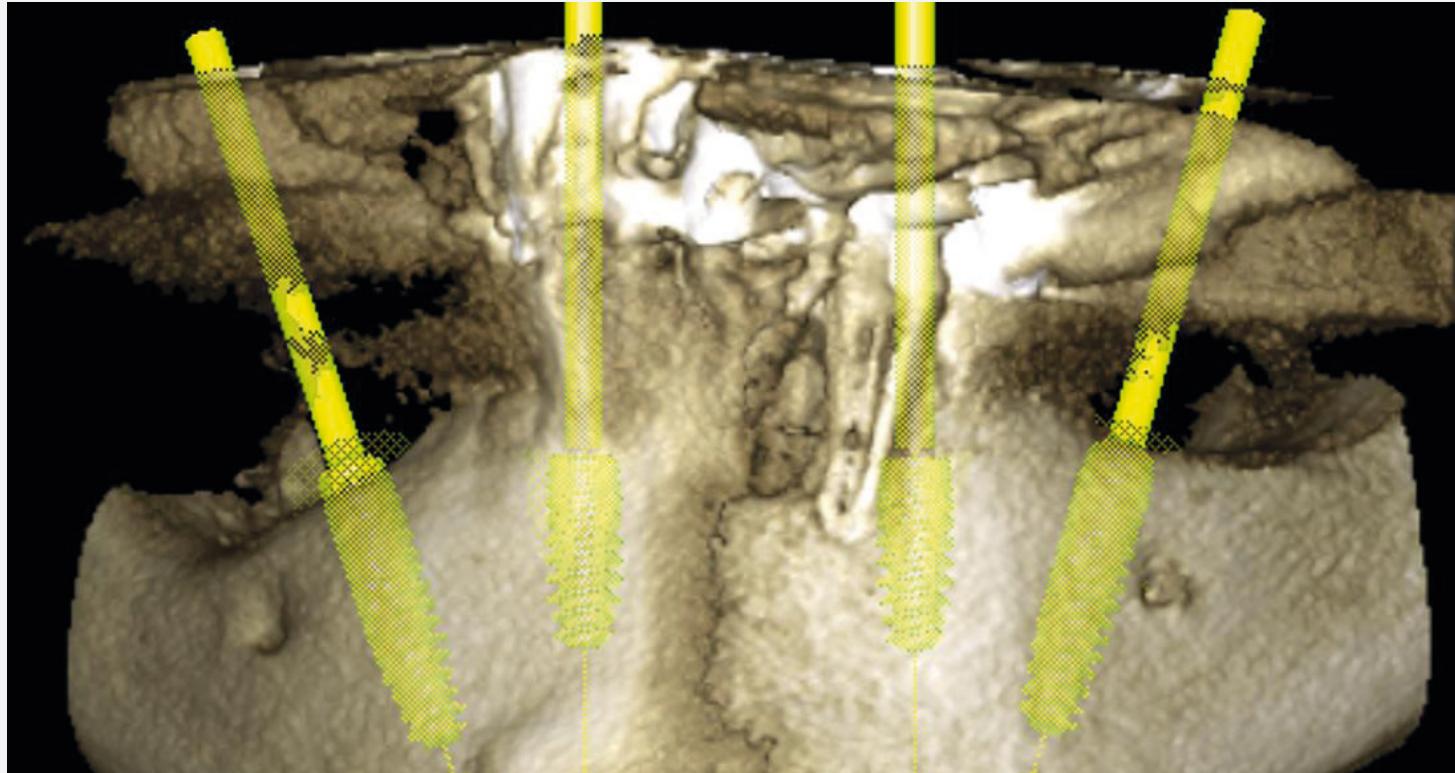
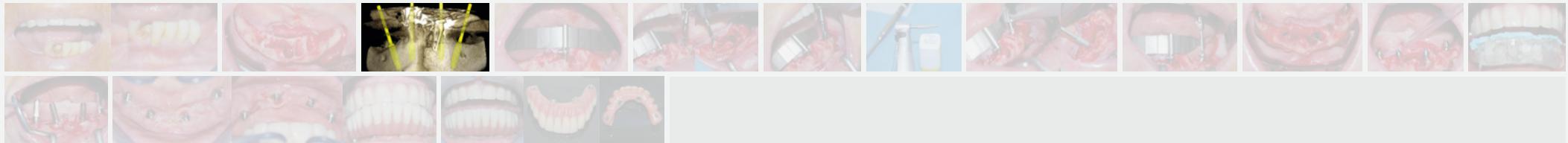


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4. Planning objectives: choice of implants, respect for the symmetry (biomechanics compliant with 3D models of resistance of a full-arch restoration on 4 implants) and estimation of the peak height of the ridge to be resected.



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Surgery

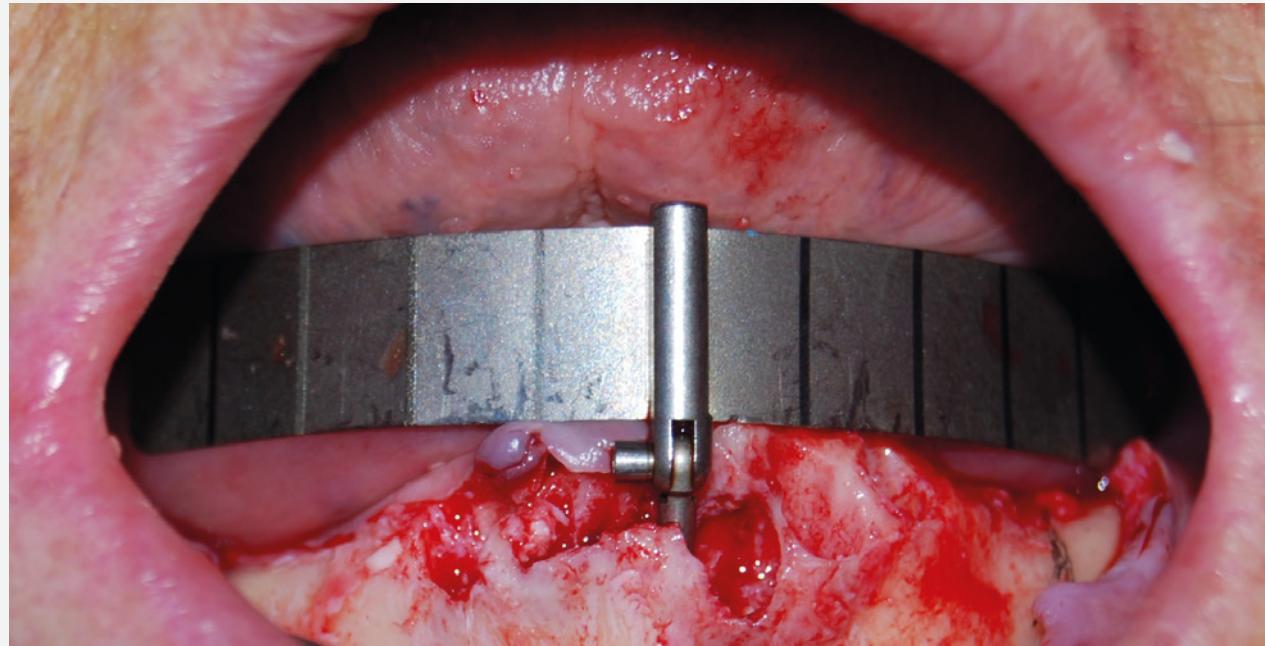
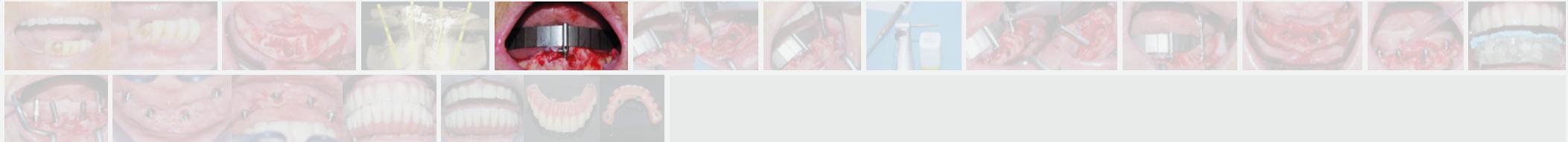


Prosthetic
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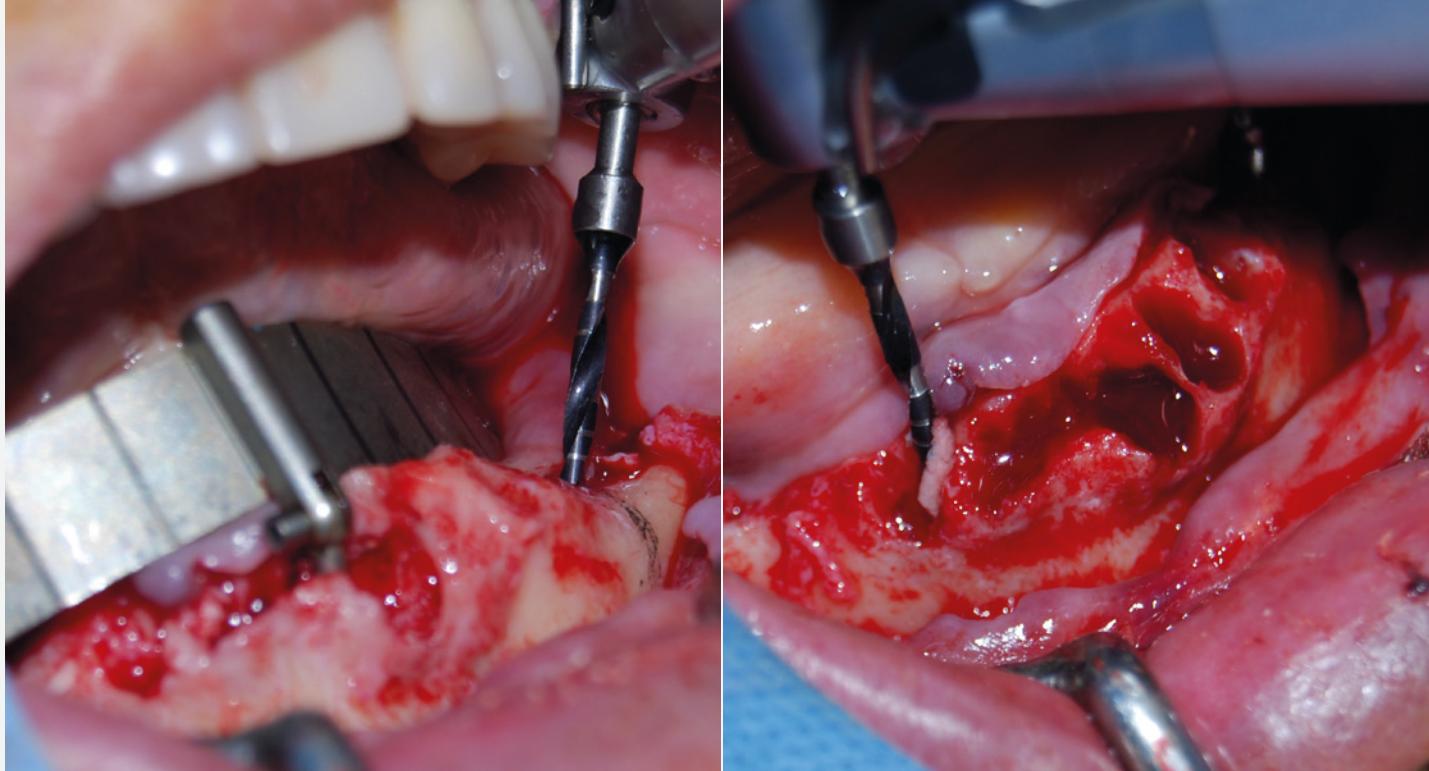
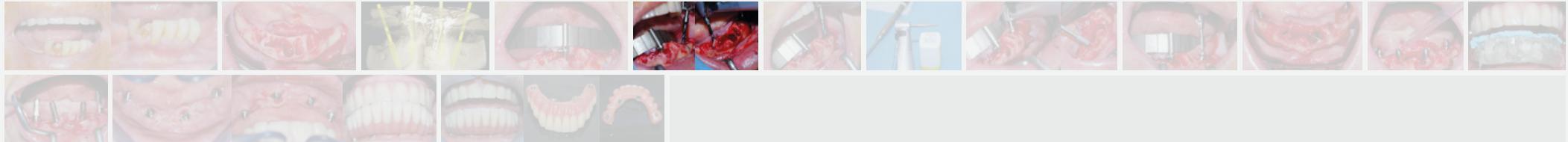
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5. The graduated implant axis and symmetry guide (angled drilling guide ref. INGFA) are used to visualize the future arch and the axes of the posterior implants with a distal inclination of 30°.





6a. 6b. Positioning of the pilot drill using the symmetry guide; the gauge is then removed as it interferes with drilling.



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Surgery

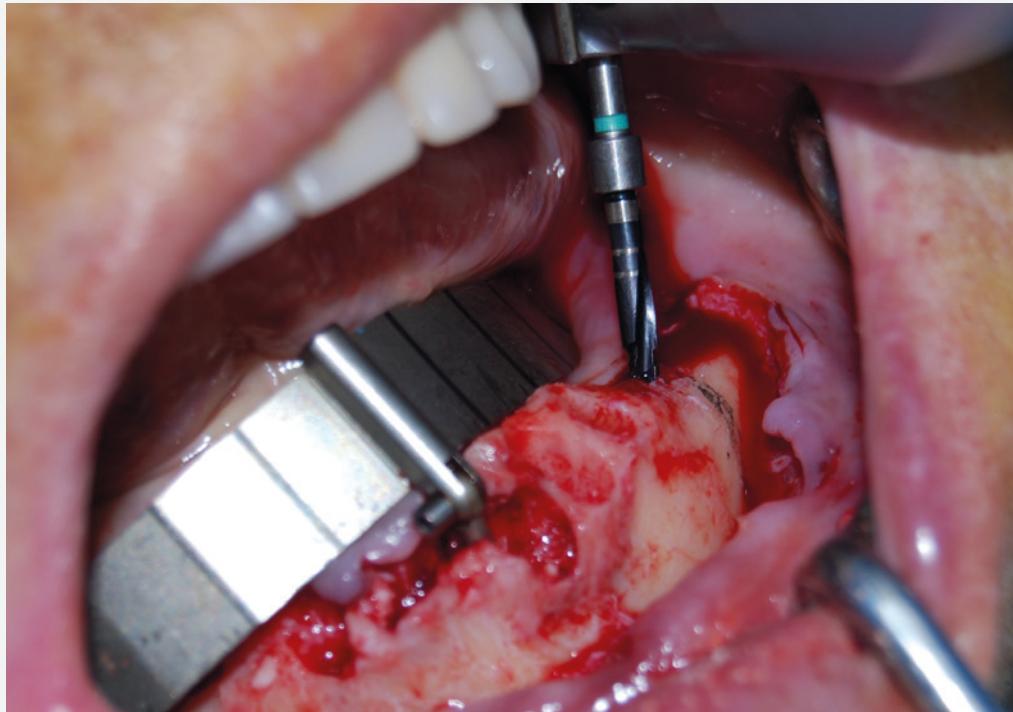
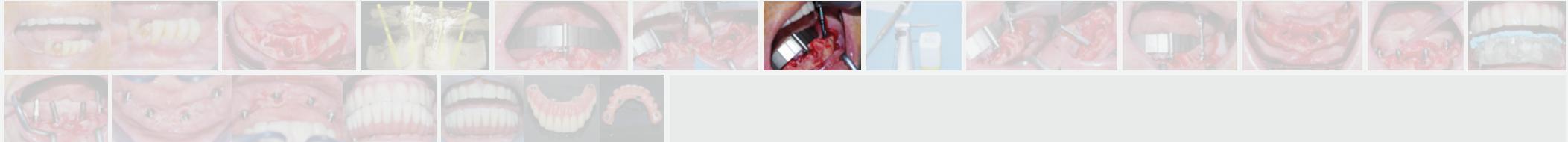


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7. In low density bone, the Axiom X3® surgery protocol indicates shortened drilling sequence. Since the surface of the ridge has been decorticated due to the flattening of the arch, a 2.0/2.4 mm drill is sufficient here for the placement of a 4 mm implant.



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Surgery

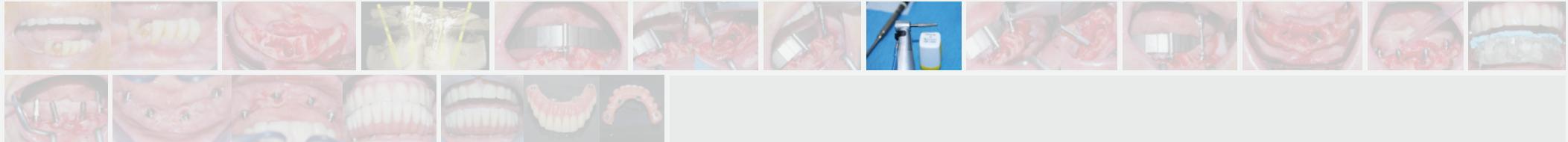


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8. Axiom X3® implant with a diameter of 4 mm, length of 16 mm for placement in positions 35 and 45.



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Surgery

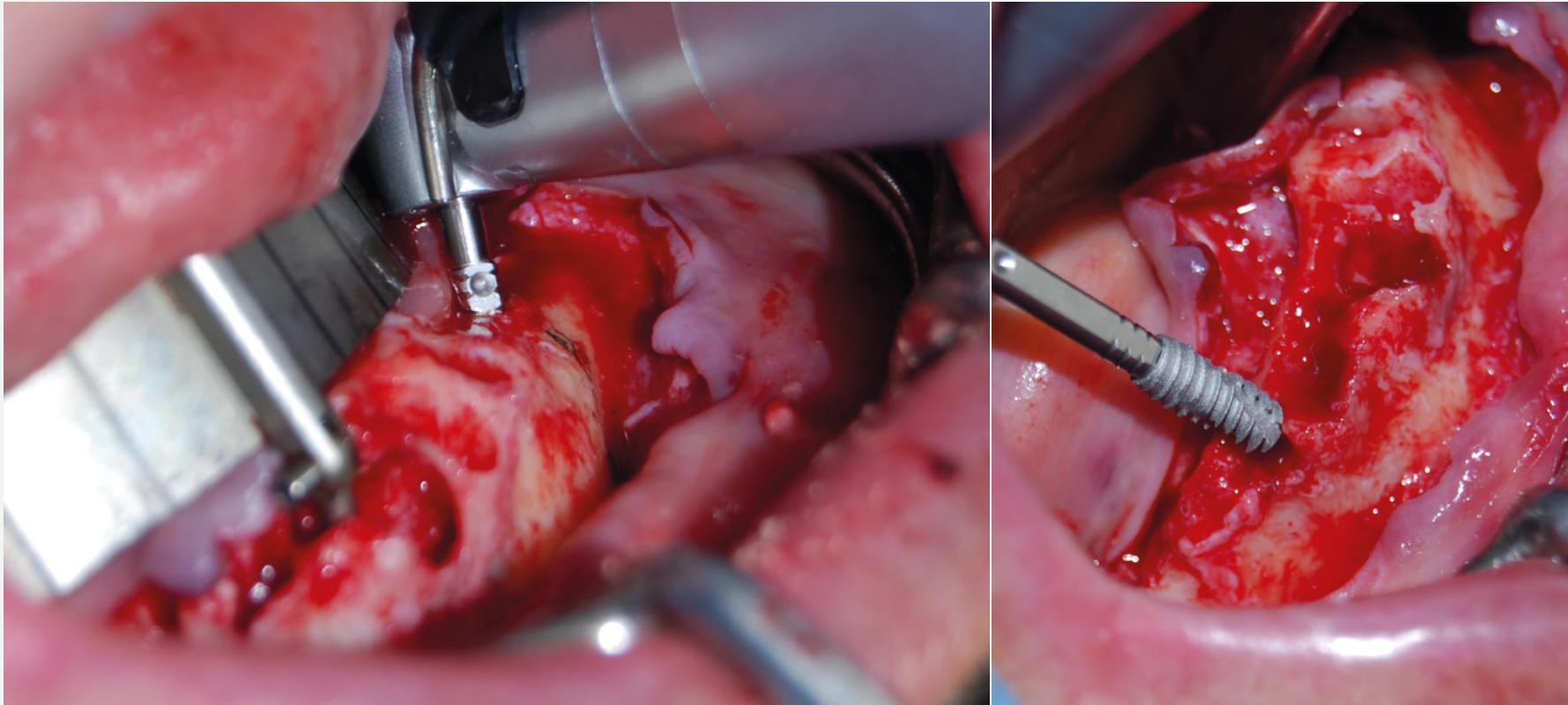
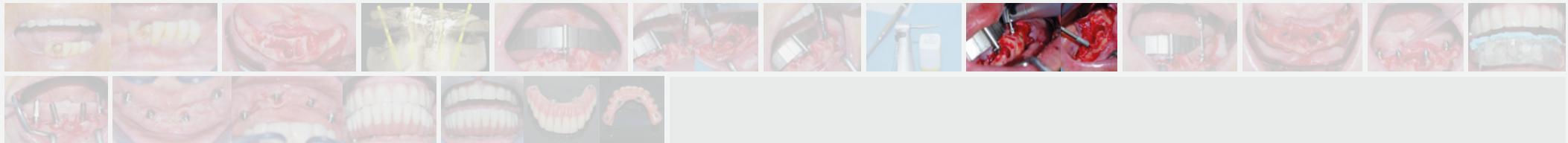


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9a. 9b. Anterior implants in positions 32 and 42. All implants are stabilized at a torque of 35 N.cm. The progressive increase in torque during surgery leads to an ISQ equivalent to that obtained in our usual practice with implants placed at a torque of 50 N.cm.



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Surgery

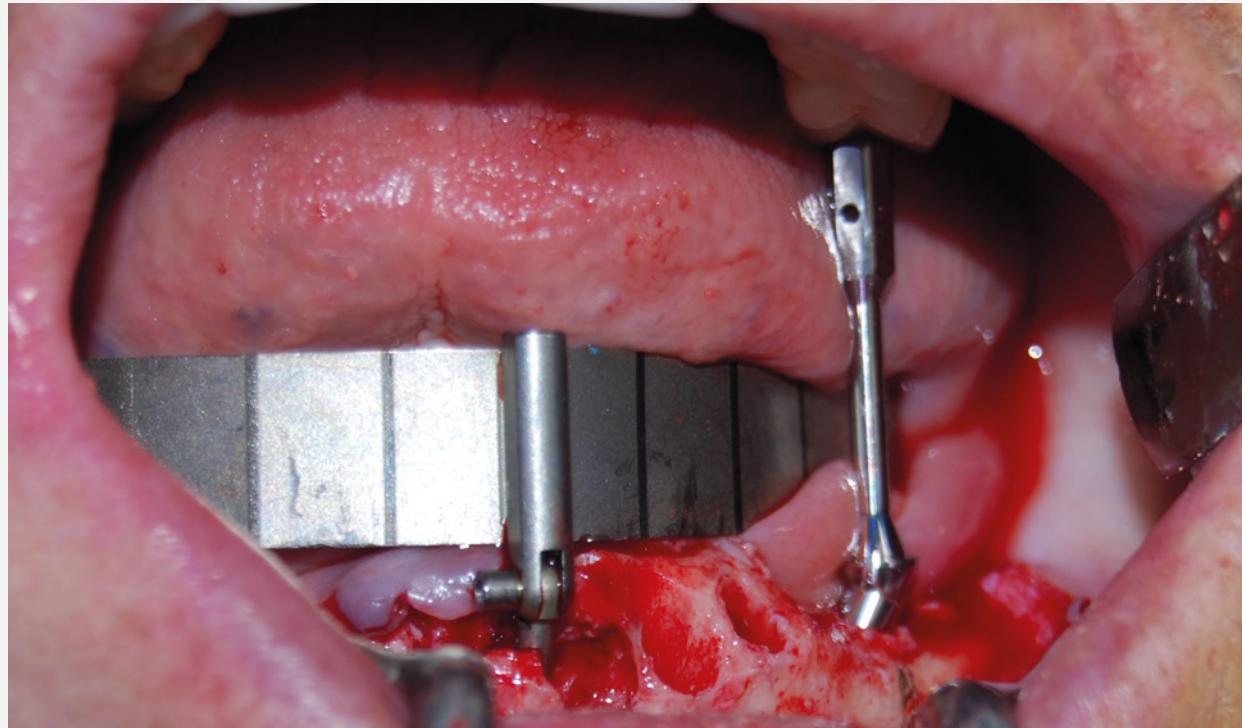
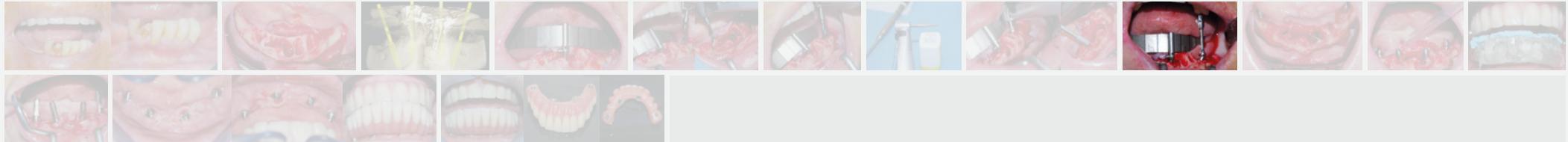


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10. Installation of a Multi-Unit abutment, indexed, with a diameter of 4.8 mm, gingival height 3.5 mm, angled at 30°, allowing for axis adjustment. This abutment remains in place and is unscrewed only if the modification of the surrounding tissues or the aging of the prosthesis requires its replacement by an abutment with a lower gingival height. We chose indexed abutments because, in the event of accidental unscrewing during an inspection, it is easy to find the initial position again.



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Surgery

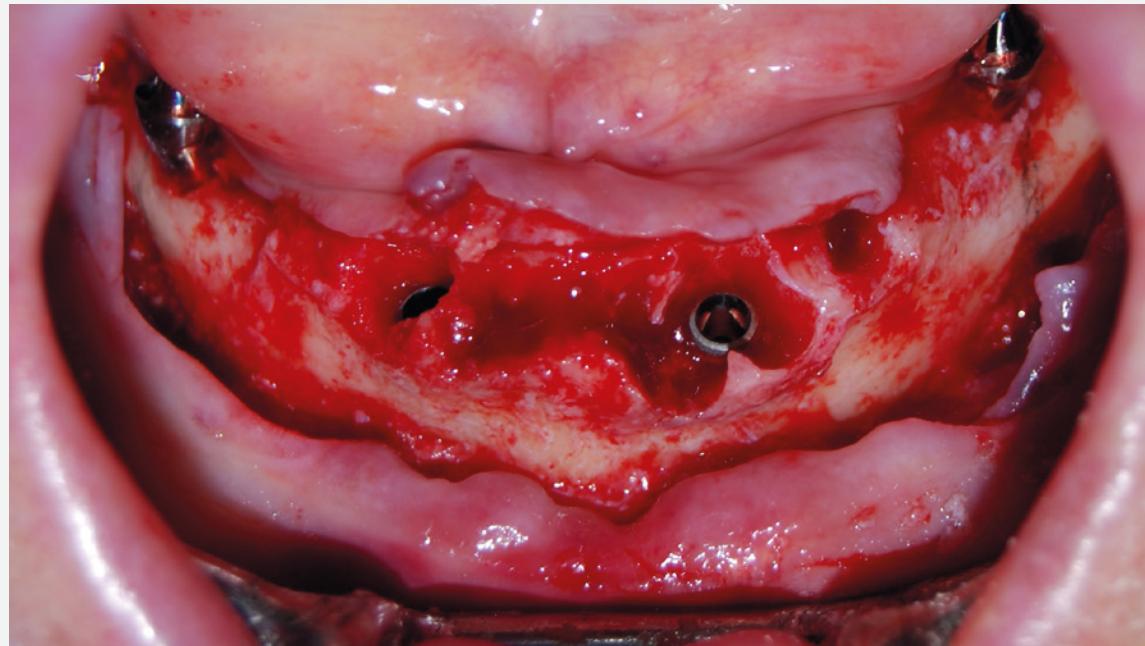
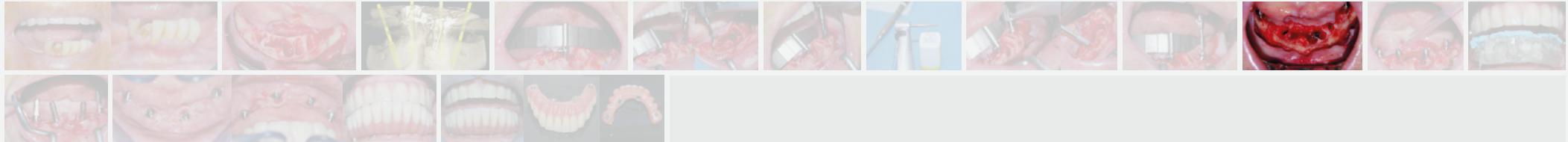


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11. Symmetry and check of the subcrestal position of implants: 0.5 to 1mm below the ridge.



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Surgery

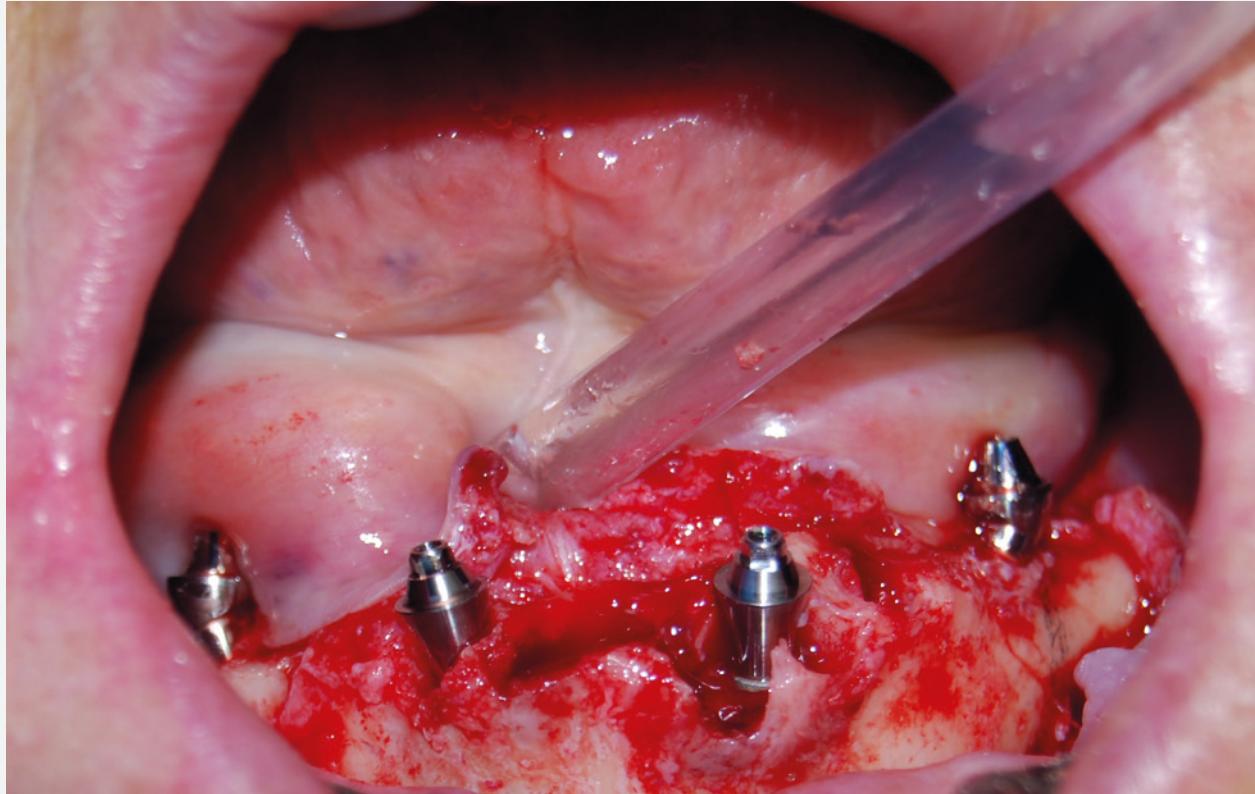
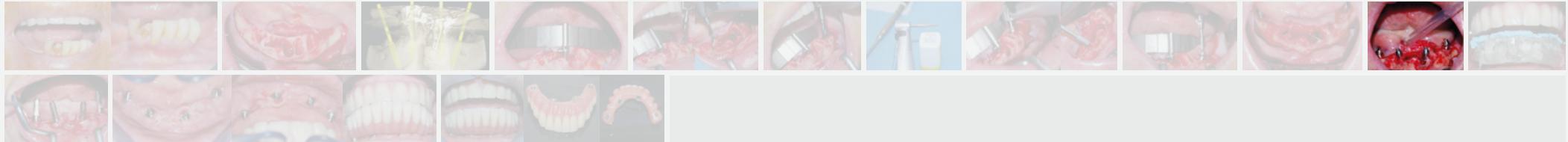


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12. Multi-Unit abutments in place before sutures.



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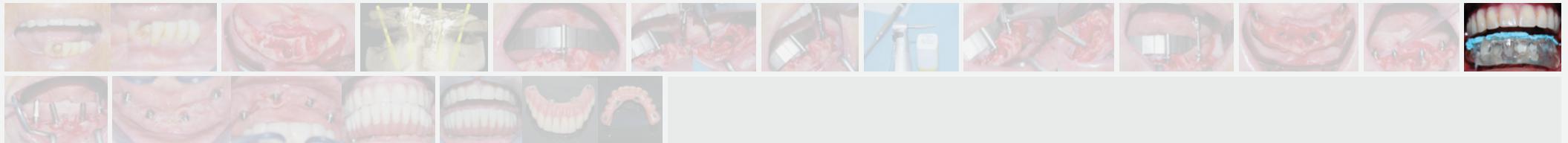


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13. The impression is taken using the occlusion gauge and a copy of the esthetic project in transparent resin, open in the prosthetic corridor.



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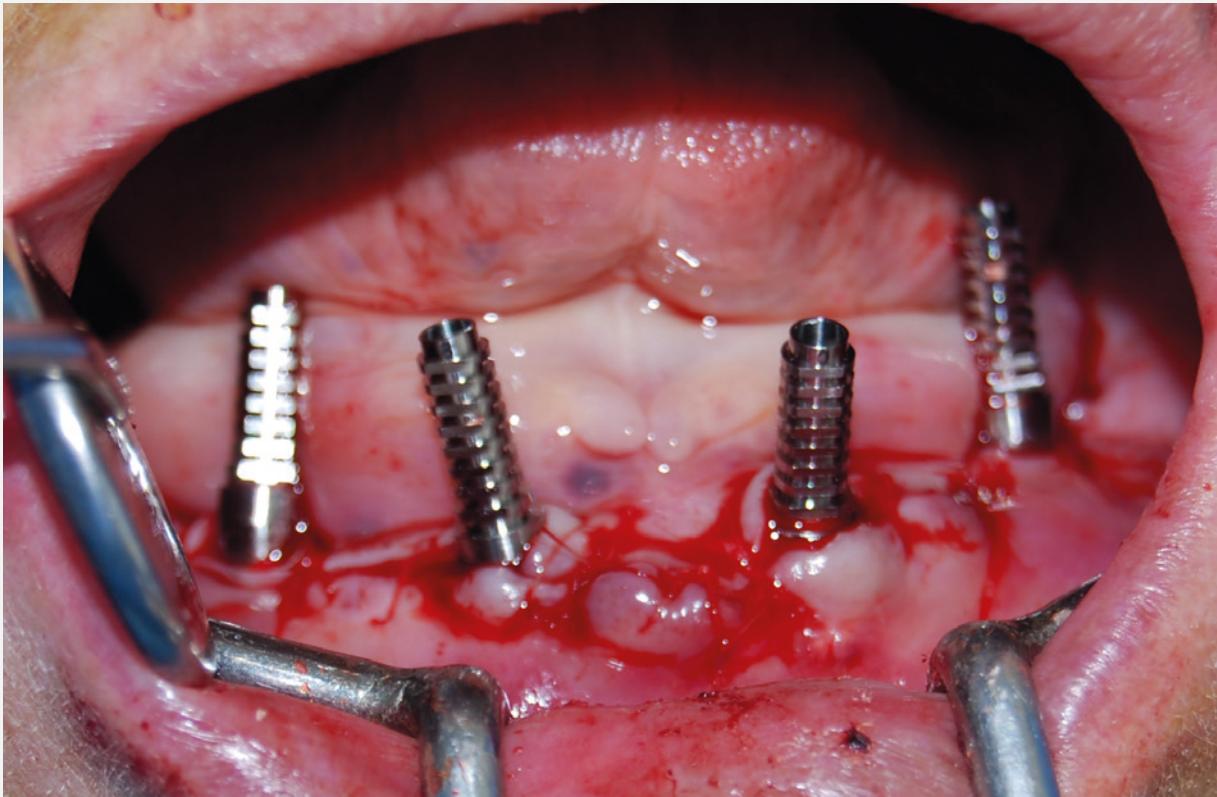
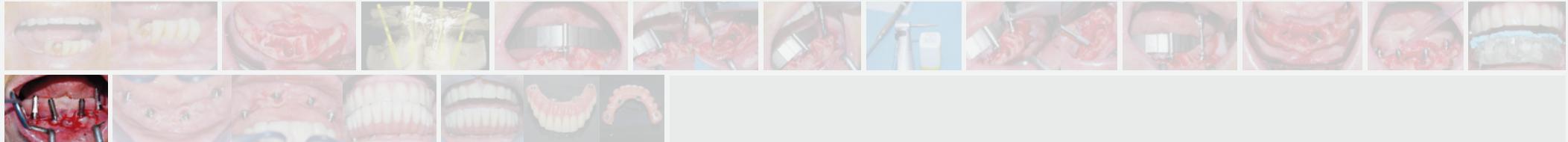


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14. The height of the temporary abutments corresponds to the height of the extracted teeth and of the bone resected by ridge osteotomy. They will be included in the reinforcement of the immediate prosthesis delivered a few hours later.



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Surgery

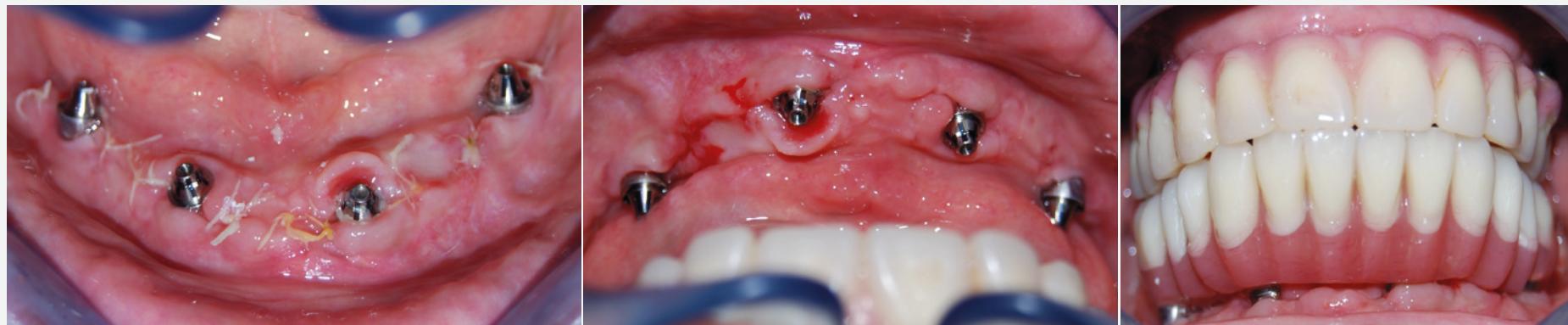
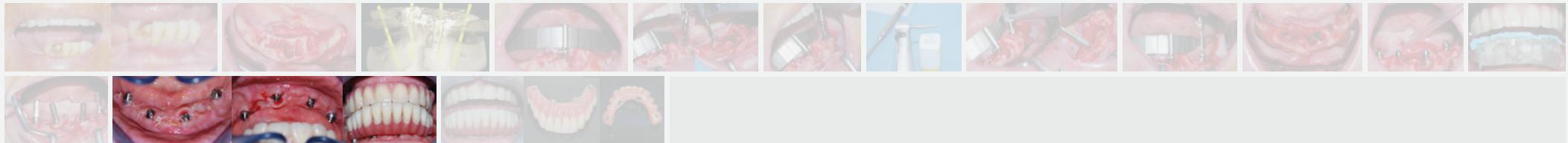


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15. 16. 17. Removal of sutures 10 days after surgery and placement of the overdenture the same day. This session makes it possible to recall the principles of masticatory rehabilitation with an adapted diet for 8 weeks, and to check for the absence of contact of the posterior areas of the bridge.



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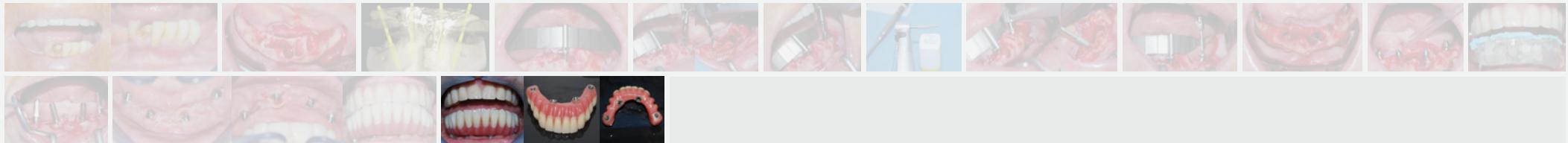


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18. 19. 20. In my practice, the immediate overdentures made on the day of surgery will remain in the mouth for at least 18 months, the time to test the new complete function and the proper vertical dimension of occlusion. Thus, after having validated the success of the osseointegration of the implants (about 3 months after surgery), the decision to make the final overdenture will take place after 18 months. At this time, the function, esthetics, resistance of the resin, vertical occlusion dimension, lip support, etc., will be evaluated. If all these parameters are satisfactory, these immediate overdentures can remain in the mouth for another 4 to 5 years before making the final overdentures. This allows many patients to prepare the financing for this second prosthesis.



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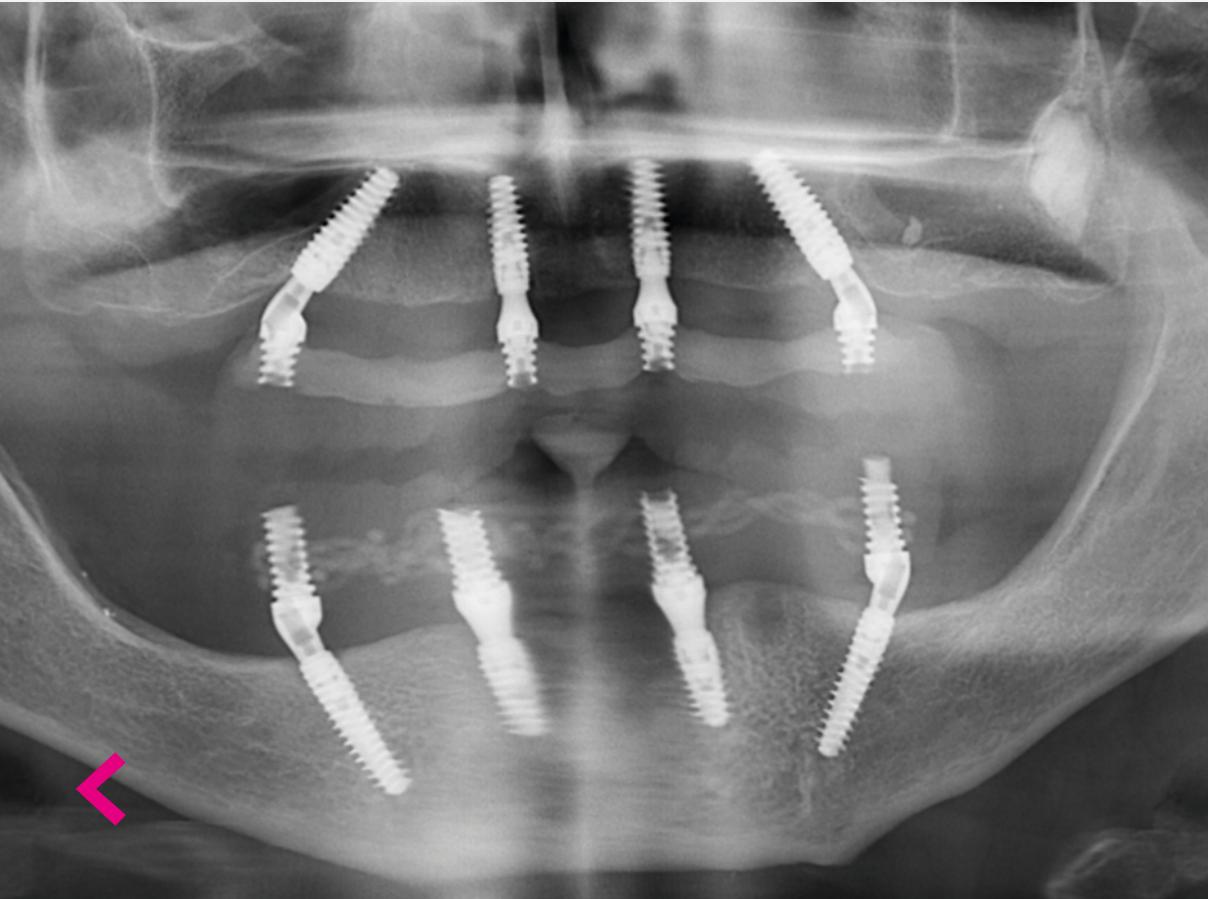
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BEYOND FRONTIERS

Conclusion



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Surgery



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The use of the new Axiom X3® implants, thanks to the adaptability of the protocol, saves time and increases the predictability of the treatment due to the reduction in the number of drills (up to 2 in low-density bone) and the reliability of the primary stability felt here by obtaining an improved ISQ.

These advantages should further contribute to the progress of full-arch restorations on 4 implants to enable close to 100% success after 1 year.



Dr. Damien CARROTTE

France

- Graduated from the University of Lyon in 1999
- Former Hospital and University Assistant in permanent prosthetics to the University of Lyon for 4 years
- Master of Human Biology (MSBM) CES [Certificate of Special Studies] in cement-retained prosthetics
- DIU [Inter-University Diploma] in Anatomy and Oral Implantology
- University Diploma in Maxillofacial and Oral Expertise





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2022-07

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