CLINICAL CASE

Bi-maxillary full-arch edentulous restoration with immediate loading using X-Guide® navigated surgery, and X-Act Teeth pre-fabricated provisional technique

Dr. Renaud Noharet
France

Dr. Renaud Noharet

Patient description:
53 years old, female, no systemic diseases, no oral pathology, presents with esthetic and functional complaints.

Clinical situation:
Missing and mobile teeth in the maxilla and mandible impacting functional and esthetic outcomes. Severe periodontitis.

Surgical solution:
Extraction of remaining upper and lower teeth, immediate implant placement with N1™ implant system using navigated surgery with X-guide®, then immediate loading with pre-fabricated provisional using X-Act teeth technique.

Temporization:
Immediate loading with printed/milled provisional connected on Multi-unit Abutment.

Surgery date(s):
First surgery : April 17, 2023
Second surgery :
September 4, 2023

Total treatment time:
Phase 1 with 4 months follow-up

Tooth position(s):
Full-arch rehabilitation in the maxilla and mandible

“Using navigation technology has been a game-changer for our surgical procedures. It provides real-time assistance during implant placement ensuring precision and safety. Moreover, it streamlines the immediate loading phase, allowing patients to receive temporary prosthetics faster. This comprehensive workflow significantly improves the efficiency and predictability of complex full-arch rehabilitations, leading to an enhanced experience for our patients.”

Dr. Renaud Noharet

More on X-Act Teeth protocol

Initial situation.

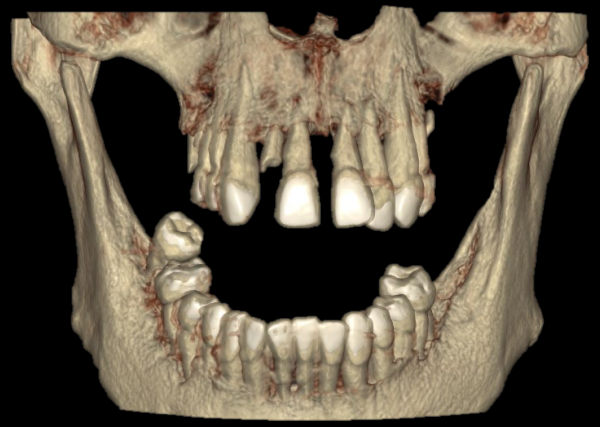
Pre-op orthopantomogram (OPG).

Pre-op bite frontal view.

Pre-op maxilla frontal view.

Pre-op mandible frontal view.

Data collection | Treatment planning | Surgical procedure | Post-surgical impression | Immediate loading | Digital records and final restoration



DICOM file.

PLY scan.

Clinical pictures.

DTX Studio™ Suite

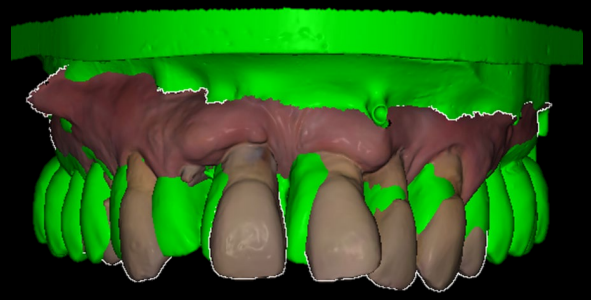
Merging DICOM & PLY files.

Merging DICOM & PLY with intraoral images.

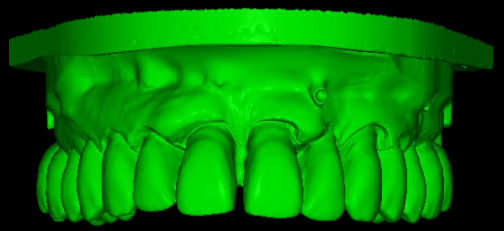
Cross section alignment between DICOM & PLY scan

DTX Studio™ Suite

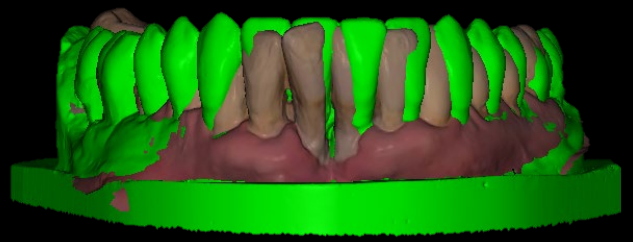
Pre-op maxillary PLY scan.



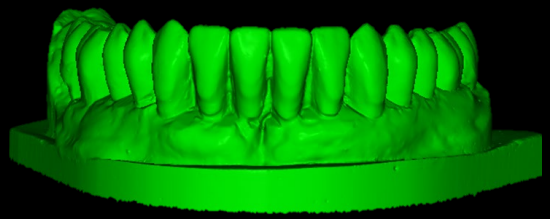
Pre-op mandibular PLY scan.



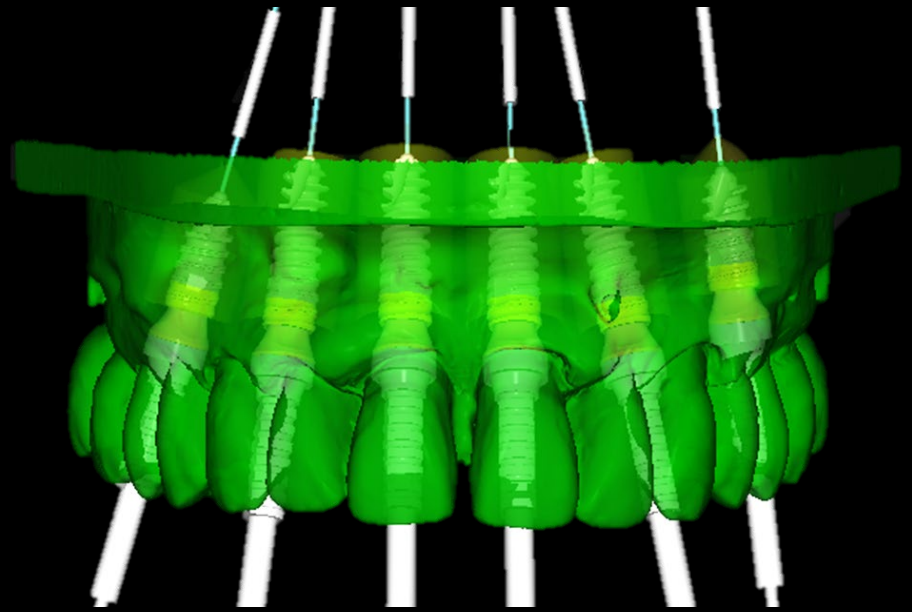
Prosthetic wax-up STL of maxilla shared by the dental lab.



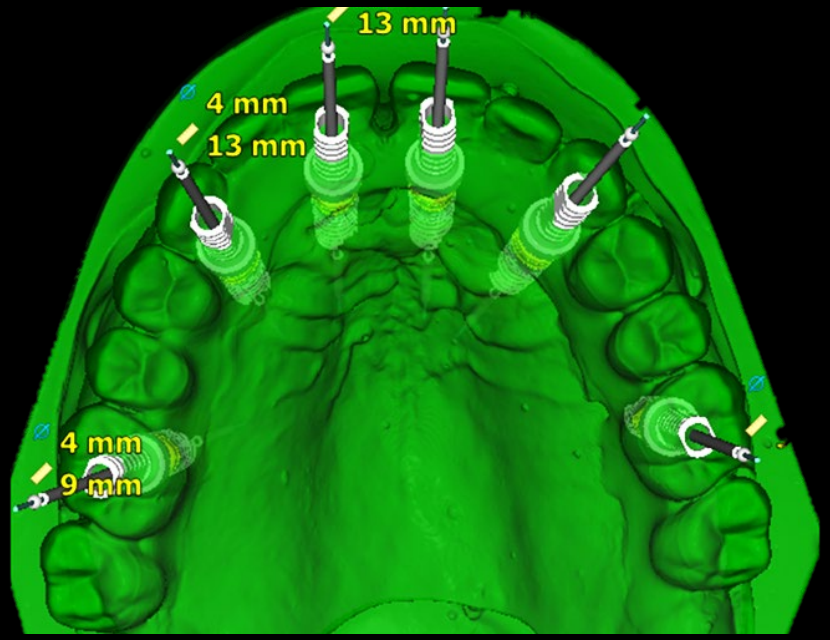
Prosthetic wax-up merged with initial intraoral situation.



Prosthetic wax-up STL of mandible shared by the dental lab.

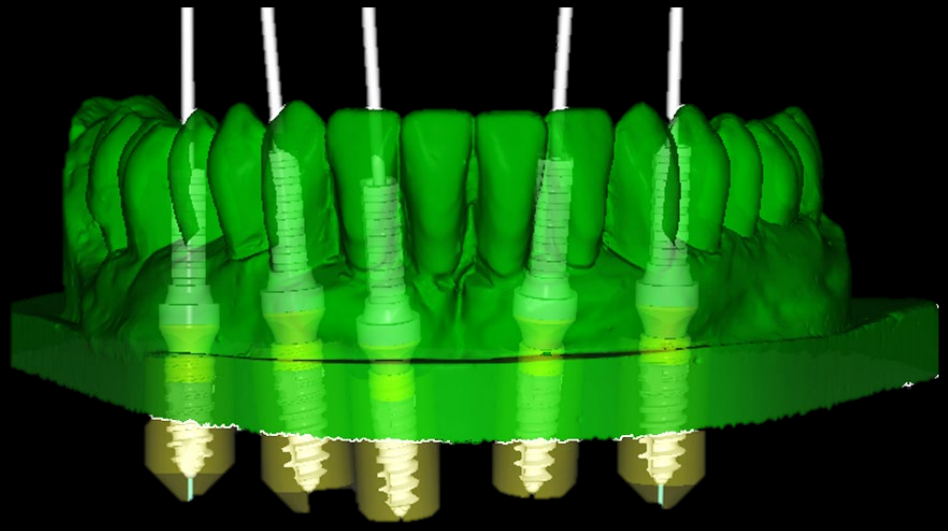


Frontal view of N1™ implants 4 x 13 mm planned in maxilla.

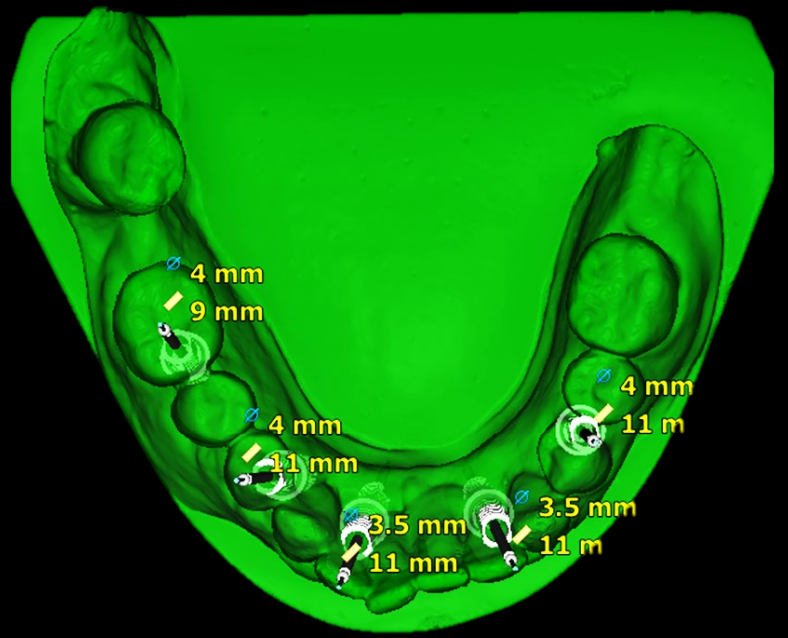


Occlusal view of N1™ implants 4 x 13 mm planned in maxilla.

Case courtesy of Dr. Renaud Noharet

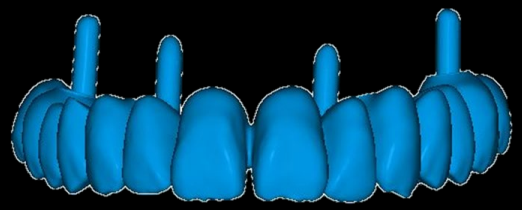


Frontal view of N1™ implants 4 x 13 mm planned in mandible with Multi-unit Abutment.

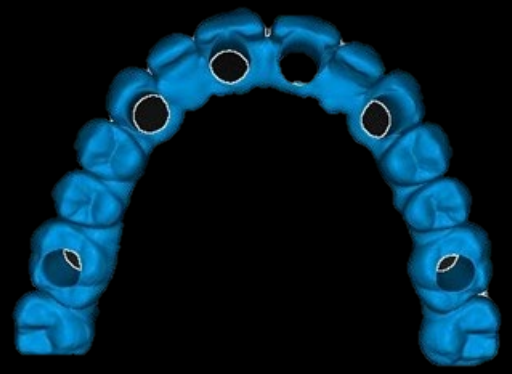


Occlusal view of N1™ implants 4 x 13 mm planned in mandible with Multi-unit Abutment.

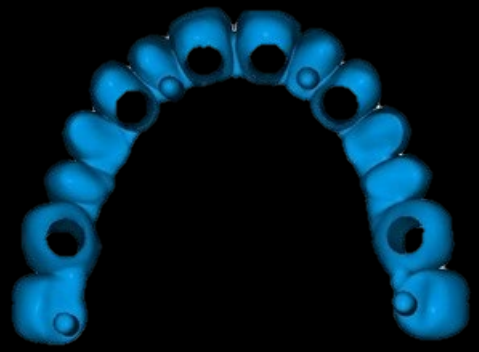
Finalization of the prosthetic wax-up, including the insertion of bone landing pins using in DTX Studio™ Lab or exocad DentalCAD® software



Frontal view of prosthetic wax-up with 4 insertion bone pins ready for printing before surgery.



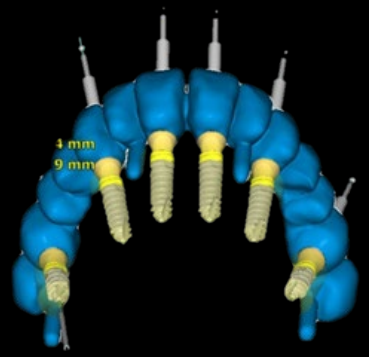
Occlusal view of prosthetic wax-up with 4 insertion bone pins ready for printing before surgery.



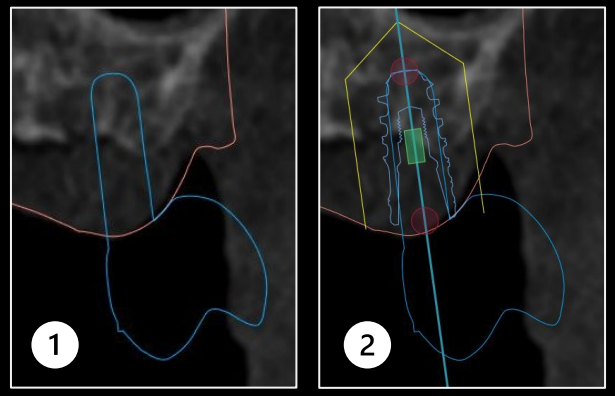
Intaglio surface view of prosthetic wax-up with 4 insertion bone pins ready for printing before surgery.

DTX Studio™ Lab

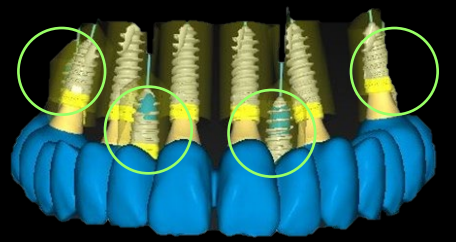
Definition inserted bone landing pins as implants in DTX Studio™ Implant software



Import of prosthetic wax-up in DTX Studio™ Implant for referencing the insertion bone landing pins.



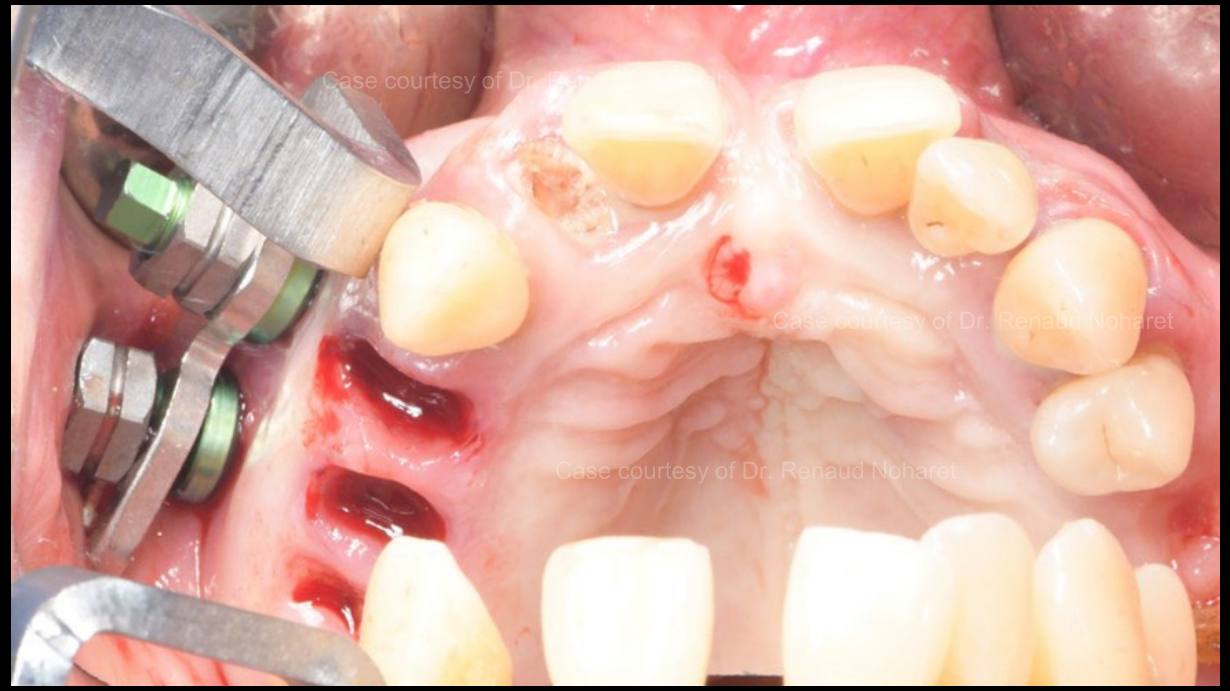
Cross section of the bone landing pins (1), followed by implant placement selection to define both depth and diameter (2).



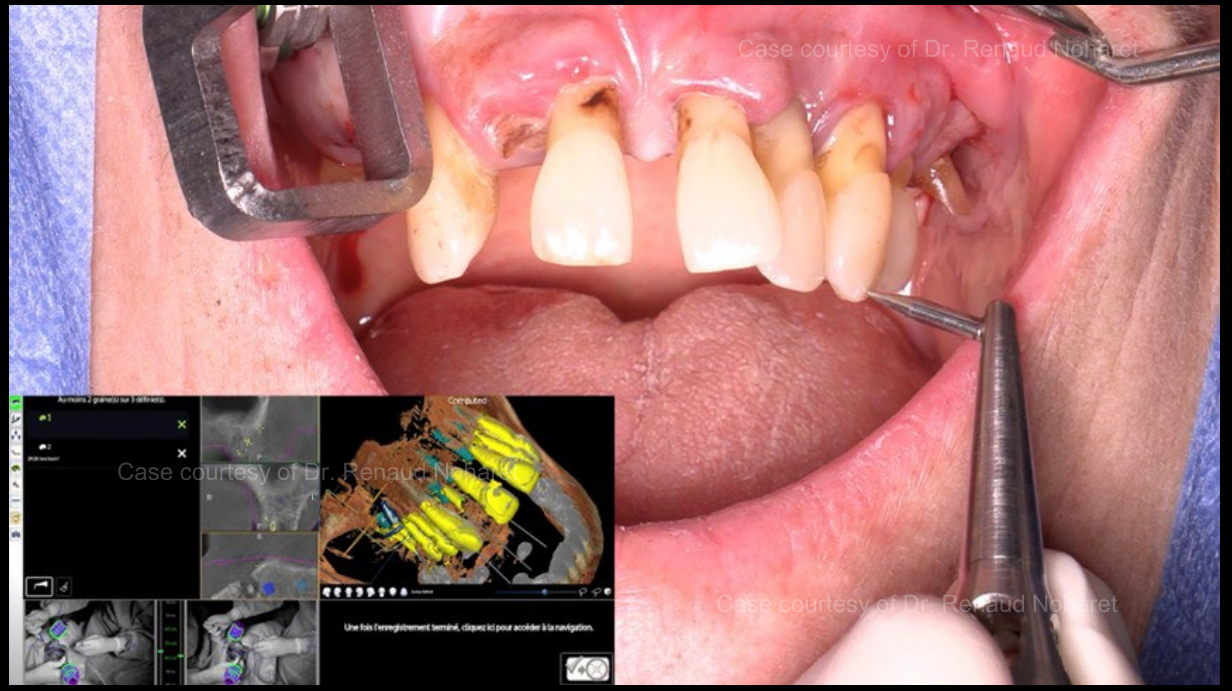
All bone pins defined as implants in the implant planning project before exporting the treatment plan into X-guide® for surgical execution.

DTX Studio™ Implant

Case courtesy of Dr. Renaud Noharet



Fixing X-Guide® tracker with EDX screws in the patient's upper jaw to prepare for X-Mark™ protocol*.



Calibration following X-Mark™ protocol (identification of clear reference points to calibrate accuracy of X-Guide®

*The tracker is carefully placed such that no interference occurs when placing implants.

Extraction, immediate implant placement and Multi-unit Abutment placed in the maxilla*.

Extraction, immediate implant placement, and Multi-unit Abutment placed in the mandible.

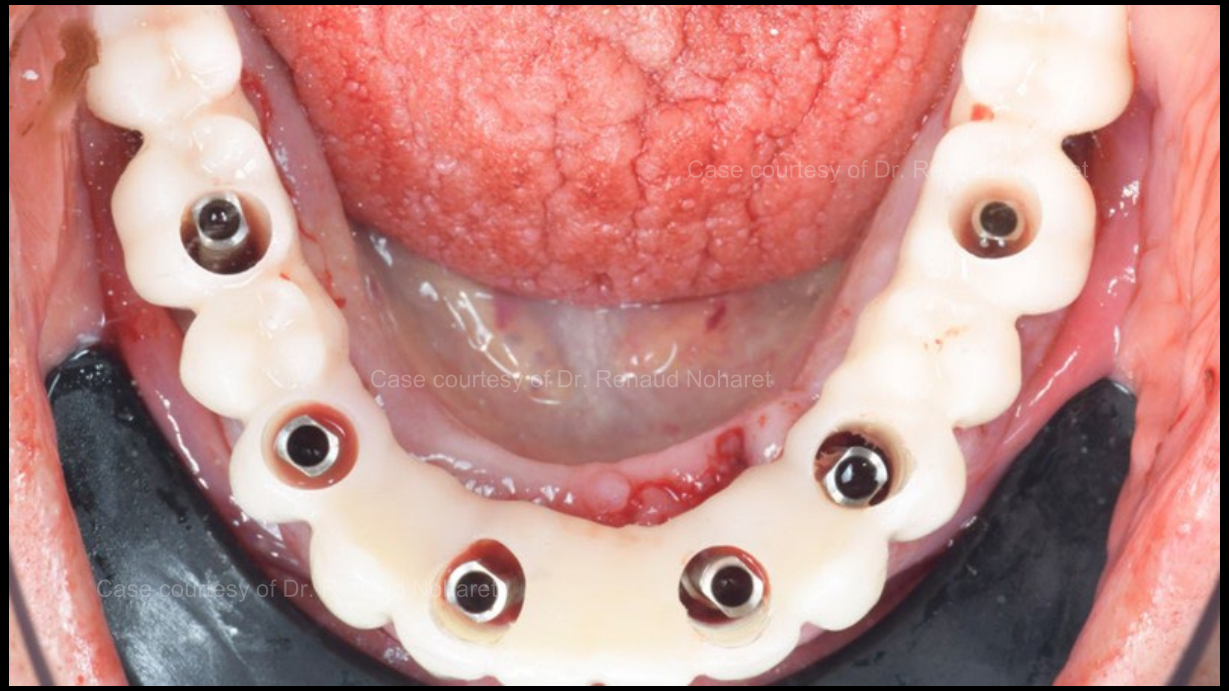
*Additional osteotomies were performed to host the defined landing pins, allowing predictable prosthesis positioning

PMMA milled provisional for maxilla.

PMMA milled provisional for mandible.

Case courtesy of Dr. Renaud Noharet

Maxilla
Pre-fabricated temporary seated on top of temporary Multi-unit Abutment – **ready for conversion***



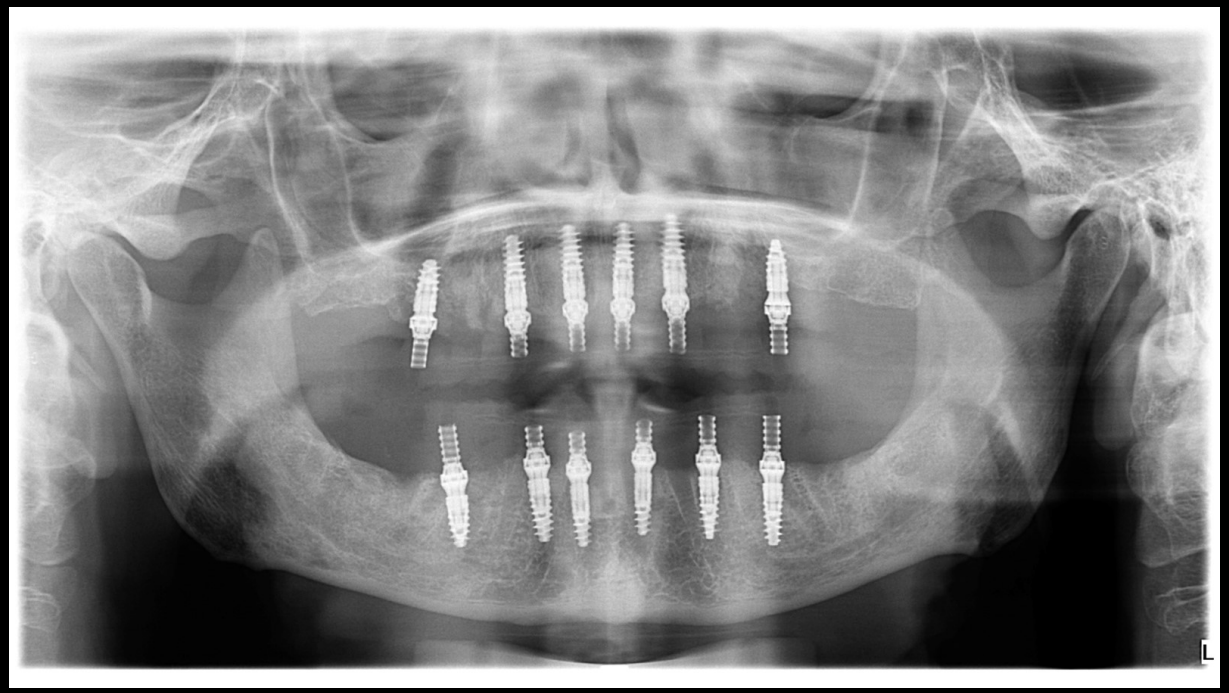
Mandible
Pre-fabricated temporary seated on top of temporary Multi-unit Abutment – **ready for conversion**

*Composite flow must be injected within residual hole area to consolidate temporary Multi Unit Abutments and the corresponding provisional

Provisionals post-conversion (landing pins removed post-conversion).

Provisionals placed 4 hours after surgery.

Provisional at 4 months follow-up.



X-ray at 4 months follow-up.

Case courtesy of Dr. Renaud Noharet