

Full-Arch Rehabilitation of the Maxilla and the Mandible Using a Digital Protocol and Superstructures by XGATE Dental

This clinical case is provided by **Dr. Luca Laloè**.

Dr. Laloè is the founder and director of three successful clinics: a practice in Naples on Corso Maria Cristina di Savoia, a clinic in Somma Vesuviana, and a center in Milan specializing exclusively in oral surgery and implantology. Over the years, he has accumulated extensive clinical experience: he has performed over 7,400 surgical extractions and placed approximately 7,000 dental implants using the most modern rehabilitation protocols.



Dr. Luca Laloè

Graduated from the School of Dentistry and Dental Prosthetics at the University of Naples "Federico II" in 2004.

Specialisation: **Implantology, Prosthodontics, and Guided Surgery**

Work experience: **22 years**

Place of work: **Naples, Italy**

In 2006, he received a specialization in oral surgery, and since 2007, he has focused on implantology, continuously refining his skills through dozens of specialized courses.

Today, the doctor places particular emphasis on advanced guided surgery techniques in his practice. He also continues to actively utilize traditional free-hand techniques, rightly considering them a core foundation of a surgeon's professional skill and an essential tool for a significant number of clinical cases.

Patient summary

The patient is 56 years old.

Her general health is good, but she has severe dental issues that affect both her masticatory function and the aesthetics of her smile.

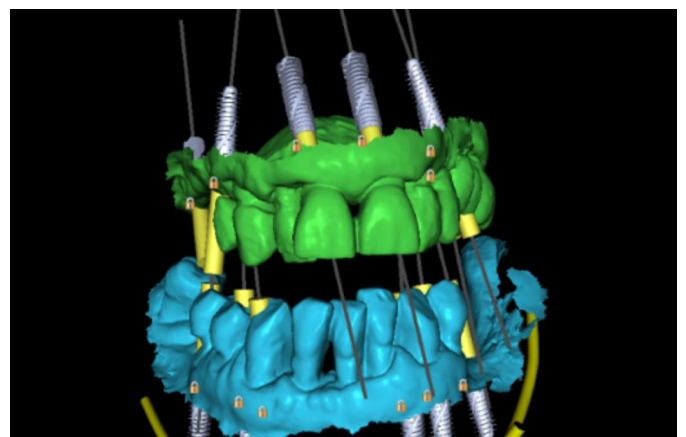


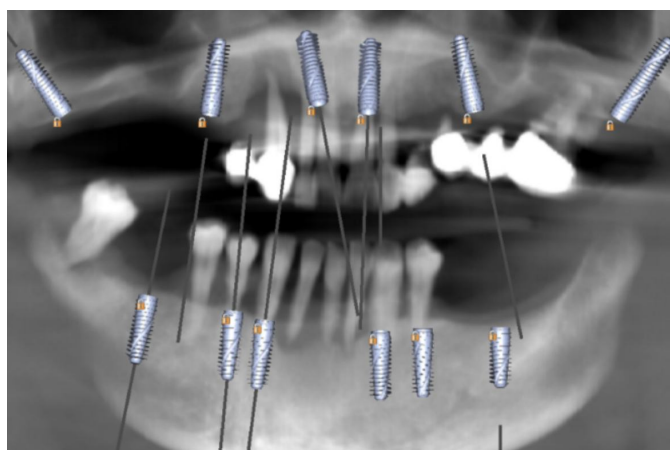
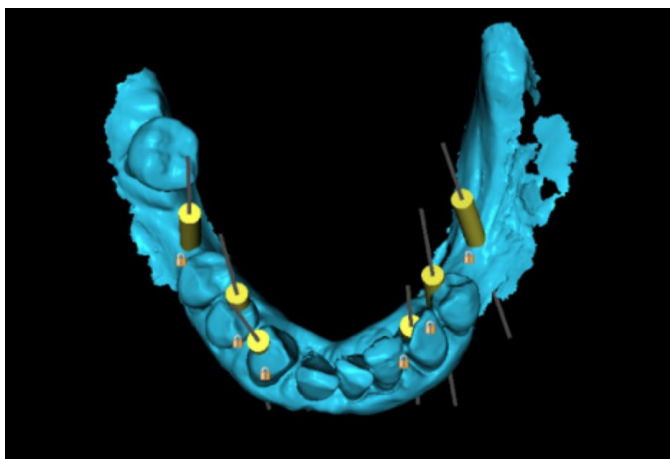
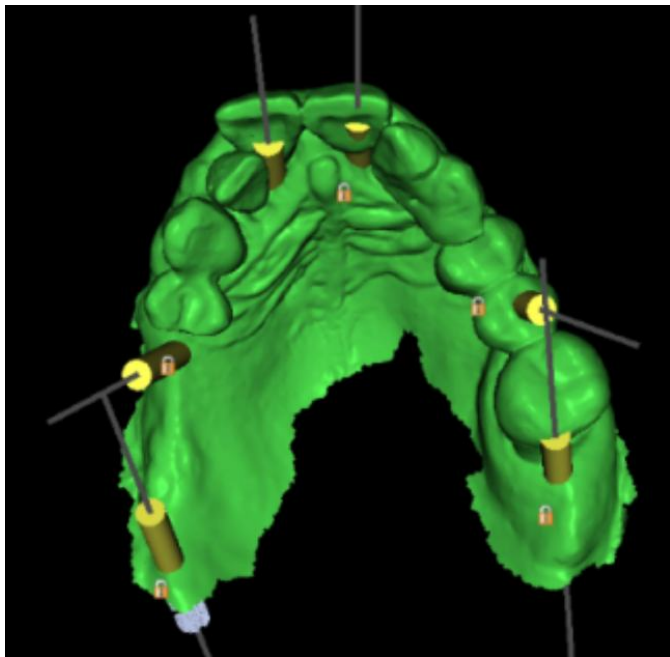
Following a comprehensive analysis of the patient's clinical picture, a personalized treatment plan was developed: full-arch prosthetic rehabilitation of the maxilla and mandible using the Full Arch on 6 protocol.

Prior to treatment, initial diagnostics were performed:

- CBCT of both jaws, including the surrounding tissues.
- Intraoral digital scanning.

By merging the DICOM and STL files, a consolidated 3D model was obtained for the digital planning of the implant positions in specialized software (see illustrations below).





An example of implant placement planning in specialized software

At this stage, the implant dimensions and positions are determined. In this clinical case, the following positions and sizes were selected for **XGATE Dental X3** series implants with an internal hex interface:

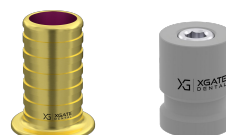
- 15 – 3.75 × 13 mm
- 11 – 3.75 × 13 mm
- 21 – 3.75 × 13 mm
- 25 – 3.75 × 13 mm
- 27 – 3.75 × 16 mm
- 17 – 3.75 × 13 mm
- 43 – 3.75 × 11.5 mm
- 33 – 3.75 × 11.5 mm
- 34 – 3.75 × 11.5 mm
- 44 – 3.75 × 11.5 mm
- 46 – 3.75 × 11.5 mm
- 36 – 3.75 × 10 mm



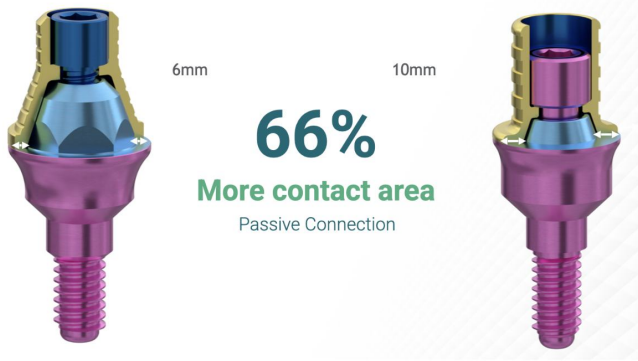
Using the same software package, a surgical guide is designed and manufactured, which allows for the placement of the implants precisely in accordance with the approved plan.

The surgical phase of the treatment then proceeds in the following sequence:

- Extraction of the remaining teeth.
- Placement of the surgical guide.
- Performing tissue punching at the implant placement sites.
- Preparation of the implant osteotomies according to the parameters determined during the planning phase.
- Placement of the implants through the guide sleeves of the surgical guide.
- Verification of primary implant stability and a control panoramic radiograph.
- Placement of **V-Type Multi-Unit Abutments**. **V-Type Multi-Units** provide a passive fit and feature an ultra-low profile, which increases the mechanical strength of the prosthesis by increasing the wall thickness at the prosthesis-cylinder interface. In this case, Multi-Units with transgingival heights of 2 mm and 3 mm were used, together with Multi-Unit level scan bodies for V-Type and 6 mm XGATE titanium cylinders.



6 mm XGATE titanium cylinder and V-Type scan body



- Delivery of the screw-retained provisional prosthesis.
- Occlusal check.



Placed implants + V-Type Multi-Unit Abutments

The photos below show the key stages of the surgery.



The situation following atraumatic extractions in the mandible



Long cylinders for securing the maxillary provisional prosthesis



Surgical guide for precise implant positioning



Angle correction with straight V-Type Multi-Units



Checking the guide seating before the complete extraction of the maxillary teeth



Guided implant placement in the maxilla

Upon completion of the surgical phase, during the same visit, the patient was fitted with a fixed, screw-retained provisional prosthesis supported by the implants, which she wore throughout the entire osseointegration period.



The photos above primarily illustrate the workflow for the mandible; all procedures for the maxilla were performed in a similar manner.

Thus, the patient came to the clinic with an extremely unsatisfactory condition of her dentition, and two hours later left with implants placed using guided surgery technology and a full-arch fixed prosthesis supported by the implants.

Thanks to the use of a surgical guide, the intervention was minimally invasive: there were no incisions or flap elevations, and no sutures were required.

Moreover, this treatment has had a significant psychological impact: it gives the patient a new life. For a long time, she had been unable to masticate food properly and, most importantly, was deprived of the joy of smiling freely.

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Tel. +39 344 25 70 256

E-mail: info@xgate.dental

info@xgate.dental

350 W Passaic
St Rochelle Park, NJ 07662
United States

XGATE Dental Group GmbH
Falkensteiner Straße 77, 60322
Frankfurt am Main
Germany