

Bone Levels around Immediately Loaded-Stabilized VS. Conventionally Loaded Locking-taper Implants

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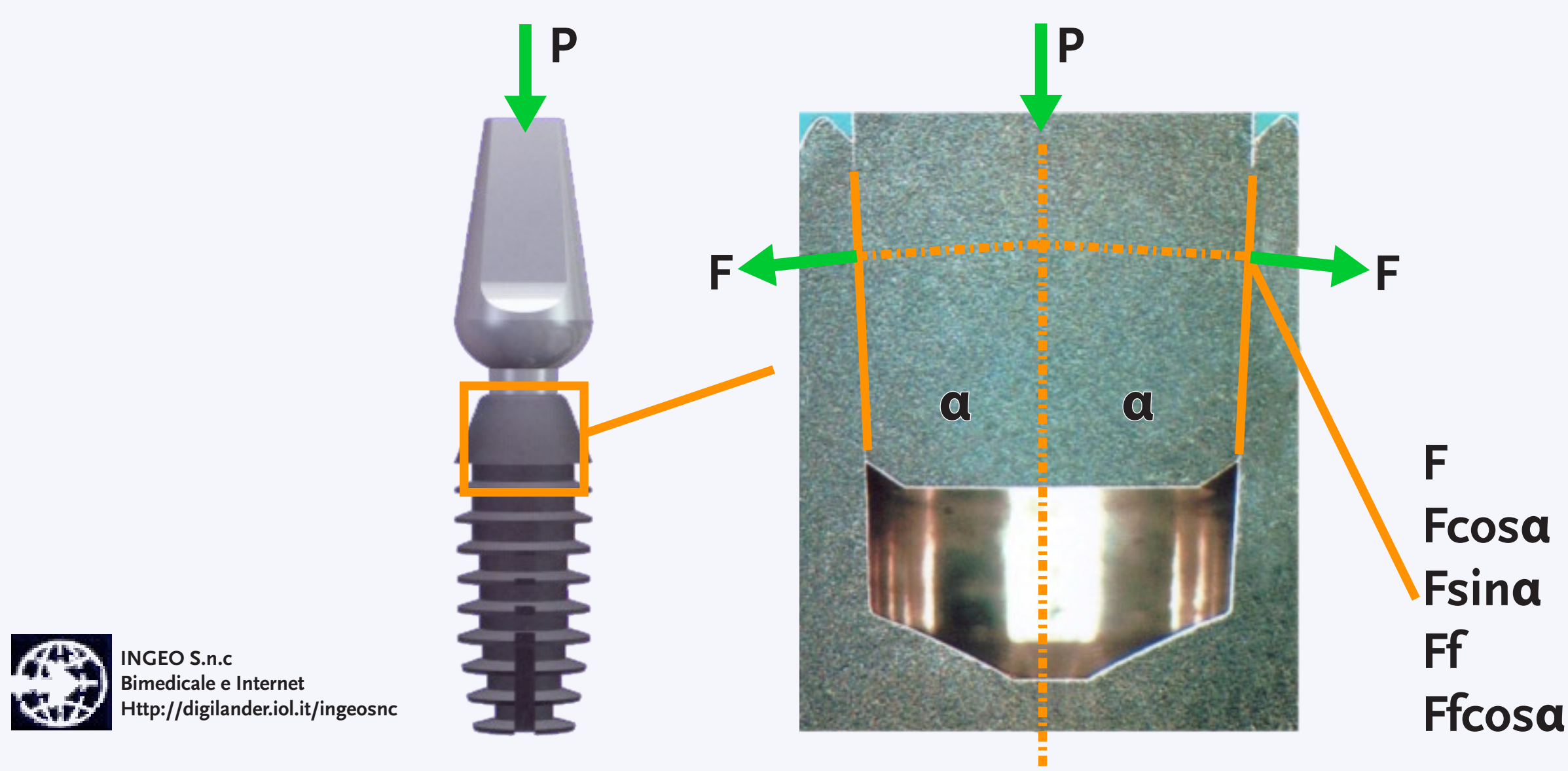
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Purpose

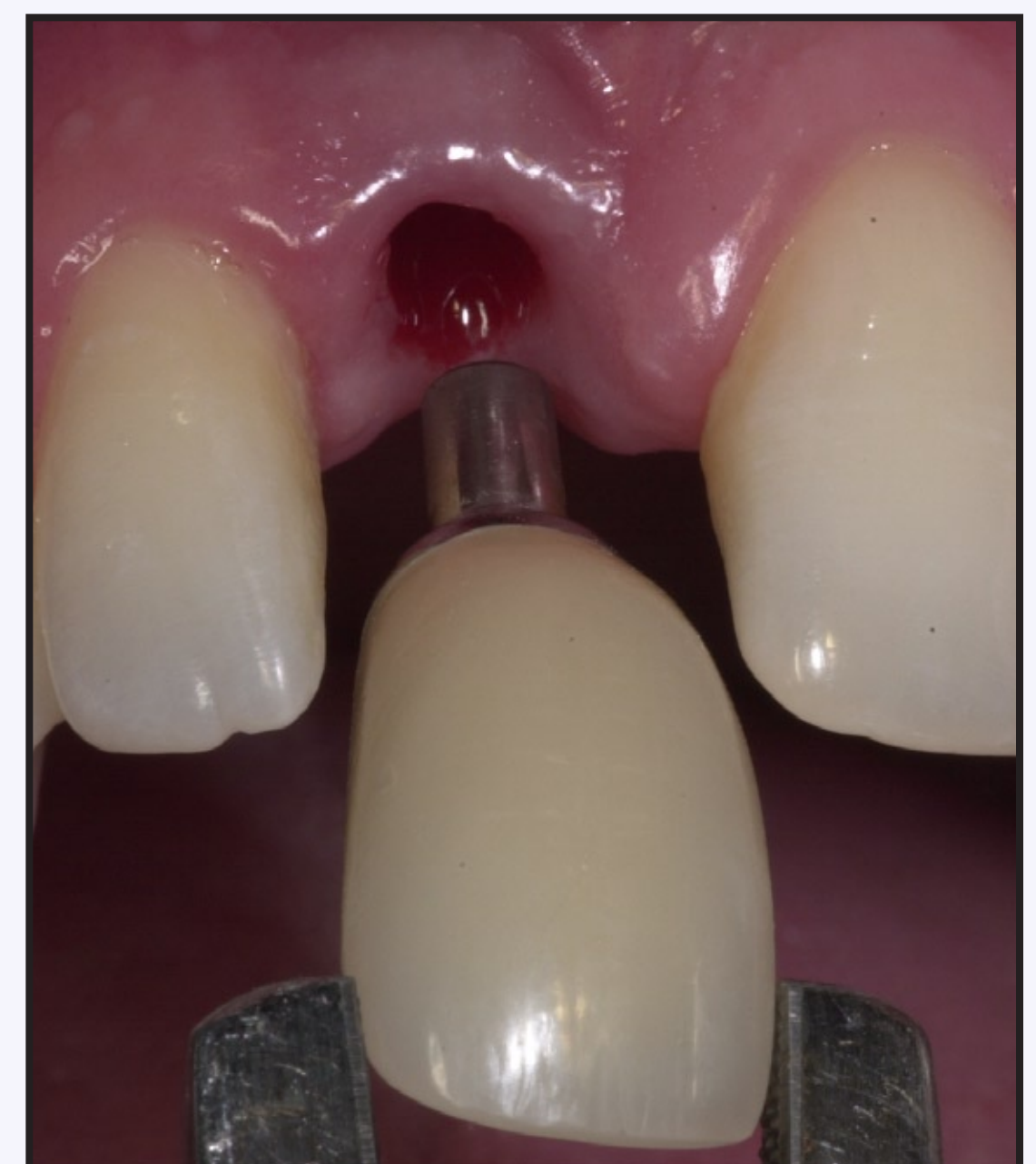
The purpose of this study was to measure the distance from the implant-abutment connection (IC) to the first bone to implant contact (FBIC) on both immediately loaded stabilized and conventionally loaded locking taper implants.

Locking-Taper Implant Connection



Materials and Methods

- 16 Locking-taper implants (Bicon, Boston, MA)
- 8 patients (7 women)
- Mean age of 58.2 years
- 13 implants placed in the maxilla and 3 in the mandible, 12 on posterior areas, 4 on anterior areas.
- 11 implants were stabilized by splinting to adjacent teeth and loaded the same day as implant placement
- 5 implants were loaded 3 months after placement.
- Standardized periapical x-rays were obtained of the day of implant placement, crown insertion and on a recall appointment.
- All implants were restored with Integrated Abutment Crowns (A polyceramic material chemically bonded directly to the implant abutment)



Immediate Loading-Stabilization Technique

- Implant placement with conventional procedures
- Place the acrylic temporary sleeve onto the selected abutment and the abutment inside the implant well (with finger pressure only).
- Place temporary material into the vacuum-formed template and insert template over acrylic sleeves and strut intraorally to form the transitional prosthesis.
- Remove template, finish it and polish it.
- Bond transitional prosthesis to adjacent teeth for enhanced stability.

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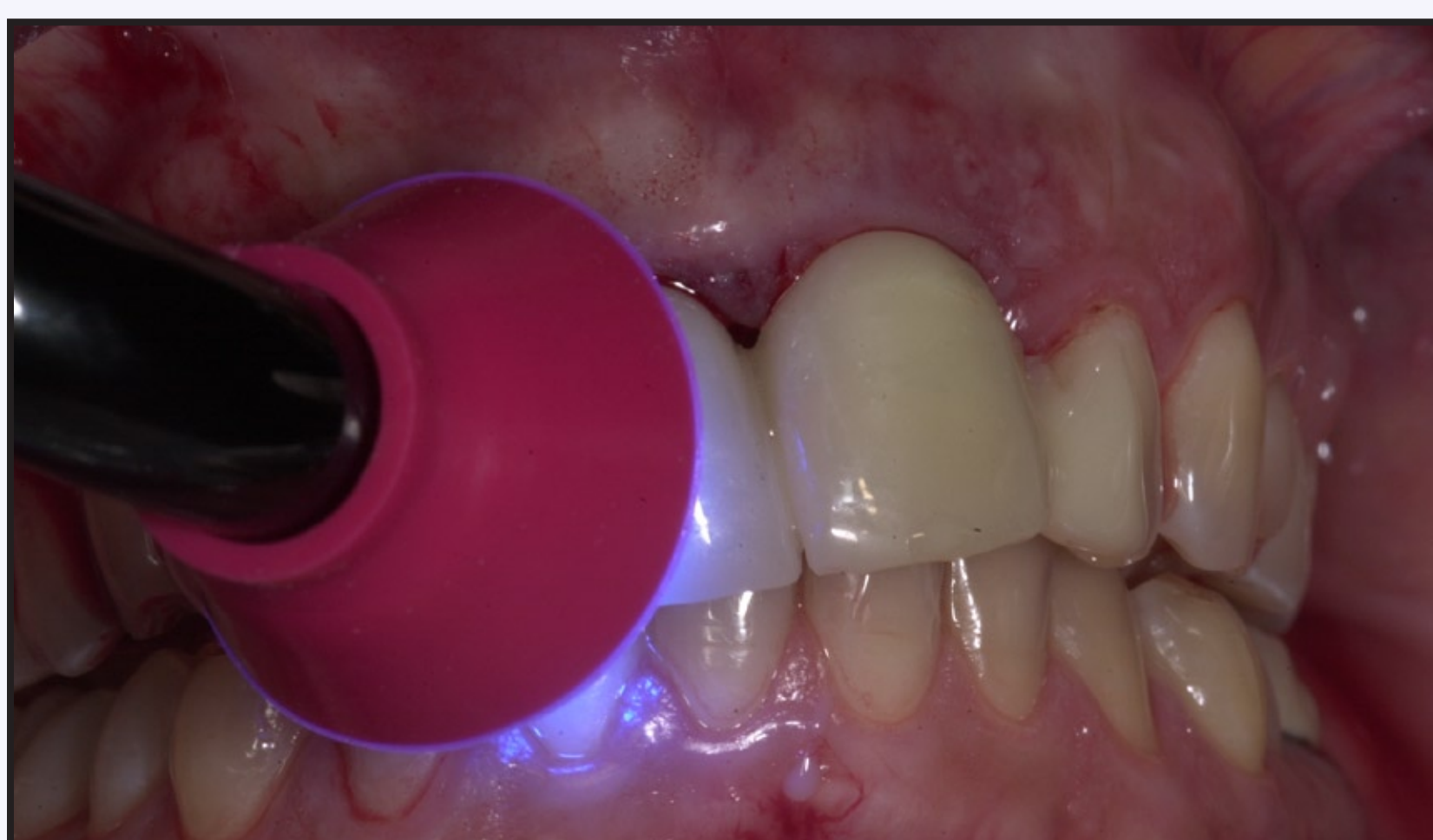
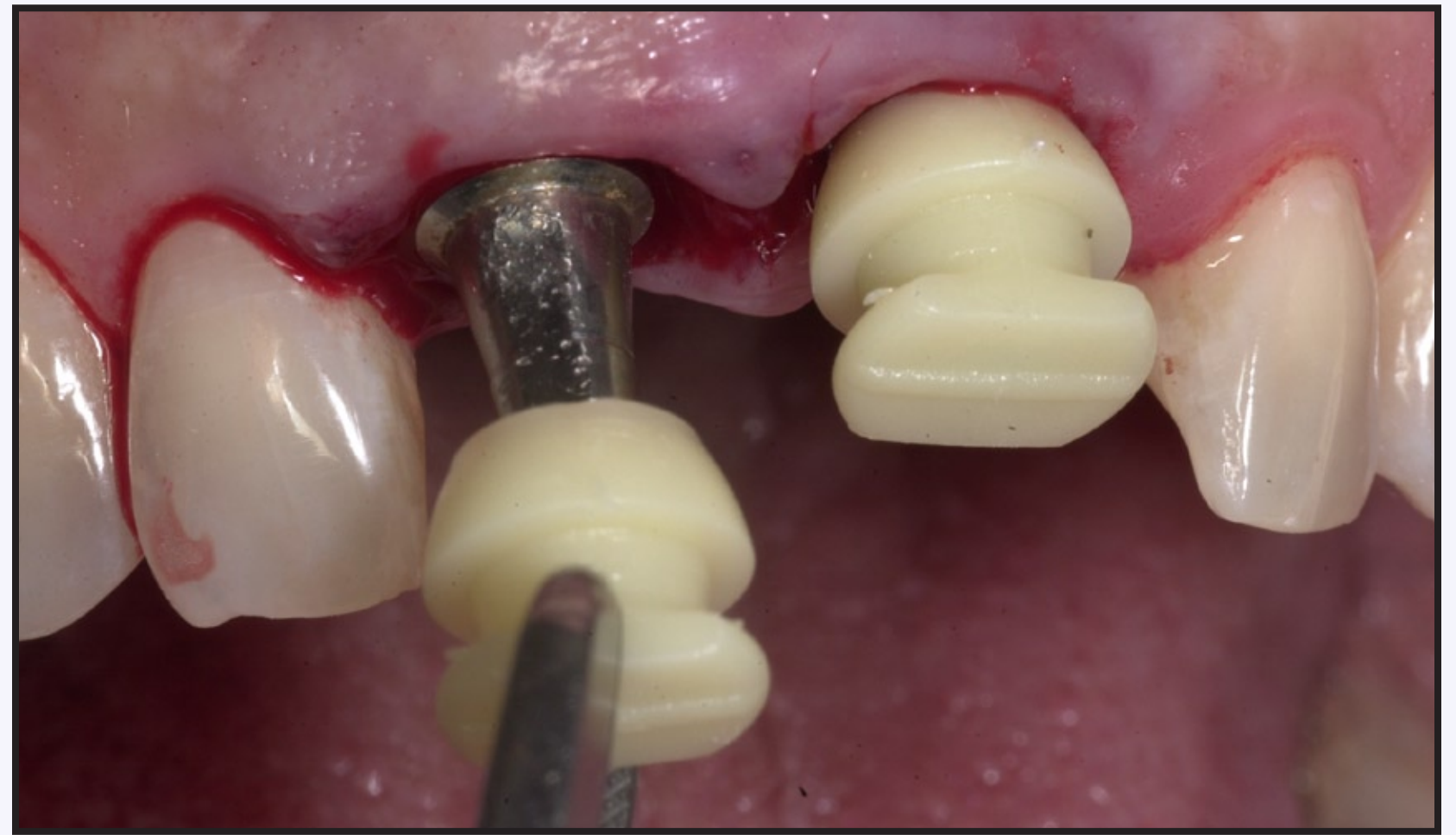
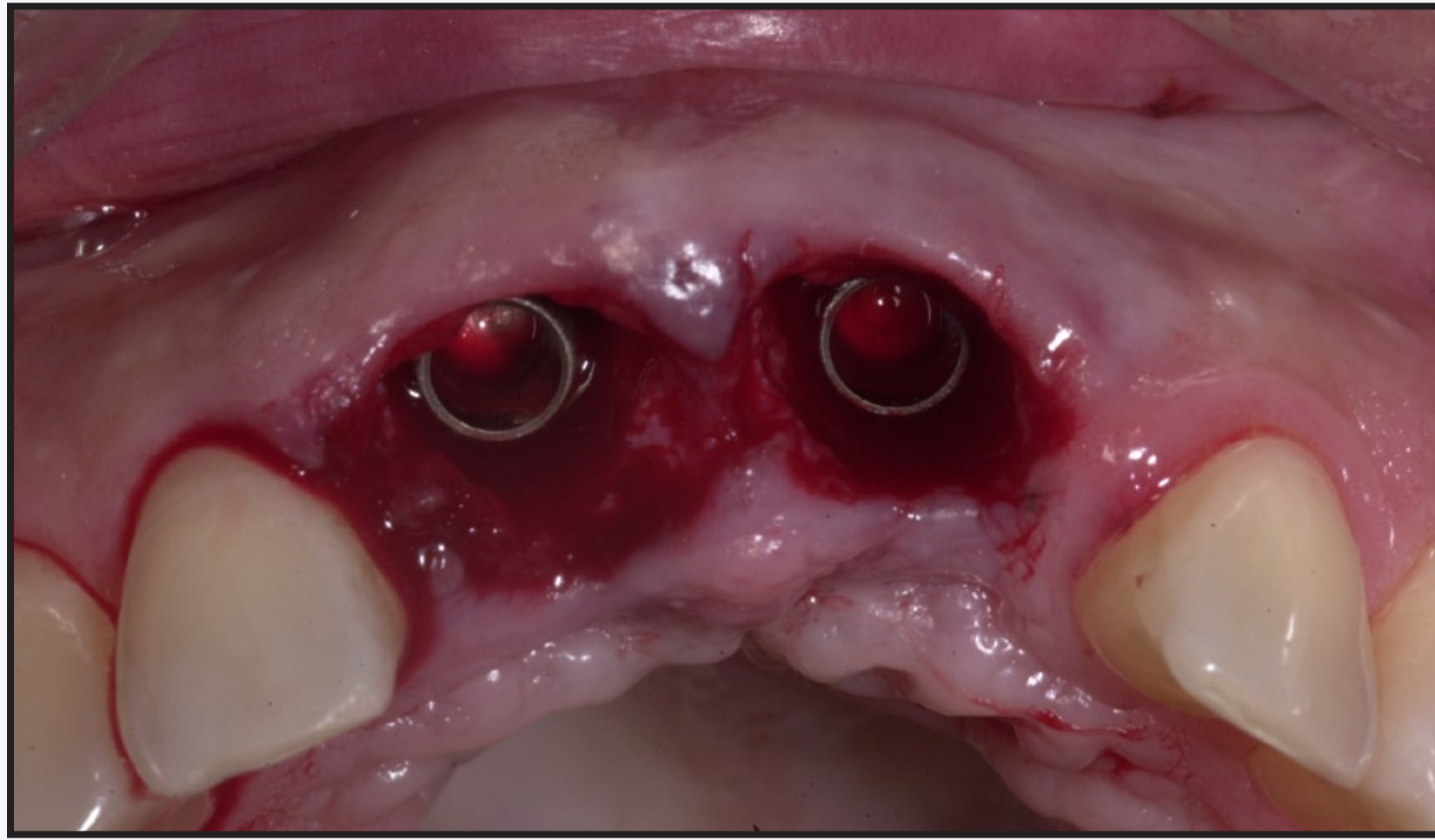
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Immediate Loading-Stabilization Technique



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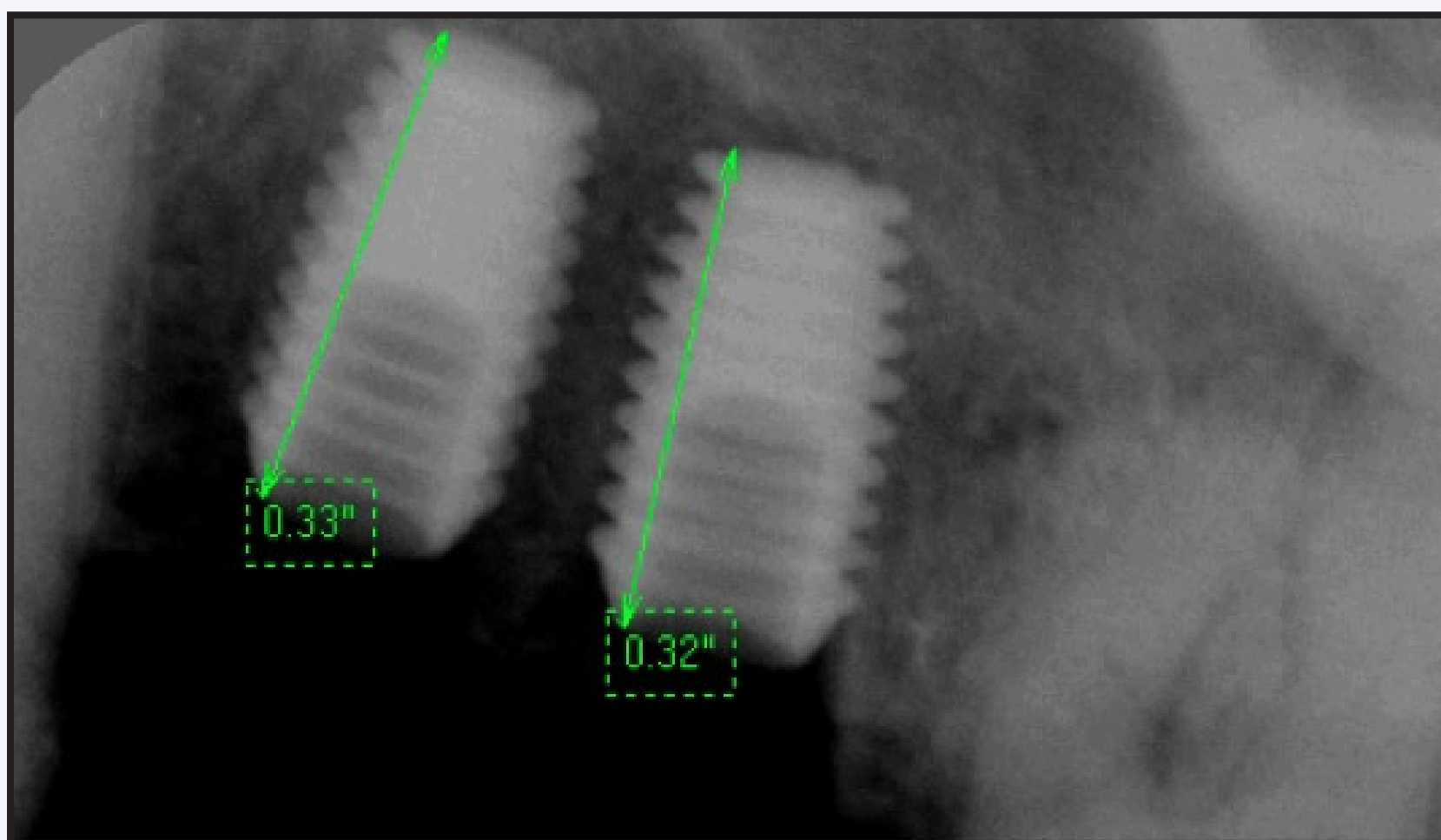
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Calibration of the X-Rays

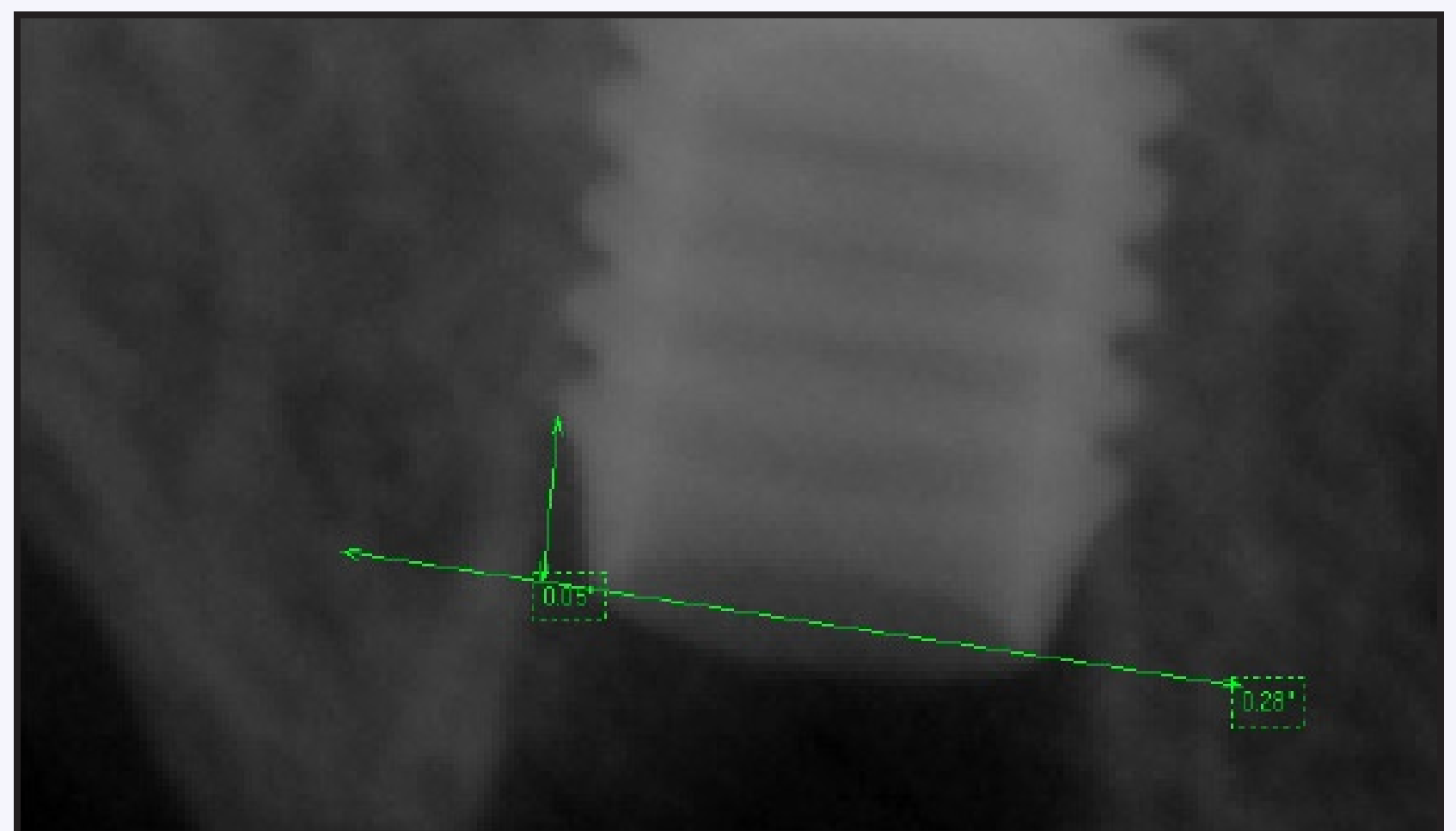
In order to obtain accurate measurements, the digital x-rays were calibrated by:

- 1- the use of the paralleling technique
- 2- the Digora® for Windows 2.1™ software using the distance measurement method of calibration (since the exact length/width of the implants is known)

Calibration of the X-Rays



Bone Measurement



Results

- The average distance between the implant abutment connection and the first bone-to-implant contact for immediately loaded-stabilized locking taper implants at crown insertion was 0.81mm and 1.01mm for conventionally loaded. Slightly higher bone loss was observed on conventionally loaded locking-taper implants from the day of implant placement to the day of insertion of the final restoration.
- The average distance between the implant abutment connection and the first bone-to-implant contact for immediately loaded-stabilized locking taper implants at the recall appointment was 1.06mm and 0.81mm for conventionally loaded. Slightly higher bone loss was observed on immediately loaded locking-taper implants from the day of insertion of the final restoration to the recall appointment.

Conclusion

- The IC-FBIC distance for locking taper implants is less than what has been documented for conventional screw-retained implants. It is hypothesized that the locking taper connection provides for an environment that leads to the preservation of the bone around it.
- More studies are necessary to evaluate the differences between the bone loss around immediately stabilized and conventionally loaded locking taper implants.