

A prospective clinical study of the performance of a contemporary hybrid surfaced implant: preliminary data.

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Background

Dental implants are a successful treatment modality for tooth replacement. Maintaining implant bone levels and soft tissue dimensions remain a multifactorial challenge. The T3 Pro implant (ZimVie, USA) features a dual acid-etched surface with an additional coarse micron blasted media below the collar, apical threads with increased depth and integrated platform switching aimed at preserving crestal bone and soft tissue while enhancing primary stability.

This study aims to evaluate the performance and patient outcomes of this implant system.

Methods

This clinical study involves ongoing recruitment of 30 patients requiring implants. Patients receive T3 Pro implants using standardized protocols and are followed for 2 years post-placement.

Pre-surgical assessments include medical history, clinical exam, gingival and plaque indices, and radiographic evaluation with CBCT and intra-oral radiographs.

Implant surgery is performed per manufacturer recommendations. At surgery, photographs and periapical radiographs are obtained, and placement depth, implant stability quotient (ISQ), insertion torque, implant fit, and bone density are recorded. Two-week post-operative visits assess for inflammation, purulence, or edema.

At restoration delivery, photos and final ISQ are recorded. Annual follow-ups occur for 2 years. The primary endpoint is 2-year implant survival; secondary endpoints include crestal bone regression, soft tissue healing, esthetic and function via patient reported outcomes.

Reference

**Buser D, Janner SF, Wittneben JG, Brgger U, Ramseier CA, Salvi GE. 10-year survival and success rates of 511 titanium implants with a sandblasted and acid-etched surface: a retrospective study in 303 partially edentulous patients. Clinical implant dentistry and related research. 2012;14(6):839-51.*

Figure 1

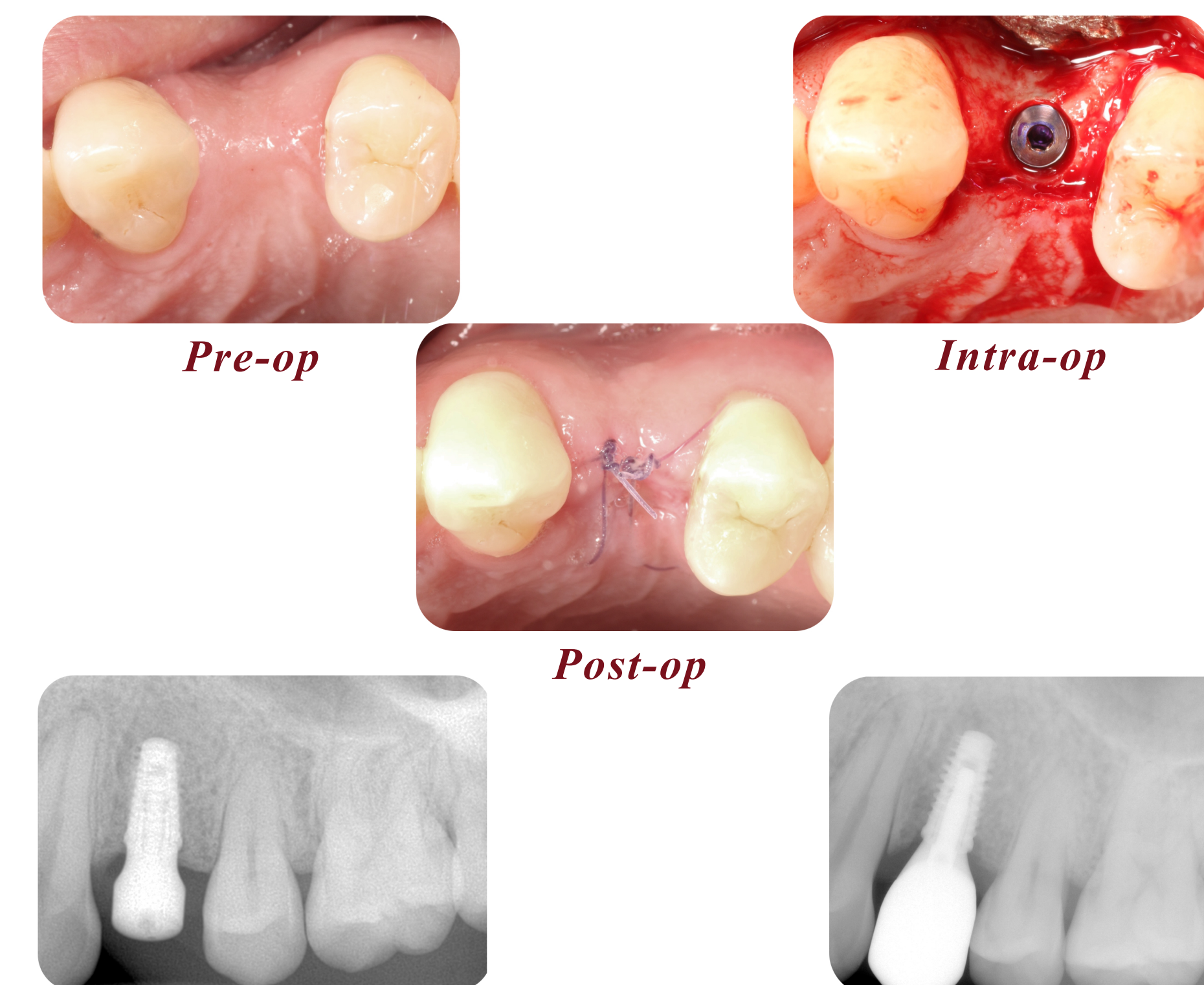


Figure 2

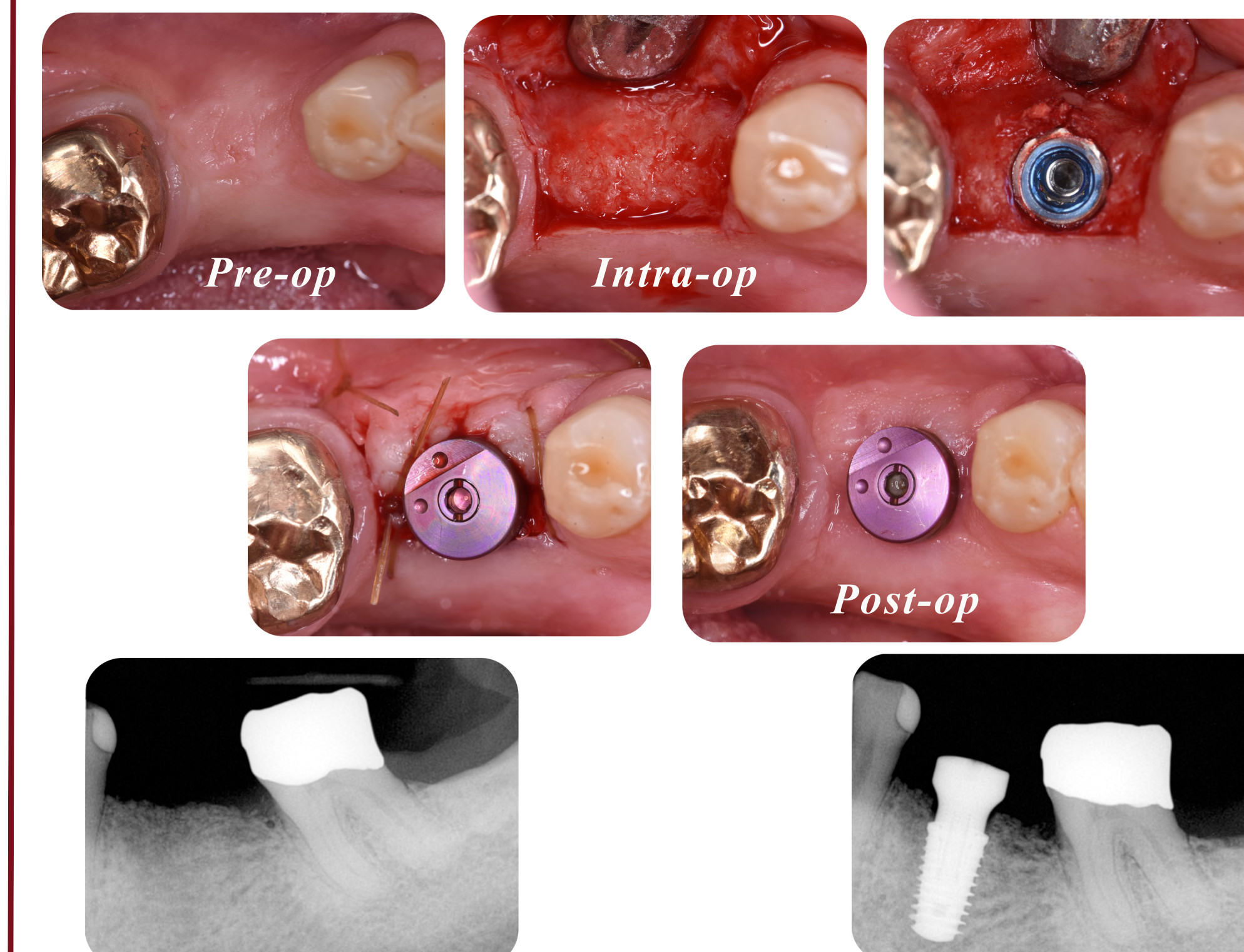
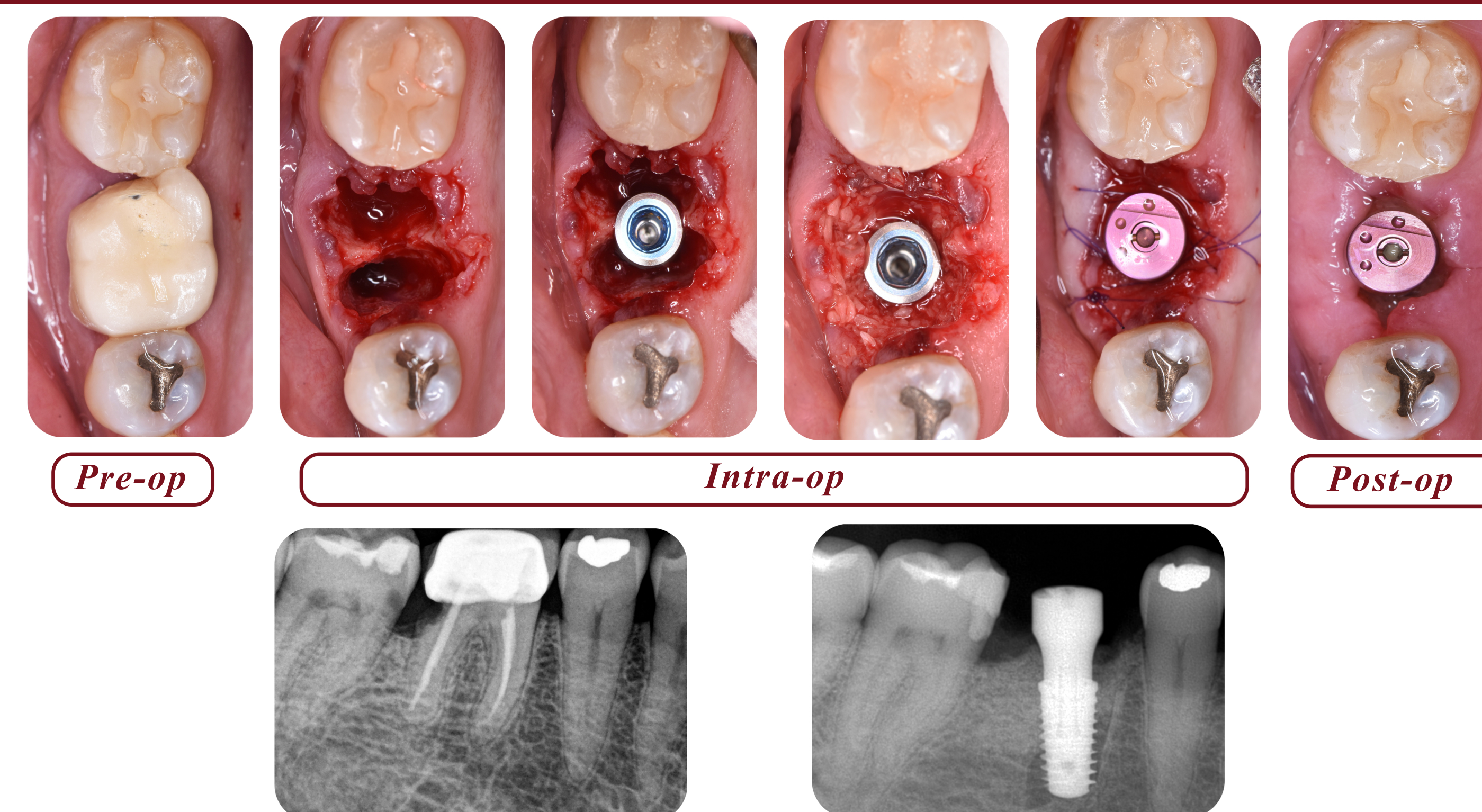


Figure 3



Results

The study is ongoing, 17 patients received implants and 5 patients received final restoration. Preliminary findings demonstrate 100% survival rates, mean ISQ at implant placement of 78.83, mean insertion torque 35.17 Ncm, and minimal crestal bone remodeling consistent with health. No study-related adverse events have been reported.

The mean ISQ values for immediate and delayed implant groups were 73.5 and 81.50 respectively.

Immediate and delayed implant groups achieved mean torque values of 28.4 Ncm and 38 Ncm respectively.

Subject (Tooth #)	ISQ	Torque (Ncm)	Timing of Placement	Depth of placement	Bone Density
S1 (#30)	86.50	50	Delayed	Crestal	D2
S2 (#14)	82.00	60	Delayed	Crestal	D2
S3 (#19)	85.00	70	Delayed	Sub-Crestal	D2
S4 (#14)	80.50	15	Delayed	Sub-Crestal	D3
S5 (#12)	77.00	25	Delayed	Sub-Crestal	D3
S6 (#4)	75.50	35	Delayed	Crestal	D3
S7 (#4)	52.00	9	Immediate	Sub-Crestal	D2
S8 (#20)	85.00	35	Delayed	Sub-Crestal	D2
S9 (#30)	80.00	35	Delayed	Crestal	D1
S10 (#3)	80.50	45	Immediate	Sub-Crestal	D2
S11 (#31)	84.50	50	Delayed	Sub-Crestal	D1
S12 (#30)	77.00	25	Immediate	Sub-Crestal	D2
S13 (#30)	65.50	35	Immediate	Sub-Crestal	D3
S14 (#3)	82.50	45	Delayed	Sub-Crestal	D3
S15 (#12)	71.50	18	Delayed	Sub-Crestal	D2
S16 (#13)	92.50	28	Immediate	Sub-Crestal	D3
S17 (#20)	79	18	Delayed	Sub-Crestal	D3
Mean	78.83	35.17			

Conclusion

The T3 Pro implant system shows favorable short-term clinical outcomes. Continued follow-up will provide evidence for its long-term performance and help validate platform-switching and surface-modification for peri-implant tissue preservation. Ongoing data collection will reveal additional information on all outcome measurements.

Acknowledgments

**Study is sponsored by ZimVie Dental, Palm Beach Gardens, FL.
We would like to Acknowledge Drs Massimo Costalonga, Flavia Lakschevitz, and Paul Olin for their contributions to the project.