

Evaluation of gradually anodized surface on four implant systems. A prospective, thousand-patient real-world study.

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INTRODUCTION

The surface of a gradually anodized implant comprises a moderately rough apex designed to promote early osseointegration, and a minimally rough collar to limit peri-implantitis and facilitate cleaning.



To evaluate the clinical performance of TiUltra in a large-scale prospective real-world data (RWD) collection from routine clinical practice and a diverse population of consecutive patients with varying comorbidities and demographics, not subject to the strict eligibility criteria nor a specified protocol typically followed in a clinical trial.

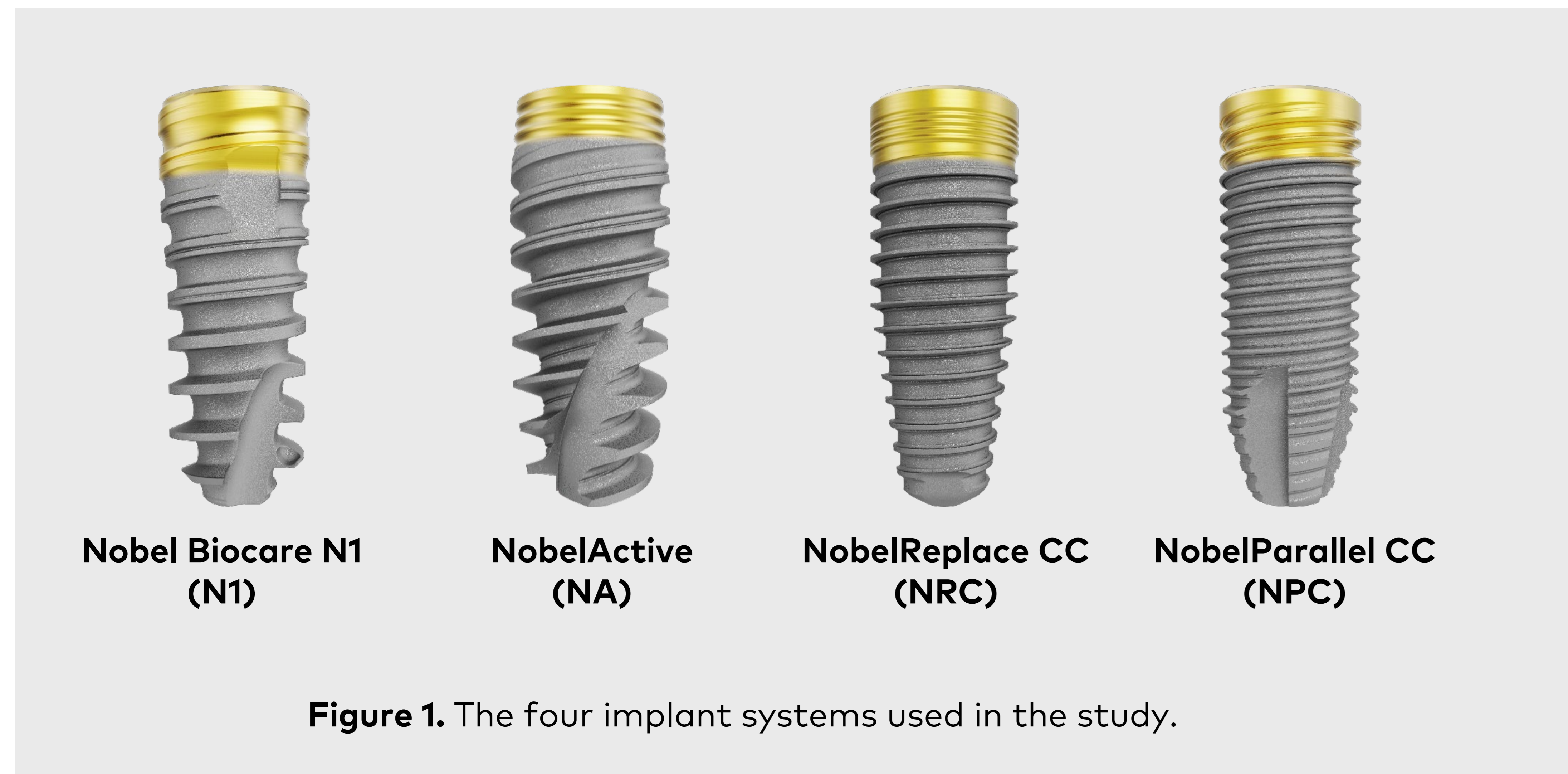


Figure 1. The four implant systems used in the study.

METHODS & MATERIALS

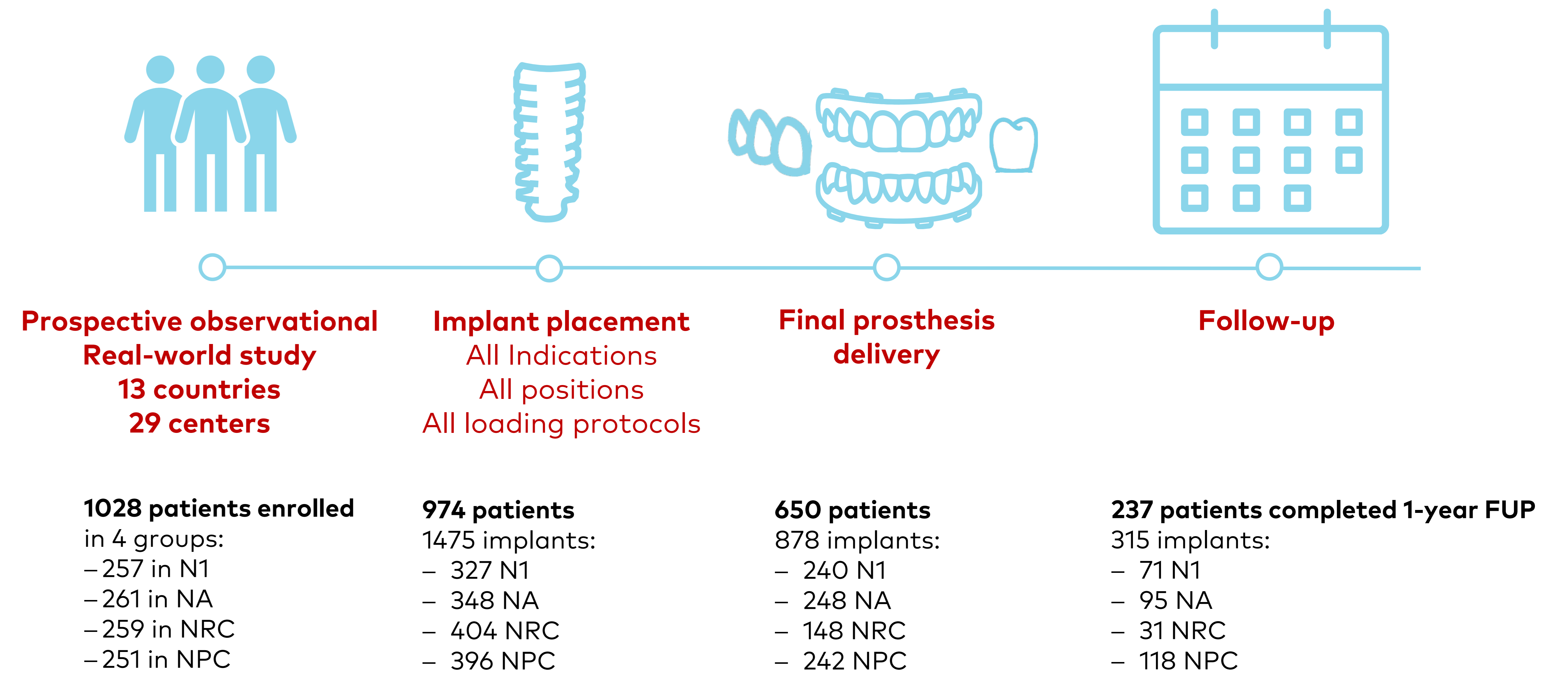


Figure 2. Study flow-chart. Data according to extraction on January 18, 2024.

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RESULTS

Table 1. Baseline patient characteristics (n=1028 patients)

Patient characteristics		n (%)
Sex	Female	567 (55.2%)
	Male	459 (44.6%)
	Non-reported	2 (0.2%)
Age (mean ±SD; range; in years)		53.3 ±11.7 (18-71)
Smoking status	Current smoker	76 (7.4%)
	Nonsmoker	952 (92.6%)
Relevant medical history	Parafunctional tendencies	42 (4.1%)
	History of periodontitis	85 (8.3%)
	Diabetes	23 (2.2%)
	History of peri-implantitis	16 (1.6%)
	History of oral mucositis	18 (1.8%)
	Other significant conditions*	59 (5.7%)

*cancer (other than oral cancer), osteoporosis, use of bisphosphonates

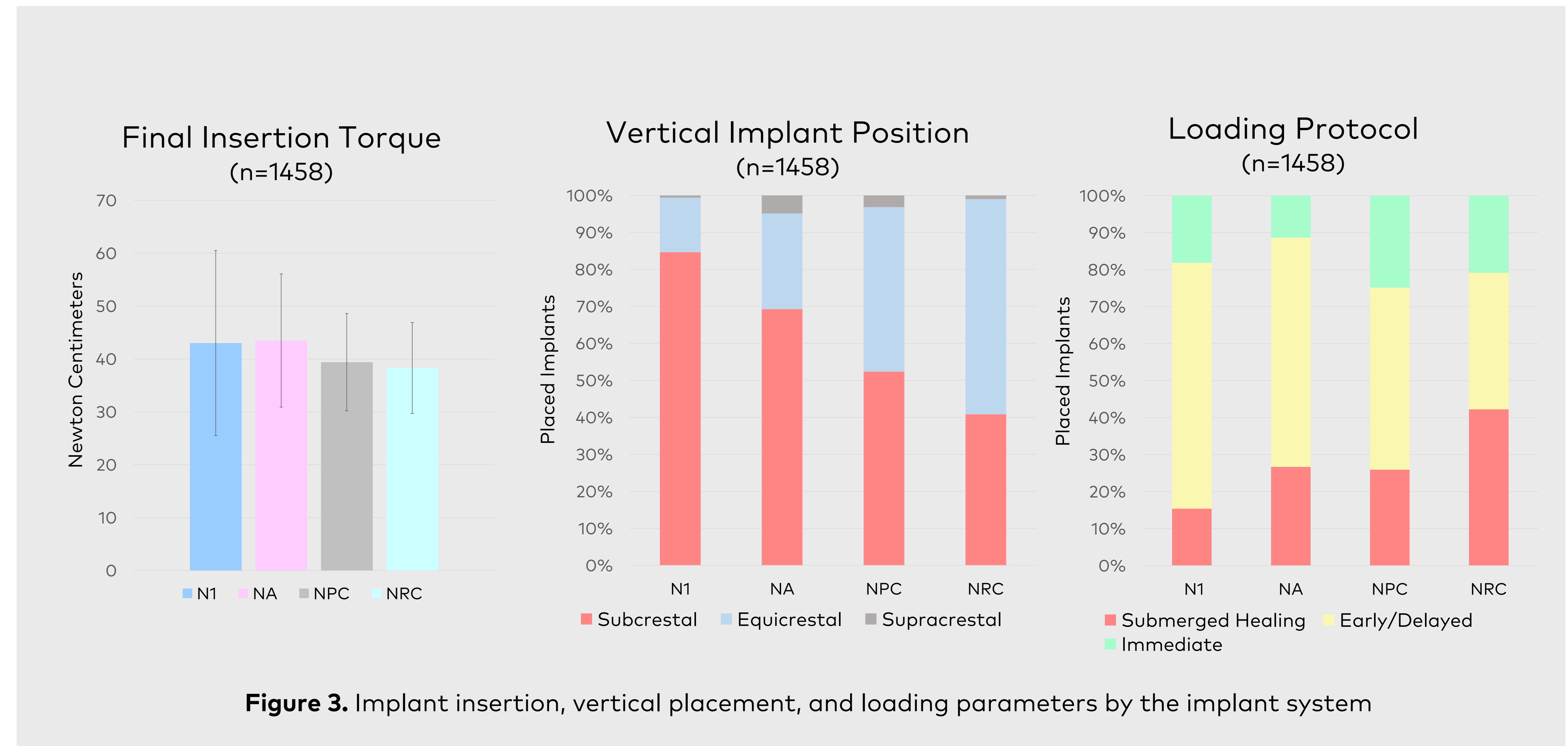


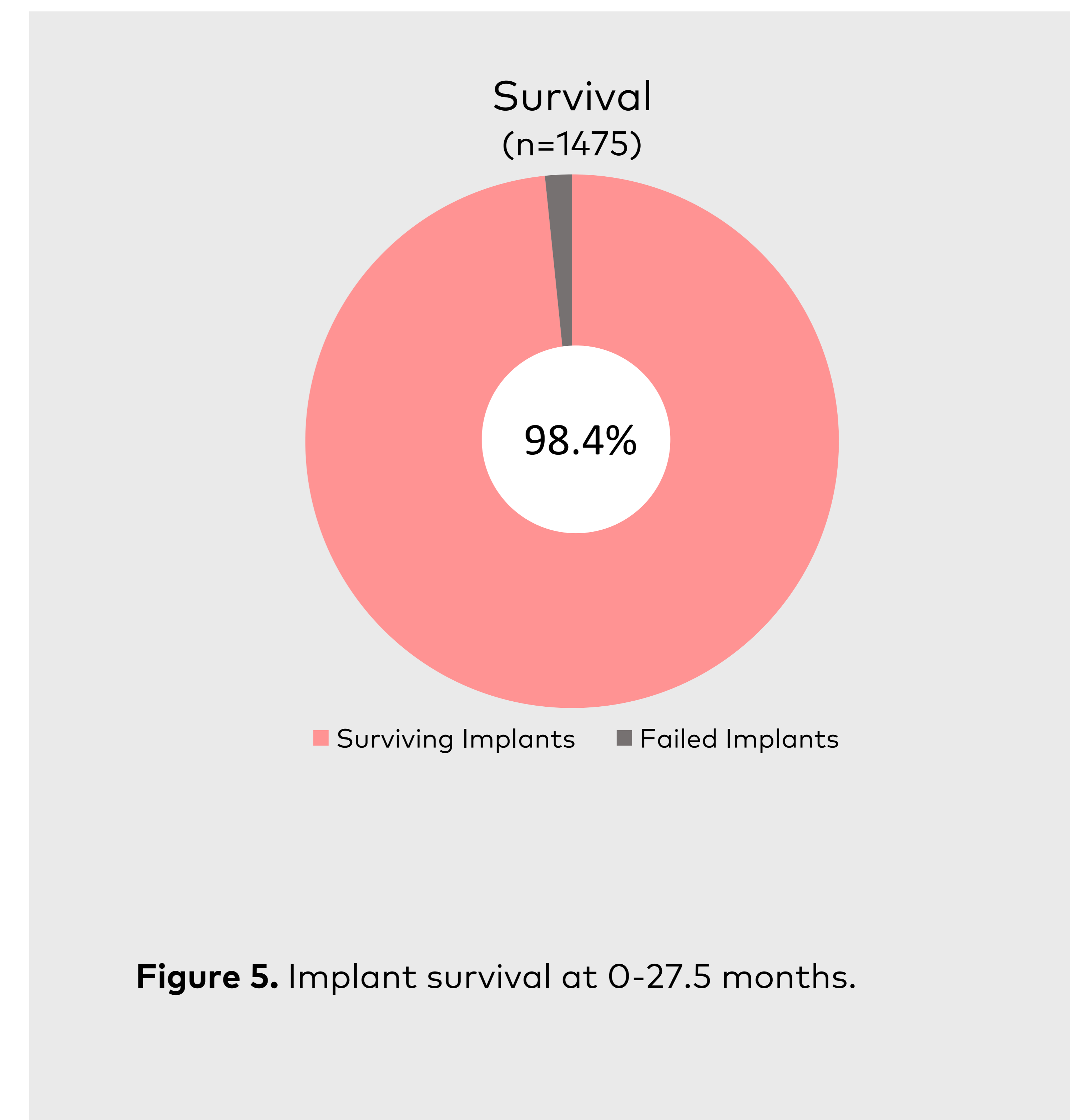
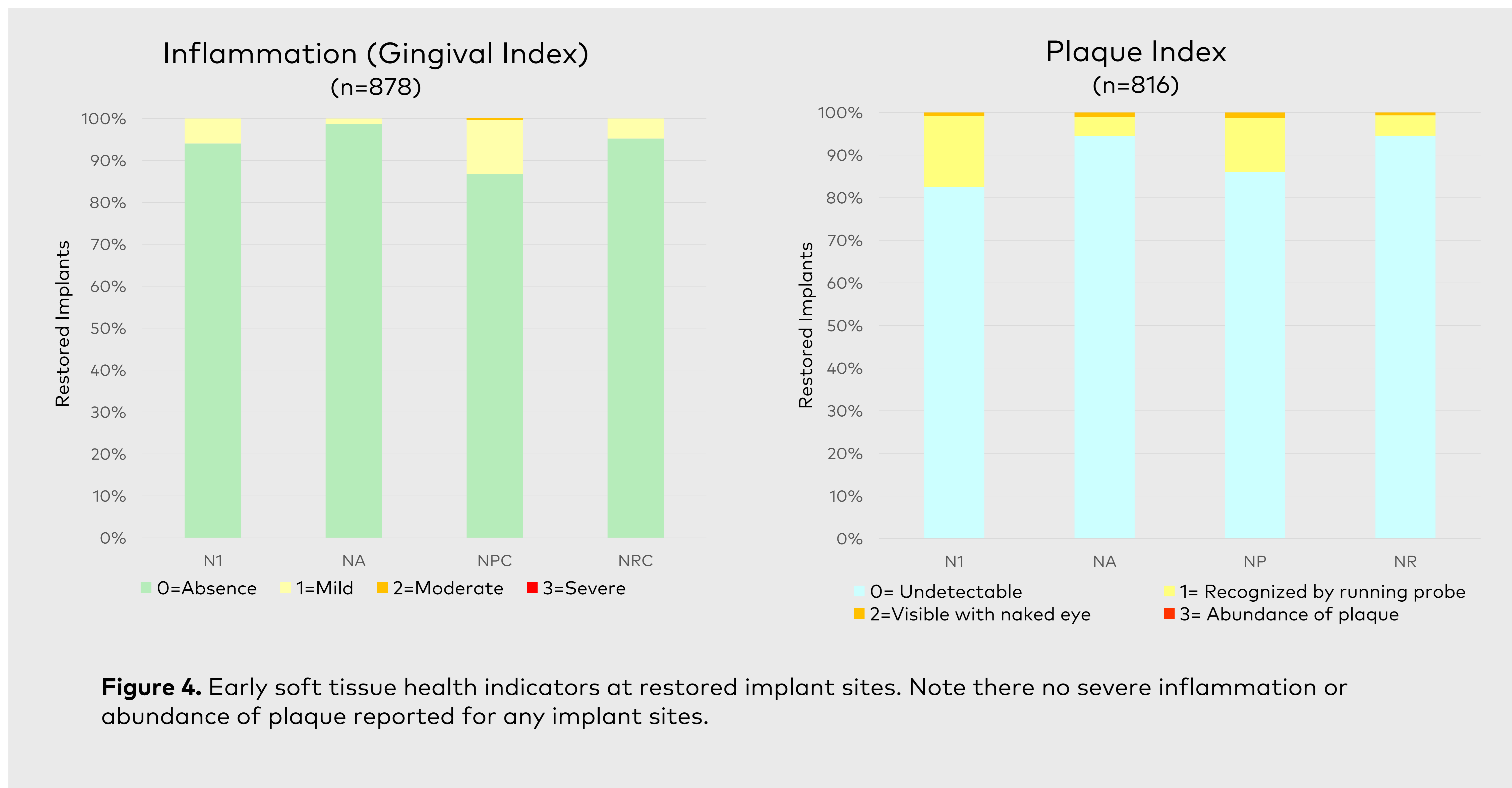
Figure 3. Implant insertion, vertical placement, and loading parameters by the implant system

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CLINICAL CASE

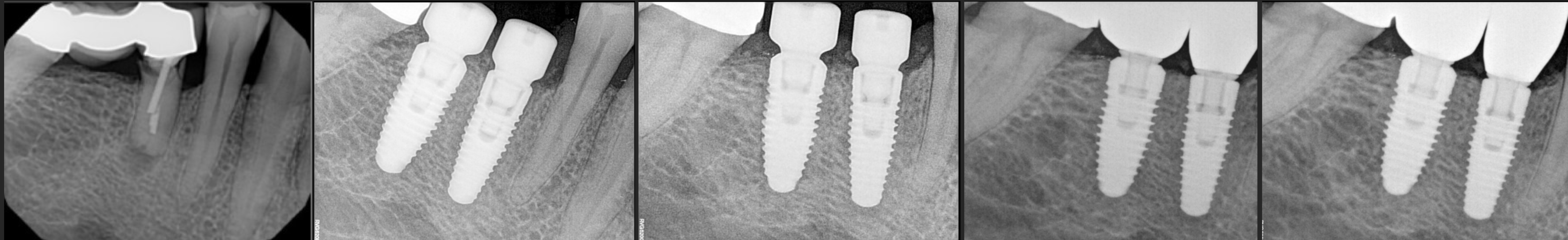
Pre-treatment

Implant Placement

Clearance for Restoration

Final Prosthesis Delivery

1-year Follow-up



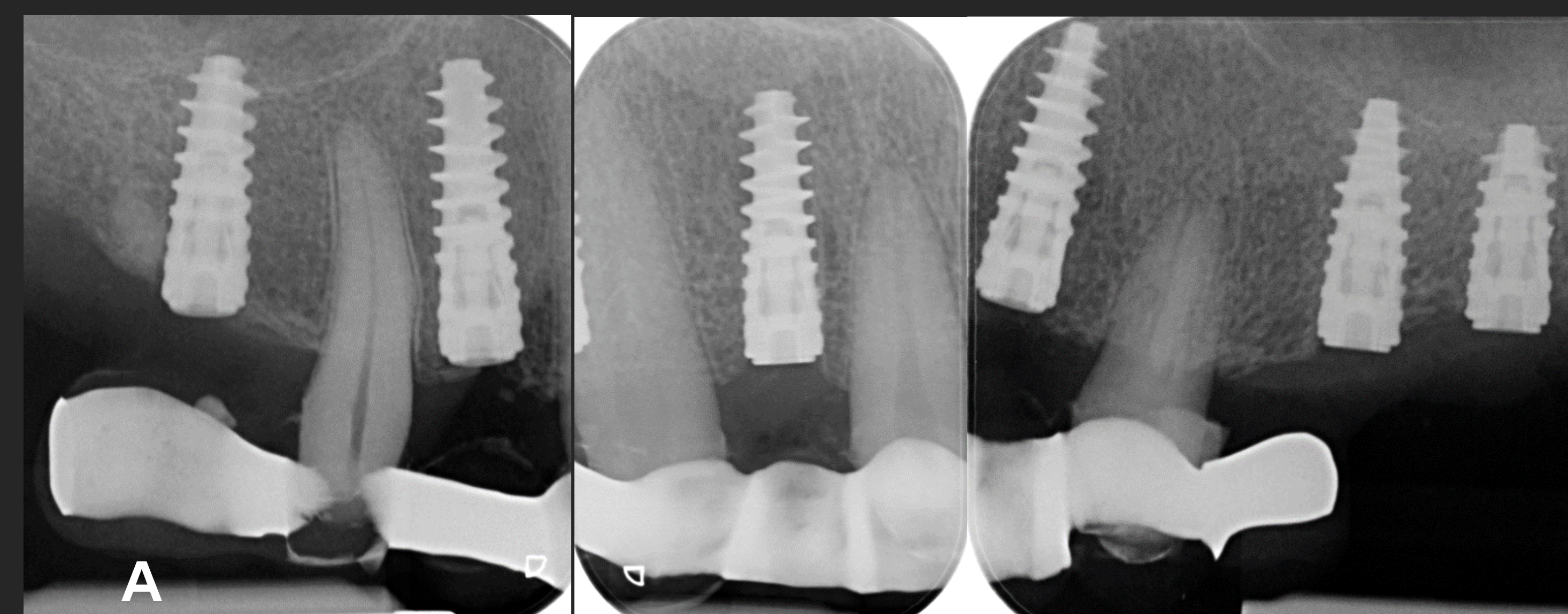
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Figure 6. A 49-year-old non-smoker male presented with a fractured, endodontically-treated tooth (FDI position 45) supporting a bridge, which needed to be removed. Immediately after the extraction of the premolar, a NobelReplace CC (4.3 X 11.5 mm) was placed subcrestally, and an additional implant (5.0 X 11.5 mm) was inserted equicrestally into the healed FDI 46 site. They were both fitted with Healing Abutments. After 3.8 months, the implants were cleared for restoration. The final prosthesis delivery (FPD) took place 6.2 months after implantation. The follow-up (FUP) took place 14.9 months after the FPD, demonstrating excellent bone stability. Both, at FDP and FUP, there were no signs of inflammation.

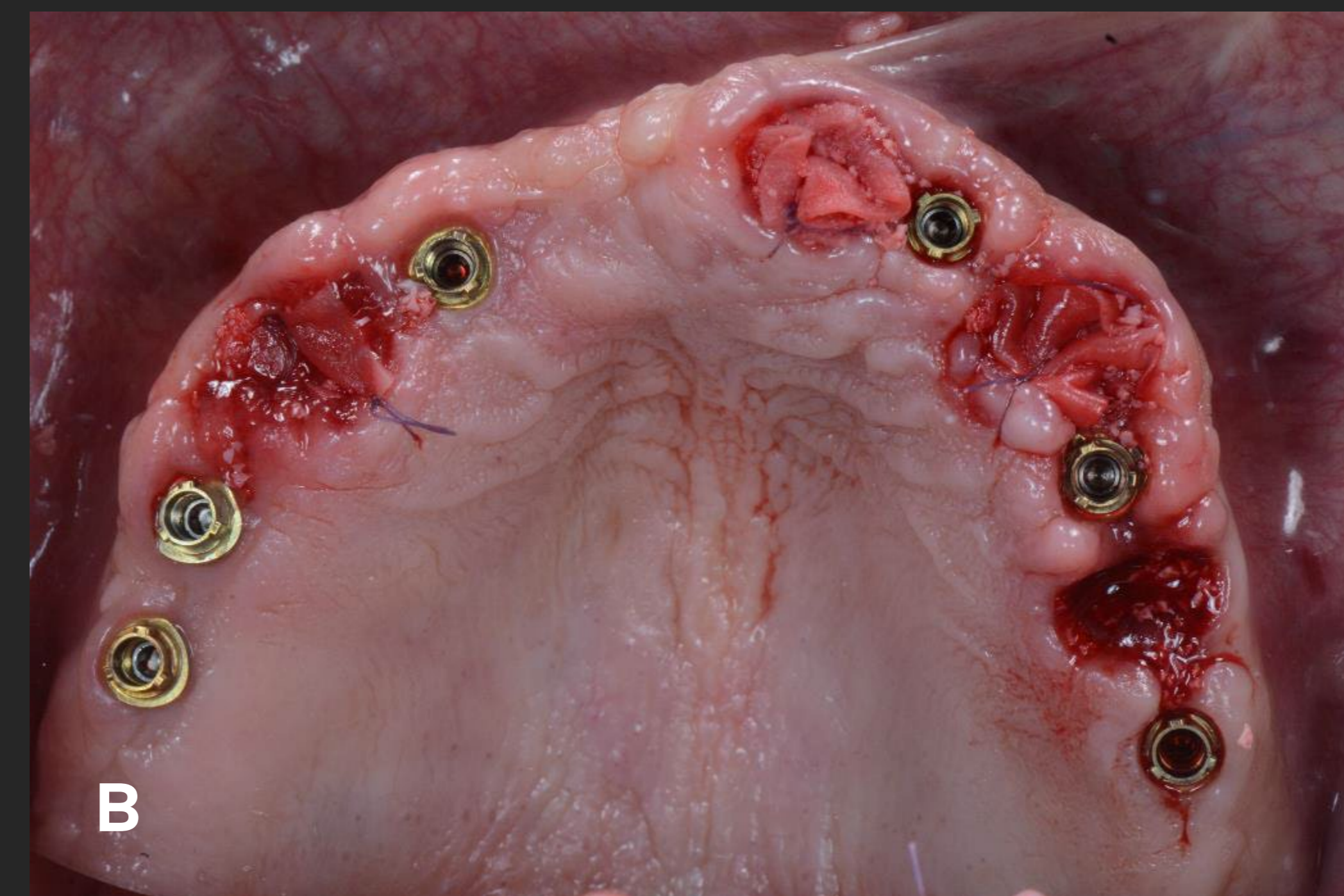
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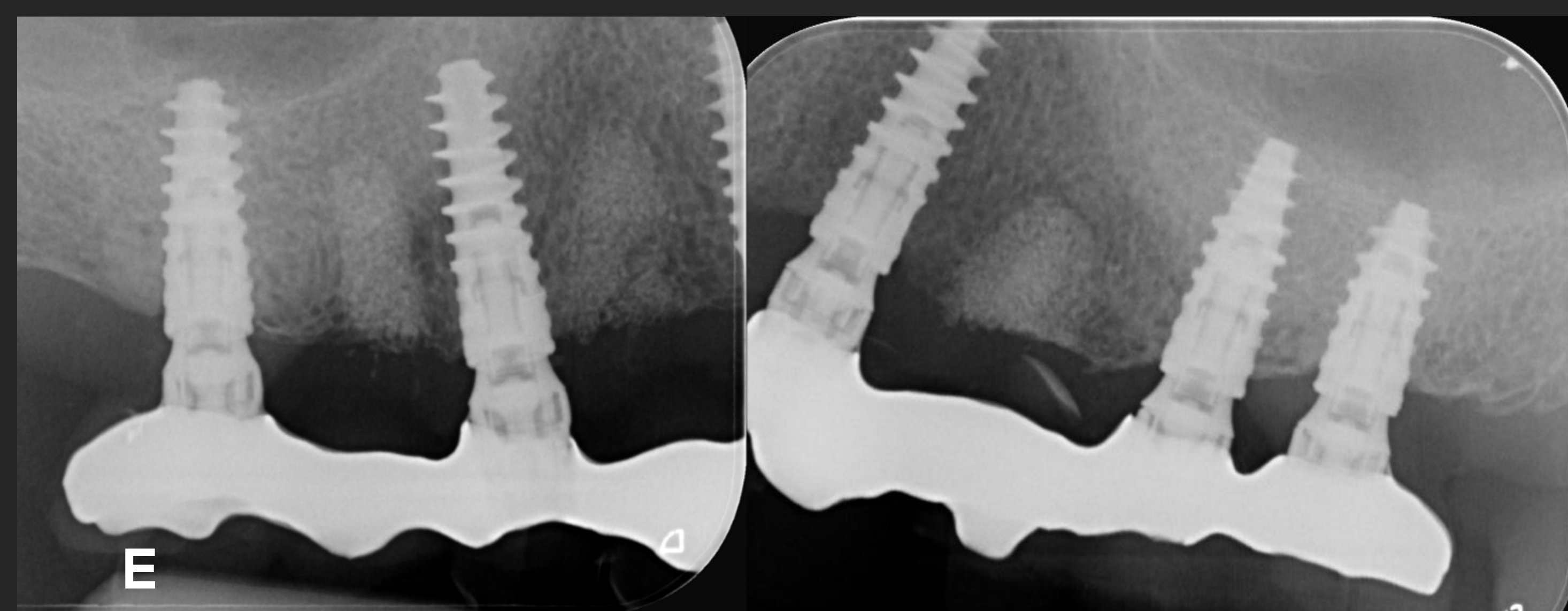
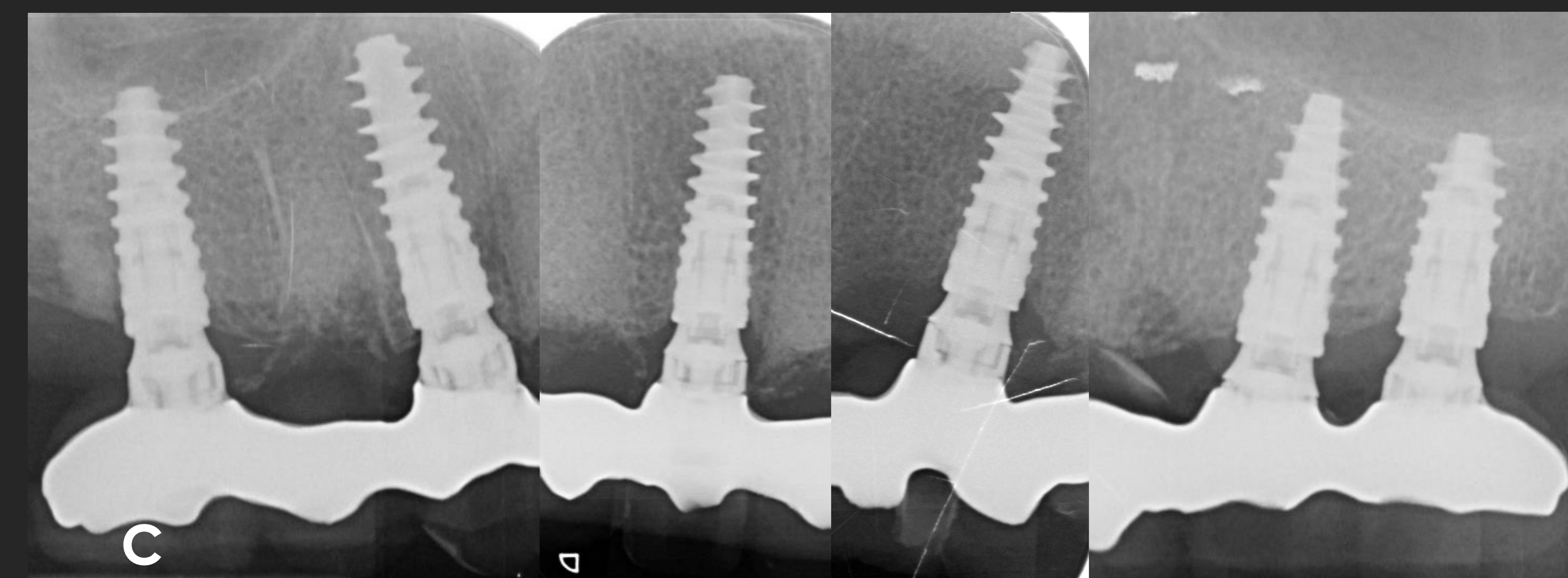
CLINICAL CASE



Fitting with Abutments



Final Prosthesis Delivery



Studio Odontoiatrico Specialistico Cattolica, Italy

Figure 7. A healthy 52-year-old non-smoker male presented with a hopeless dentition. The trioval geometry Nobel Biocare N1 implants were inserted subcrestally at FDI sites 12, 14, 16, 22, 24, and 26 (panel A) using a low-speed site preparation protocol. The provisional prosthesis was placed on the remaining dentition (panel A), where it remained during the submerged healing. Subsequently, 4.2 months after implantation, the temporary arch was removed, the remaining teeth were extracted, and the sockets were filled with deproteinized bovine bone material (DBBM: creos xenogain, panel B). Simultaneously, the implants were fitted with N1 Base XEAL (RP 1.75 mm abutment; panel B), and the final prosthesis was delivered (panel C). The first follow-up took place 14.9 months after the final prosthesis delivery (panel D,E) at which point, there was no sign of inflammation or plaque formation.

CONCLUSION

Within the limitation of this interim analysis, gradually anodized surface implants showed successful early osseointegration and healthy soft tissue response across a wide variety of protocols and all indications in routine clinical practice.

REFERENCES

1. Rational design and in vitro characterization of novel dental implant and abutment surfaces for balancing clinical and biological needs. V Milleret, P S Lienemann, A Gasser, S Bauer, M Ehrbar, A Wennerberg. Clin Implant Dent Relat Res. 2019 Mar;21 Suppl 1:15-24

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