

Predictors of Peri-Implantitis Severity: A Cross-Sectional Analysis

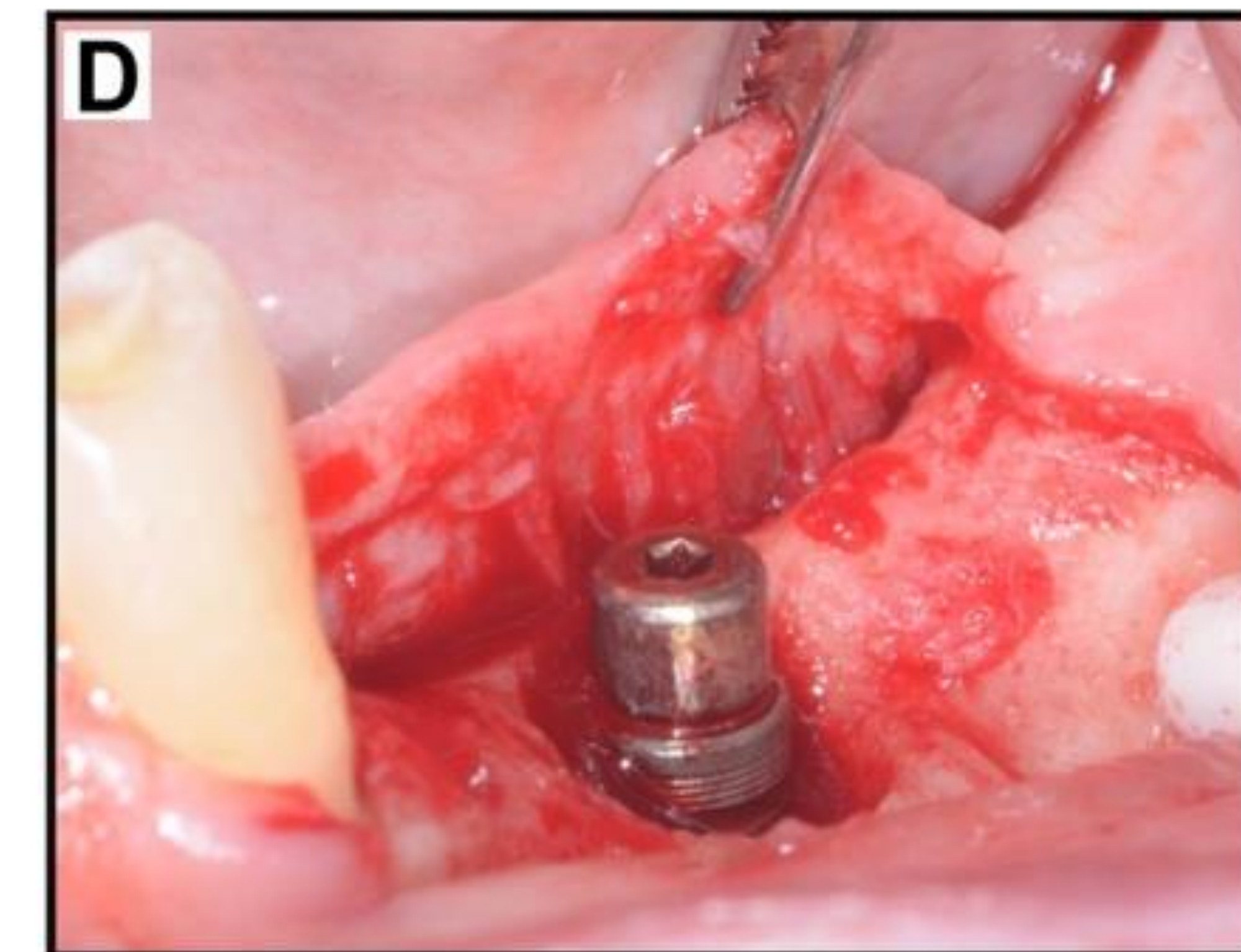
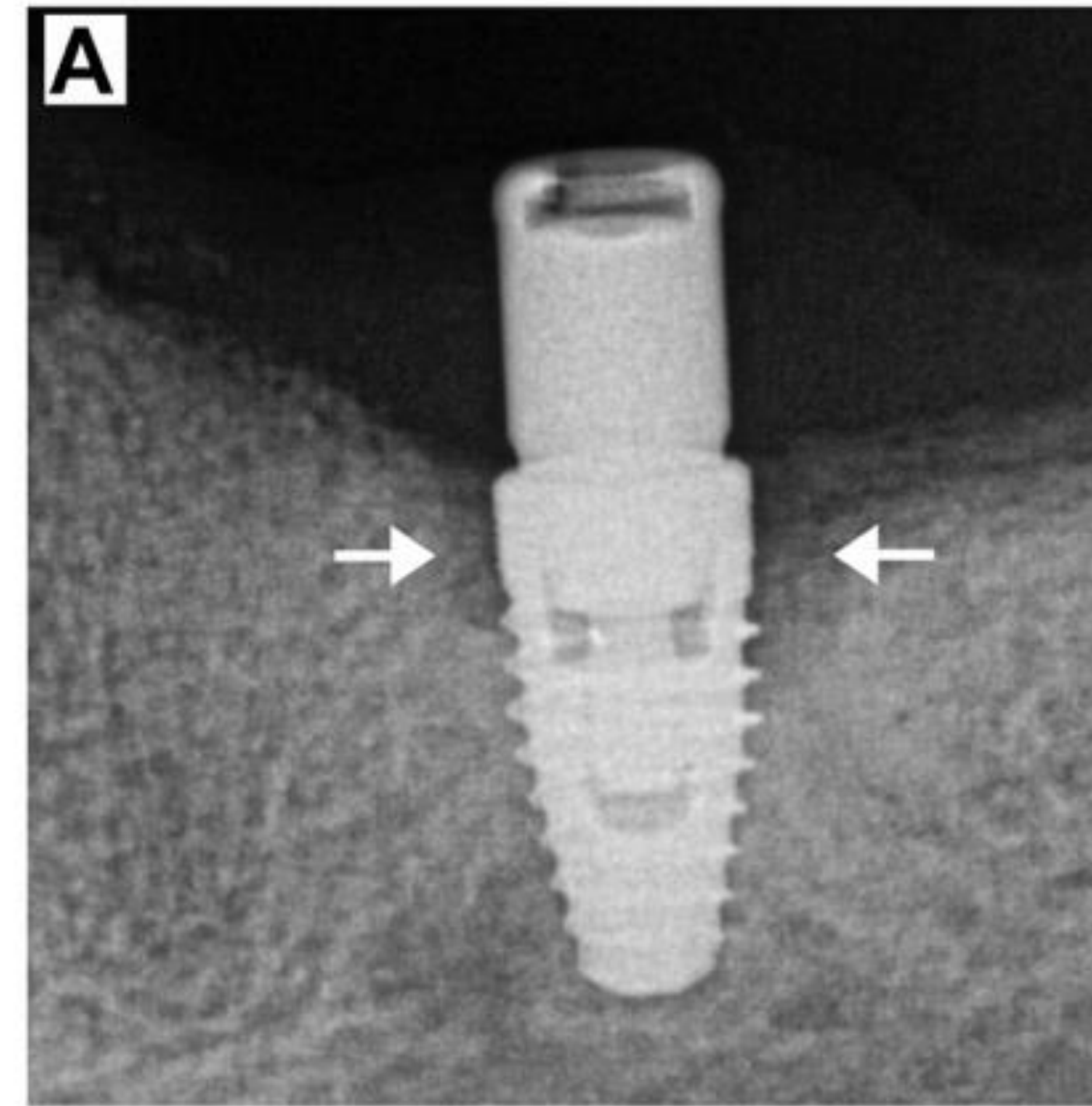
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Background: Peri-implantitis severity is influenced by combination of patient, site, and prosthetic factors. This cross-sectional study evaluated demographic, clinical, site-level, and radiographic predictors of peri-implantitis severity, categorized by radiographic bone loss (RBL) as Mild (<25%), Moderate (25–50%), and Severe (>50%).

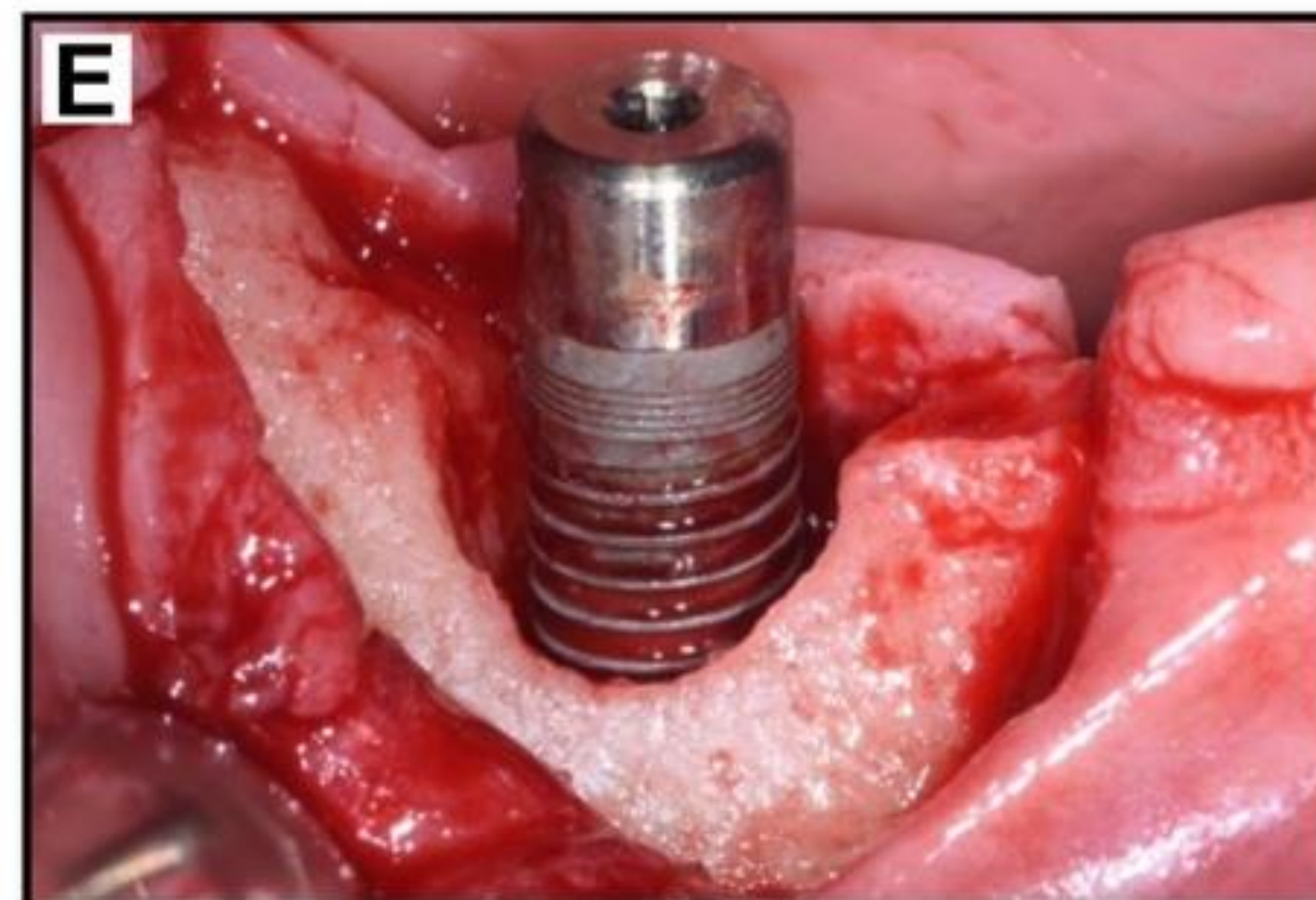
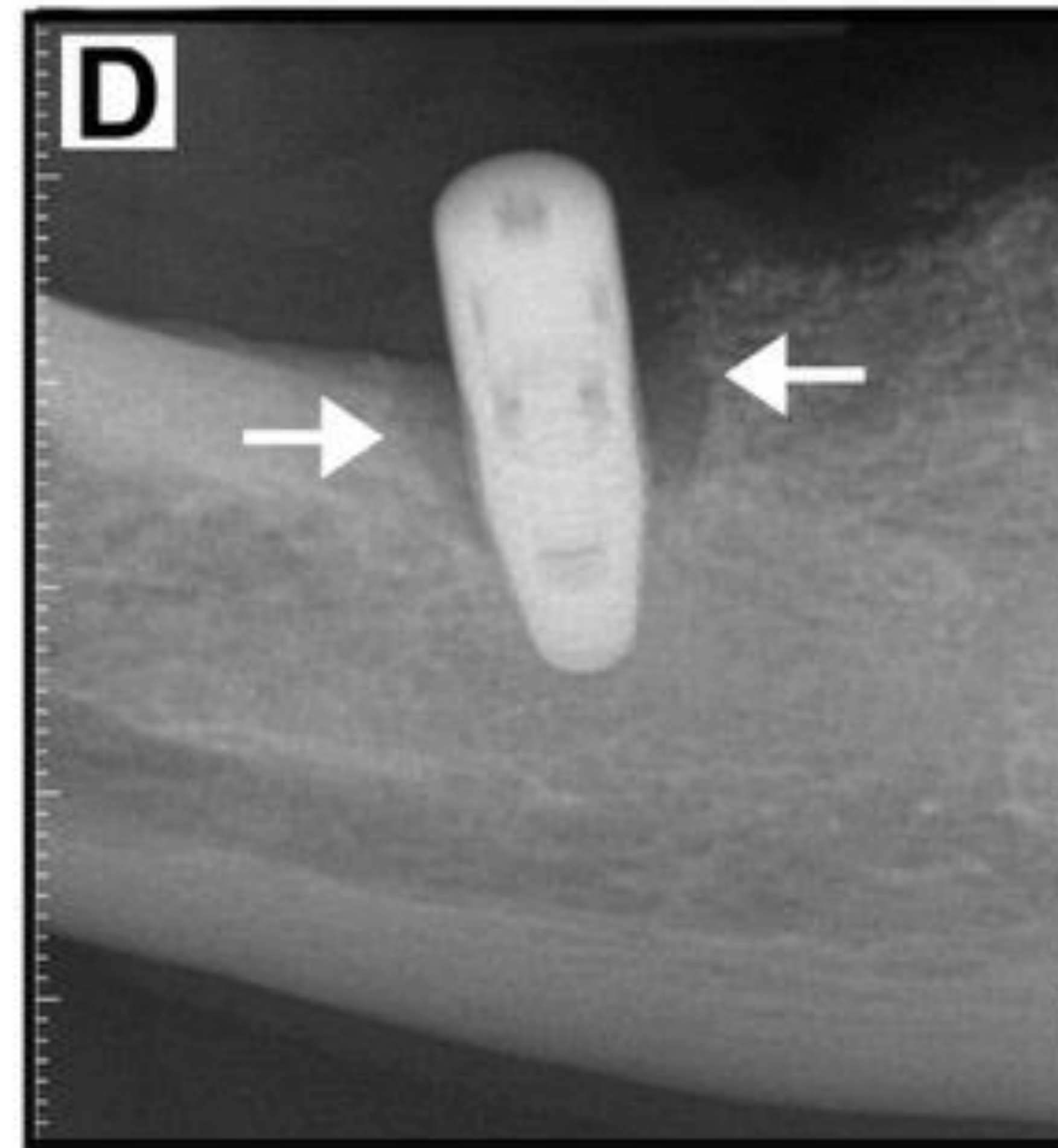
Results: In 90 patients (mean age 65 yrs; 53 females) with 167 affected implants, peri-implantitis severity was 11% mild, 68% moderate, and 21% severe. At implant level, molars exhibited maximum disease severity and deeper PD than anterior implants, while premolars and molars showed higher maximum and mean PD. Longer time in function was associated with worse outcomes, including higher severity, increased bone loss, and greater %RBL. BoP correlated positively with both maximum and mean PD. A crown-to-implant ratio <1 was associated with greater RBL, and implants placed in preserved and non-preserved sockets exhibited greater bone loss than GBR-treated sites. Maxillary implants showed slightly lower maximum bone loss than mandibular implants. At the patient level, tobacco/vaping and older age were associated with more severe disease.

Conclusion: Peri-implantitis severity is driven by age, tobacco/vaping, anatomic location, time in function, BoP and prior history of grafting supporting risk-stratified surveillance and targeted interventions to limit progression to severe peri-implantitis.

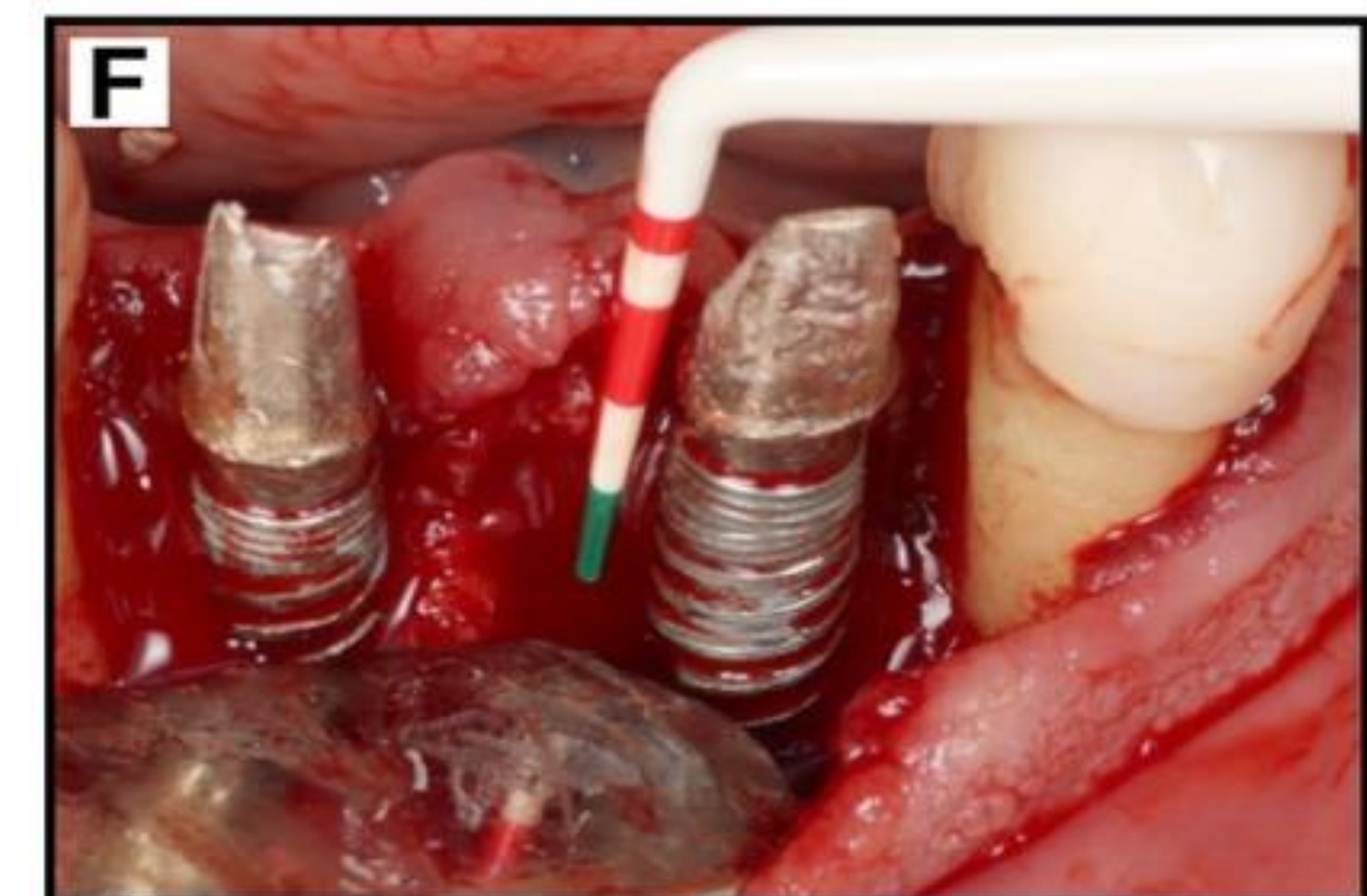
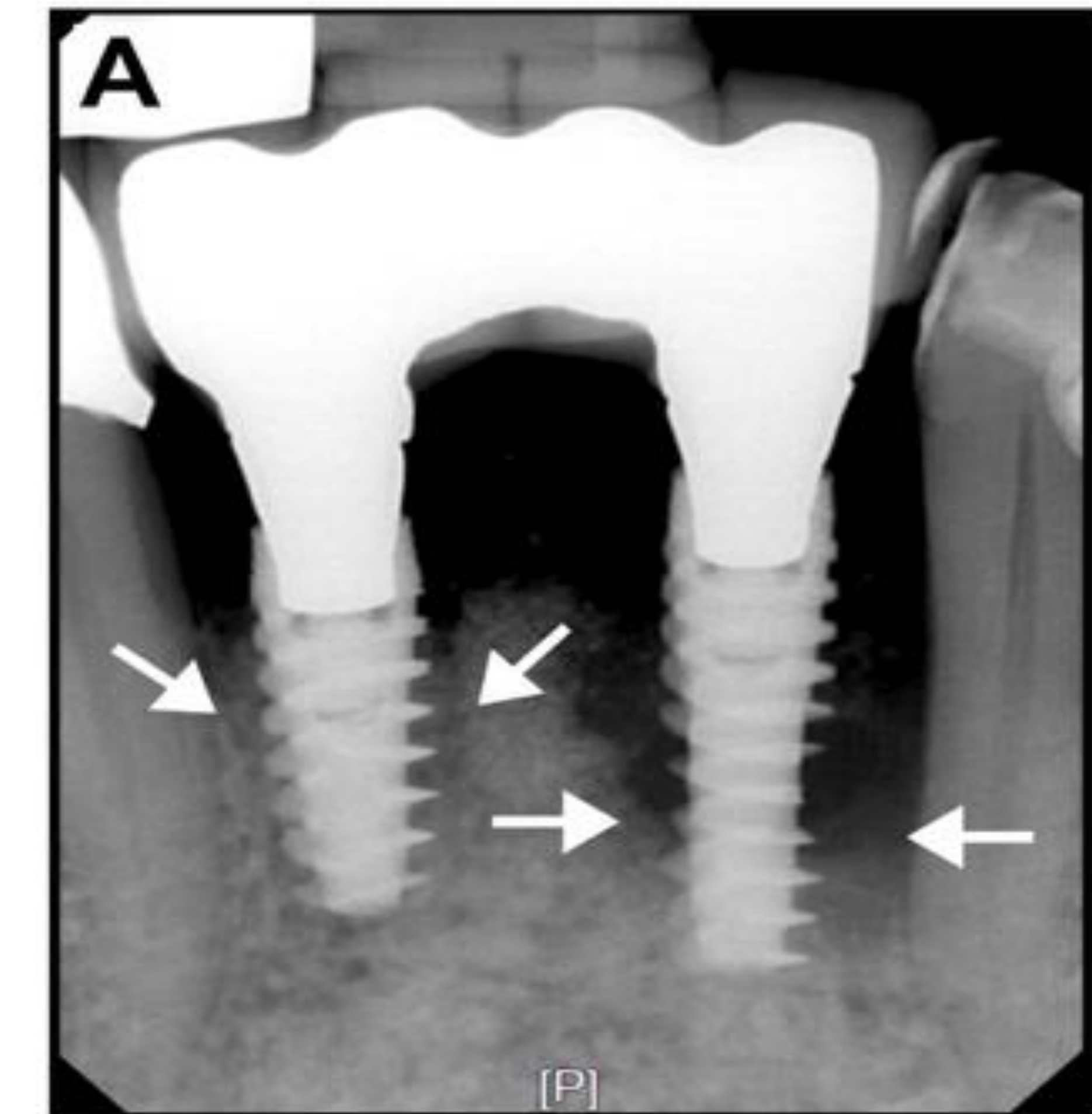
Mild



Moderate

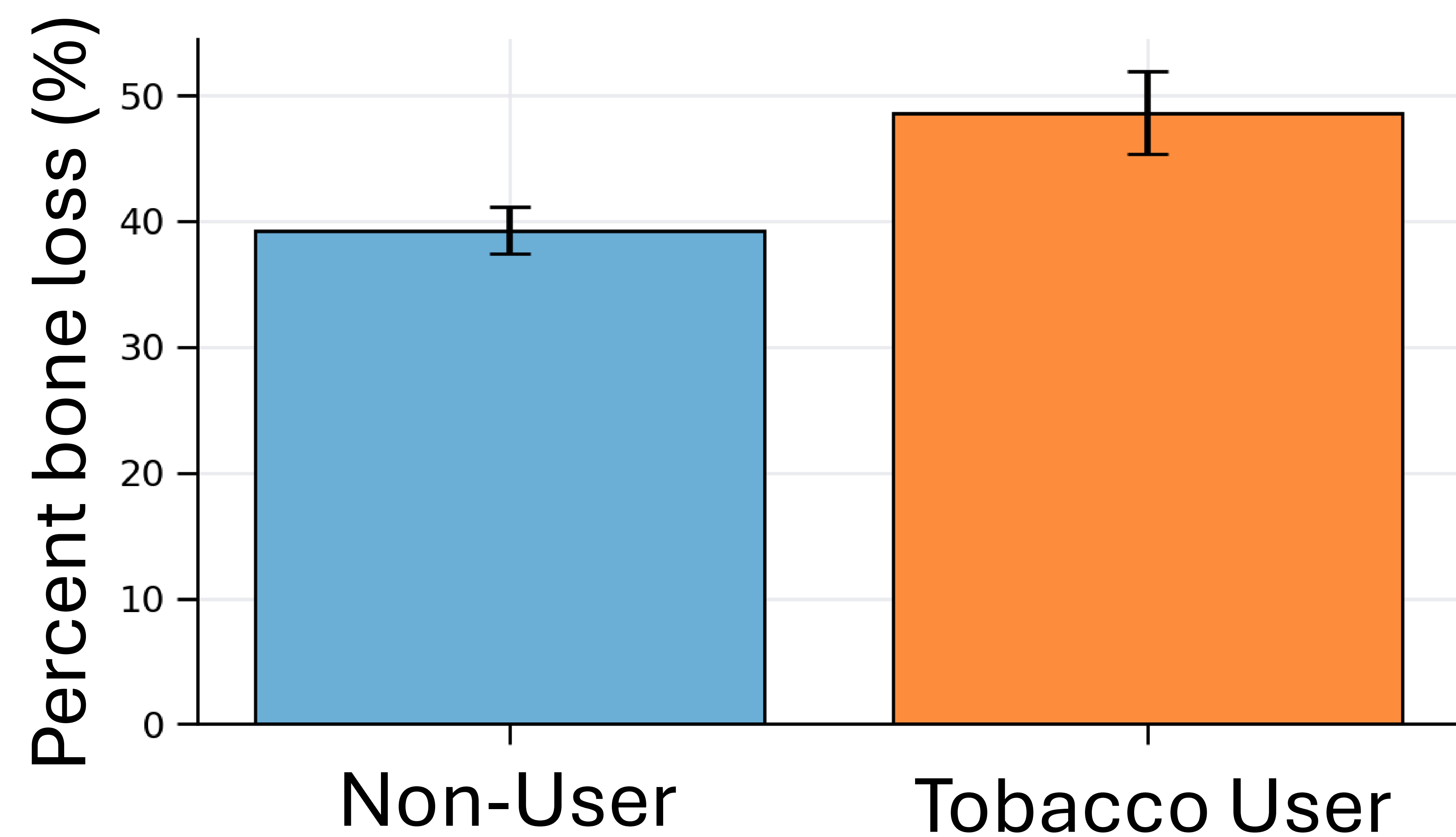


Severe

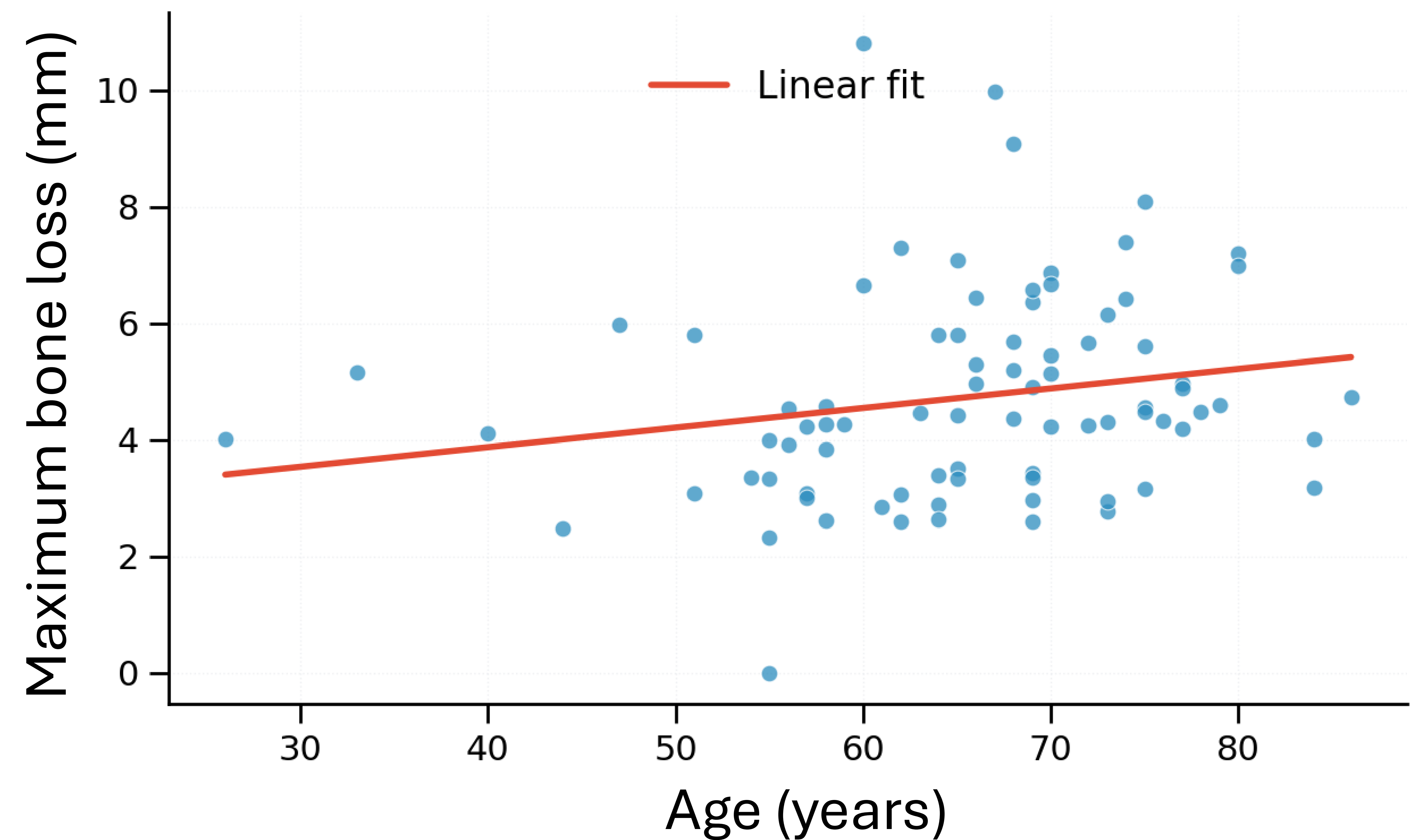


Subject Level Outcomes

Percent Maximum Bone Loss



Maximum Implant Bone Loss vs Age



Implant Level Outcomes

Outcome	Variable	Estimate (β)	Direction	P-value
Severity	Implant location (Molar vs Anterior)	2.22	↑	0.0324
	Time since placement (Per time unit)	0.0275	↑	0.0004
Average PD	Premolar vs Anterior	0.82	↑	≤ 0.0036
	Molar vs Anterior	1.16	↑	≤ 0.0036
	Bleeding sites (Each site)	0.25	↑	0.0002
	# Implants	-0.07	↓	0.0136
Marginal Bone Loss	Time since placement (Per time unit)	0.0104	↑	0.0011
	Crown:Implant <1 vs ≥ 1	0.86	↑	0.0003
	GBR vs Non-preserved Socket	1.04	↑	0.0007
	GBR vs Preserved Socket	0.75	↑	0.0255
	Maxilla vs Mandible	-0.59	↓	0.0499

Conclusion

Significant Predictors of Greater Severity of Peri-implantitis

Subject Level: Tobacco Use; Age

Implant Level:

- Molar (and premolar) location
- Longer time in function
- Higher BoP
- Preserved/non-preserved sockets > GBR-treated

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