

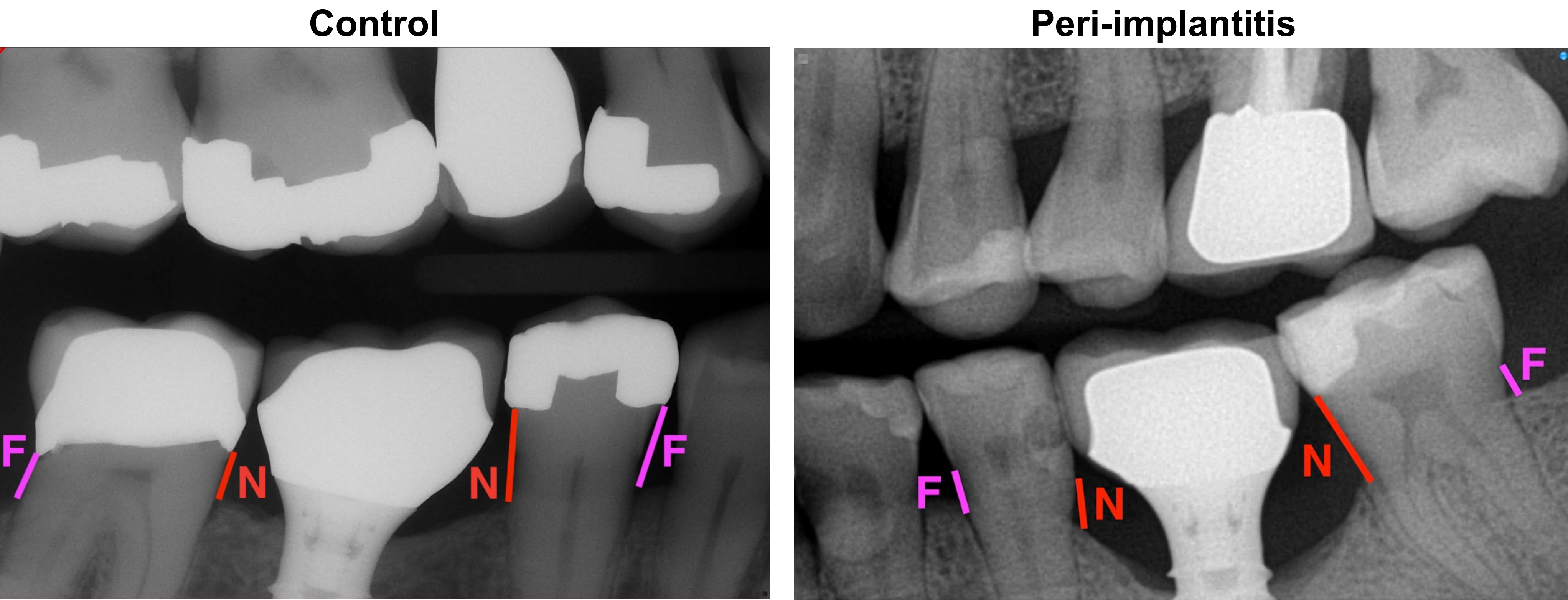


Background

Limited data exists regarding the effect of peri-implantitis on the periodontal status of adjacent natural teeth. Understanding how peri-implant diseases may influence the bone level of adjacent teeth will allow better judgement of how and when to intervene in the management of peri-implantitis, and potentially limit any negative consequences on natural dentition. The objective of this study was to radiographically evaluate the mesial and distal bone levels of teeth adjacent to implants with peri-implantitis placed with at least two years prosthetic loading.

Methods

This retrospective radiographic study was approved by the Harvard Medical School IRB (IRB20-0167). Implants with at least one adjacent natural tooth with radiographs at prosthetic loading (T1) and at least two years follow-up (T2) were selected. Implants with stable radiographic bone levels at both time points served as the control group, while the peri-implantitis (test) group comprised of implants with radiographic bone loss $\geq 3\text{mm}$ apical to the coronal portion of the intraosseous part of the implant. The bone level changes of the teeth on the ‘near’ (N) and ‘far’ (F) side relative to the implant were recorded between the loading and final follow-up radiographs. The purpose of this investigation was to evaluate the change in bone level between the two time points (T1 and T2). Patient-level and site-level variables were recorded for subset analysis.



Results

Forty-five control and 45 peri-implantitis sites with an average loading time of 4.5 years were evaluated in this preliminary study (Table 1). The peri-implantitis group had $1.11\text{ mm} \pm 1.75$ bone loss on the near side adjacent to the implant, with an average of $3.11\text{ mm} \pm 1.32$ at T1 to $4.20\text{ mm} \pm 2.21$ at T2 (Table 2). There was no significant change in the bone level on the far side in the peri-implantitis group, as well as either near or far sides in the control group (Tables 2 and 3).

Variable	Peri-implantitis		Control		p-value*
	N	Mean $\pm$ SD (mm)	N	Mean $\pm$ SD (mm)	
Near site bone level	45	3.110 ± 1.323	45	2.358 ± 1.068	0.003
Far site bone level	21	2.506 ± 1.143	26	2.411 ± 1.125	0.764
Implant diameter	45	4.438 ± 0.737	45	4.418 ± 0.609	0.625
Implant length	45	10.289 ± 1.420	45	10.333 ± 1.809	0.897

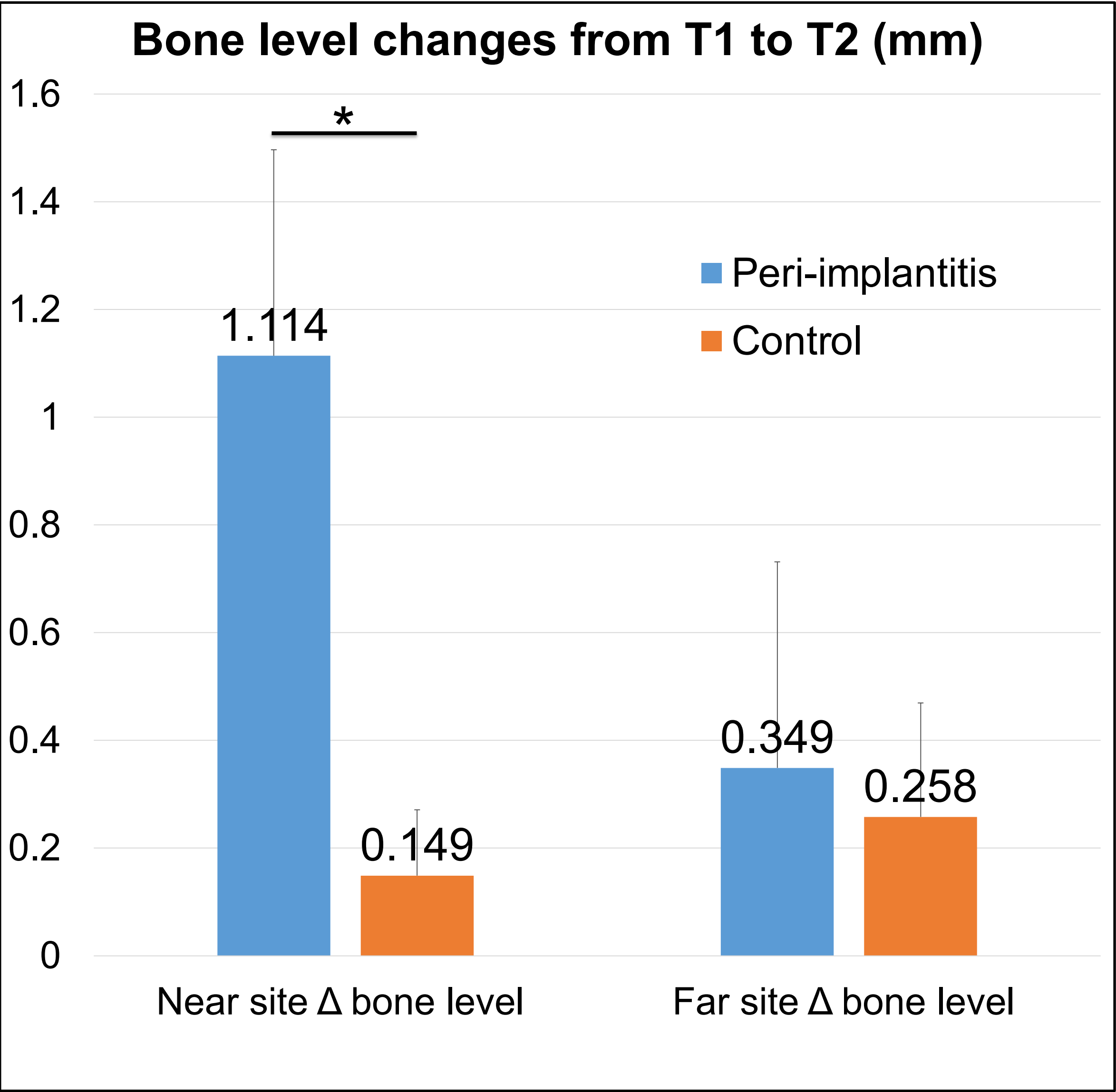
Table 1: Baseline clinical measurements: comparison between groups

Variable	Baseline (T1)		Final (T2)		p-value
	N	Mean $\pm$ SD (mm)	N	Mean $\pm$ SD (mm)	
Near site bone level	45	3.110 ± 1.323	45	4.196 ± 2.206	0.000
Far site bone level	24	2.623 ± 1.143	23	2.847 ± 1.433	0.138

Table 2: Changes in clinical measurements: baseline to final (Peri-implantitis)

Variable	Baseline (T1)		Final (T2)		p-value
	N	Mean $\pm$ SD (mm)	N	Mean $\pm$ SD (mm)	
Near site bone level	45	2.358 ± 1.068	44	2.507 ± 0.986	0.088
Far site bone level	28	2.411 ± 1.125	25	2.503 ± 1.031	0.123

Table 3: Changes in clinical measurements: baseline to reentry (control)



Conclusion

In this preliminary study, there was a significant 1.11 mm radiographic bone loss on the near side of teeth adjacent to implants with peri-implantitis. Peri-implantitis may be a risk factor for bone loss in adjacent teeth, with its sequelae not limited to affected implants. Site-level variables such as the distance between the implant platform and adjacent teeth, defect angle, as well as patient-level variables are currently being recorded and will be analyzed.

References (QR code)

