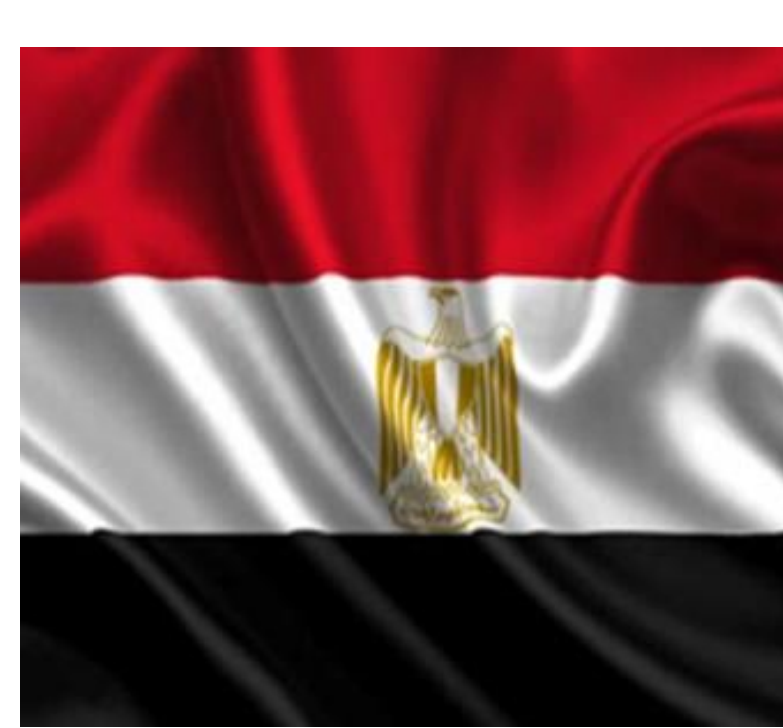
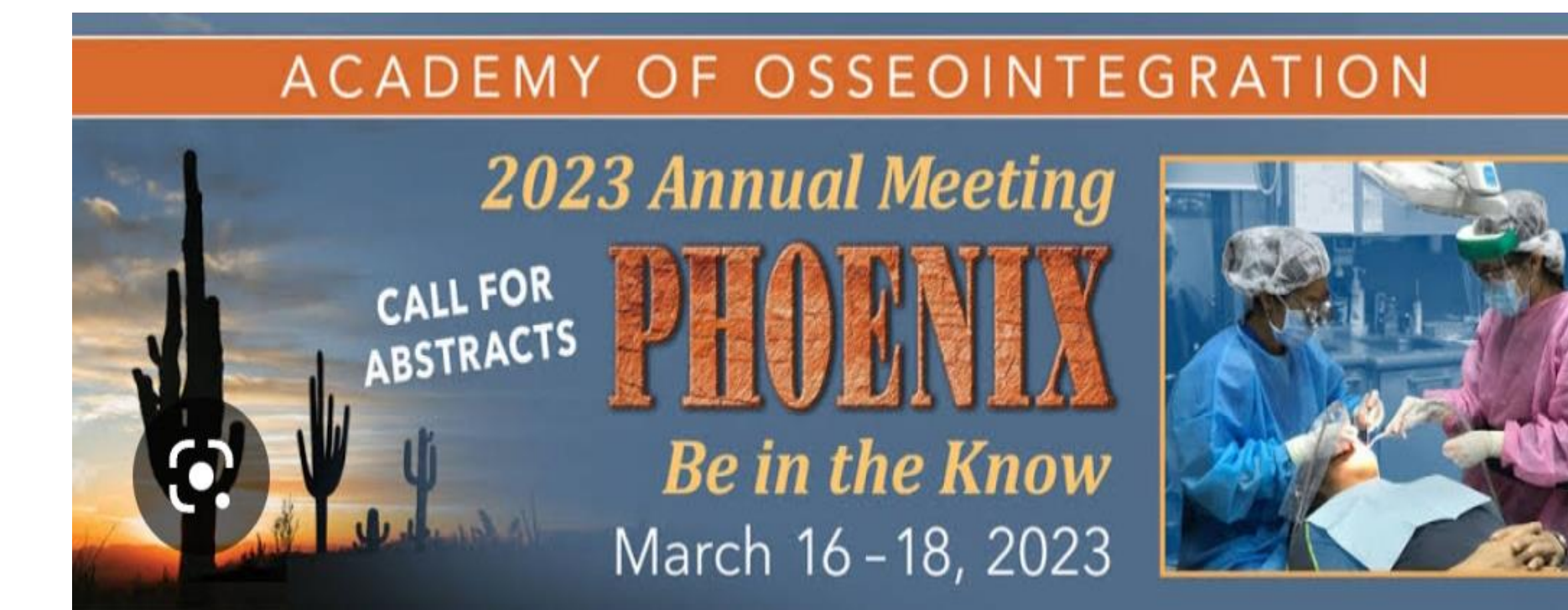




Assessment Of Vertical Bone Gain And Labial Prominence Using Buccal Versus Palatal Approaches For Maxillary Segmental Sandwich Osteotomy (Inlay Technique): A Randomized Clinical Trial



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- Introduction:** Sandwich osteotomy technique is a technique sensitive procedure with prolonged intraoperative time and unfortunately had some technical drawbacks Such as palatal rotation and tipping of the down-fractured segment leading to an improperly positioned tilted or rotated segment with subsequent deficient amount of vertical augmentation. The aim of this study was to evaluate the final vertical gain at the deficient anterior maxillary alveolar ridges using buccal versus palatal approaches for maxillary segmental sandwich osteotomy (inlay technique).



Figures 1,2: vertically deficient ridge (palatal and labial approaches respectively)

Methods: The study included 16 patients (Figs 1, 2) with edentulous anterior maxillary alveolar ridges (40 implant sites). Patients were randomly distributed into two equal groups. Both groups received sandwich osteotomy with down fracture of the deficient anterior maxillary alveolar ridge, using a buccal approach (control group) (Figs 3, 4) versus a palatal approach (study group) (Figs 5, 6), with interpositional alloplastic bone blocks fixed with miniplates. Assessment included the mean percentage of vertical gain at the proposed implant sites after 4 months, taken from cross-sectional cuts of a cone beam computed tomography.

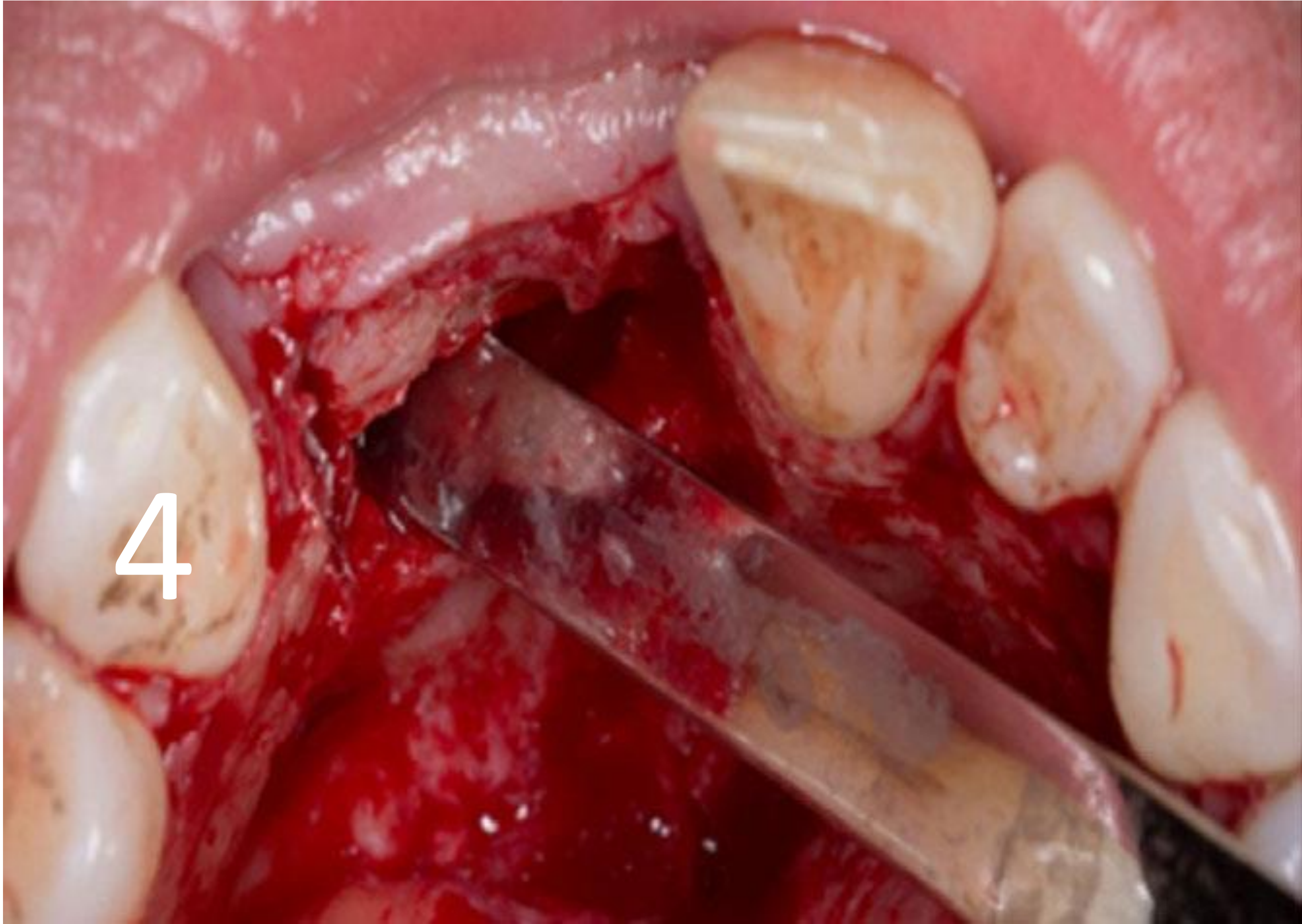


Fig 3: Down fracturing the crestal segment from the palatal side

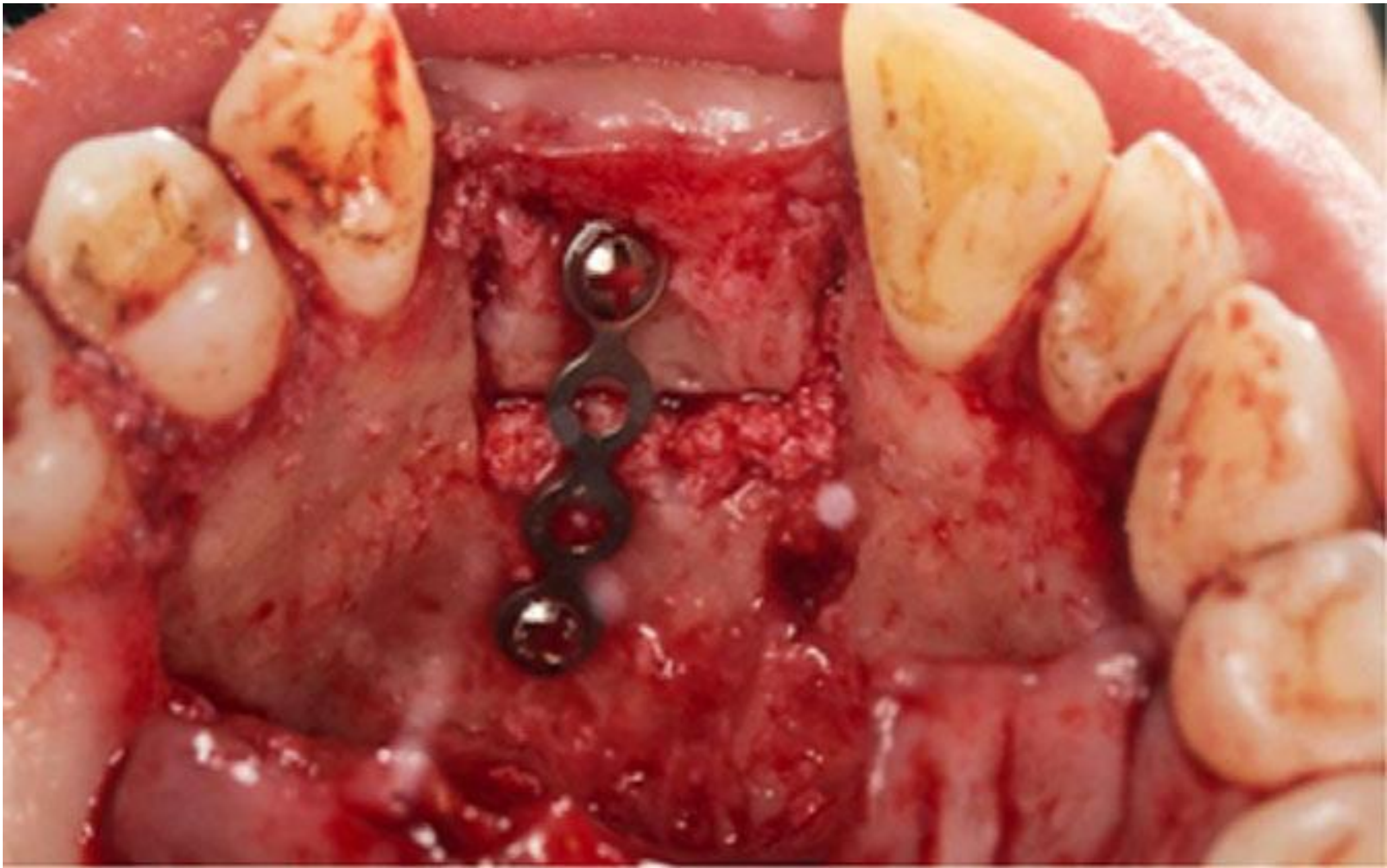


Fig 4: fixation with microplate



Fig 5: Down fracturing the crestal segment from the labial side



Fig 6: fixation with microplate



Fig 7: Suturing

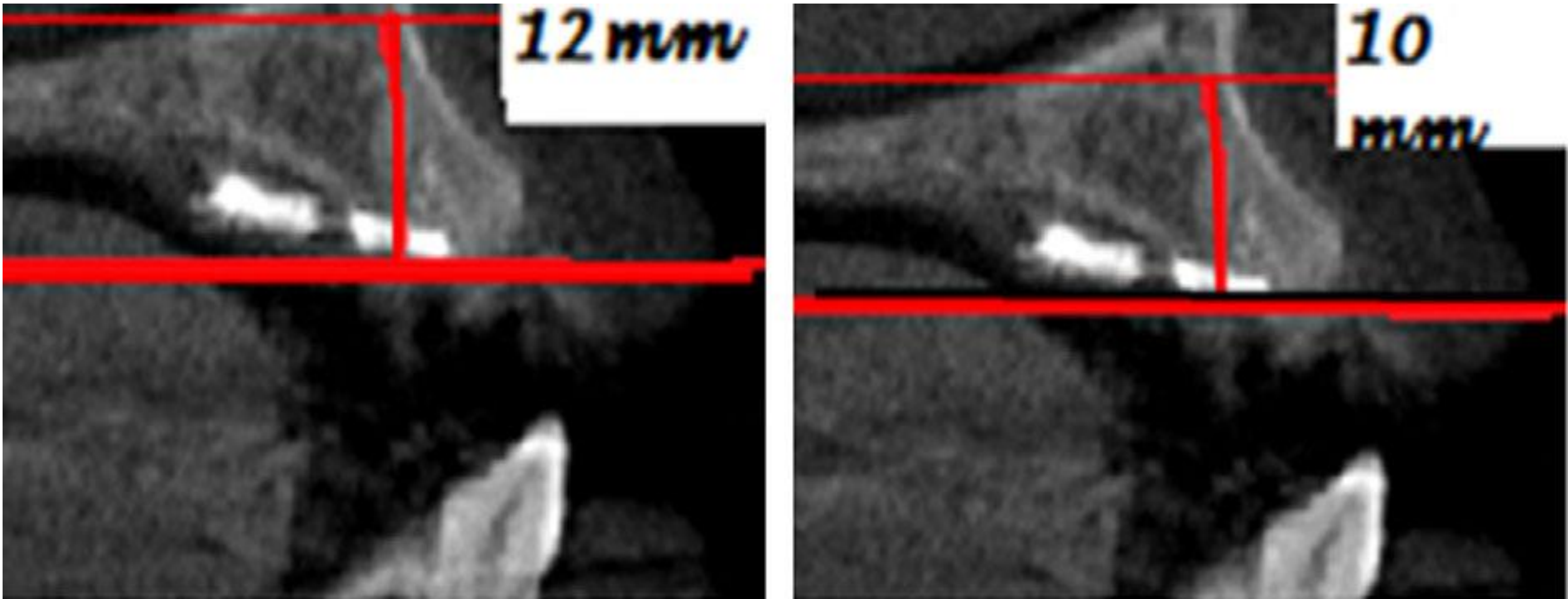


Fig 11 : 4 months postop. CBCT for the study group

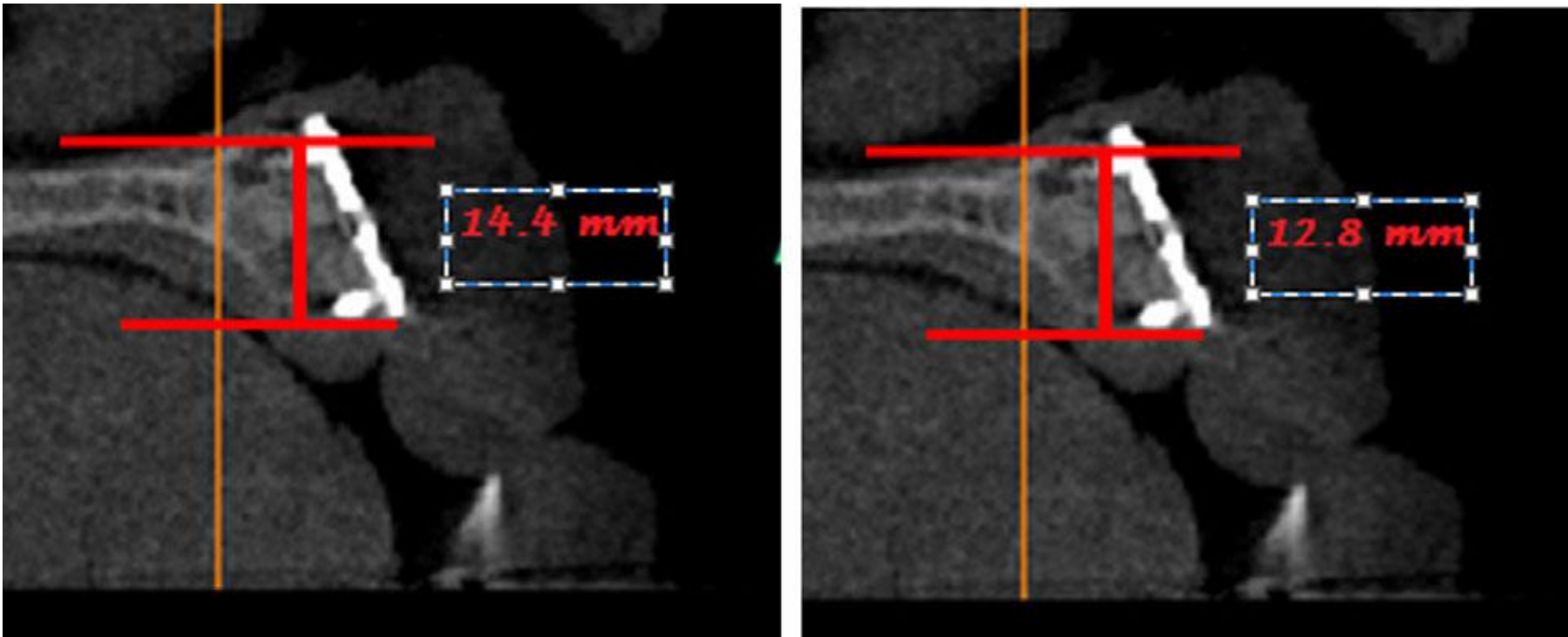


Fig 12: 4 months postop. CBCT for the control group

Results: All cases showed uneventful wound healing and a total of 40 delayed implant placement were done. Results showed that there was no statistical significance between the 2 groups in terms of bone height (P =0.43) and labial prominence (P = 0.5).

Conclusion: Both techniques were successful where the mean percentage of 4 months postoperative vertical bone gain of the control group was 79.9% and that of the study group was 76.5%.

TABLE 1 Bone heights immediate and postoperatively for both groups

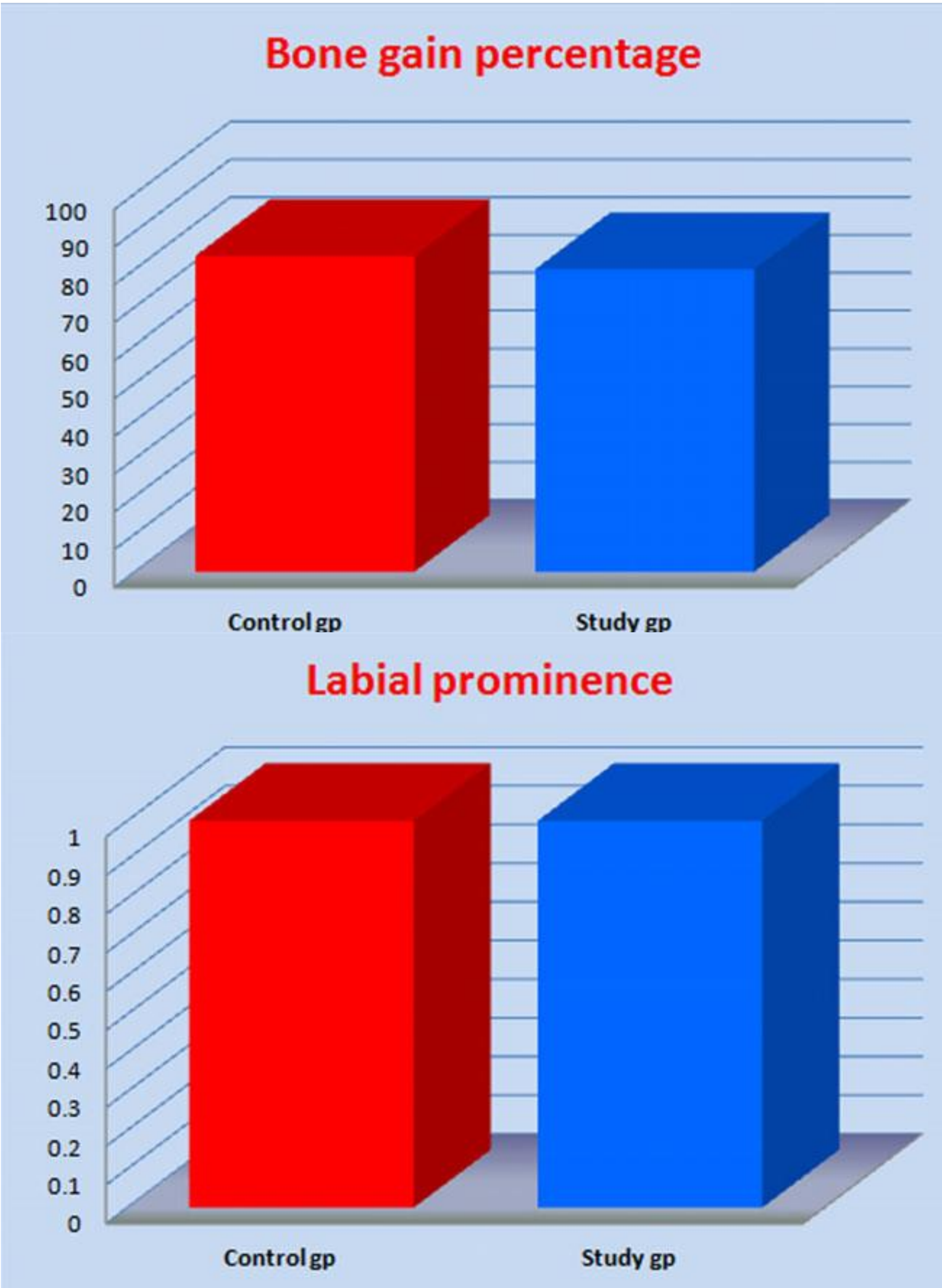
	Control	Study
Preoperative vertical bone height	9.96 ± 2.38 mm	8.82 ± 3.21 mm
Immediate postoperative bone height	15.57 ± 2.28 mm	20.41 ± 3.28 mm
4 months postoperative bone height	14.66 ±2.31 mm	19.32 ±3.32 mm

TABLE 2 Percentage of bone gain for both groups

	Mean (%)	Standard deviation	P
Group 1	79.99	8.69	.435
Group 2	76.59	11.72	

TABLE 3 Labial prominence in millimeters for both groups

	Mean (mm)	Standard deviation	P
Group 1	-0.52	0.38	.5
Group 2	-0.42	0.66	



Bar charts representing the bone gain percentage and the labial prominence in both groups