

Simultaneous Sinus Augmentation with Crown Lengthening and Implant Placement

Introduction:

Eric Madsen, Reem Alfadhli, Kian Kar

A 59-year-old female presented to the Herman Ostrow School of Dentistry for the placement of implant #3 after the extraction of #3 due to recurrent endodontic infection and poor restorative prognosis. The patient was undergoing orthodontic treatment for restorative space management. The implant site #3 had a residual bone height of 3.8 mm, requiring lateral window sinus lift. Teeth #4-6 required crown lengthening to expose more tooth structure and to provide supracrestal attachment space as part of the restorative plan. To reduce the number of surgical appointments, it was proposed that both procedures be performed in a single appointment.

- Figure 1: Maxillary right prior to extraction of #3 with orthodontic brackets in place
- Figure 2: Radiograph of #3 showing PARL around MB root of #3
- Figure 3: Radiograph of site #3 with radiographic marker
- Figure 4: CBCT of site #3 showing residual bone height of 3.8 mm

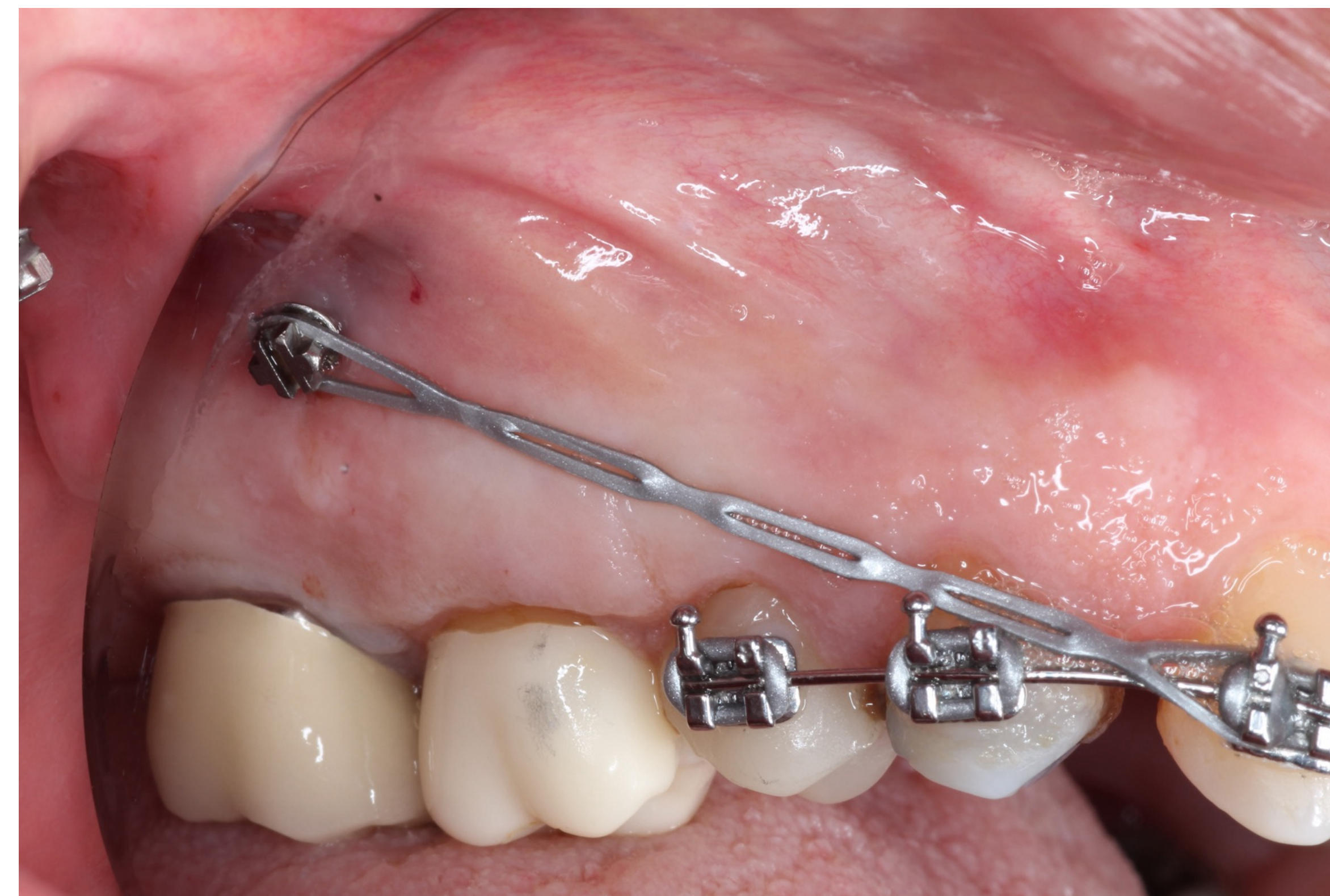


Figure 1



Figure 2

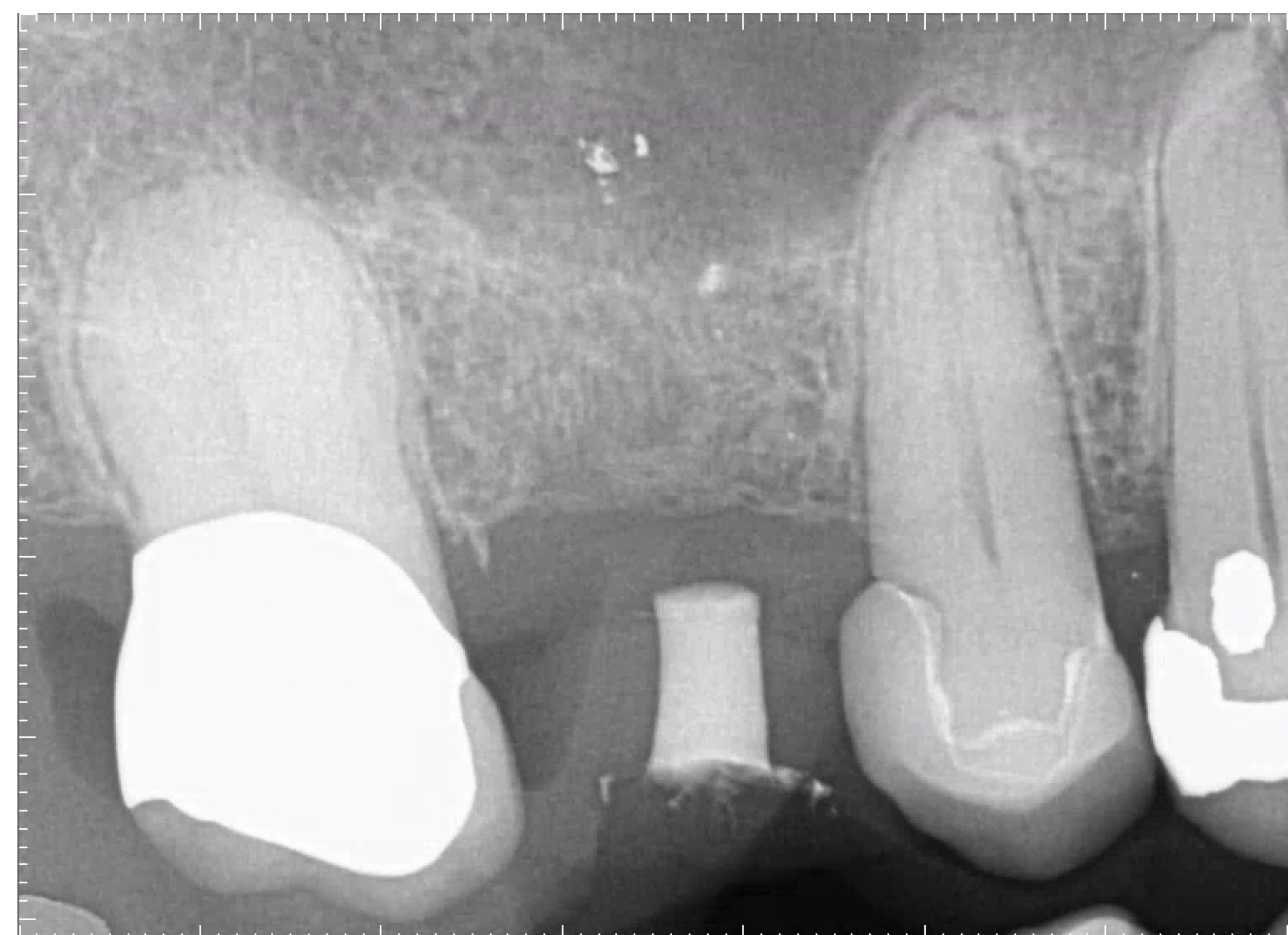


Figure 3

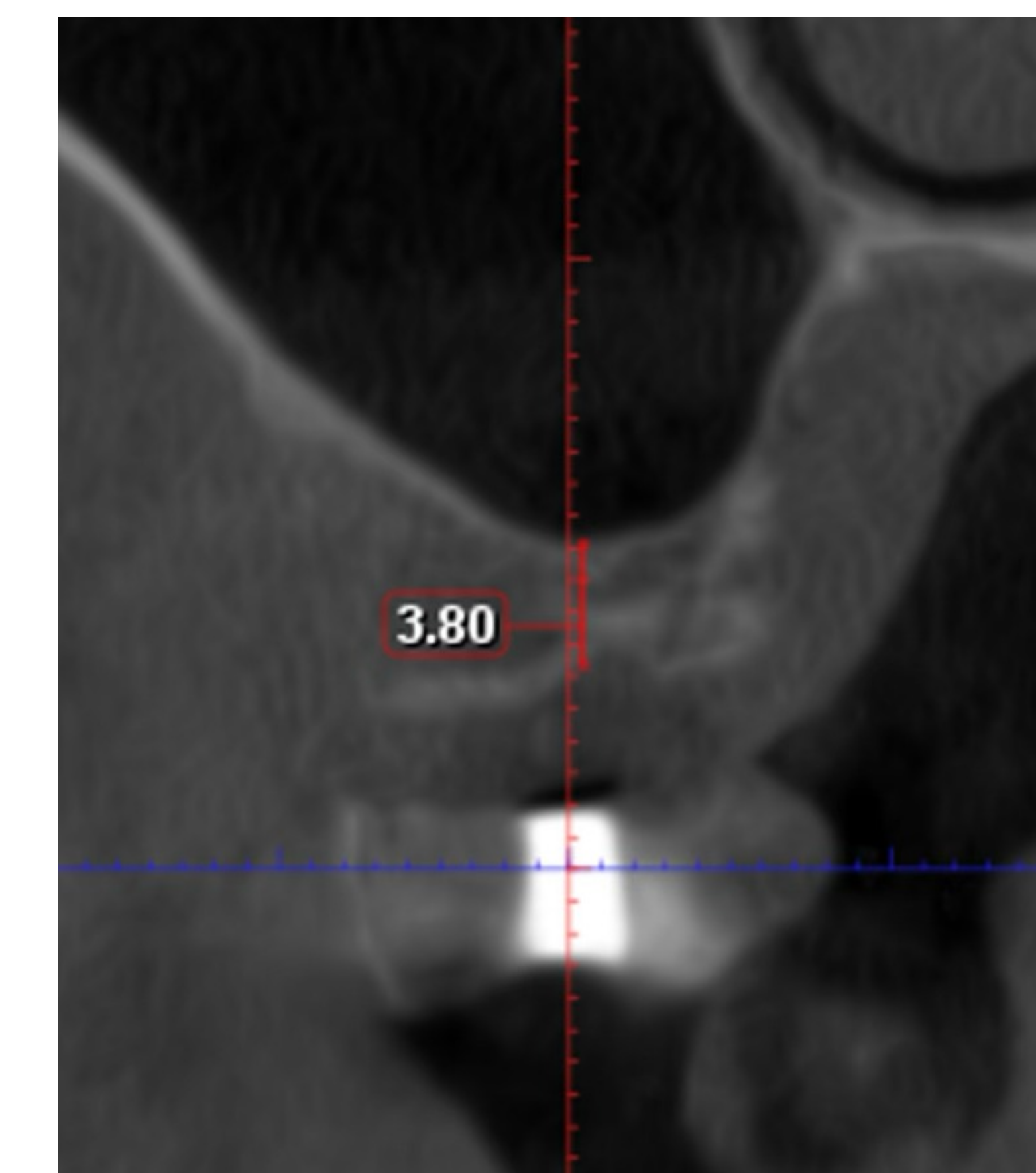


Figure 4

Simultaneous Sinus Augmentation with Crown Lengthening and Implant Placement

Methods

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A crestal incision was made at site #3, with a scalloped incision on the buccal side of teeth 4-6, and a vertical releasing incision on the mesial of #6 (Figure 1). A full-thickness flap was reflected, and osteoplasty and ostectomy were performed using a surgical guide (Figure 2). A bone scraper was used to harvest autogenous bone from the buccal exostosis of premolar teeth and the wall of the lateral window. A lateral sinus window was created by thinning the sinus wall with diamond burs (DASK). Upon exposure, the sinus membrane was carefully elevated with sinus curettes. Harvested autogenous bone was mixed with cortico-cancellous allograft in a 40/60 ratio. Collagen tape was inserted into the sinus to provide a protective layer over the Schneiderian membrane, followed by the graft material. An osteotomy at site #3 was prepared, and a bone level 4.1 x 8 mm implant was placed (Figure 3). The sinus opening was covered with a resorbable collagen membrane, and the flap was released and sutured with 4-0 and 5-0 monofilament, long-lasting resorbable sutures to achieve tension-free primary closure (Figure 4).



Figure 1

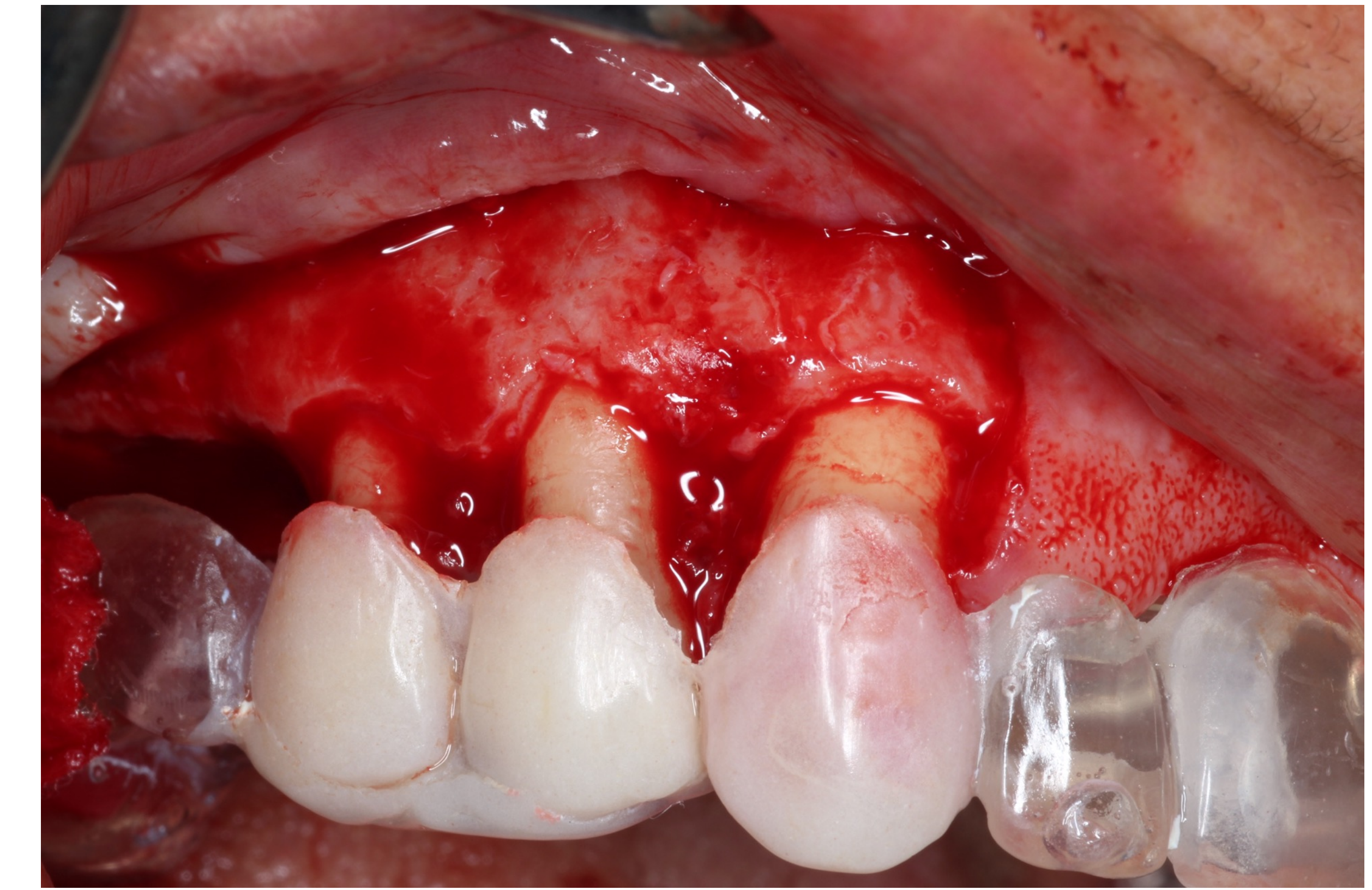


Figure 2



Figure 3



Figure 4

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Results

Postoperative follow-up at 2 weeks showed no signs of wound dehiscence with normal healing. A 5-month follow-up demonstrated excellent tissue healing and apical positioning of the gingival margin to achieve goals of crown lengthening. Postoperative CBCT demonstrated graft material containment and implant position.

- Figure 1: Implant after placement
- Figure 2: Post-op CBCT illustrating containment of graft
- Figure 3: 2 Weeks Post-Op
- Figure 4: 5 Month Post-Op

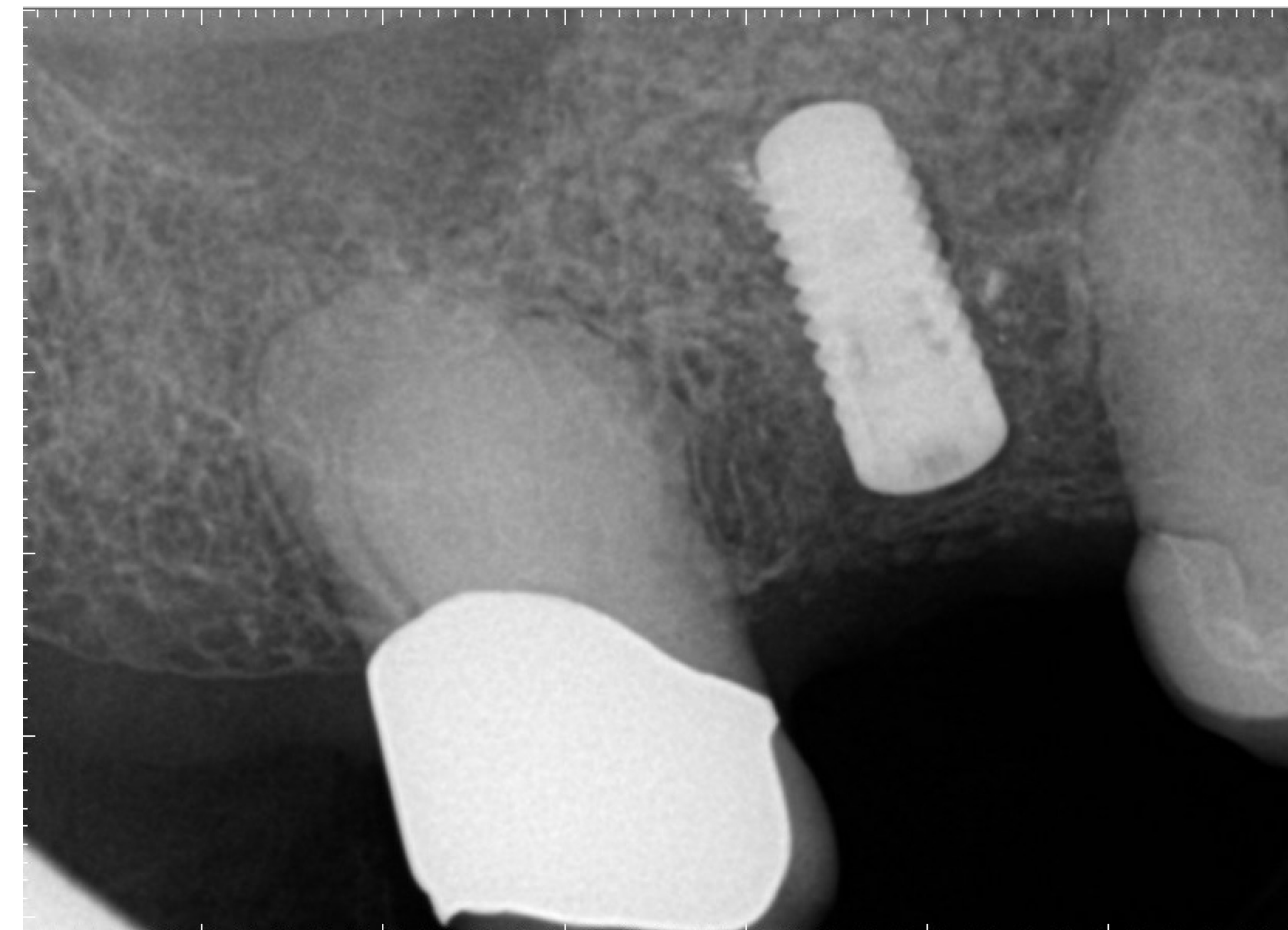


Figure 1



Figure 2

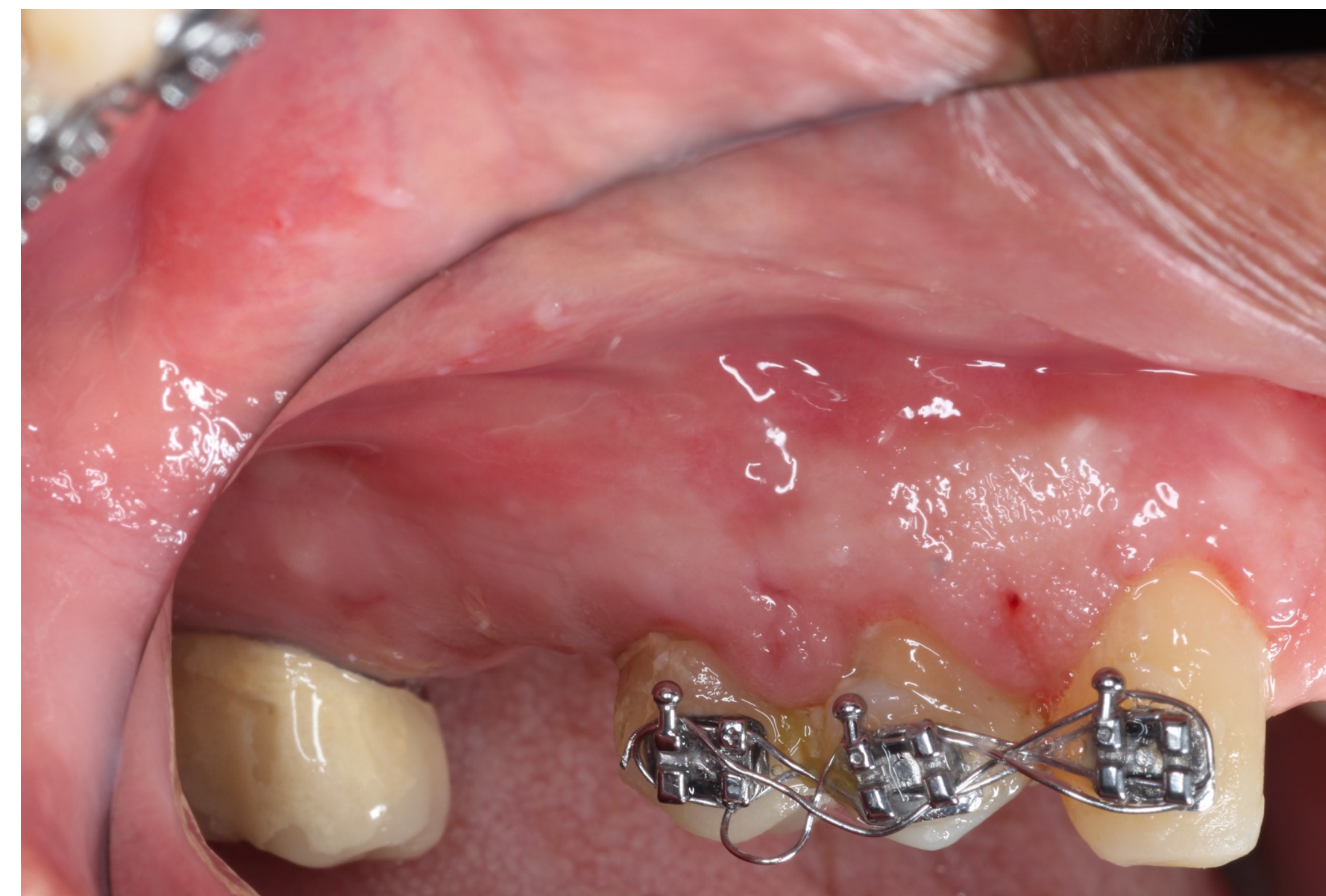


Figure 3



Figure 4

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Conclusion:

Lateral sinus augmentation performed simultaneously with implant placement and surgical crown lengthening provided expedited treatment with one surgical appointment.