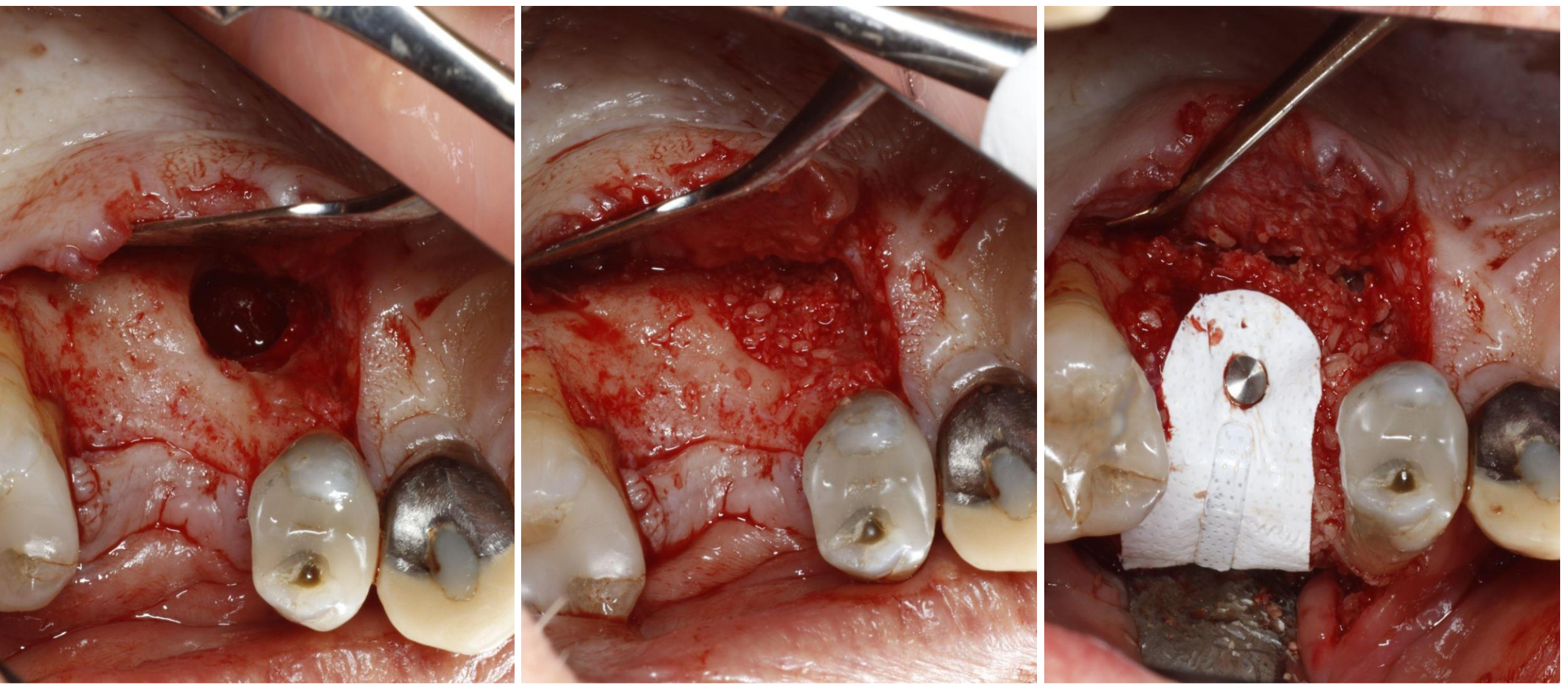


Introduction

Despite the high success of sinus augmentation using a lateral window approach, there are some factors that may make this surgical treatment challenging. These factors include the presence of prominent intraosseous antral artery, thick buccal wall, previously failed or incompletely augmented sinus, and complex internal sinus anatomy such as multiple septa. Sinus augmentation via a palatal approach, which allows for sinus accessibility through the palatal (medial) wall of the sinus, has been suggested as an alternative to overcome the above-mentioned obstacles.

Materials and Methods

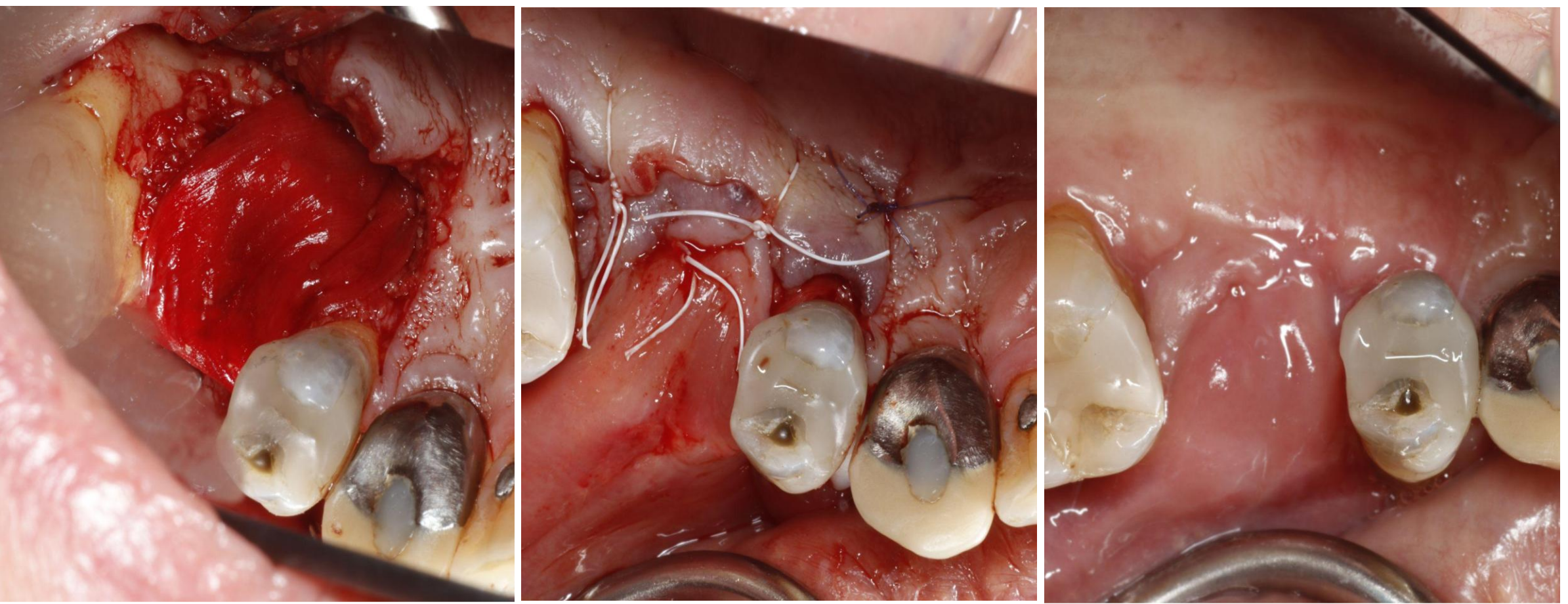
A 42-year-old male presented to the Graduate Periodontics clinic at Virginia Commonwealth University to restore the missing upper right first molar with an implant. Due to severe sinus pneumatization, a lateral window sinus augmentation was initially performed. At the 6 month follow up, CBCT scan showed incomplete sinus augmentation as well as alveolar ridge deficiency. Considering the thick buccal wall (>5mm) and the need for guided bone regeneration (GBR) on the buccal and crestal regions of the ridge, a palatal sinus augmentation approach was pursued. Following a full-thickness mucoperiosteal flap elevation, a 5x5 mm window was created on the palatal (medial) wall of the sinus using a round piezo-tip. The Schneiderian membrane was elevated using sinus curettes. A 2cc of 70:30 mix of FDBA and xenograft was packed into the sinus cavity. Vertical and horizontal GBR was performed simultaneously where a 70:30 mix of FDBA and xenograft was added to the buccal and crestal sites. A titanium reinforced PTFE membrane was adapted to cover the GBR site and stabilized using fixation tacks. A resorbable collagen membrane was placed to cover the GBR site as well as the palatal window. Primary closure was obtained using PTFE sutures.



Palatal sinus lift access

70:30 mix of FDBA and xenograft

Ti-PTFE membrane for GBR



Collagen membrane covering Ti-PTFE

Primary closure with PTFE sutures

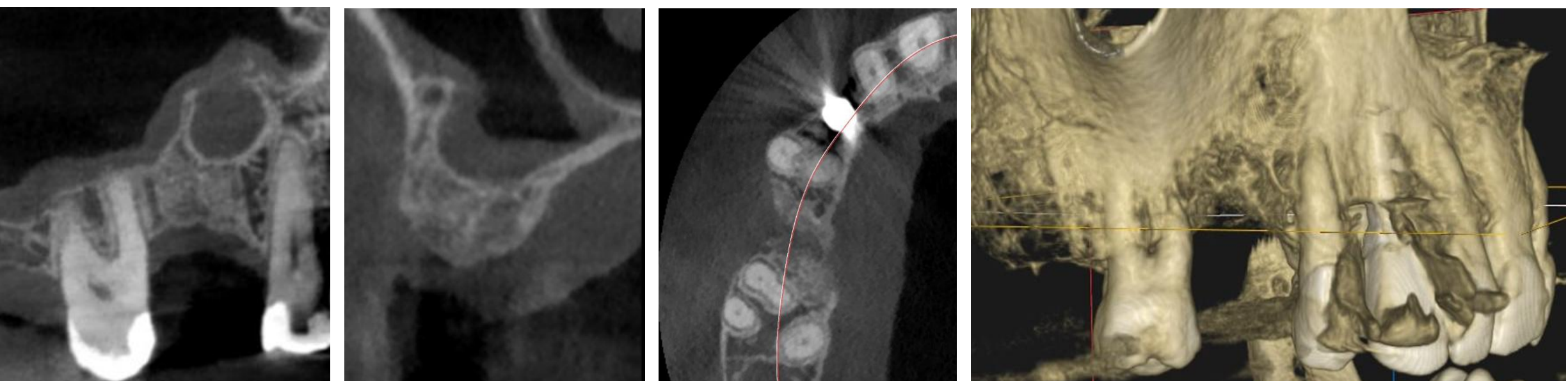
4 weeks post-operatively



Pre-palatal sinus lift and GBR

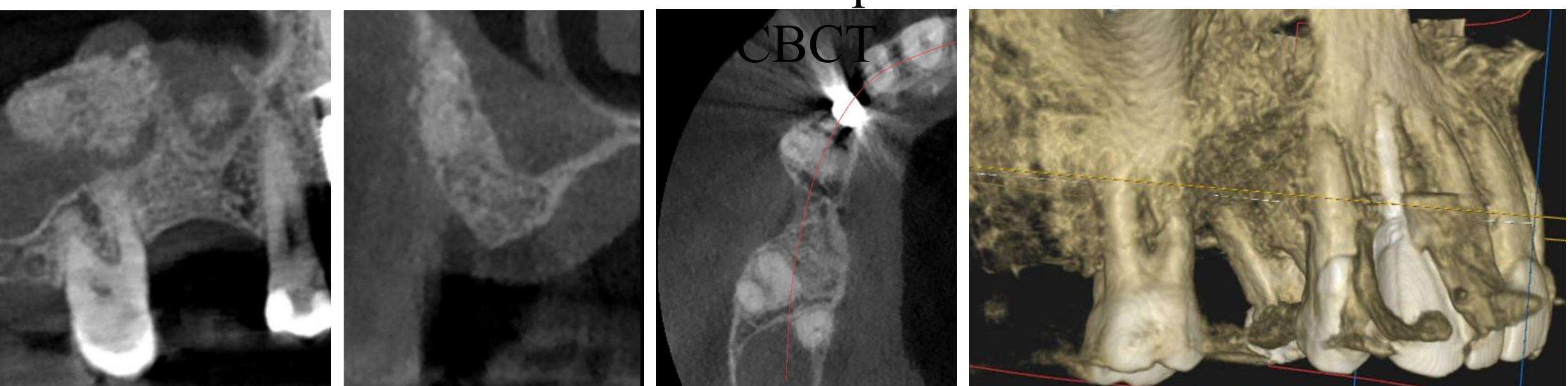
Post-palatal sinus lift and GBR

Implant placement

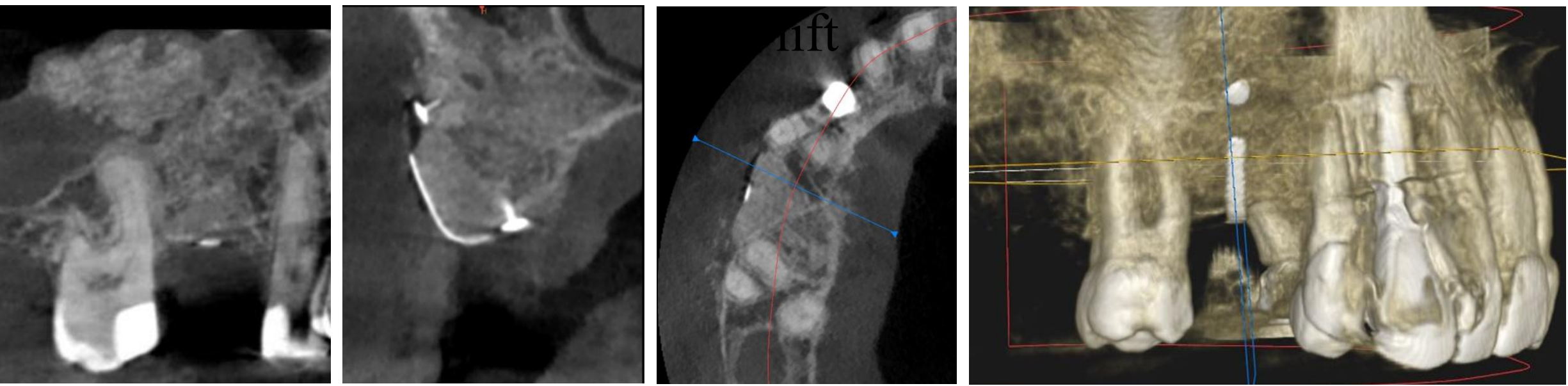


Pre-op

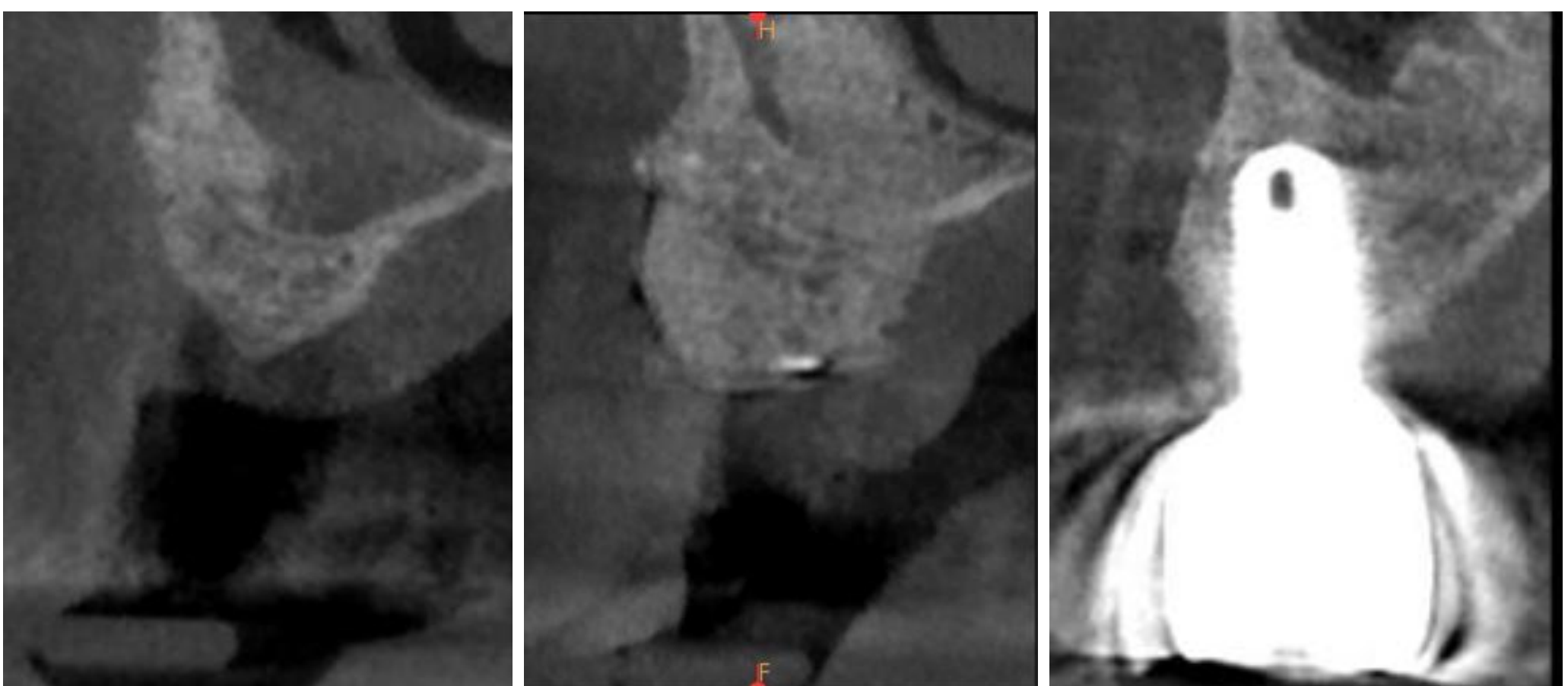
CBCT



6 months post Lateral Window sinus



Post-op CBCT palatal sinus lift



Pre-palatal sinus lift CBCT

Post palatal sinus lift CBCT

Post implant crown delivery CBCT

Results

At 6 months postoperatively, significant gain in the width and height of alveolar bone was evident in CBCT and intraoperative evaluations. An implant was placed with high stability and no complication. After three months of uneventful healing, a reverse torque test was performed, and the final implant crown was delivered. The results were stable during the two years of follow up.

Conclusion

Sinus augmentation via a palatal window offers a reliable alternative if accessing the sinus via a lateral window is compromised. In addition, this case shows a successful combination of sinus augmentation with simultaneous alveolar ridge augmentation.

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