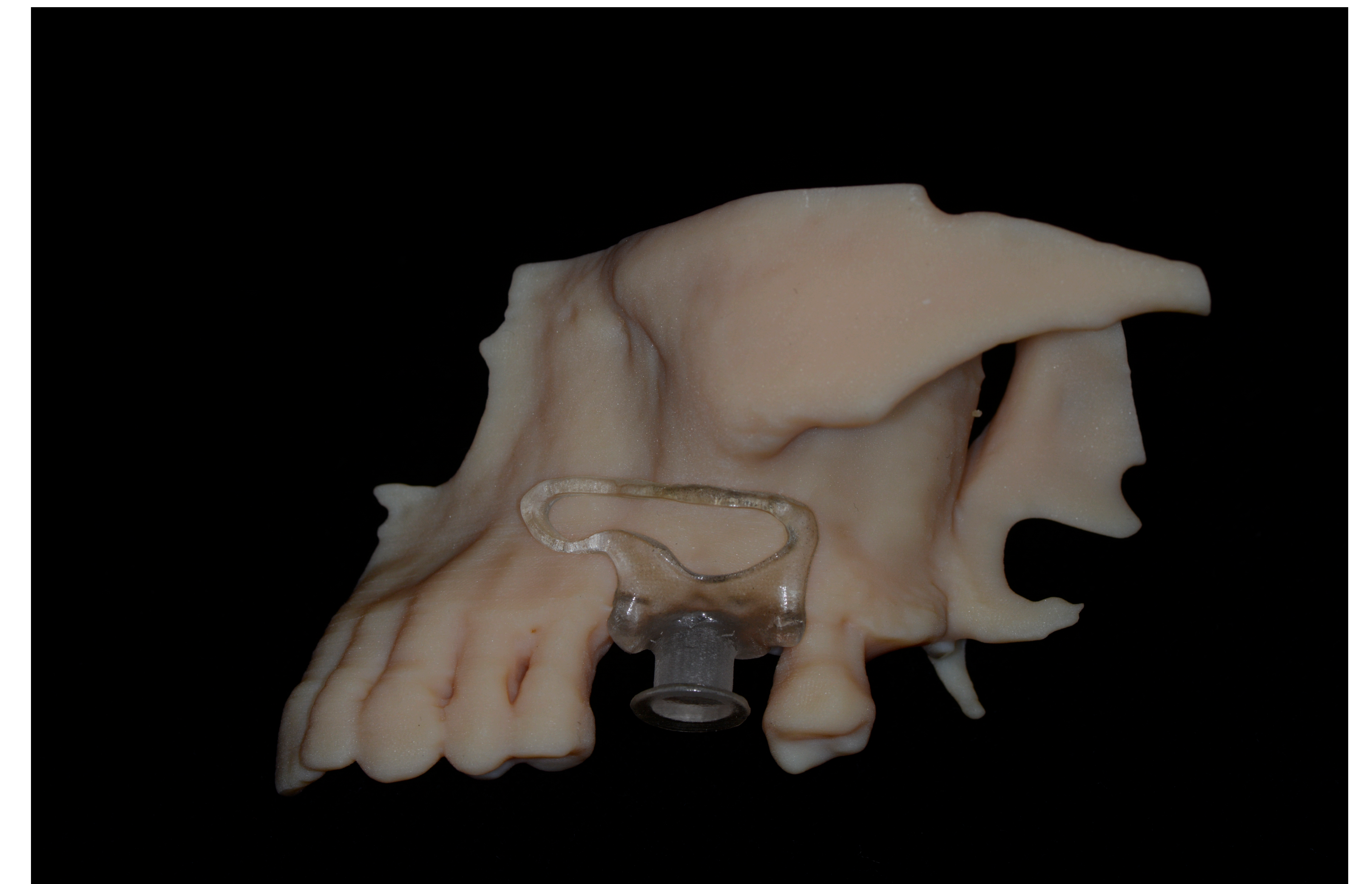


Sinus Elevation by Lateral Approach Using 3D Reconstruction And Surgical Guides: A Clinical Case Report



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INTRODUCTION: Sinus lift procedures are among the most effective regenerative techniques, boasting a high success rate. However, the anatomical variability of the maxillary sinus can complicate membrane elevation, raising the risk of sinus membrane perforation. Advanced 3D reconstruction software can help clinicians better understand sinus anatomy. In patients with thick sinus cortical bone, transferring CBCT data to a clinical setting can be challenging. This study presents the use of a surgical guide to outline the antrostomy for a lateral sinus lift approach, enhancing precision in accessing the sinus.

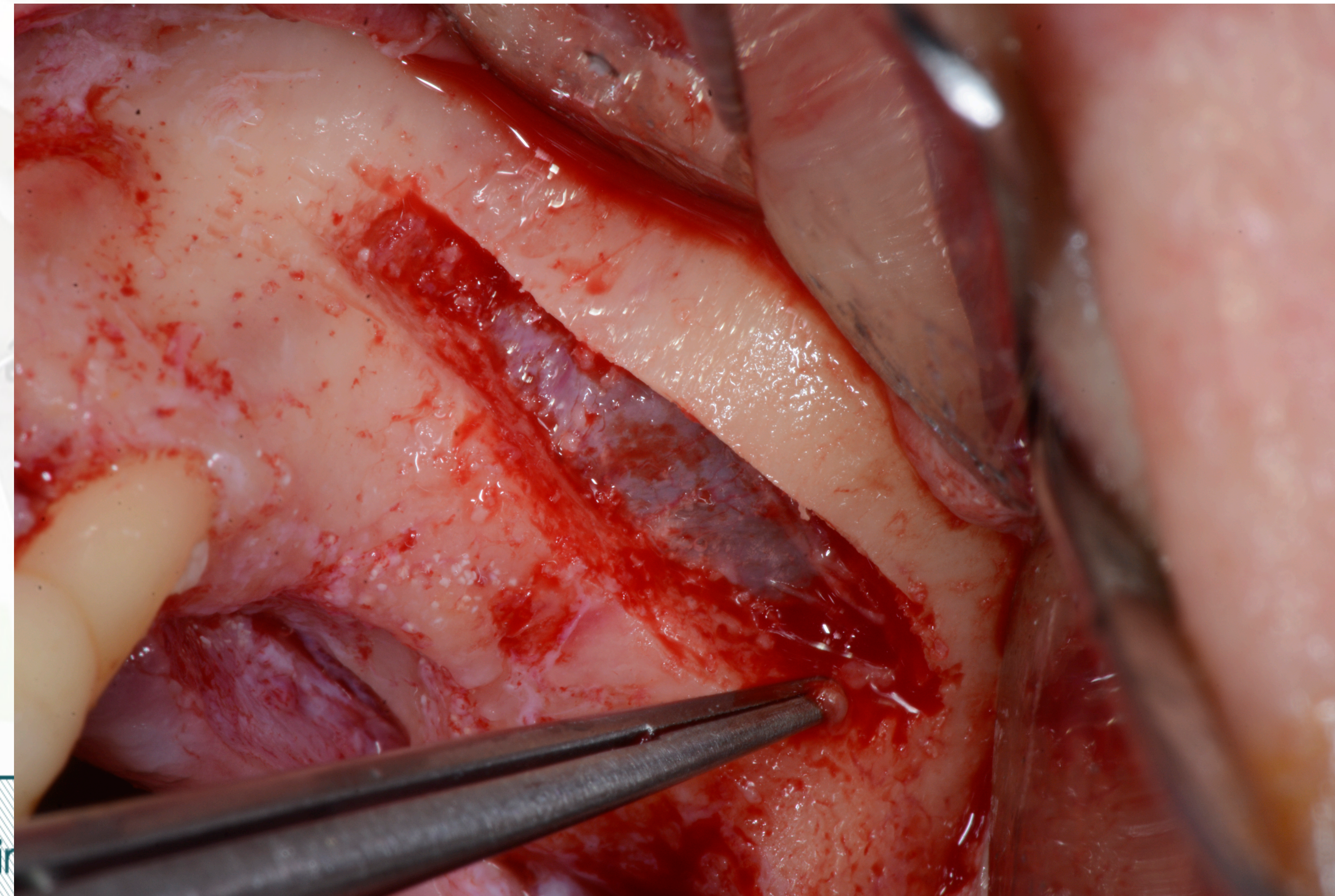


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MATERIALS AND METHODS: The patient is a 59-year-old female, M.C., ASA 1, non-smoker, presenting with non-maintainable elements 25 and 27. Treatment planning included teeth extractions, lateral sinus lift, and implant-prosthetic rehabilitation of the quadrant two. A stereolithographic model of the maxilla was created to visualize the maxillary sinus anatomy more clearly. A surgical guide was employed to achieve precise localization of the antrostomy area. The sinus membrane was elevated with adherence detachment near the septum, which was removed using piezoelectric inserts. Sinus grafting was performed with xenograft biomaterial, and implants were placed in a follow-up surgery with prosthetic rehabilitation completed 9 months after the sinus lift.



RESULTS: The digital technologies enabled precise maxillary sinus localization despite the thick cortical bone. The integration of 3D rendering software and CBCT-based models provided a comprehensive view of sinus anatomy, facilitating accurate antrostomy placement and successful sinus membrane elevation without perforation.



CONCLUSIONS: Digital technologies, including 3D rendering and stereolithographic models, significantly enhance the precision of sinus lift procedures. They allow clinicians to accurately interpret and navigate maxillary sinus anatomy, the use of surgical guide could help clinicians to locate the maxillary sinus even in cases with thick cortical bone, thereby improving procedural outcomes and reducing complications.

