# Novel Use of Amnion-Chorion Membrane in Managing Sinus Membrane Perforations During Crestal Sinus Augmentation: The Waffle Cone Technique

Thaer Alqadoumi DDS MS , Noor Daras DDS

## Introduction

Crestal sinus augmentation is a minimally invasive approach used to increase vertical bone height in the posterior maxilla, compared with the traditional lateral window technique, the crestal approach reduces surgical morbidity, postoperative discomfort, and overall treatment time, while still providing the ability to regenerate sufficient bone for implant placement. Despite these advantages, A major challenge of this technique is the difficulty in detecting and managing Schneiderian membrane perforations due to limited visual access. Schneiderian membrane perforation remains the most frequent complication associated with sinus augmentation and, if left unmanaged, may compromise graft stability, increase the risk of sinus pathology, and negatively affect implant survival. Therefore, the development of reliable methods to identify and manage membrane perforations is critical for achieving predictable outcomes.

## Materials & Methods

Five Patients presenting with posterior maxillary edentulism and insufficient vertical bone height were treated using the crestal sinus augmentation technique assisted by osseodensification drills.

Clinical and radiographic outcomes were systematically evaluated, Preoperative assessment included measurement of the residual alveolar bone height and determination of the sinus floor angle, each sinus was carefully examined radiographically to rule out any pre-existing pathology, such as mucosal thickening, cystic changes, or evidence of sinusitis, Intraoperative sinus membrane perforations were identified during osteotomy preparation.

Management involved the placement of dehydrated amnion–chorion membrane configured in a “waffle cone” shape, which allowed simultaneous implant placement and bone grafting in all cases. The amount of vertical lift achieved was also measured postoperatively to quantify the effectiveness of the crestal sinus augmentation and to ensure adequate bone gain for implant placement. At the two-year follow-up, both clinical and radiographic evaluations were repeated to assess implant stability, peri-implant bone levels, sinus architecture, and maintenance of the augmented height, thereby confirming the long-term success of the intervention

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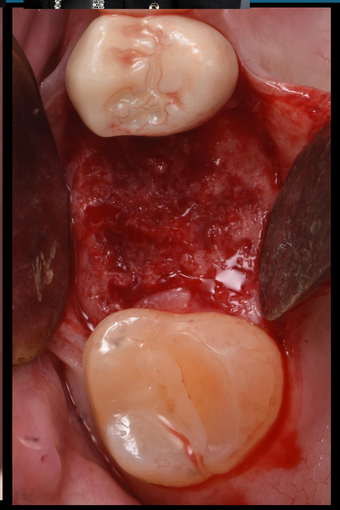

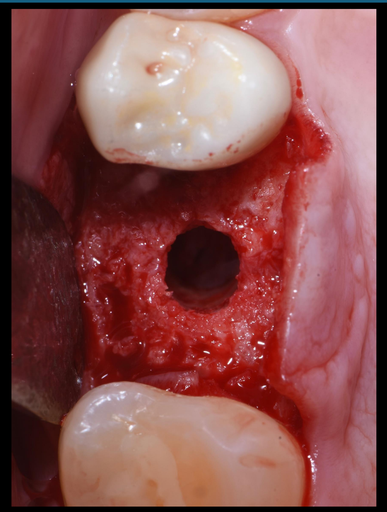

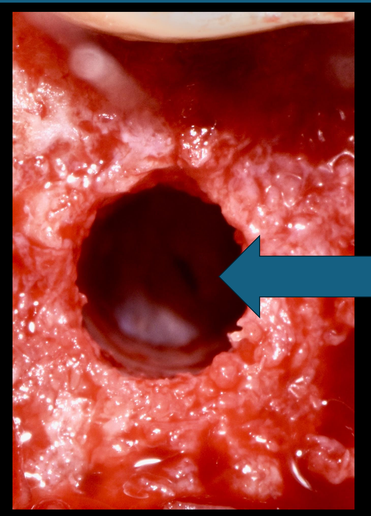

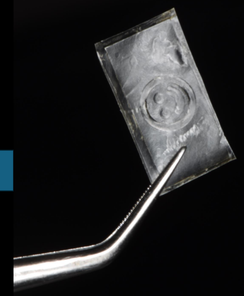

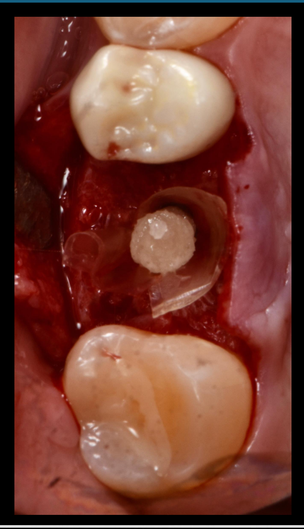

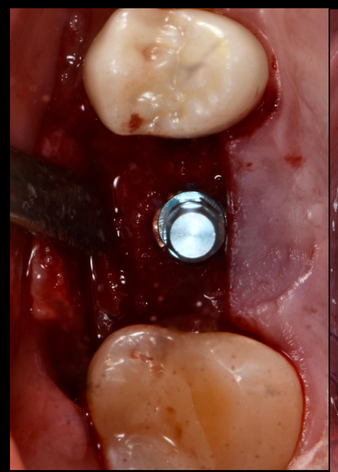

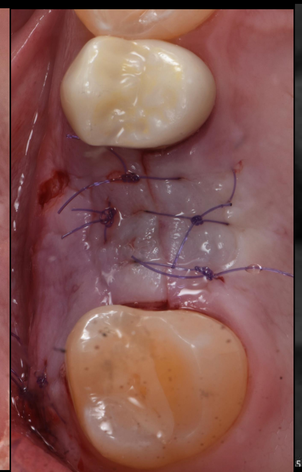

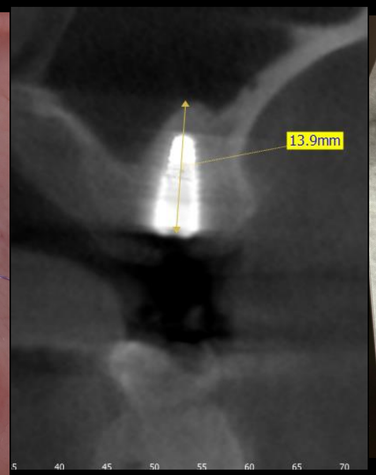


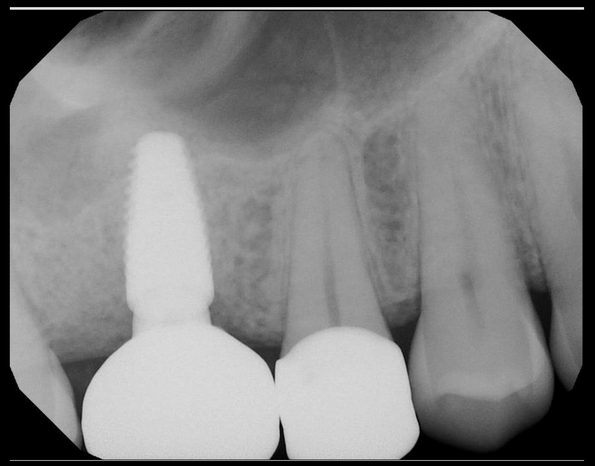

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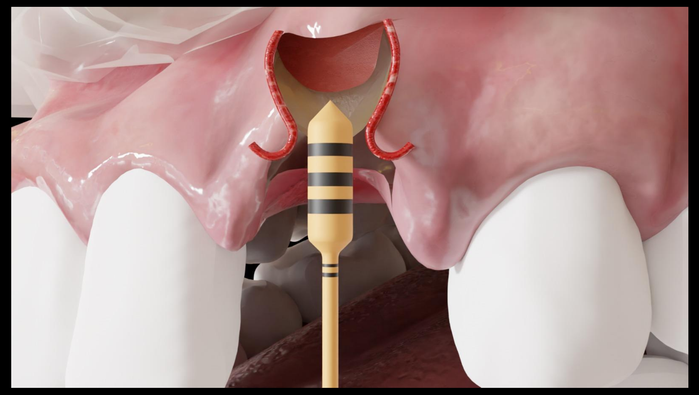
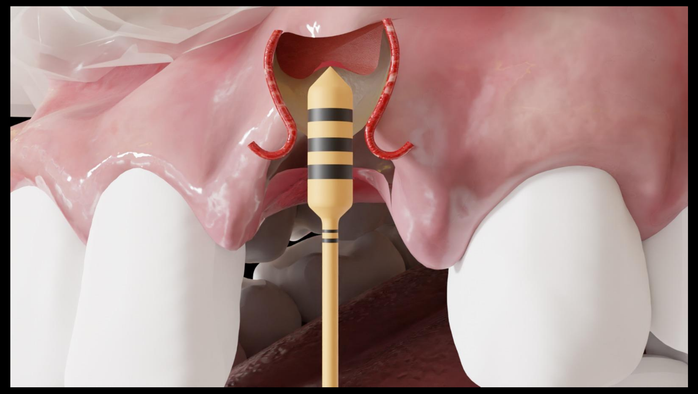
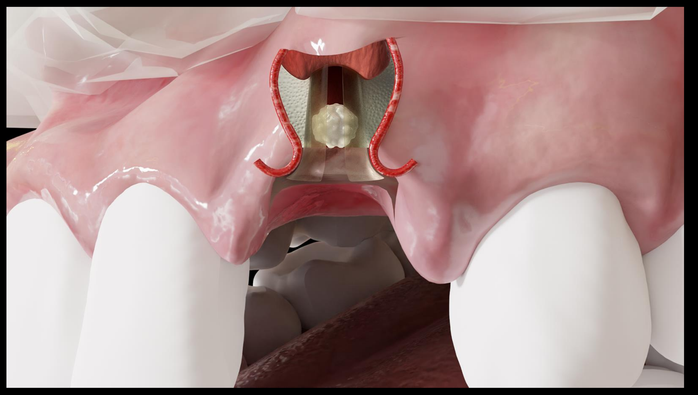
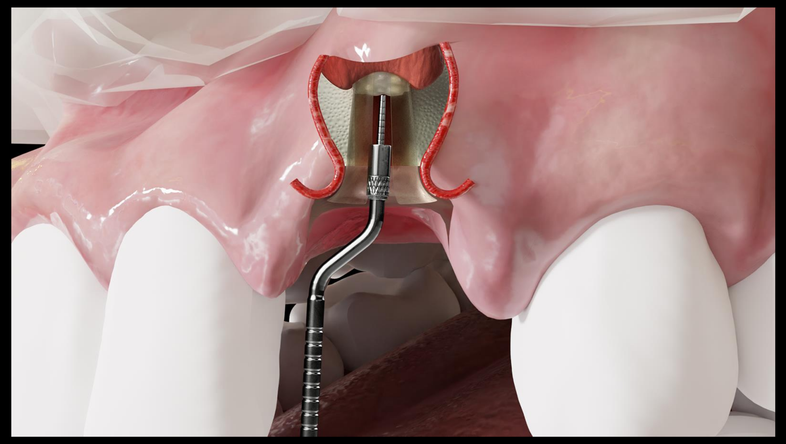
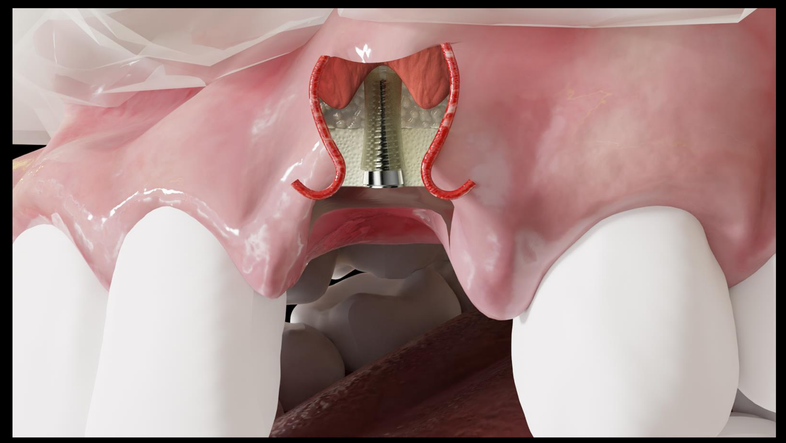








Dr. Thaer Alqadoumi



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## Results

All cases demonstrated successful sealing of the Schneiderian membrane using the amnion chorion membrane, with successful simultaneous implant placement. Immediate postoperative radiographs and CBCT confirmed stable graft containment with average of 5.2 mm vertical sinus lift. After a healing period of six months all implants achieved successful osseointegration, At the 2-year follow-up, periapical radiographs revealed stable peri-implant bone levels with no radiographic or clinical signs of sinus complications.

## Conclusion

The use of amnion-chorion membranes in a “waffle cone” configuration provides a simple and effective method for repairing Schneiderian membrane perforations encountered during crestal sinus augmentation. This technique enables simultaneous implant placement and grafting, expanding the scope of minimally invasive sinus augmentation procedures in compromised sites.

## References


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