

Case Report: Management of Lateral Sinus Augmentation and Membrane Perforation

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Background

- Posterior maxillary atrophy often necessitates sinus augmentation
- Sinus augmentation is predictable for vertical bone gain
- Schneiderian membrane perforation is the most common complication
- Large or multiple tears compromise graft stability
- Predictable repair is essential for successful regeneration

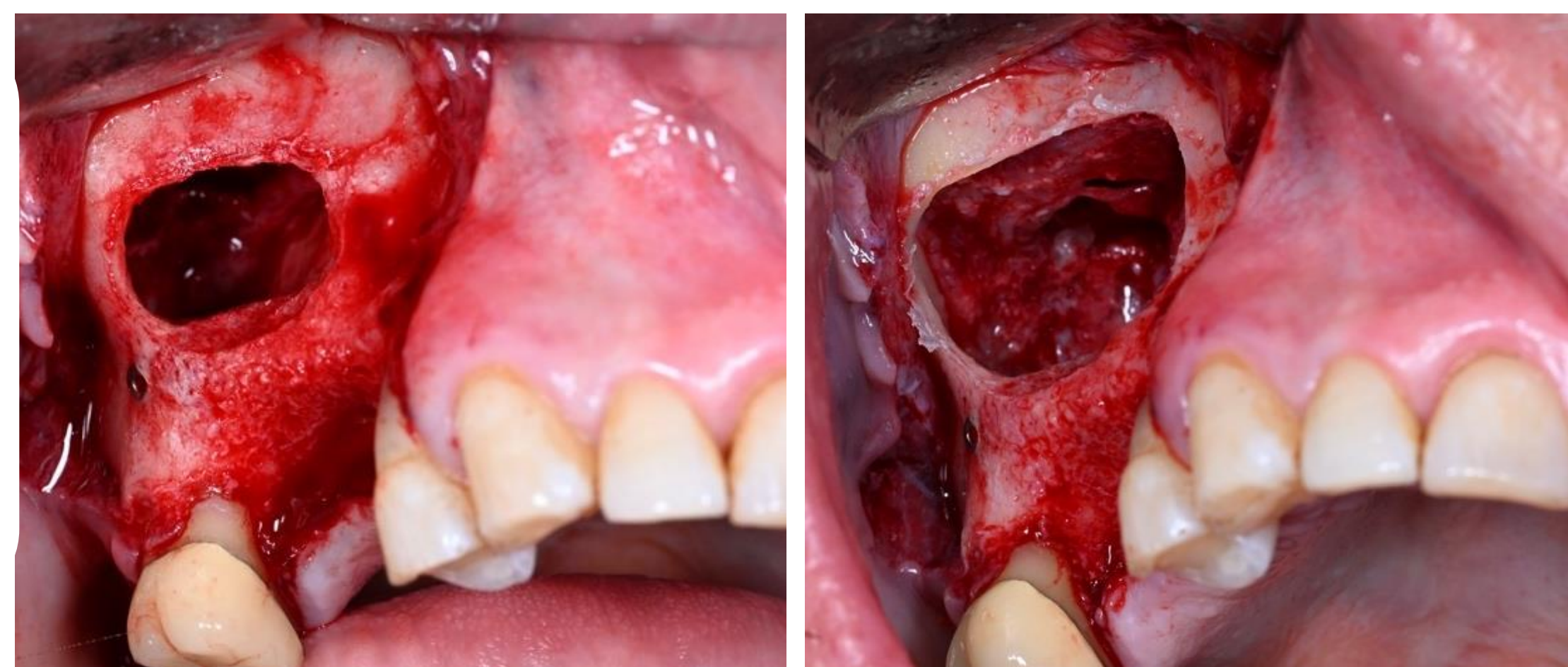
Case Presentation

- 52-year-old male
- Edentulous sites #3 and #4 for 10 years
- Insufficient residual bone height for implant placement

Surgical Procedure

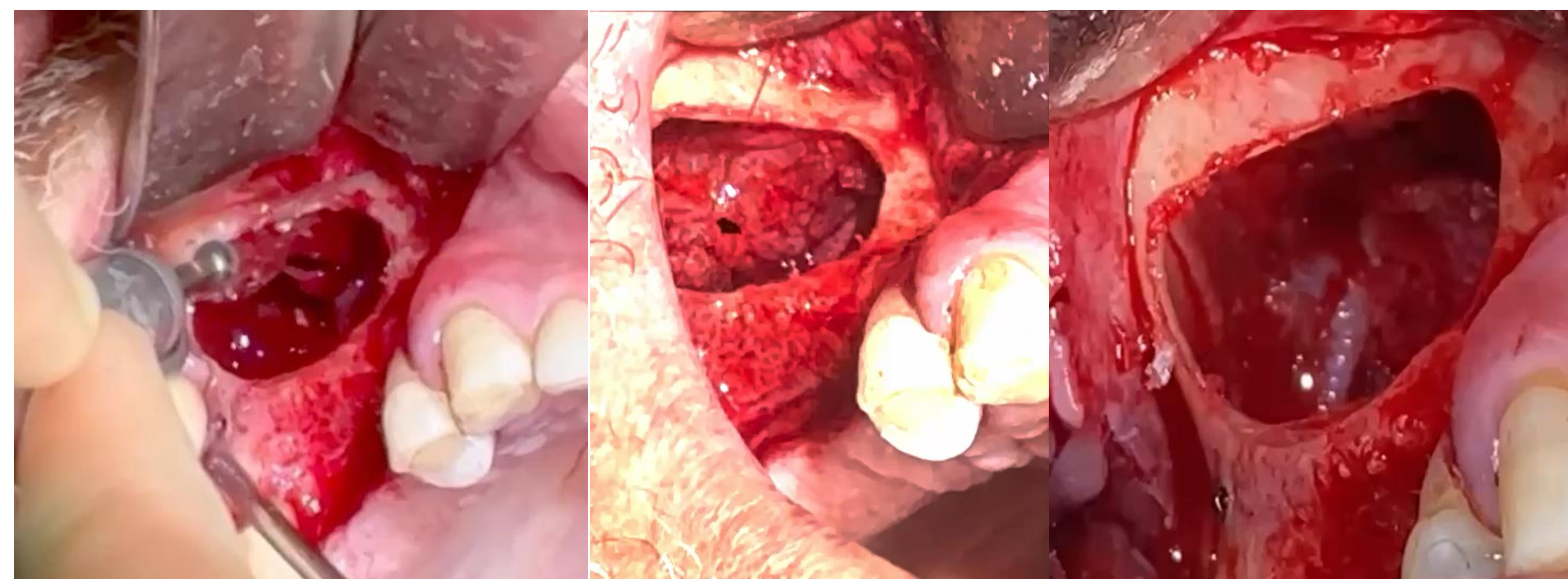
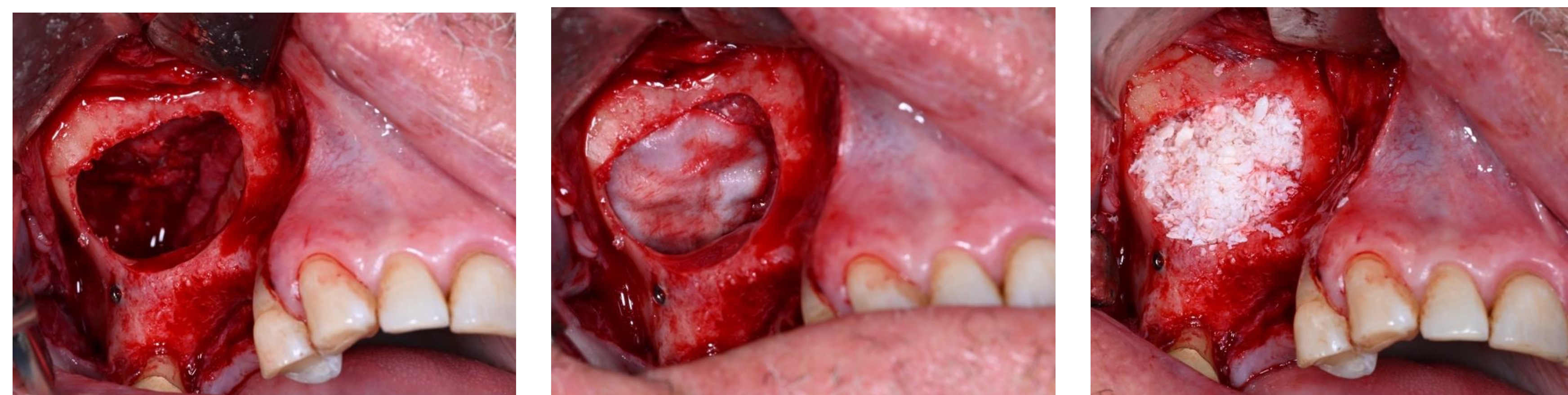
- Crestal incision with vertical release; full-thickness flap elevation
- Lateral window osteotomy performed
- 2 × 2 mm Schneiderian membrane perforation identified
- Osteotomy extended to improve visualization and access
- Second 3 × 4 mm tear detected posteriorly

REFERENCES



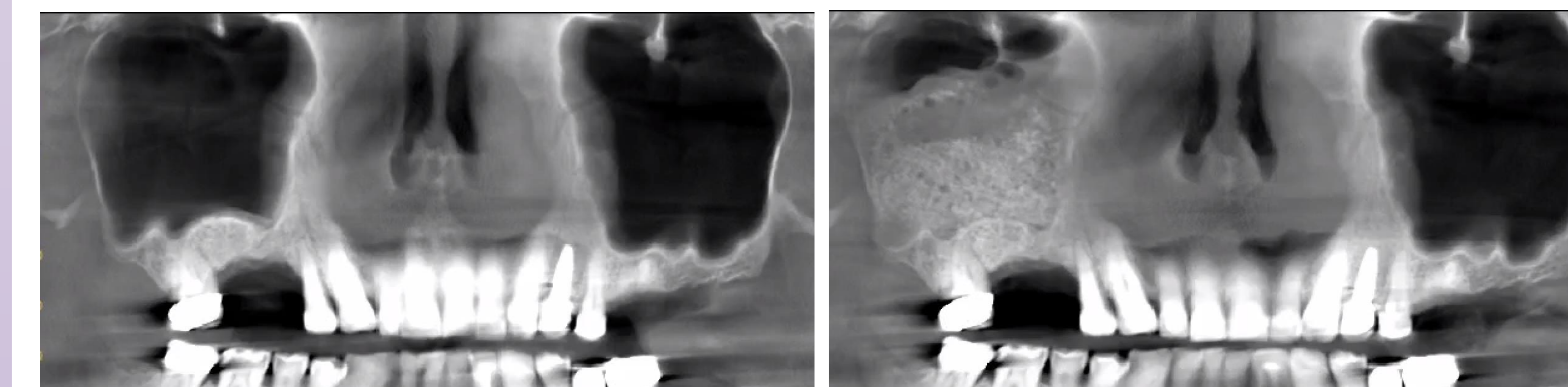
Membrane Repair Protocol

- Identify and isolate perforations
- Complete membrane mobilization to eliminate tension
- Direct suturing with 5-0 chromic gut
- Confirm integrity with Valsalva maneuver
- 20 x 30 mm collagen membrane placed for reinforcement
- 10 cc Bio-Oss Xenograft grafted
- Secondary collagen membrane placed over lateral window



Postoperative Outcome

- Primary closure achieved without tension
- No sinus or postoperative complications
- Radiographic evidence of stable graft containment
- Early CBCT demonstrated preserved membrane integrity
- Implant placement planned following graft maturation



Pre-operative

Post-operative

Clinical Significance

Large Schneiderian membrane perforations can be predictably managed through direct suturing combined with collagen membrane reinforcement, ensuring stable graft containment and favorable regenerative outcomes.

Surgical Considerations

- Extend the osteotomy to improve visualization
- Achieve complete membrane mobilization prior to repair
- Ensure tension-free approximation of perforation margins
- Verify membrane integrity with Valsalva before grafting
- Reinforce large repairs with collagen membrane
- Proceed with graft placement after stable closure is confirmed