Strategic bony window management in anatomically complex lateral sinus elevation: three clinical cases

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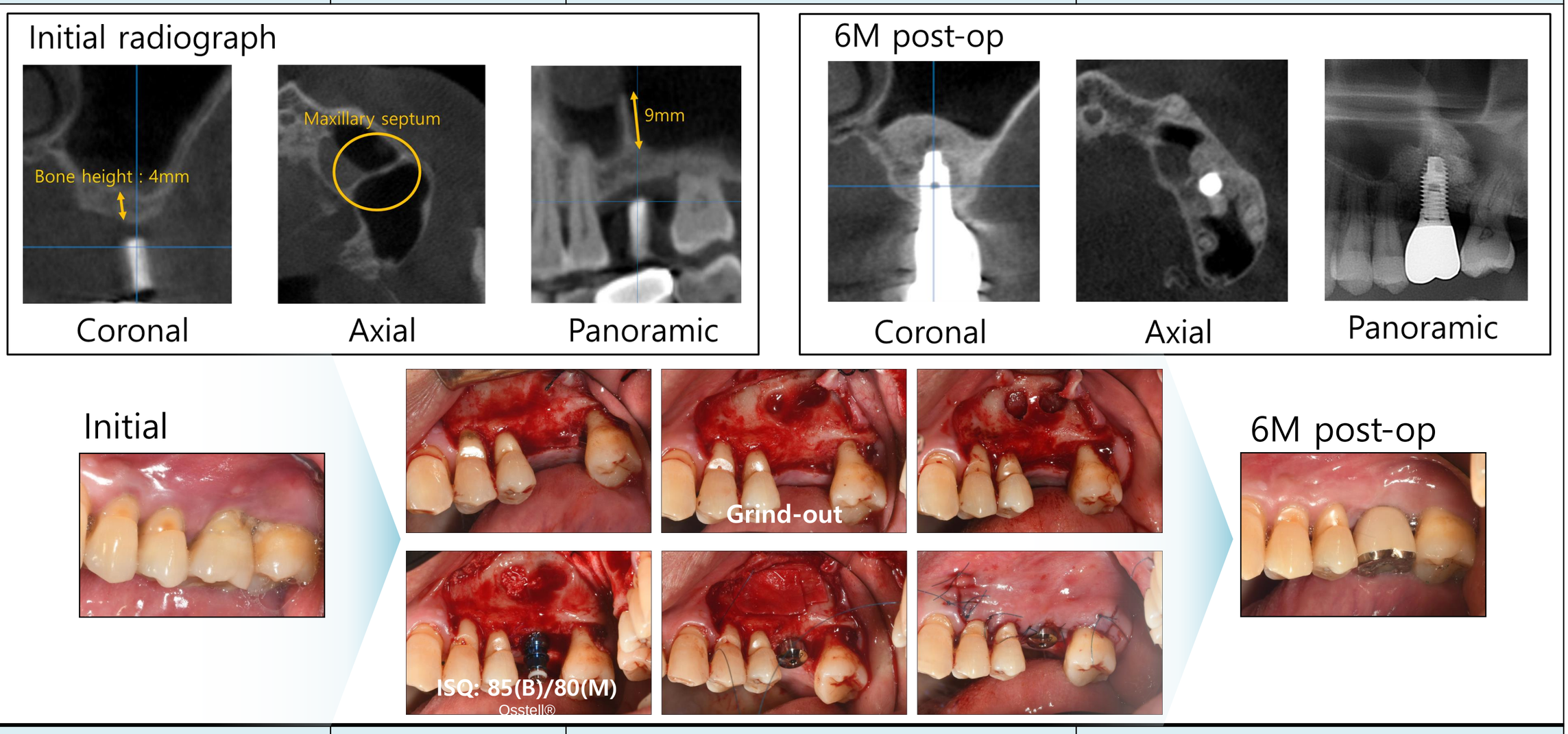
Background

This case series presents three anatomically complex situations in lateral sinus elevation. Each case required a tailored approach for bony window design and management, particularly when dealing with sinus septum, antral exostosis, and unexpected vascular structures. The strategies for handling sinus membrane perforation are also discussed.

Methods & Results

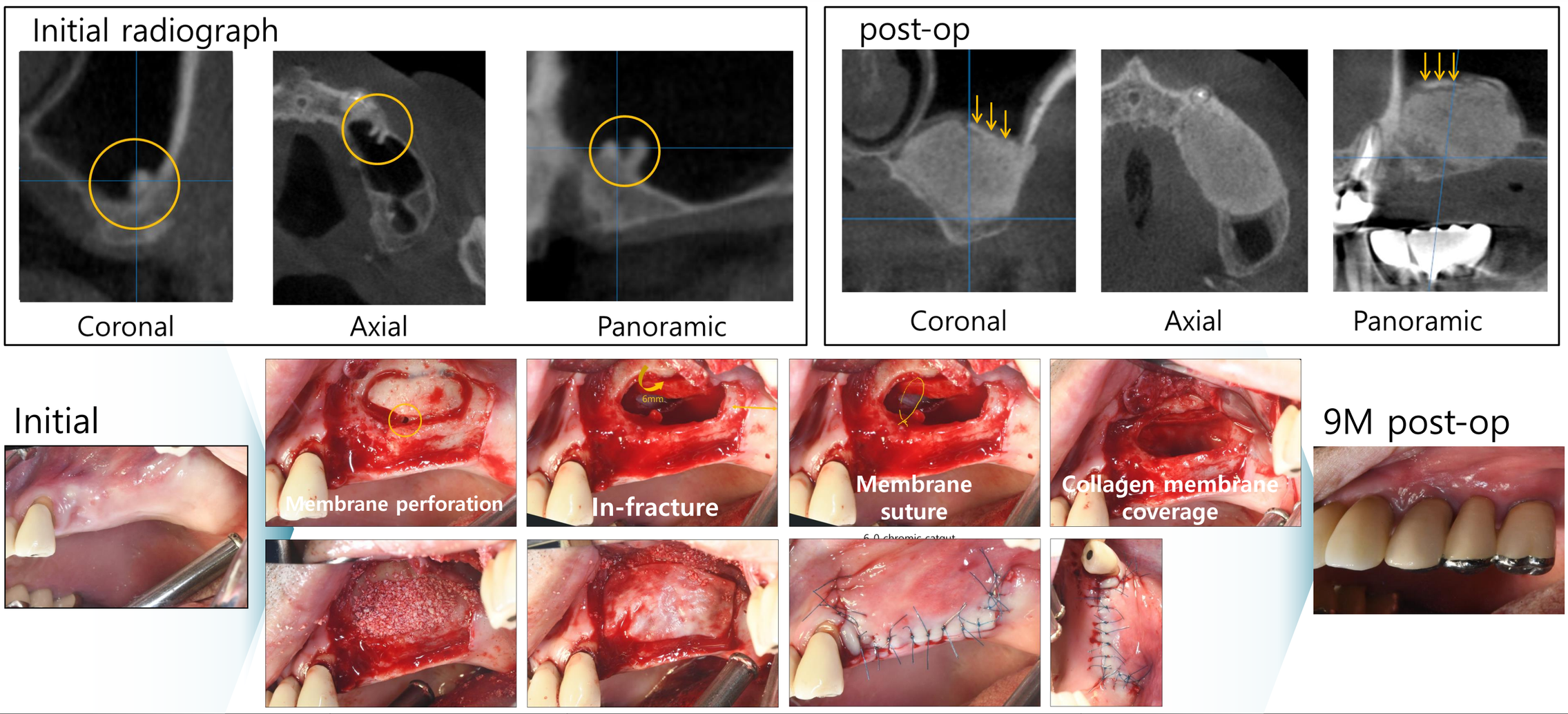
Case	Patient information	Key anatomy	Strategy & Events	Outcome
1	50M / #26 residual bone height: 4mm	*Maxillary septum*	- Septum visible on CBCT but unclear during surgery - **Window: Grind-out technique** - transmucosal implant + GBR	No perforation, stable healing

images



Case	Patient information	Key anatomy	Strategy & Events	Outcome
2	65M / #27 residual bone height: < 1mm	*Antral exostosis* (2 mm from lateral wall)	- Membrane perforation during window preparation - **Window: In-fractured** - **membrane sutured, collagen membrane coverage**	Uneventful healing

images



Case	Patient information	Key anatomy	Strategy & Events	Outcome
3	46M / #27 residual bone height: < 3mm	*Root apex, PSA artery*	- #26 root apex exposed - PSA artery unexpectedly exposed - **Window: Bypass, window repositioned**	Healing without complications, artery preserved

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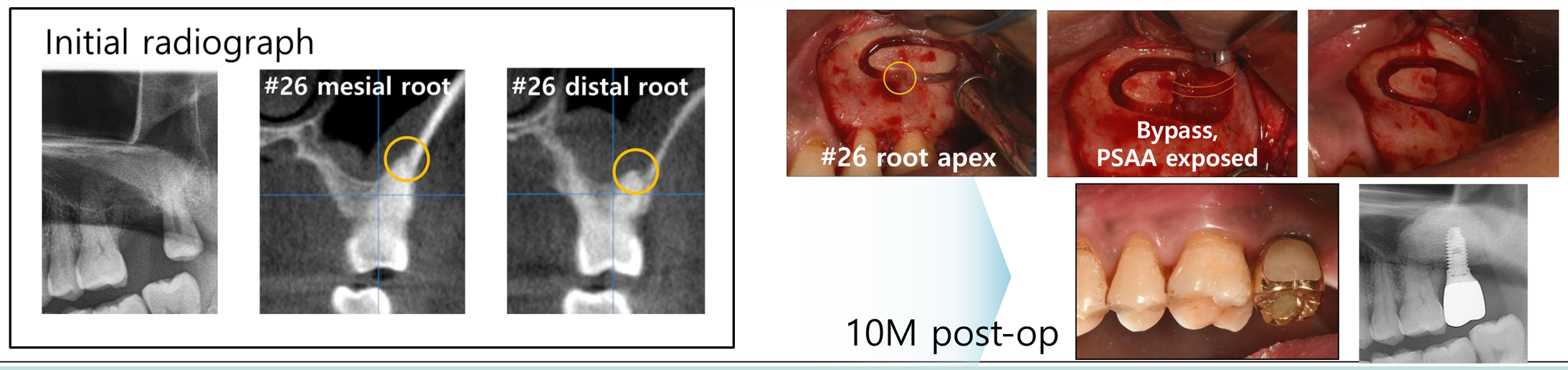

Conclusion

Strategic bony window management based on anatomical complexity enabled safe and predictable lateral sinus elevation. Membrane perforations were effectively managed with timely suturing and absorbable membranes.