

# Transorbital approach to surgical resection for a far-lateral frontal sinus osteoma

North American Skull Base Society Annual Meeting

Leah T. Rosen, MS,<sup>1</sup> Gabriella Schmuter, MD,<sup>1</sup> Sruti Akula, MD,<sup>1</sup> Shanlee Stevens, MD,<sup>1</sup> Celestine Gregerson, MD,<sup>1</sup> Michael J. Ye, MD,<sup>2</sup> Abtin Tabaei, MD,<sup>2</sup> Kyle J. Godfrey, MD<sup>1,3</sup>

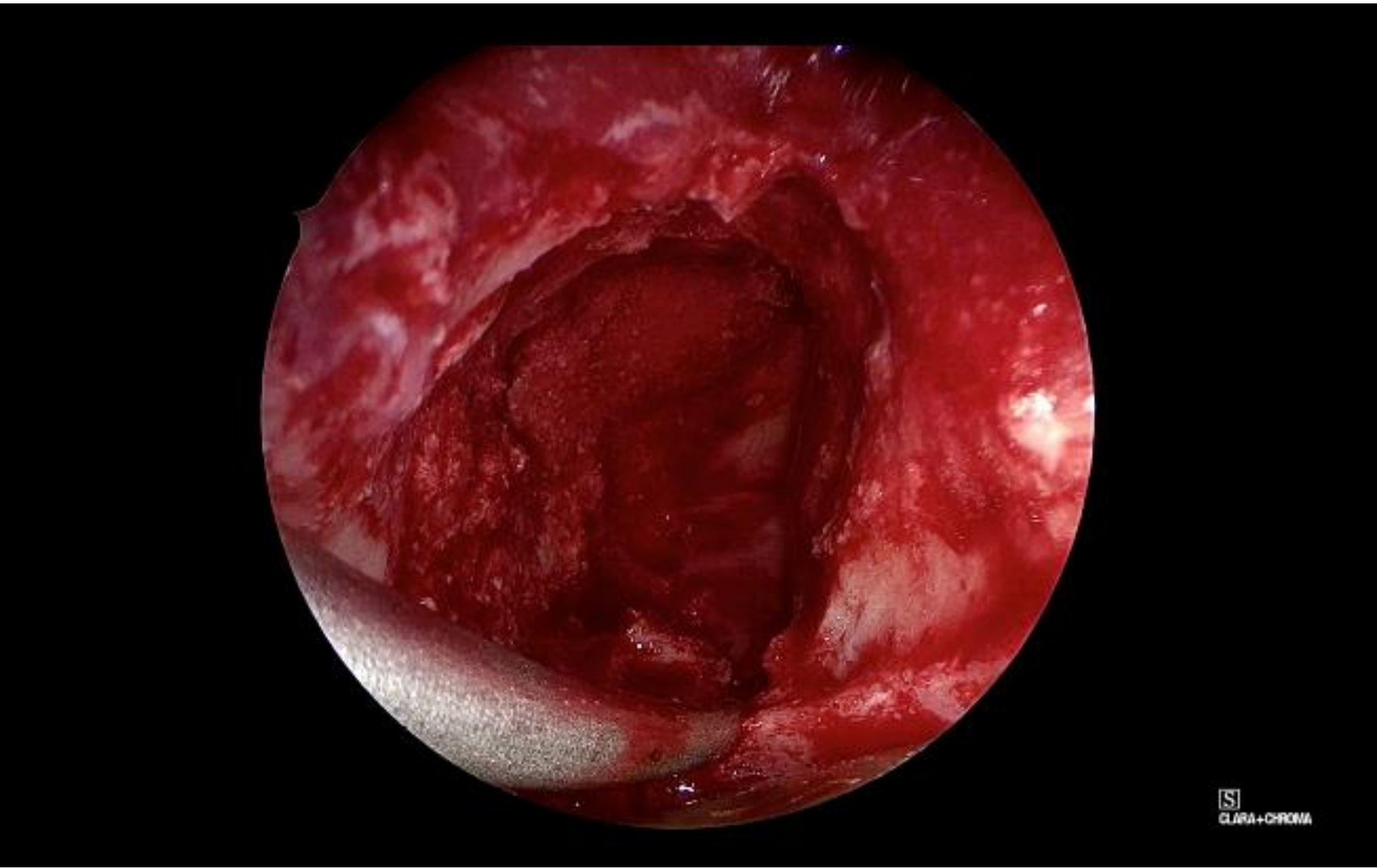
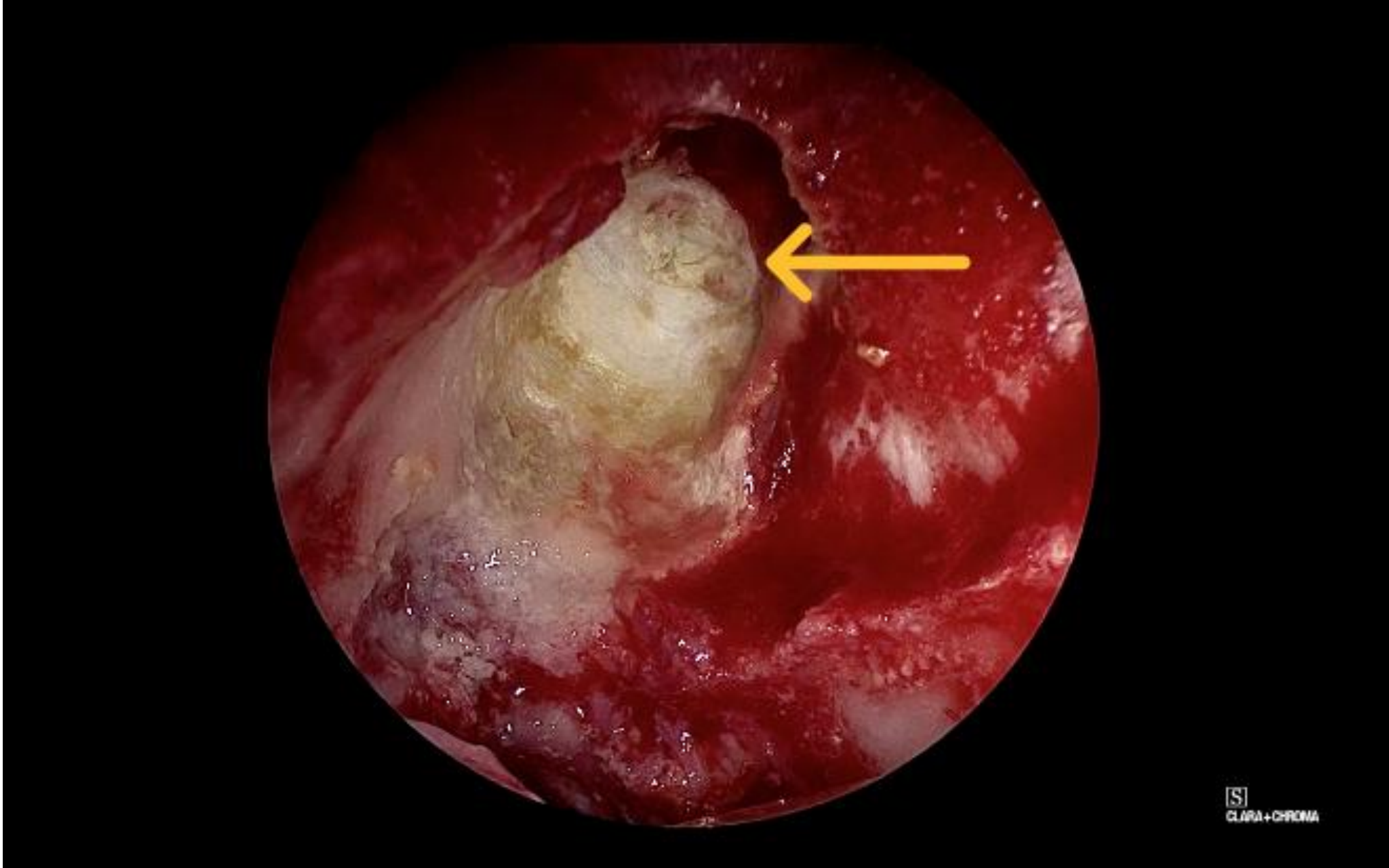
1: Department of Ophthalmology, Weill Cornell Medicine, New York, NY, 2: Department of Otolaryngology, Weill Cornell Medicine, New York, NY 3: Department of Neurological Surgery, Weill Cornell Medicine, New York, NY

## Purpose

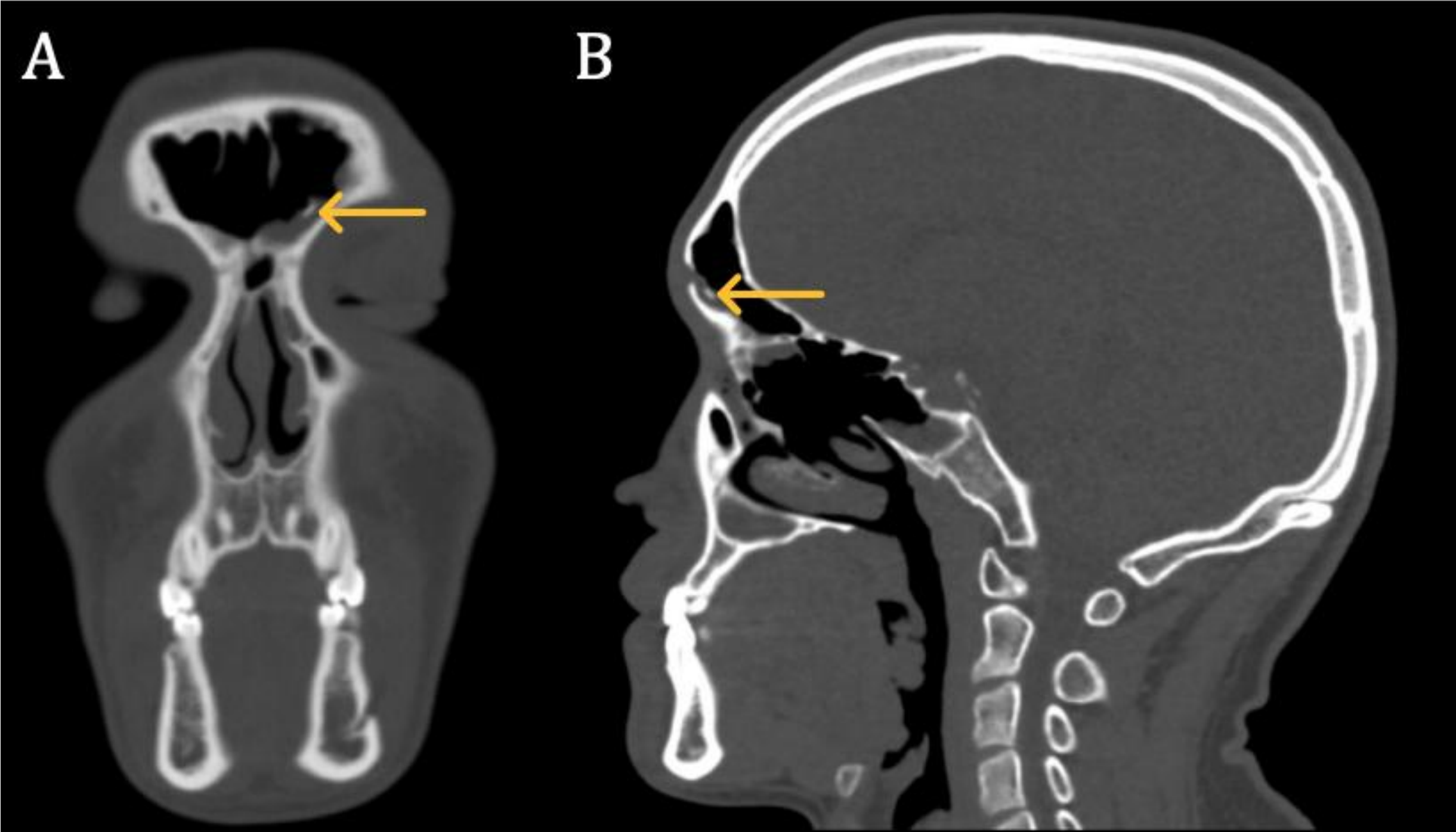
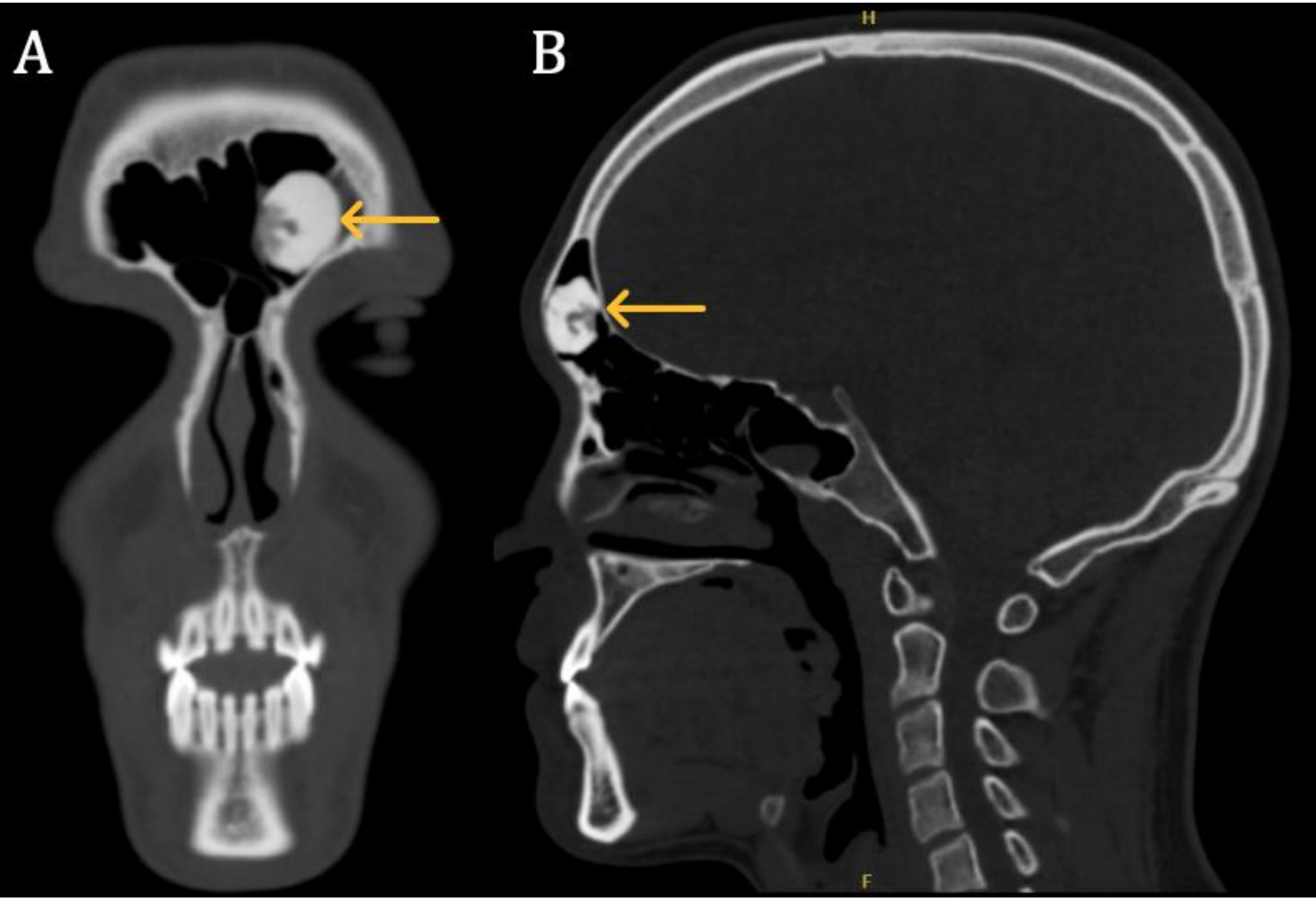
- To highlight a novel surgical approach to resection of a far-lateral frontal sinus osteoma.

## Case Presentation

- 21M presented for chronic, intermittent left-sided nasal congestion.
- CT maxillofacial: Uniform bone density mass in left frontal sinus measuring 1.9x1.3x1.2cm
- Combined nasal septoplasty & endoscopic sinus surgery: Sub-total resection due to far-lateral position.
- Underwent a left orbitofrontal approach via eyelid crease with oculofacial plastic surgery.
- Frontal sinus was accessed by removing bone in the superior orbit; angled diamond burr used to drill the base of mass, which was removed in its entirety.
- Histopathological examination confirmed osteoma.
- At 6 month follow-up:
  - Complete resection of lesion and well-healed sinonasal tracts were noted on physical exam and CT scan.
  - Eyelid crease incision was well-healed.



**Top:** Intraoperative endoscopic photograph of the frontal sinus mass (yellow arrow).  
**Bottom:** Intraoperative endoscopic photograph after resection of the frontal sinus mass demonstrating total removal.



**Top:** Pre-operative coronal (a) and sagittal (b) CT maxillofacial imaging demonstrating a left frontal sinus mass.  
**Bottom:** Coronal (A) and sagittal (B) CT maxillofacial images at post-operative month six, demonstrating no definitive residual osteoma.

## Discussion

- Approximately 70-80% of paranasal sinus osteomas are found in frontal sinus.<sup>1</sup>
- Classically benign, indolent, & asymptomatic
- If a paranasal sinus osteoma compresses surrounding structures or obstructs sinus drainage, surgery is recommended.<sup>2</sup>
- Surgical options: 1) external approach, 2) endoscopic approach, or 3) combination of both.<sup>3,4</sup>
- Transorbital approach offers several advantage (compared to external skull-based procedures):<sup>5</sup>
  - Faster post-operative recovery
  - Lower morbidity
  - Favorable cosmetic outcome
  - Less post-operative pain



Front and left-side external photographs of the patient at the six-month post-operative visit.

## Conclusions

- Our case demonstrates the potential of the transorbital approach as an adjunct to management of complex, far-lateral frontal sinus pathology.

## References

- Arslan HH, Tasli H, Cebeci S, Greek M. The management of the paranasal sinus osteomas. *Journal of Craniofacial Surgery*. 2017; 28(3): 741-745.
- Waldman S, Shimonov M, Yang N, Spielman D, Godfrey KJ, Dean KE, Phillips CD, Helman SN. Benign bony tumors of the paranasal sinuses, orbit, and skull base. *American Journal of Otolaryngology*. 2022; 43(3).
- Watley DC, Mong ER, Rana NA, Illing EA, Chaaban MR. Surgical approach to frontal sinus osteoma: A systematic review. *American Journal of Rhinology & Allergy*. 2019; 33(5).
- Chiu AG, Schipor J, Cohen NA, Kennedy DW, Palmer JN. Surgical decisions in the management of frontal sinus osteomas. *American Journal of Rhinology & Allergy*. 2005; 19(2).
- Carnevale JA, Ramirez-Loera C, Goldberg JL, Godfrey KJ, Schwartz TH. Transorbital endoscopic approach for middle fossa floor / lateral cavernous sinus meningioma: 2-Dimensional operative video. *Operative Neurosurgery*. 2023; 24(3): e201-e202.



**Weill Cornell Medicine**  
Israel Englander  
Department of Ophthalmology