

# Granular Cell Tumor of the Pharynx: Management Using a Transoral Robotic Approach


 Marc Gelernter B.S.A<sup>1</sup>, Daniel Sharbel M.D.<sup>2</sup>, J. Kenneth Byrd M.D.<sup>2</sup>
<sup>1</sup>Medical College of Georgia at Augusta University, Augusta, GA

<sup>2</sup>Department of Otolaryngology-Head and Neck Surgery, Medical College of Georgia at Augusta University, Augusta, GA

## Introduction

- Granular cell tumors (GCTs):** Rare benign neoplasms first described in 1926, named for their granular cytoplasm (abundant intracytoplasmic lysosomes)
- Immunohistochemistry (S100, NSE):** supports Schwann cell origin<sup>1</sup>
- Epidemiology:** Most common in 3rd decade, higher frequency in women and African Americans<sup>2</sup>
- Presentation site:** ~50% arise in head and neck, most commonly tongue; also documented in skin/subcutaneous tissue
- Laryngeal involvement:** Accounts for 3–10% of reported cases<sup>1</sup>
- Pharyngeal GCTs:** Extremely rare — only two prior cases in the literature
- Gap in knowledge:** No published reports of pharyngeal GCTs managed with **transoral robotic surgery (TORS)**<sup>3</sup>
- Case significance:** First known pharyngeal GCT resected via TORS, demonstrating feasibility and safety of a minimally invasive approach

## Case Report

- 57-year-old male, never-smoker, with 8-month history of muffled voice, noisy breathing, inspiratory stridor, and 70-lb weight loss from dysphagia
- Exam and laryngoscopy showed large obstructive oropharyngeal/hypopharyngeal mass, vocal cords not visualized
- Pre-op contrasted computerized tomography: homogenous right lateral oropharyngeal mass (3.2 × 3.8 × 6.5 cm) compressing airway (**Figure 1 and 2**)
- Lesion contacted but did not invade right internal carotid artery
- Core needle biopsy: lymphoid tissue, spindle cells, pigmented histiocytes → suggestive of GCT
- Underwent TORS resection of right pharyngeal mass, pathology confirmed GCT with bland spindle cells, neural and granular features, no malignant features
- Immunohistochemistry: positive for S100 and SOX10
- Post-op: uncomplicated recovery, return to regular diet, no recurrence to date (**Figure 3 and 4**)

## Figures

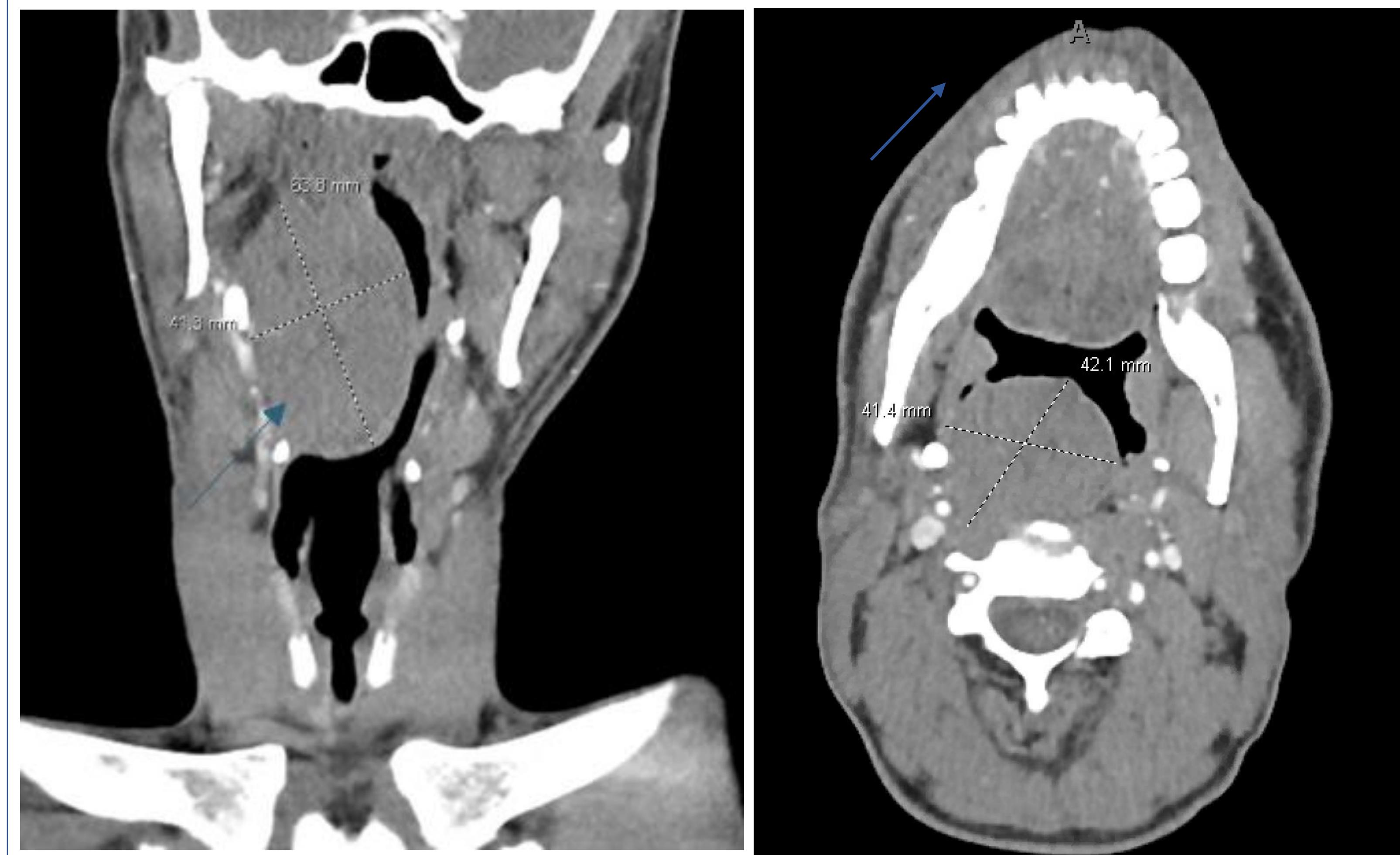


Figure 1 (coronal) and Figure 2 (axial): Contrast-enhanced CT demonstrating a large posterior pharyngeal wall GCT(blue arrow) prior to TORS, mass measures approximately 6.5 × 4.0 × 4.2 cm



Figure 3 (coronal) and Figure 4 (axial): Contrast-enhanced CT demonstrating no evidence of GCT recurrence 1 year post-operative

## Discussion

- Novelty:** First reported case of pharyngeal GCT resected via TORS
- Tumor size:** ~75% of GCTs ≤2 cm<sup>4</sup>; this larger mass went undetected until obstructive symptoms developed
- Rationale for TORS:** Chosen for lack of aggressive features, safe distance from carotid artery, and superior robotic visualization
- Benefit of approach:** Avoided morbidity of open transcervical surgery while preserving postoperative swallowing function
- Pathology:** Histology and immunohistochemistry (spindle cells, S100 positivity) critical to distinguish GCT from squamous cell carcinoma
- Imaging role:** CT demonstrating non-invasiveness supports benign nature
- Prognosis:** Malignant transformation is exceedingly rare (<100 reported cases)<sup>5</sup>; adjuvant therapy not indicated for benign GCT

## Conclusions

- TORS is safe and effective for selected GCTs of the upper aerodigestive tract
- Feasibility depends on tumor accessibility and proximity to critical vascular structures
- Minimally invasive approach offers disease control while preserving postoperative function

## Contact

Marc Gelernter  
Department of Otolaryngology-Head and Neck Surgery  
Medical College of Georgia at Augusta University  
1447 Harper St, Medical, office building 4th floor, Augusta, GA 30912  
mgelernter@augusta.edu  
678-910-8055

## References

- Li X, Robert B. Parke J, Rushton JR, et al. An Unusually Large Granular Cell Tumor of the Pharynx: A Case Report and Literature Review. International journal of clinical and experimental pathology 2009;2(300-302)
- Kawaiida M, Fukuda H, Kohno N. Granular cell tumors arising nearly simultaneously in the larynx and subcutaneous cervical region. Ear, nose, & throat journal 2000;79(162-166)
- Piazza C, Casirati C, Peretti G, et al. Granular cell tumor of the hypopharynx treated by endoscopic CO<sub>2</sub> laser excision: report of two cases. Head & neck 2000;22(524-529)
- De Rezende L, Lucendo AJ, Alvarez-Argüelles H. Granular cell tumors of the esophagus: report of five cases and review of diagnostic and therapeutic techniques. Diseases of the Esophagus 2007;20(5):436-443
- Williams G, Neblett C, Warren S, et al. A case of metastatic malignant granular cell tumour of the scalp. J Surg Case Rep 2021;2021(4):rjab145, doi:10.1093/jscr/rjab145