

# First Reported Case of Reticular Schwannoma within the Submandibular Gland

Sonya Marcus, MD<sup>1</sup>; Ryan P. Lau, MD<sup>2</sup>; Meghan T. Turner, MD<sup>1</sup>; Mari Hagiwara, MD<sup>3</sup>; Ronaldo Zamuco, MD<sup>2</sup>; Babak Givi, MD<sup>1</sup>

<sup>1</sup>Department of Otolaryngology-Head and Neck Surgery. New York University Langone Medical Center.

<sup>2</sup>Department of Pathology. New York University Langone Medical Center.

<sup>3</sup>Department of Radiology. New York University Langone Medical Center.

## ABSTRACT

**Educational Objective:** At the end of this presentation, the participants: 1. Will describe the clinical presentation and morphology of this unusual variant of schwannoma. 2. Include this entity in the differential diagnosis of submandibular masses. 3. Recommend appropriate treatments based on the clinical behavior

**Introduction:** Reticular schwannoma is a newly described variant of schwannoma. We report the first case of reticular schwannoma arising from the submandibular gland.

**Study Design:** Case report.

**Methods:** A 34 year-old man presented to the otolaryngology clinic with an asymptomatic, slowly enlarging neck mass. Physical exam was normal except for a palpable, firm, nontender mass in the submandibular triangle. Computed tomography showed a mass extending from the otherwise normal-appearing left submandibular gland. Fine needle aspiration of the mass revealed a spindle-cell lesion. Patient underwent en bloc, complete excision of the mass and the left submandibular gland by transcervical approach, with selective level I neck dissection.

**Results:** Final pathology was concluded as a reticular schwannoma. Patient remained recurrence free one year after the surgery.

**Conclusions:** We describe the first reported case of reticular schwannoma of the submandibular gland. Awareness of this entity is essential to prevent confusion with other neoplastic entities and to avoid unnecessary treatments.

## CONTACT

Sonya Marcus, MD  
NYU Langone Medical Center  
Email: Sonya.marcus@nyumc.org

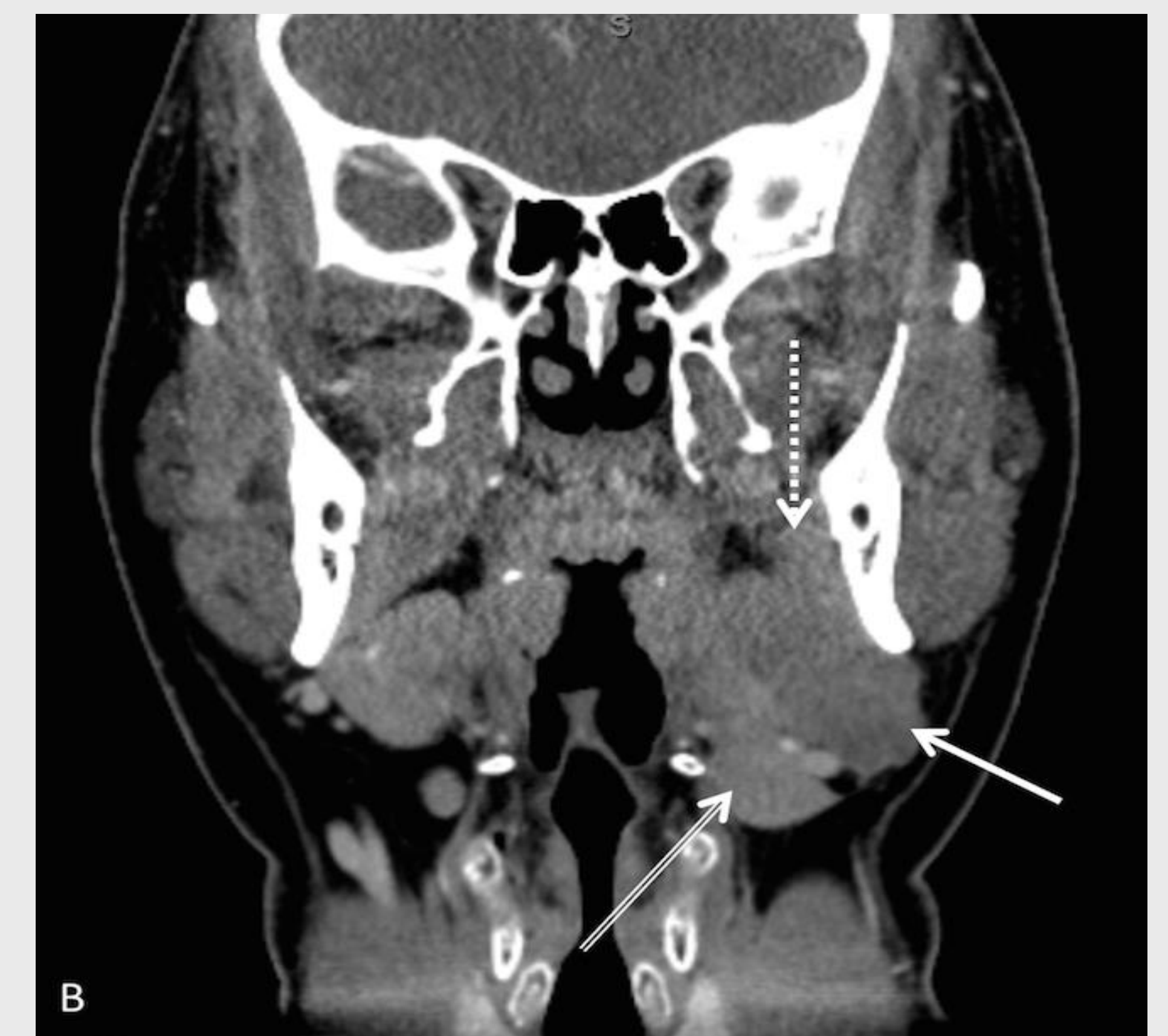
## INTRODUCTION

Schwannomas are benign, non-recurring peripheral nerve sheath tumors that are cured via surgical extirpation. Approximately 25% occur within the head and neck.

Reticular schwannoma is a newly described morphologic variant of schwannoma rarely found within the head and neck, which has morphologic features distinct from classic schwannoma.

Despite distinct characteristics, reticular schwannoma behaves similarly to classic schwannoma with no reports of recurrence or malignant transformation.

We present the first case of reticular schwannoma described within the submandibular gland.



Axial (A) and coronal (B) contrast-enhanced CT images demonstrate a well-defined, lobulated, slightly hypodense mass that is inseparable from the superolateral margin of the left submandibular gland. Superomedially, the mass extends into the left parapharyngeal space between the oropharynx and left medial pterygoid muscle (dashed arrow in B). Inferiorly, the facial vessels course between the mass and the left submandibular gland.

## CASE REPORT

**HPI:** A 34 year old man presented with a 6-month history of a slowly enlarging, painful left neck mass.

**ROS:** denied dysphagia, B-symptoms, odynophagia, trismus or cranial nerve deficits.

**Physical examination:** a mobile, 2-cm mass within the substance of the left submandibular gland without any overlying skin changes.

**Computed tomography:** a well-defined, lobulated mass extending from the left submandibular gland with extension into the parapharyngeal space, and an enlarged but normal-appearing left level IIA lymph node.

**FNA:** spindle-cells without further classification.

### Surgery:

- Mass excised en bloc with the left submandibular gland, selective level I neck dissection.
- No gross invasion of surrounding structures noted.
- A comprehensive neck dissection was not pursued, given no evidence of high-grade malignancy or radiographic findings.

## RESULTS

**Final pathology:** Reticular schwannoma.

**Follow-up:** Recurrence free one year after surgery.

## PATHOLOGY

### Frozen section:

- Mucin producing neoplasm, favoring a low to intermediate-grade mucoepidermoid.
- Benign lymph nodes.

**Gross pathology:** soft, tan, gelatinous cut surface.

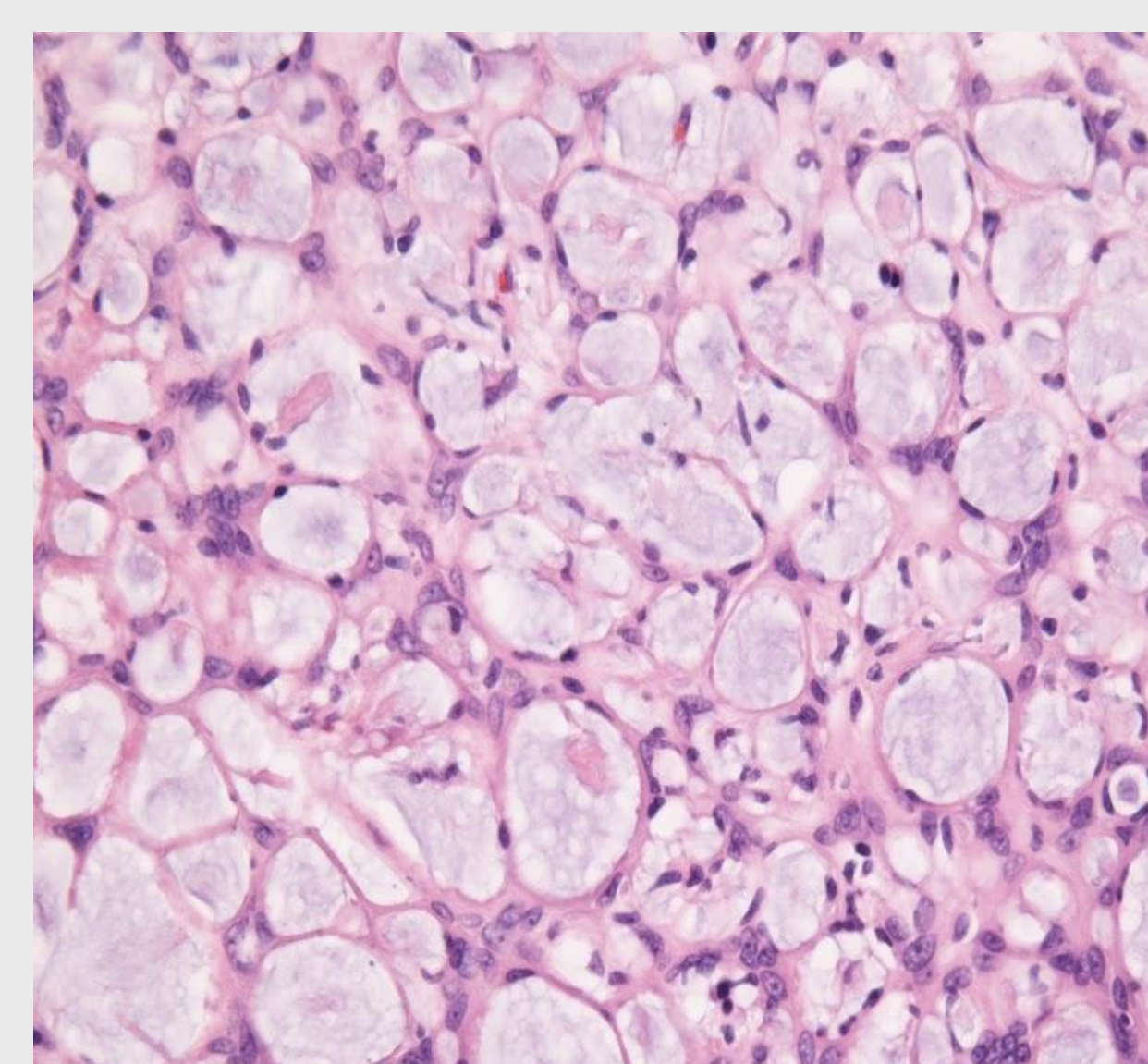
### Microscopic pathology:

1. Solid areas of spindle cells.
2. Areas of spindle ovoid cells with a microcystic pattern in a myxoid background.

### Immunohistochemical stains:

1. Positive for S-100 and CD34.
2. Negative for calponin, mammaglobin, ALK1, p63, ER, GFAP, SMA, desmin, cytokeratin 7, cytokeratin, AE1/AE3, and C-Kit.
3. Mucicarmine stain is negative.

Typical schwannomas exhibit cellular areas of spindle cells with nuclear palisading (Antoni A) and hypocellular, myxoid areas (Antoni B) which reticular schwannoma typically lacks.



Areas of spindle to ovoid cells with a microcystic/reticular pattern, set in a myxoid background.



Gross Specimen.

## CONCLUSIONS

Schwannomas classically present as slowly enlarging neck masses. Typically benign, a conservative approach is pursued with care to preserve the parent nerve intraoperatively.

Recurrence is rare for schwannomas including the reticular/microcystic variant even after incomplete resection.

Therefore a high index of suspicion for reticular schwannoma and an awareness of how it differs from classic schwannoma is essential to accurately diagnose this lesion and to prevent confusion with other benign and malignant entities. Awareness of this entity can prevent unnecessary or more extensive treatment approaches.

## REFERENCES

1. Putney FJ, Moran JJ, Thomas GK. Neurogenic tumors of the head and neck. *Laryngoscope*. 1964;74: 1037-59.
2. Gong S, Hafez-Khayyatta S, Xin W. Microcystic/Reticular Schwannoma: Morphological Features Causing Diagnostic Dilemma on Fine-needle Aspiration Cytology. *The American journal of case reports*, 2014;15:538.
3. Liegl B, Bennett MW, Fletcher CD. Microcystic/reticular schwannoma: a distinct variant with predilection for visceral locations. *Am J Surg Pathol*. 2008;32:1080-1087.
4. Lau PP, Yau DT, Lau WH et al. Multinodular reticular schwannoma in the head and neck region: a potential diagnostic pitfall. *Int J Surg Pathol*. 2013;21(1): 54
5. Pang JM, Mahar A, Shannon K et al. Reticular and microcystic schwannoma of the parotid gland. *Pathology*. 2013;45(1): 96