

## Background

- Thyroglossal duct (TGDC) and branchial cleft cysts (BCC) are common congenital neck anomalies
- Typically present in children as asymptomatic midline or lateral neck masses, respectively
- Management involves elective excision due to risk of infections, enlargement, or malignant transformation
- The standard method for both requires a horizontal neck incision

## Objectives

- Describe the imaging characteristics and differential diagnoses of a neck mass presenting in two adult patients
- Describe transoral excision of both masses, a potential alternative to standard methods

## Case presentations

**PATIENT A** is 81-year-old male with past medical history of CAD s/p CABG, T2D, and COPD who presented with a more than 50-year history of recurrent episodes of a left oropharyngeal/base of tongue mass with associated compressive symptoms that were increasing in frequency and severity. Patient had no personal or family history of head or neck cancers but was current tobacco user and had history of heavy alcohol use. Imaging (Fig. 1) is shown to the right. Prior fine needle aspiration biopsies done in 2002 and 2010 demonstrated benign squamous mucosa with underlying reactive lymphoid aggregate. Repeat biopsy demonstrated mildly atypical squamous mucosa with acute inflammation.

### DIFFERENTIAL DIAGNOSIS

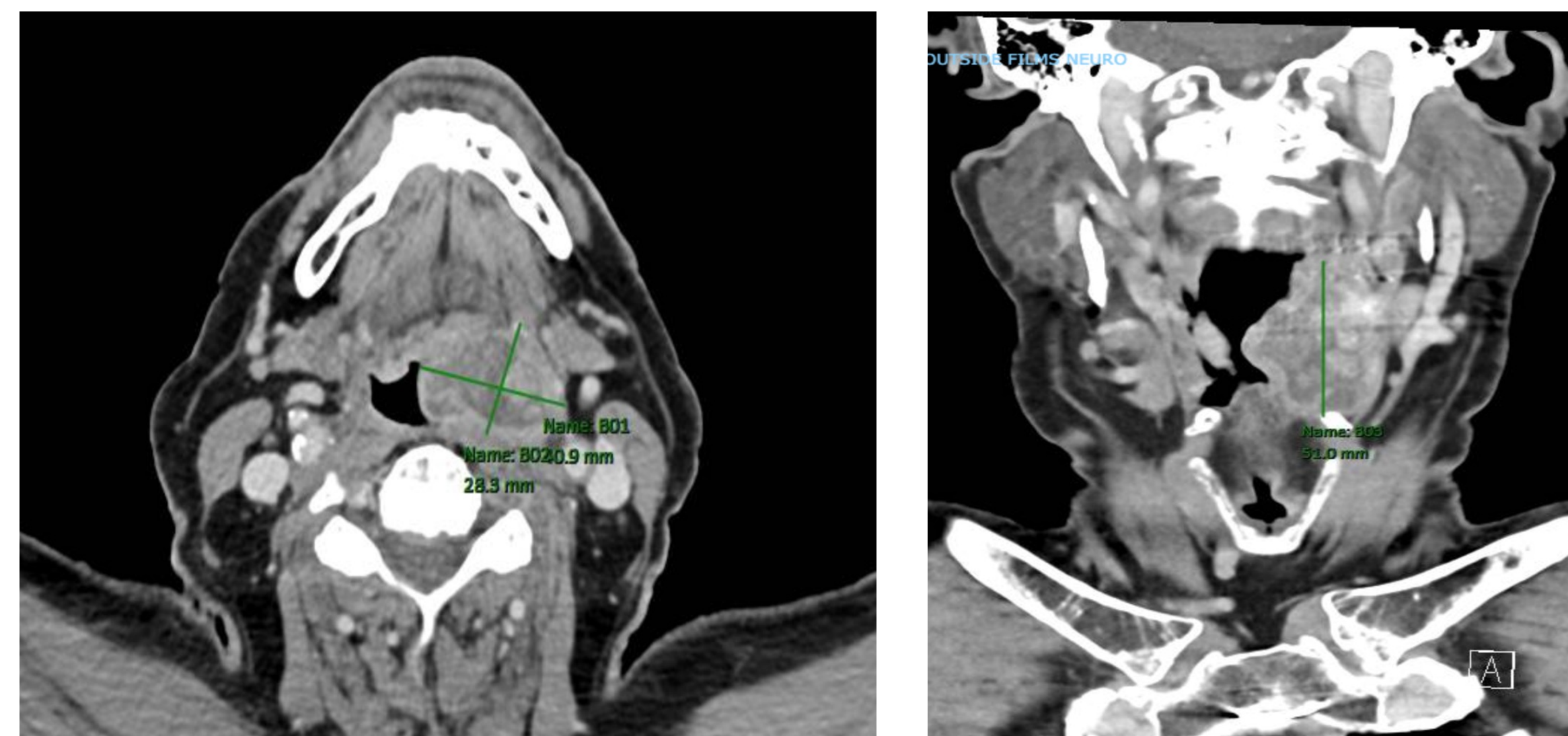
- Atypical brachial cleft cyst
- Thyroglossal cyst
- Squamous papilloma
- Low grade neoplasm
- A laryngocele or laryngeal cyst

**PATIENT B** is a 56-year-old male with no significant past medical history who presented following an incidentally found right oropharyngeal cystic mass. Patient was being evaluated for back pain with cervical spine MRI partially demonstrating a cystic abnormality in the right posterior lateral pharynx. He subsequently described a history of chronic rhinosinusitis but was otherwise asymptomatic. Social and family history was unremarkable. Imaging (Fig. 2) is shown to the right. Patient decided to undergo excisional biopsy.

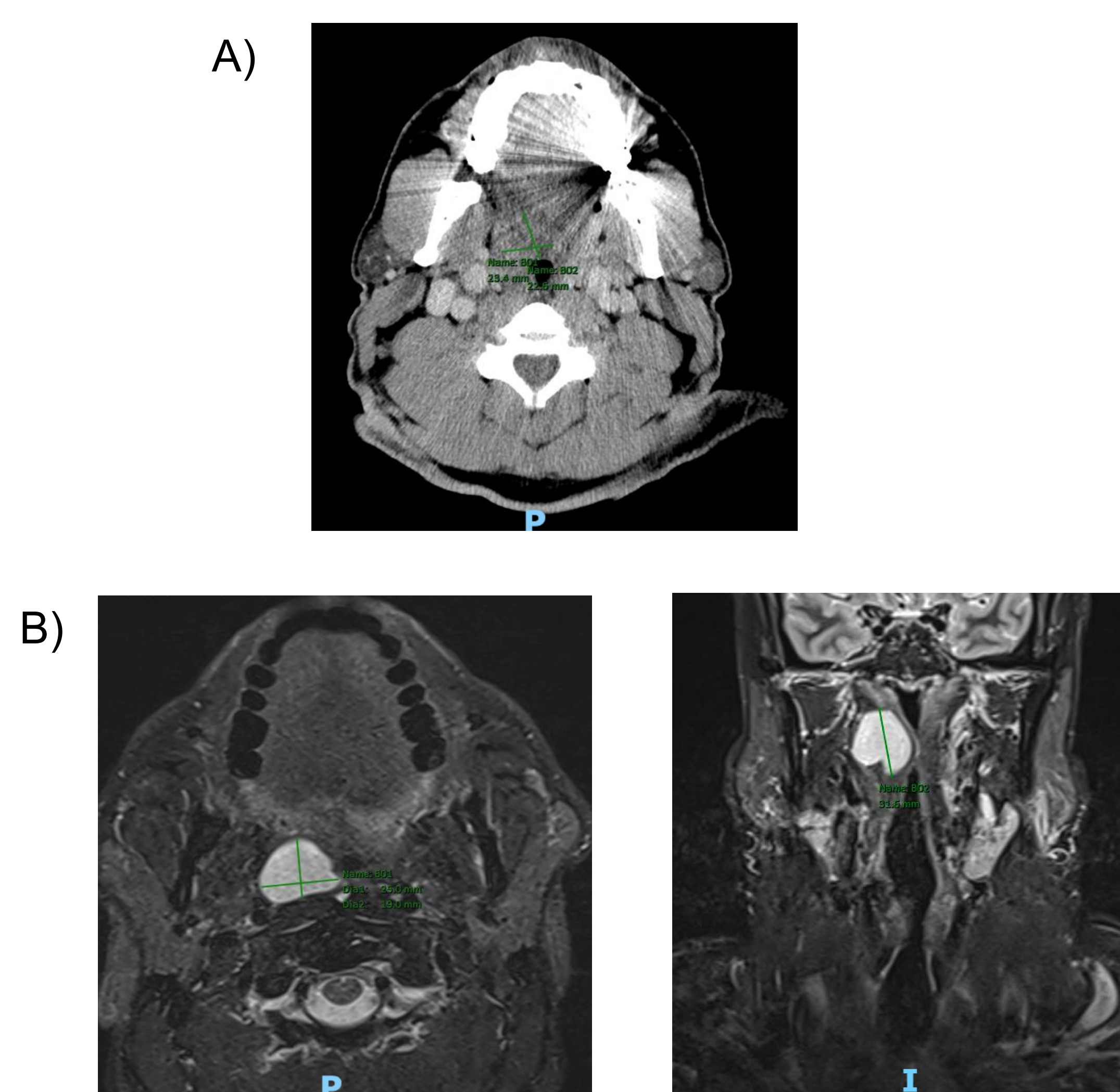
### DIFFERENTIAL DIAGNOSIS

- Fluid-filled cyst
- Branchiogenic cyst
- Lymphangioma
- Minor salivary gland malignancy
- Neurogenic tumor

## Imaging



**Figure 1. Patient A.** CT Neck with contrast. A heterogenous enhancing lesion (4.1 x 2.8 x 5.2 cm) extending from the submandibular region to the level of the hyoid.



**Figure 2. Patient B.** A) CT Neck with contrast and B) MRI Face and Neck. A well-defined cystic lesion (2.5 x 3.2 cm) in the right pharyngeal mucosal space at the level of the soft palate.

## Surgical approach

### PATIENT A

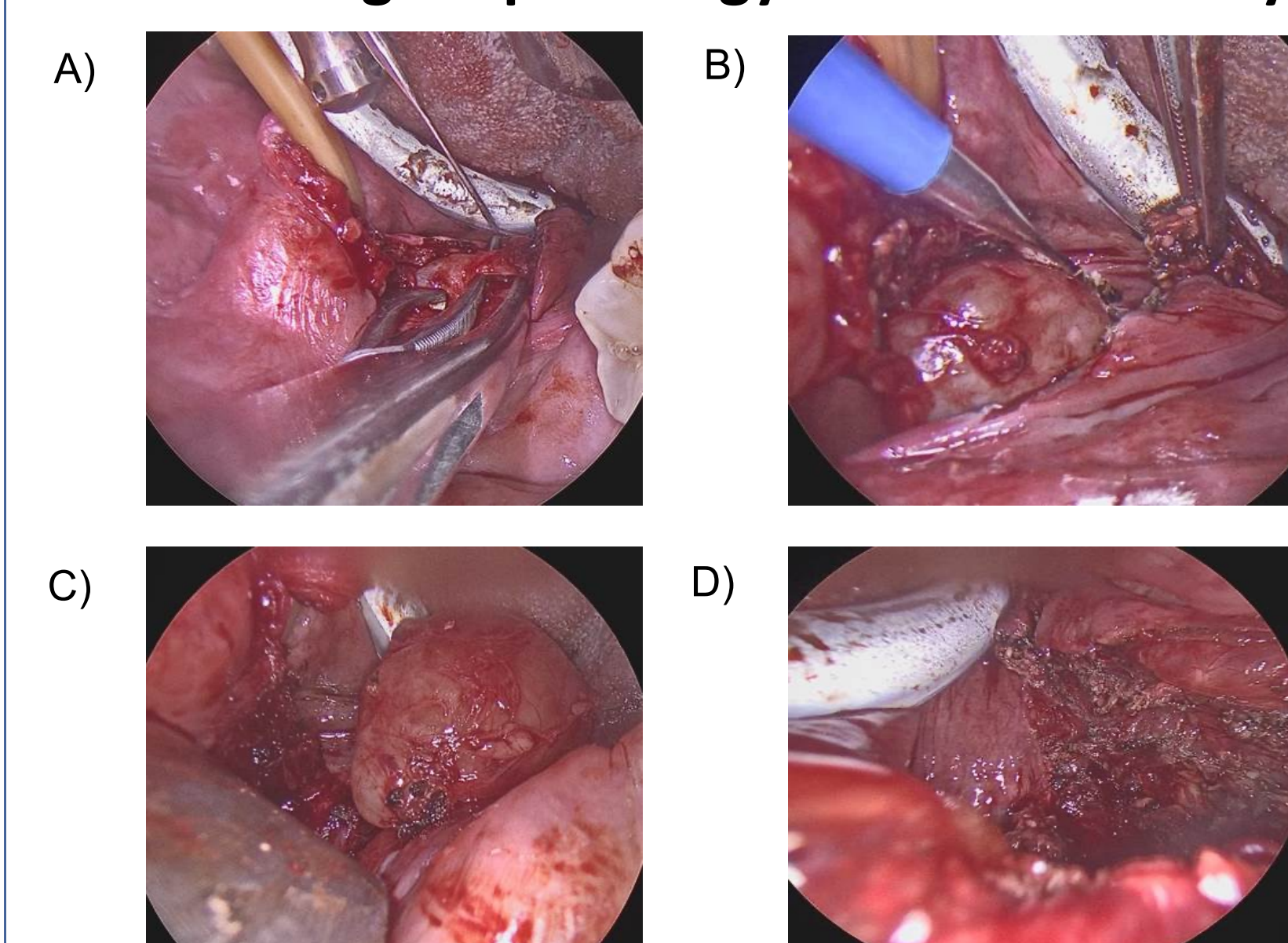
- Mouth gag placed. Incision made along anterior tonsillar pillar with monopolar cautery and continued deep to the superior constriction but superficial to parapharyngeal fat pad and inferiorly along the posterior pharyngeal wall down to the tongue base.
- Dissection continued inferiorly in a medial to lateral direction within the parapharyngeal space until inferior aspect of the mass was reached.
- Mouth gag removed. Lindholm laryngoscope was used to visualize the inferior extent of the mass. Dissection was continued with CO2 laser (8 watts continuous superpulse) in a lateral to medial, superior to inferior fashion.
- The posterior pharyngeal wall and posterior tonsillar pillar were attached to remnant anterior pillar and retromolar trigone with horizontal mattress sutures to reconstruct the defect.
- Patient tolerated procedure without complications.

**Final surgical pathology: Thyroglossal duct cyst**

### PATIENT B

- Patient placed in suspended with a Crowe-Davis mouth gag from Mayo stand. Red rubber catheter then placed in the nostril through the mouth and secured to elevate the soft palate.
- Incision made along the right pharyngeal wall with monopolar cautery and dissection continued through palatopharyngeal and superior constrictor muscles using a tonsil dissector.
- Dissection continued to level of prevertebral fascia without violation, exposing cyst in its entirety and removing it en bloc.
- Wound edges approximated with horizontal mattress sutures.
- Patient tolerated procedure without complications.

### Final surgical pathology: Branchial cleft cyst



**Figure 3.** A) Division of the superior constrictor muscle overlying the lesion, B) partial and C) complete dissection of lesion in parapharyngeal space, and D) wound bed after excision.

## Discussion/Conclusions

Patients A and B were found to have a base of tongue TGDC and an oropharyngeal BCC, respectively, both rare presentations of these congenital neck masses, especially in adults. Excisional biopsy provided the final diagnosis for both with FNA being nondiagnostic for one. While concern for potential malignancy and symptomology guided management, these cases demonstrate the importance of utilizing imaging when biopsies may fail while also maintaining a broad differential for neck masses in adults. In addition, transoral excision of these masses appears to be a safe and effective potential alternative with better cosmesis to standard techniques of excision, which is supported by other case studies/series. There need to be more research on the success, risks, and complications of transoral excision of these masses.

## References

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