SCHOOL OF MEDICINE

NEW MEXICO MEDICAL SOCIETY

# Approach to the Adult with a Neck Mass


**Ryan K Orosco, MD FACS**

Associate Professor

Department of Surgery

Division of Otolaryngology

UNM Comprehensive Cancer Center


THE UNIVERSITY OF NEW MEXICO HEALTH SCIENCES CENTER

# Objectives

1. Review the pathological features of neck masses in adults.

2. Describe the guidelines for treating versus referring adult patients with neck masses.

- Facilitate communication and access to head & neck surgery across NM

**FOR CME → email Niles McCall (nmmcall@nmms.org)**

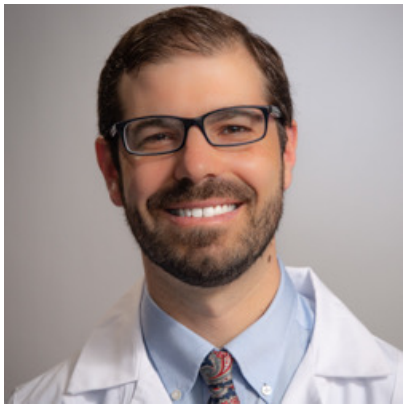
- **Include your name, credentials**
- **He will email you a certificate**

# Head & Neck Surgeons at UNM

Spafford

Olson

Boyd



Cowan

Syme

Orosco

Ryan Orosco cell 505.363.8976

# Disclosure

- I am not an official representative of the NMMS
- These views are my own

- I want to help take excellent care of patients in NM
- I want to help improve access to care in NM

- My goal is that all patients in our state will have access to excellent medical care, and I believe that NMMS is a critical means toward that goal

# Summary: Neck mass workup

- H&P
- Risk stratify
- Carefully consider management
  - Observe
  - Trial of antibiotics
  - Refer immediately
  - Imaging
  - Biopsy
  - Call for input
  - Refer

Warren's "Ether Dome" October 16, 1846

**V** ascular

**I** nfectious

**N** eoplastic

**D** egenerative

**I** atrogenic

**C** ongenital

**A** utoimmune

**T** raumatic

**E** ndocrine

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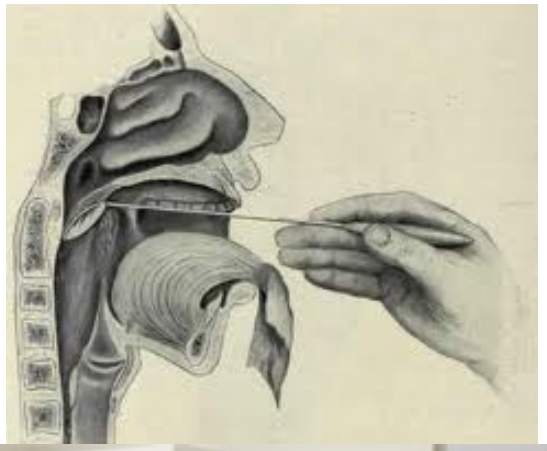
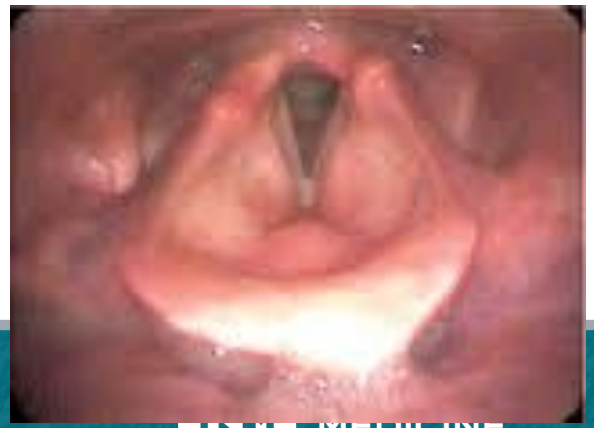
# Perform **H&P**… and risk stratify!!

- History
  - time course
  - associated symptoms (dysphagia, odynophagia, hemoptysis, unexpected weight loss, voice change, fevers/night sweats)
  - habits (tobacco, alcohol)
  - environmental exposures (travel, cat scratch, HIV)
- Physical Examination
  - head and neck exam (visualize & palpate)
    - emphasis on location, mobility and consistency





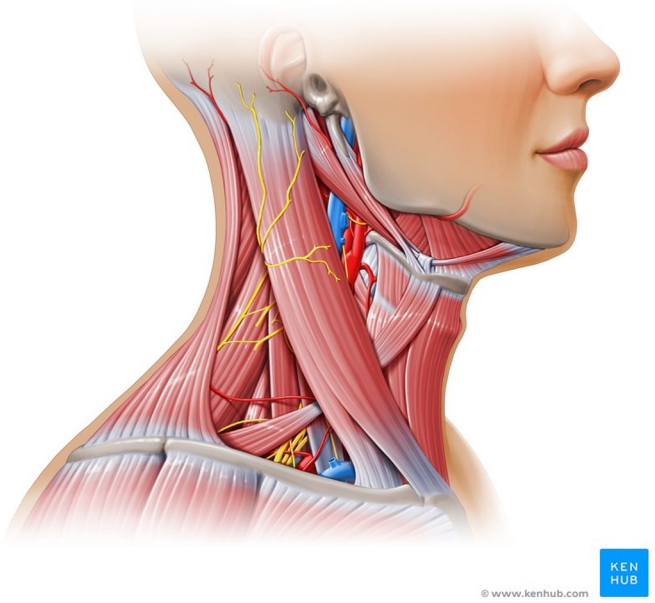
# Imaging for a Neck Mass

- **CT with contrast**
  - Solid from cystic
  - Extent of lesion
  - Pathologic nodes
  - May help with unknown primary
  - Bony erosion
- MRI
  - Better soft tissue evaluation
  - Nerve invasion
- Ultrasound
  - Thyroid workup
- PET
  - Metastatic workup
  - Essentially never order a PET unless you are managing a malignancy

# RISK STRATIFY based on patient factors

## (AGE, duration, associated symptoms)

*re-arrange the differential diagnosis*




- **V** ascular
- **I** nfectious
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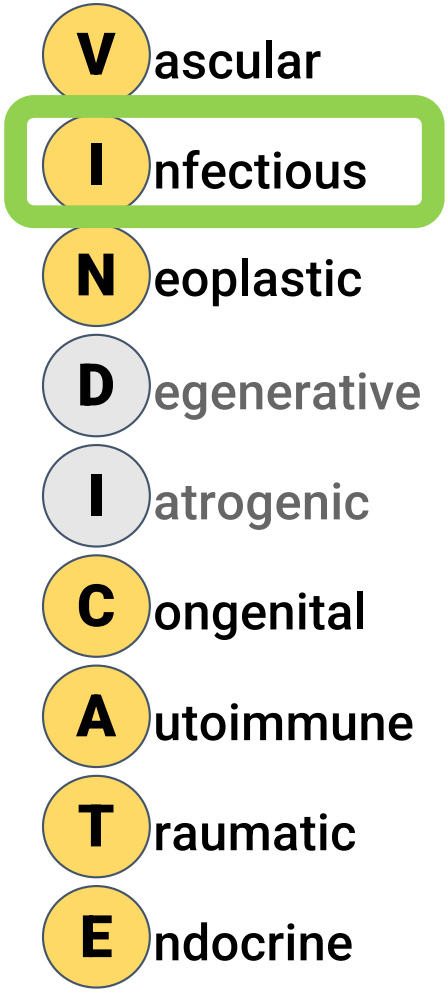
- **I** atrogenic
- **C** ongenital
- **A** utoimmune
- **T** raumatic
- **E** ndocrine

# **Non-worrisome neck masses** that sometimes come into my clinic (in my experience)

- 20-40yo concerned about swelling in the neck, sometimes it's intermittent, vague infectious/inflammatory symptoms, and no physical exam or imaging findings of pathologic mass
- Borderline "abnormal" node(s) based on ultrasound report
  - Paucity of other concerning findings (thyroid tumor, cutaneous or mucosal lesion, low "risk-stratification")

**<u>Unlikely to need surgical evaluation</u>**



# Neck Mass: Risk Stratify… **AGE**!!!

- Pediatric (0 – 15 years): **90% benign**
  - Congenital
  - Inflammatory/infectious
- Young adult (16 – 40 years): **most benign**
  - Thyroid are most-common
  - Congenital is low probability
- "older" adult (>40 years): high chance of **malignancy**

# Neck Mass: Risk Stratify… **duration**

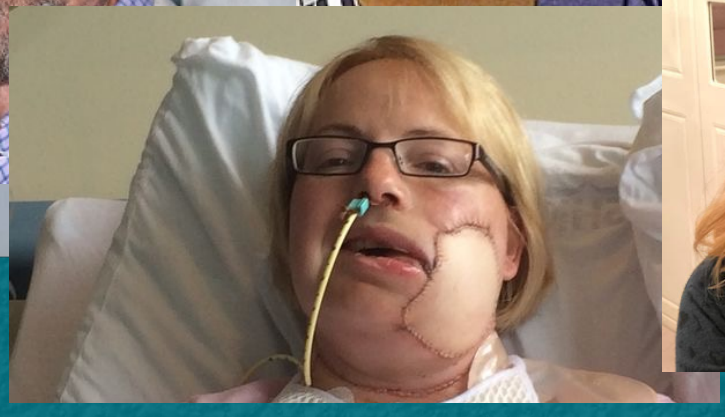
- 1-3 weeks → think infectious/inflammatory
- >3 weeks → higher risk-stratification

# Neck Mass: Risk Stratify… **associated symptoms**

- Infectious symptoms?
  - Pain/tenderness
  - Fever/chills
  - erythema
- Skin or oral mucosa changes?
- Voice or swallow symptoms?
- "B-symptoms" → think lymphoma
  - Weight loss
  - Fever
  - Night sweats
  - Diffuse adenopathy
- Sometimes absence of symptoms is more worrisome than presence of symptoms!
  - Painful mass?
  - Painless mass?

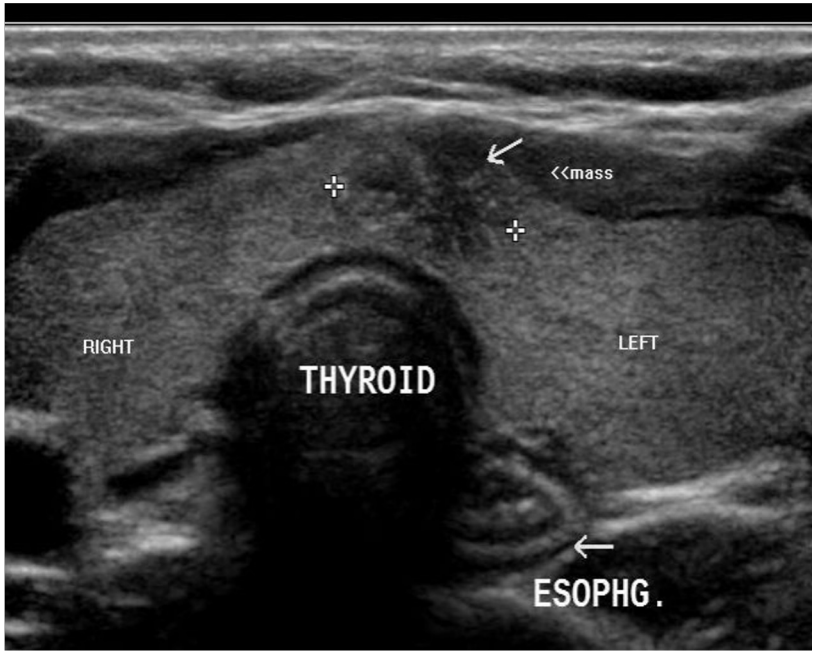
# Potential head & neck cancer patients: “Regular” people & celebrities





# Neck Mass: Considering endocrine (thyroid) etiology?

**Ultrasound** is first-line imaging for thyroid nodules.

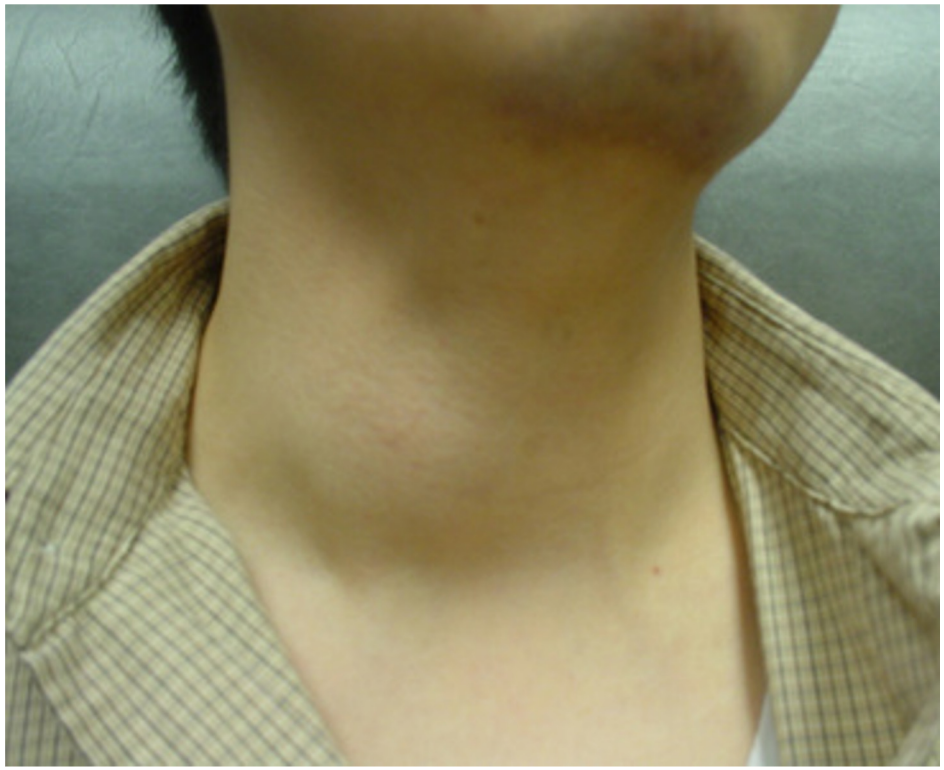



Malignant nodules typically…

- microcalcifications
- solid
- hypoechoic
- taller than wide
- irregular margins

**V**ascular
**I**nfectious
**N**eoplastic
**D**egenerative
**I**atrogenic
**C**ongenital
**A**utoimmune
**T**raumatic
**E**ndocrine

# Incidental thyroid nodule

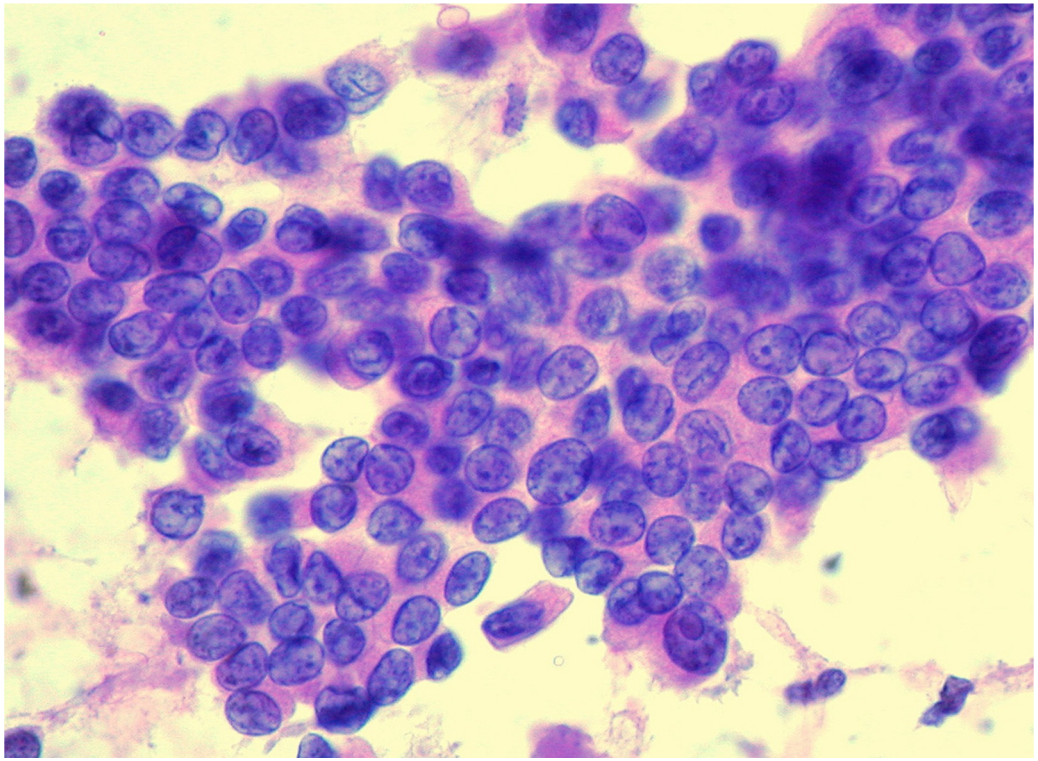


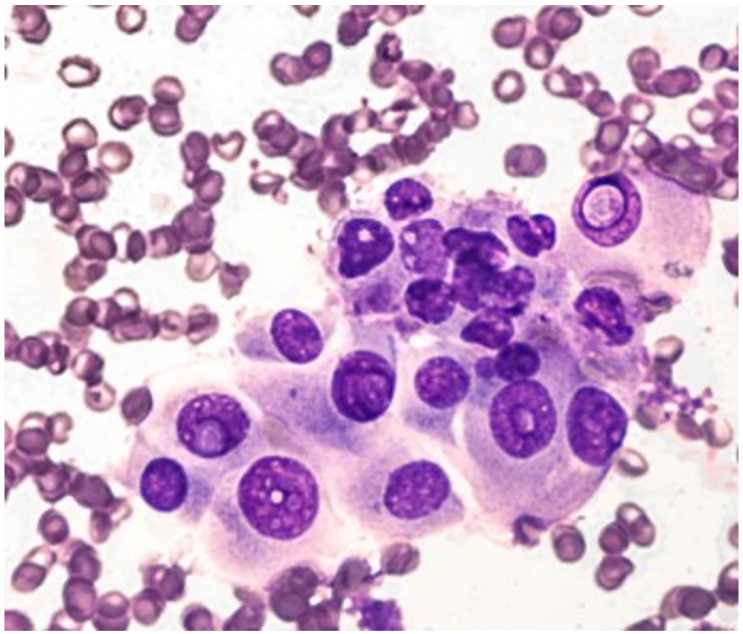
Worrisome exam findings:

- Large nodule (>4cm) has ~20% risk of malignancy
- Firmness on palpation
- Fixation to other tissues
- Cervical lymphadenopathy
- Vocal cord paralysis

Order:  Labs (TSH), US, FNA

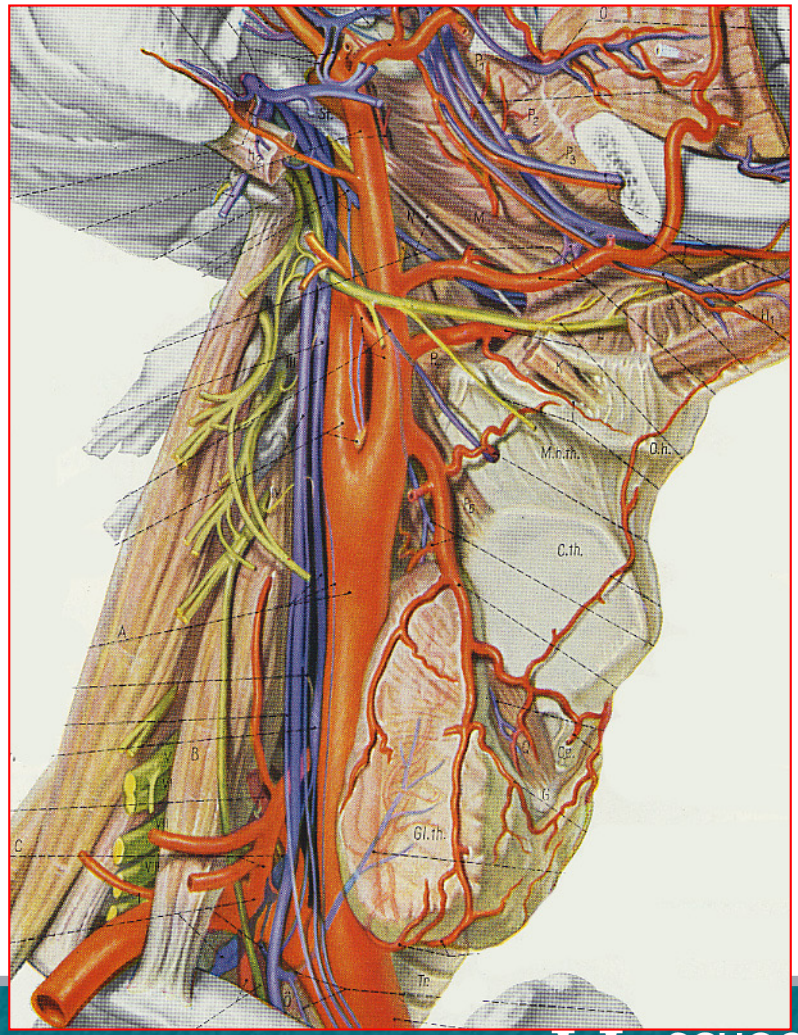
# Fine needle aspiration (FNA) and molecular testing can risk stratify thyroid nodules





# Objectives

- Why FNA?
- Basics of thyroid FNA
- When to FNA



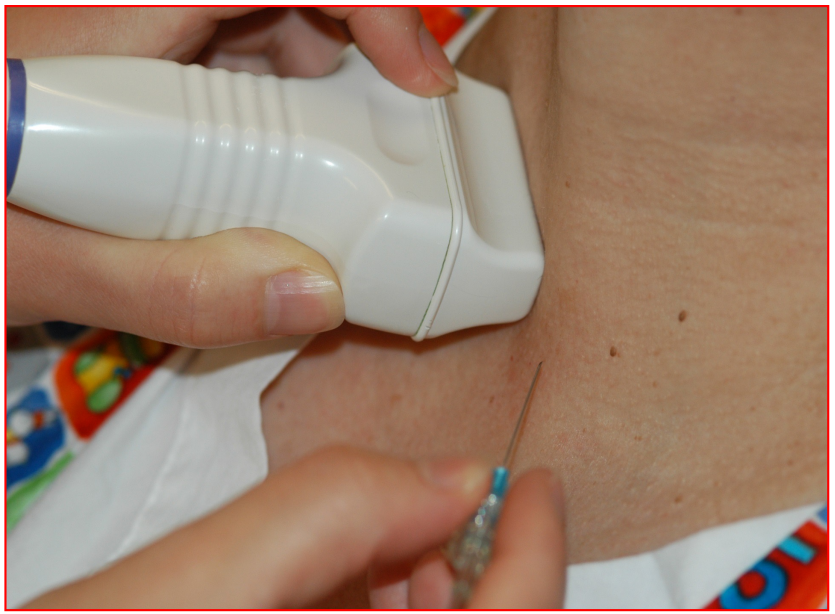
# Why FNA?

- Gold standard to determine benign vs. malignant nodule

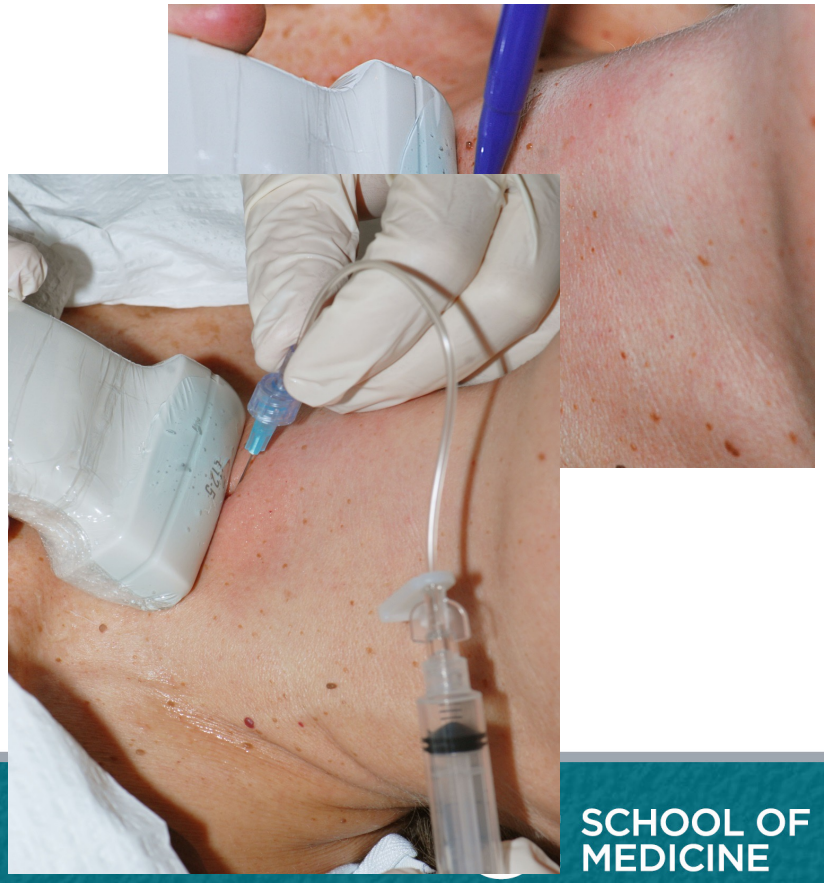
- Reduces number of patients requiring surgery by 50%
- Increases yield of thyroid malignancies at surgery by 2-3x
- Decreases the cost of managing thyroid nodules by 25%

# Basics of thyroid FNA

- Long axis (in-plane)



- Short axis (out of plane, cross-plane)



# Benign Causes of Thyroid Nodules

- Adenomatous nodule
- Colloid nodule
- Follicular adenoma
- Simple thyroid cyst
- Graves disease
- Chronic lymphocytic thyroiditis (Hashimoto's)
- Focal subacute thyroiditis
- Developmental conditions

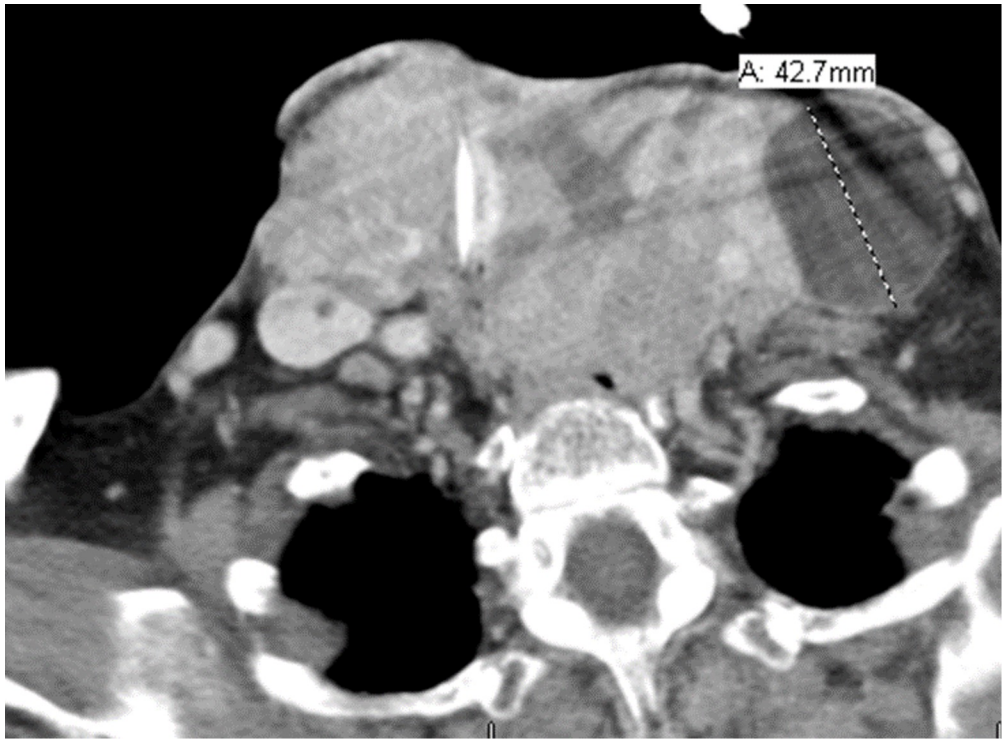
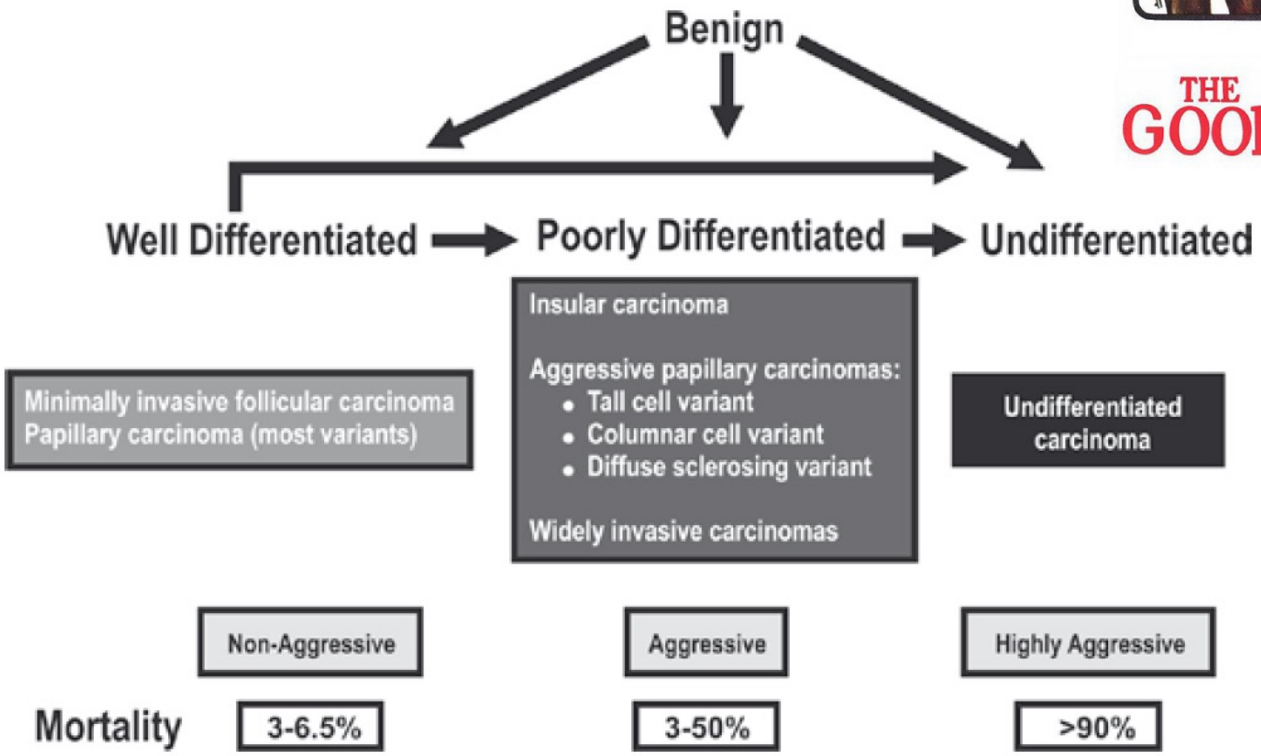



TABLE 1.1. Relative percentage of thyroid malignancies.

| Thyroid tumor type | Relative percentage (%) |
|---|---|
| Papillary | 60–80 |
| Follicular (including Hurthle cell) | 15–25 |
| Medullary | 5–10 |
| Undifferentiated | 1–10 |
| Lymphoma | <1 |
| Metastasis | <1 |

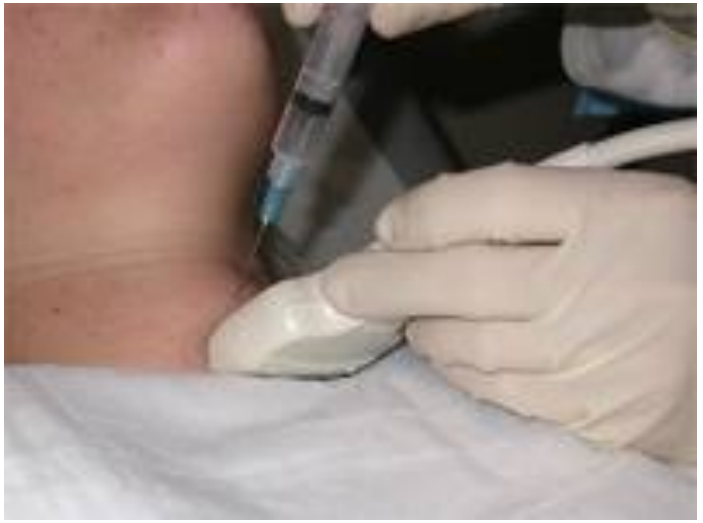
# The Spectrum of Thyroid Cancer

- The good: well-differentiated
- The bad: poorly differentiated
- The ugly: undifferentiated (anaplastic)


Thyroid Cytopathology, Faquin and Clark,

# Fine Needle Aspiration



Needle Biopsy of Routine Thyroid Nodules Should Be Performed Using a Capillary Action Technique with 24- to 27-Gauge Needles: A Systematic Review and Meta-Analysis

William J. Moss,[1] Andrey Finegersh,[1] John Pang,[1] Joseph A. Califano,[1] Charles S. Coffey,[1,2] Ryan K. Orosco,[1] and Kevin T. Brumund[1,2]

- Small gauge needle (25-gauge)
  - Seeding of tumor is *not* a concern
  - 4 passes – flush in cytology media
  - Can send for flow cytometry
- Rarely need surgical biopsy (incisional or excisional)
  - EXCEPTION: lymphoma workup commonly requires

THYROID
Volume X, Number X 2018

DOI: 10.1089/thy.2017.0643

# When to FNA?
## (when the radiologist reads the ultrasound and tells you to)

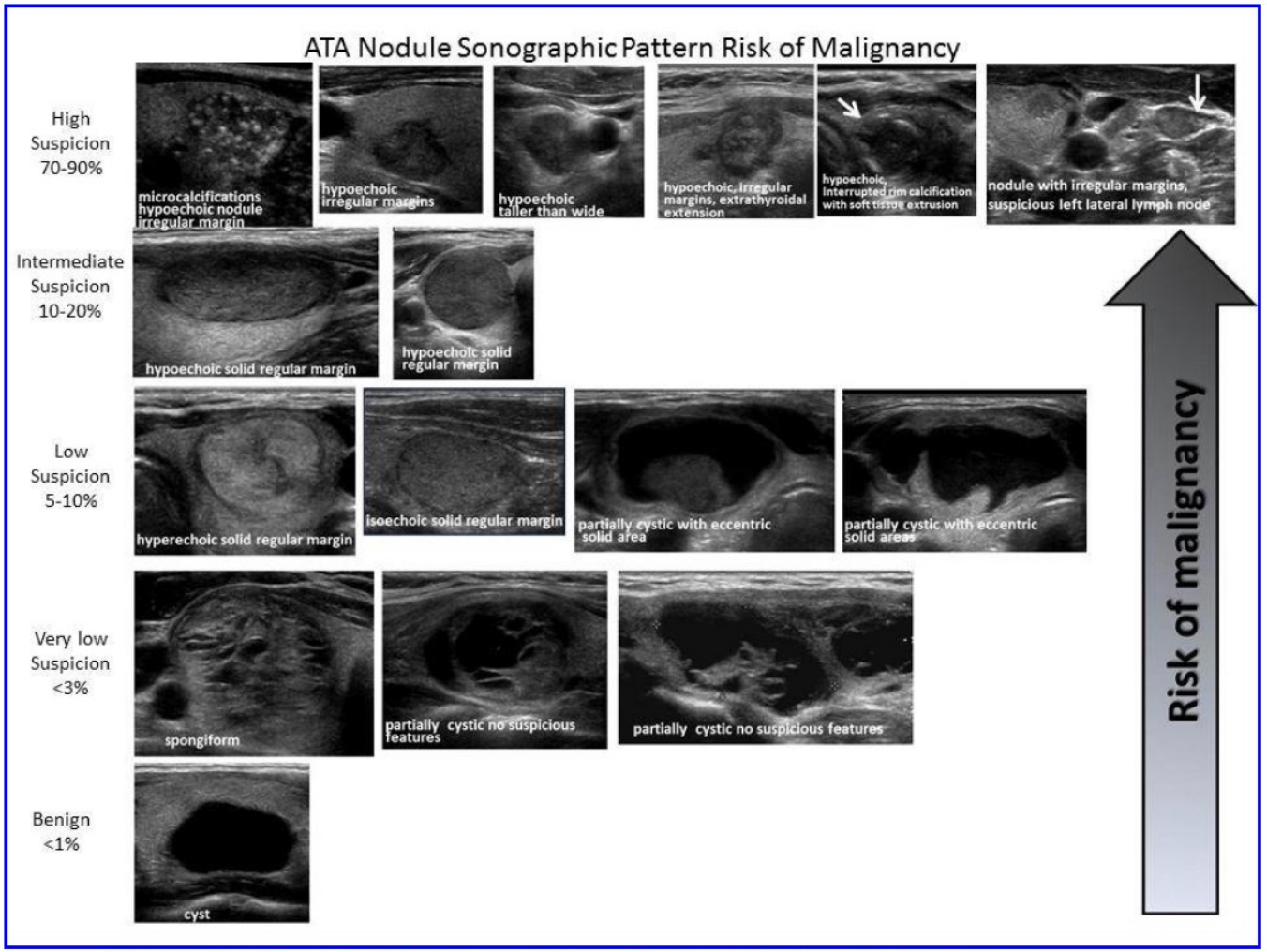


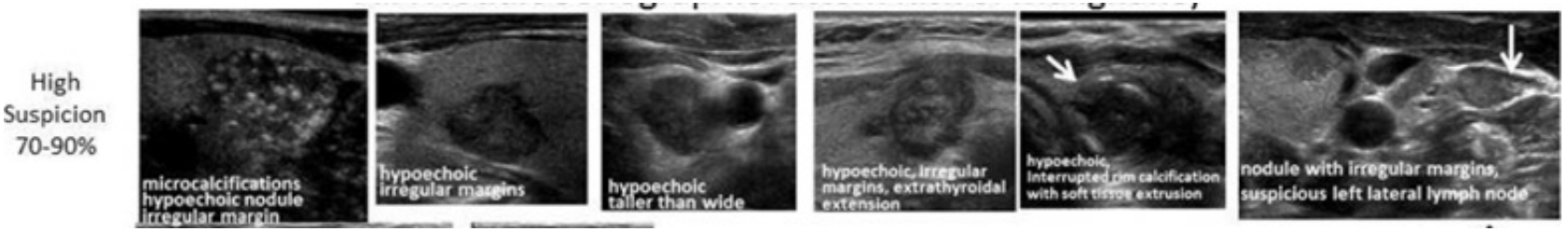

**Figure 2. ATA nodule sonographic patterns and risk of malignancy**

Haugen et al. Thyroid, 2015

# **RECOMMENDATION 8 -** Thyroid nodule diagnostic **FNA is recommended** for:

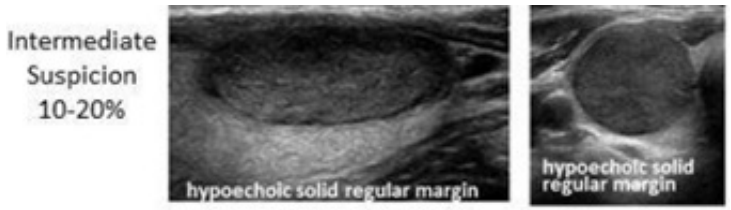
A) Nodules **> 1cm** in greatest dimension with **high** suspicion sonographic pattern

(Strong recommendation, Moderate-quality evidence)




B) Nodules **> 1cm** in greatest dimension with **intermediate** suspicion sonographic

(Strong recommendation, Low-quality evidence)




C) Nodules **> 1.5cm** in greatest dimension with **low** suspicion sonographic pattern

(Weak recommendation, Low-quality evidence)

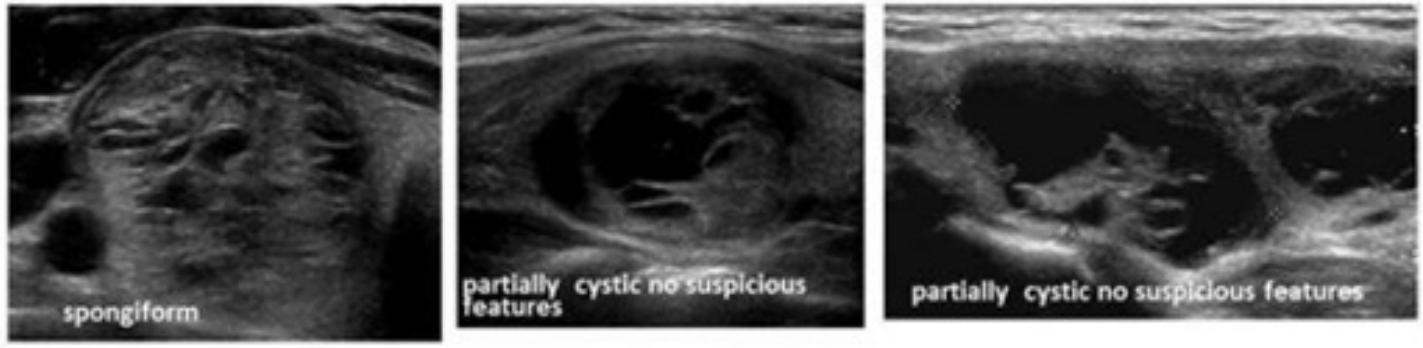

Haugen et al. Thyroid, 2015

# **RECOMMENDATION 8 -** Thyroid nodule diagnostic **FNA may be considered** for:

D) Nodules > 2cm in greatest dimension with very low suspicion sonographic pattern

(e.g. – spongiform). Observation without FNA is also a reasonable option

Very low Suspicion <3%




Haugen et al. Thyroid, 2015

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# **RECOMMENDATION 8 -** Thyroid nodule diagnostic **FNA is not required** for:

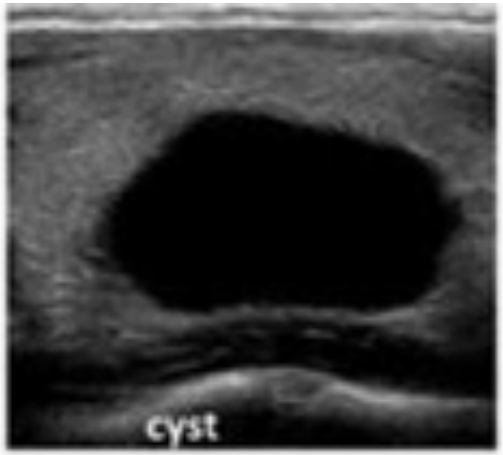
E) Nodules that do not meet the above criteria.

(Strong recommendation, Moderate-quality evidence)

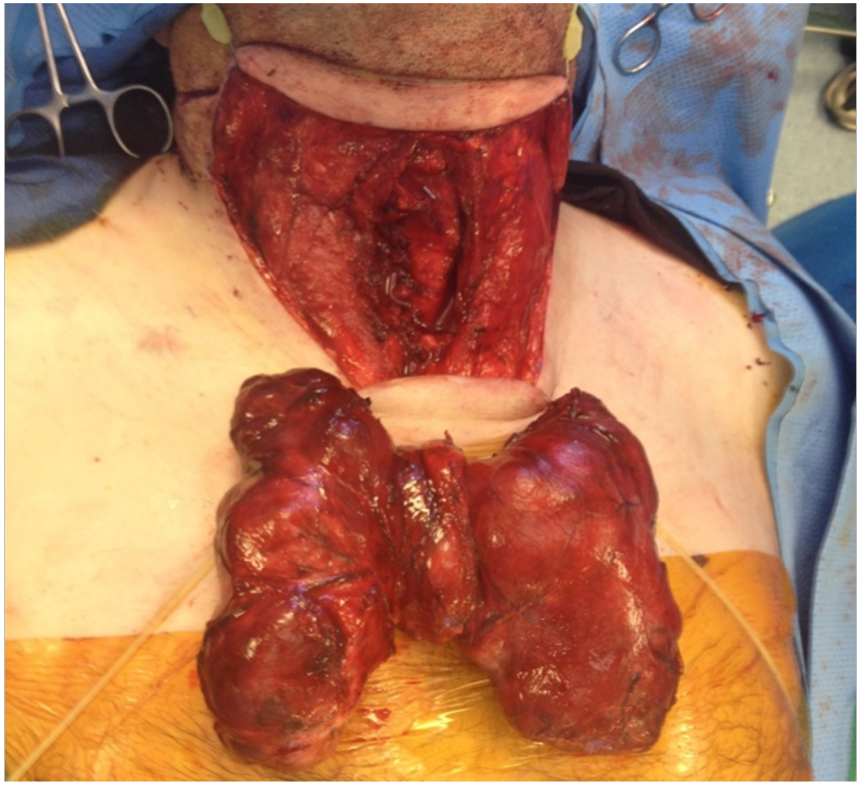
F) Nodules that are purely cystic

(Strong recommendation, Moderate-quality evidence)

Benign
<1%



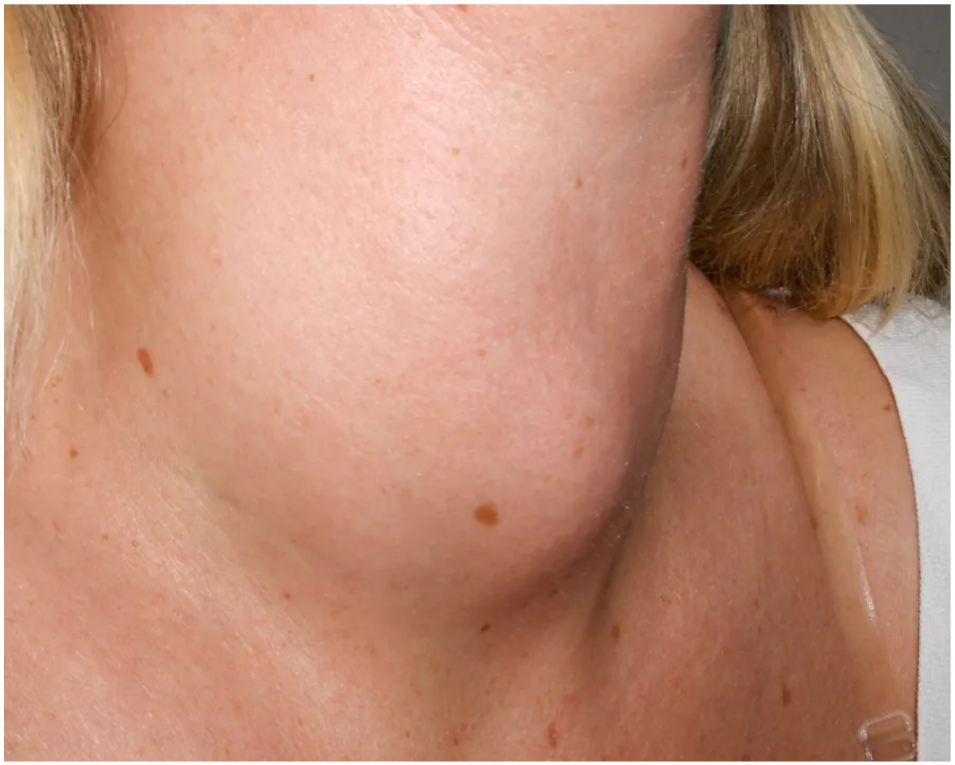
# Thyroid cancer is treated first with surgery and then sometimes with radioactive iodine.

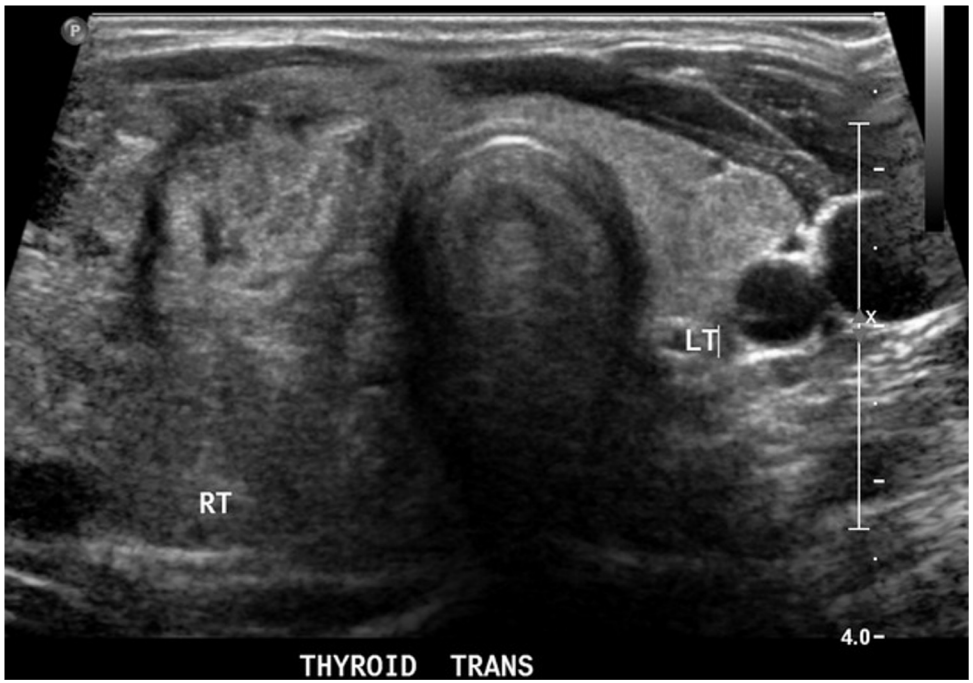


Risk of surgery is to nearby structures…

- parathyroid glands
- recurrent laryngeal nerves

# Thyroid: large anterior neck mass

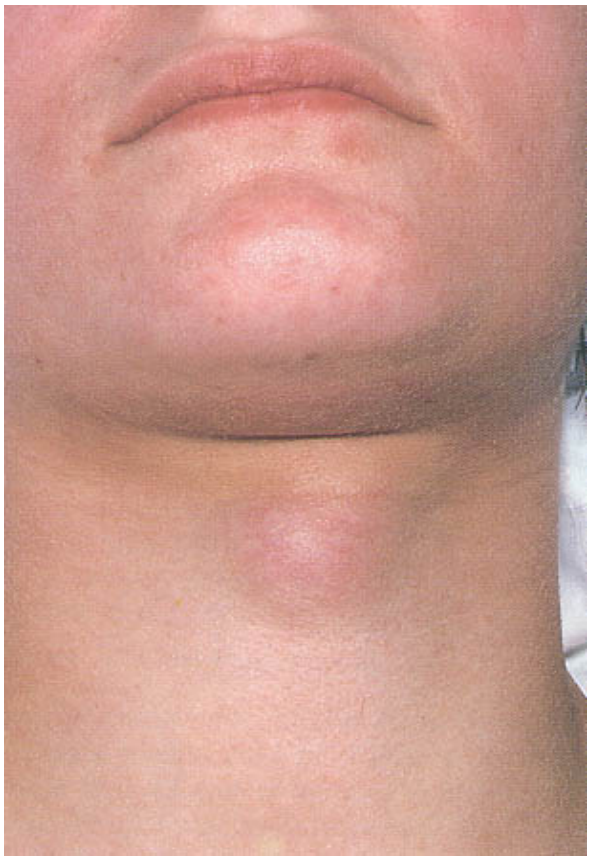


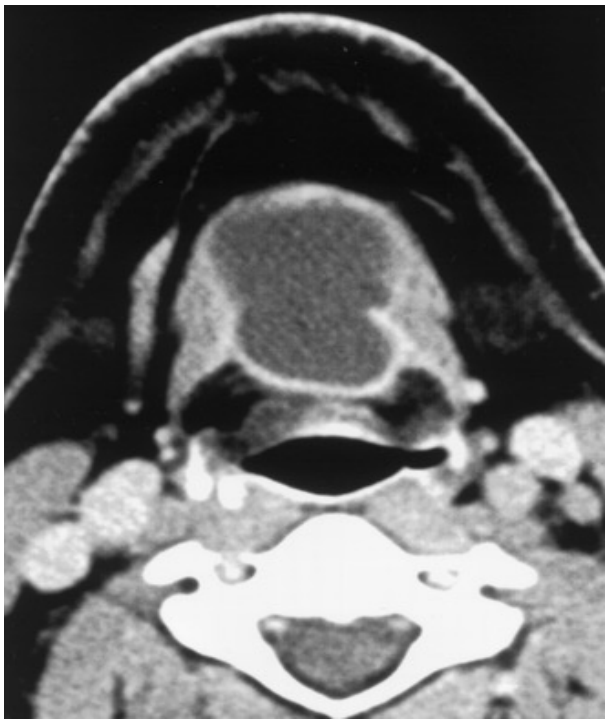


# Thyroid cytopathology
# ***Bethesda categories***

- Nondiagnostic – rare (hopefully)
- Benign – about 70% of the time
  - Low false negative rate (1-3%)
  - Only refer if "compressive symptoms"
- Atypia of Undetermined Significance –Risk of malignancy 5-15%
  - Repeat FNA withgene panel test (Afirma or other)
- Suspicious for Follicular Neoplasm – 10-30% risk for malignancy
  - Lobectomy or repeat FNA with gene panel test (Afirma or other)
- Suspicious for Malignancy –60-75% risk for malignancy
  - Surgery
- Malignant → surgery

# Thyroglossal Duct Cyst





- **V** ascular
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- **A** utoimmune
- **T** raumatic
- **E** ndocrine

ENT referral? Yes!
**(non-urgent)**

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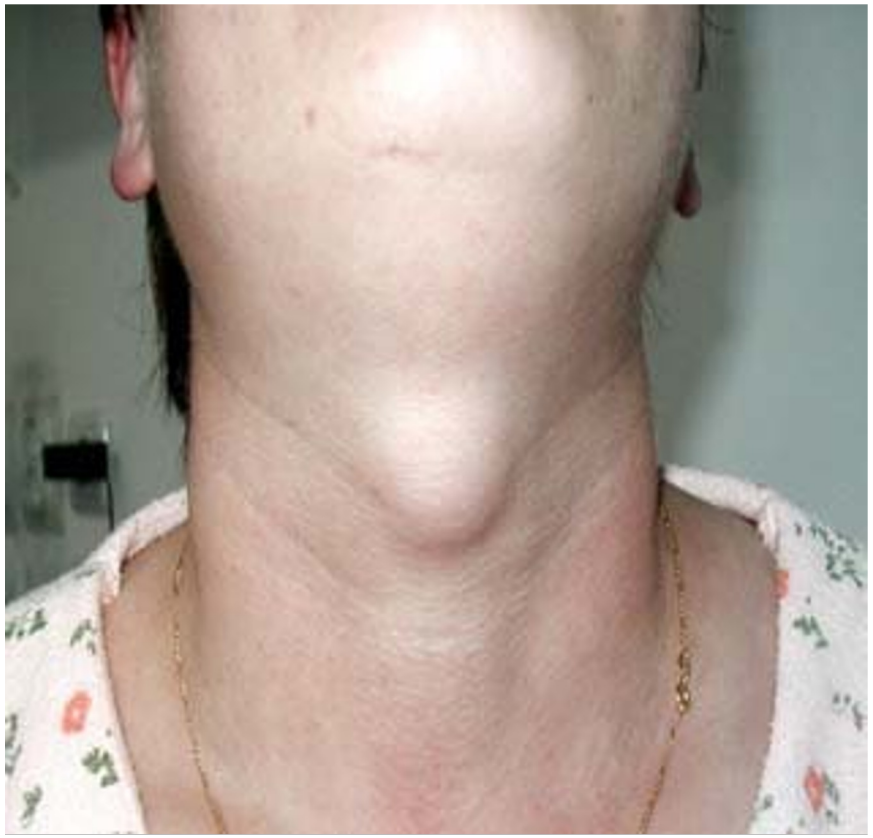
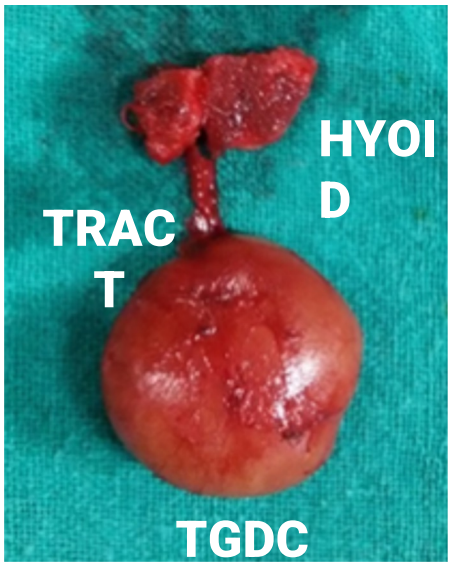
# Midline neck mass, moves on swallow

ENT referral? Yes!
**(non-urgent)**



*Thyroglossal duct cyst*

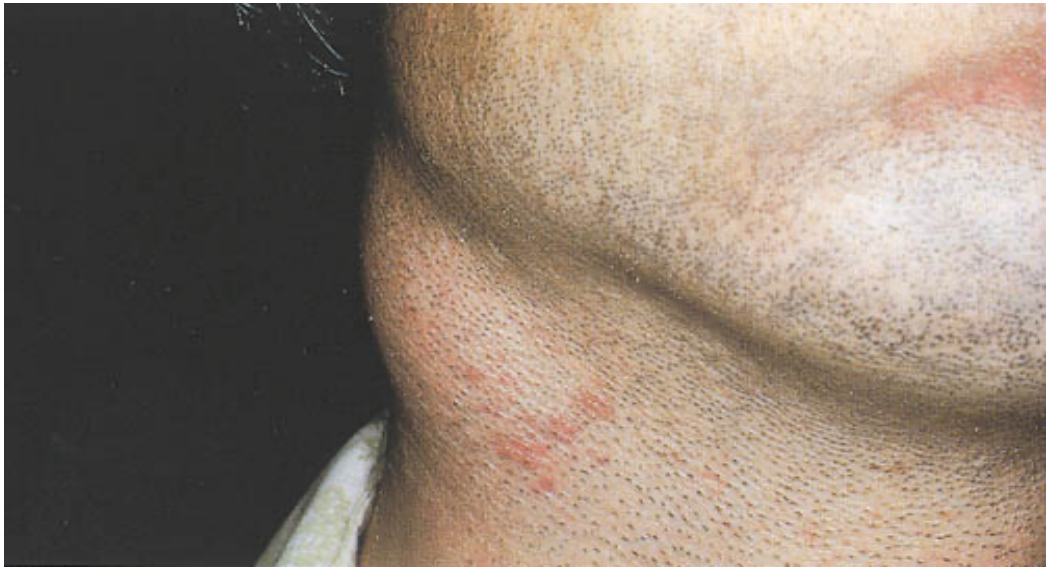
Surgical excision

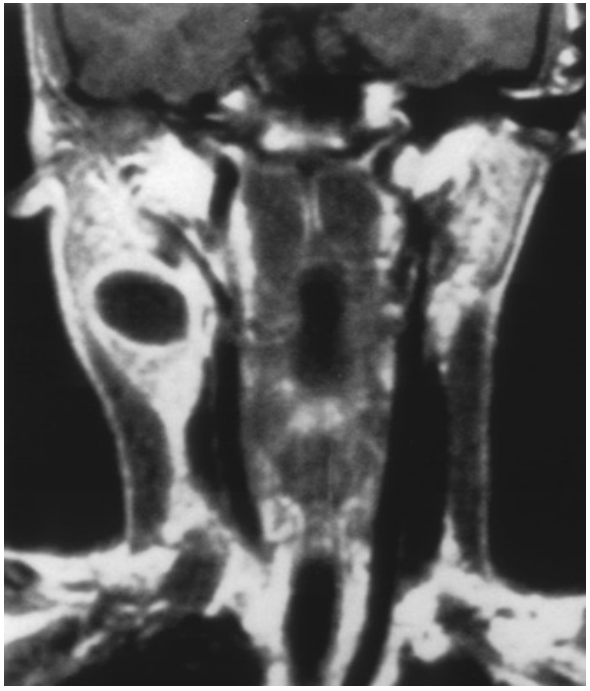


# Branchial Cleft Cyst

- Essentially do not present in adulthood
- **THINK CANCER, not branchial cleft cyst!**

Congenital

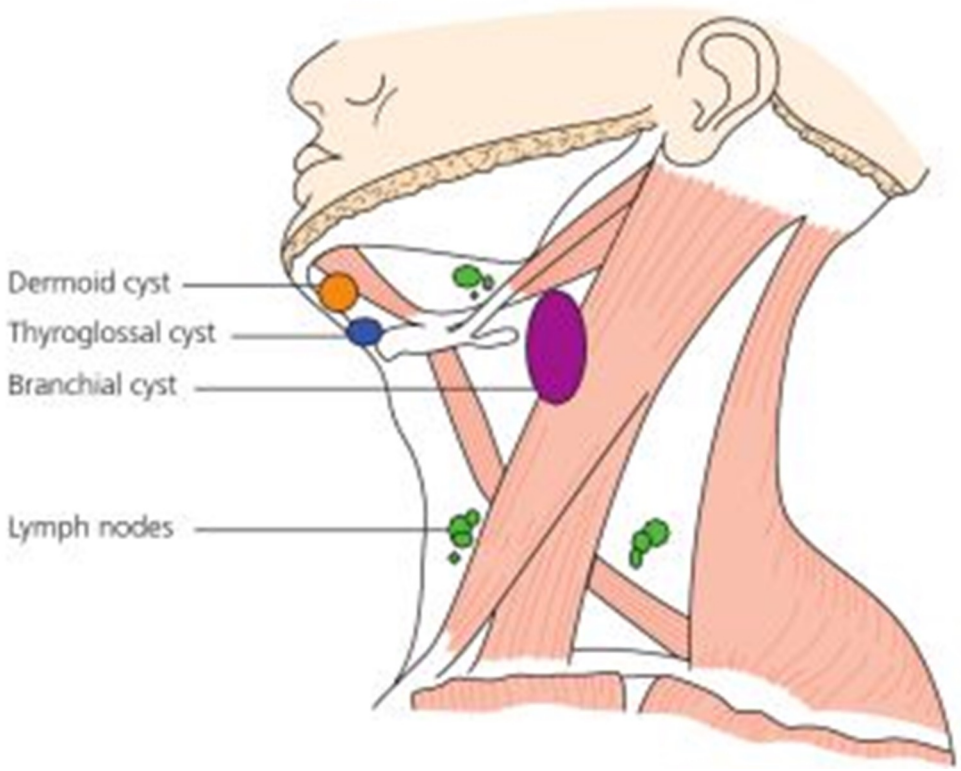


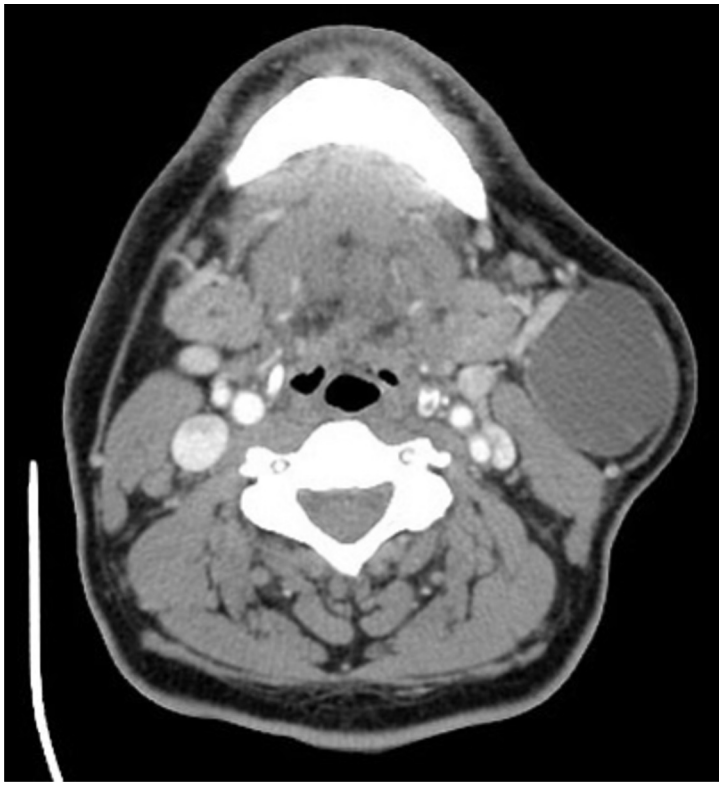


ENT referral? Yes!
**(likely urgent)**

# Most congenital neck masses are addressed with surgical excision due to recurrent infection.

Suspected branchial cleft cyst in an adult = **CANCER**
(until proven otherwise)



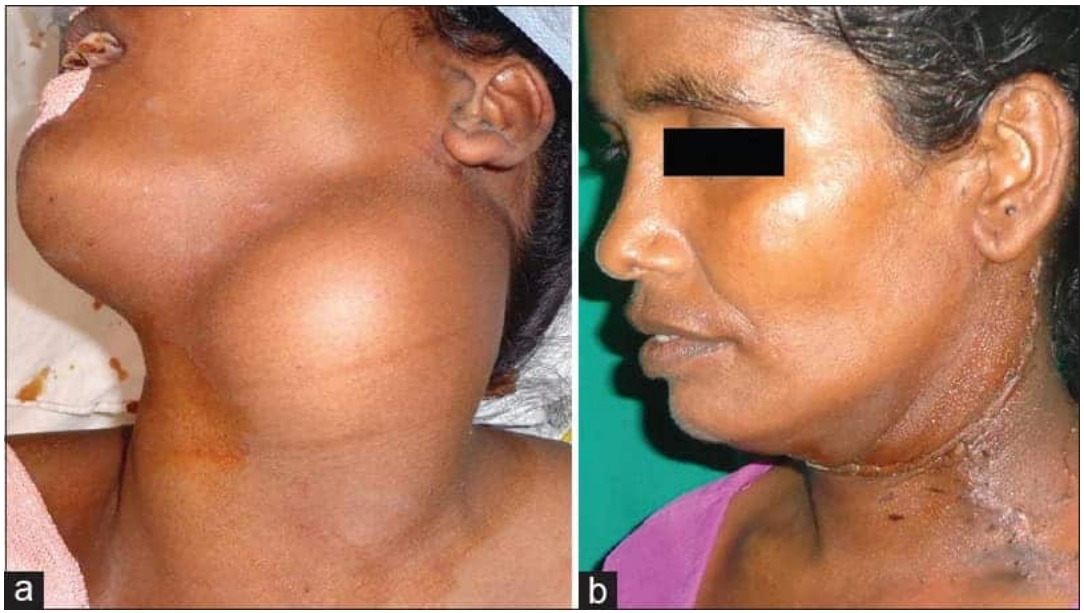



ENT referral? Yes!
**(urgent)**

# Common neck masses that I see that are worrisome…

- Painless neck mass
  - Possibly with mouth/throat pain
- Palpable (by patient and/or physician)
- Present for months

ENT referral? Yes!
**(urgent)**




**V** ascular
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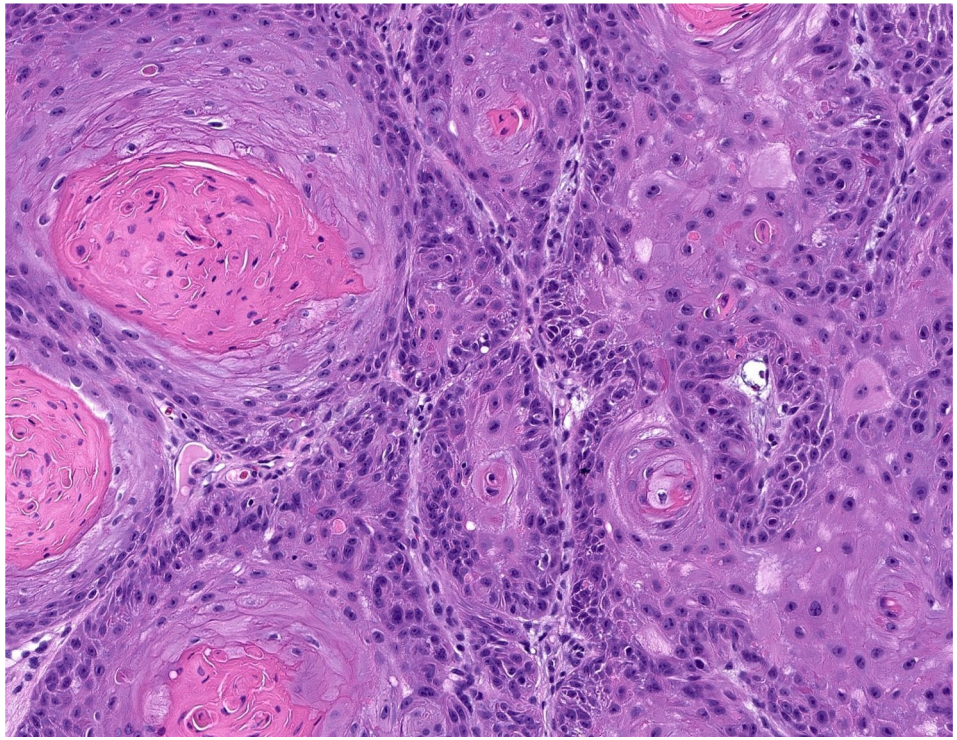
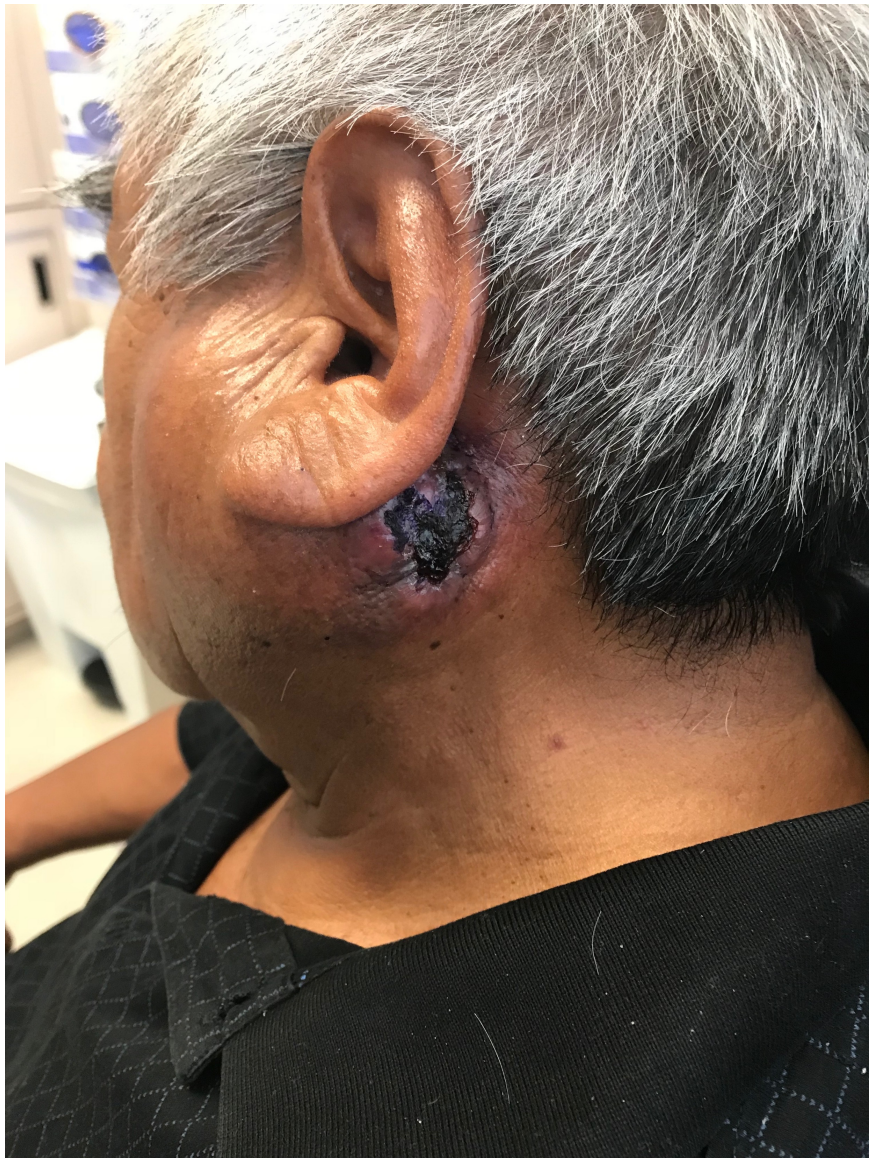
# Common pathologies of neck masses

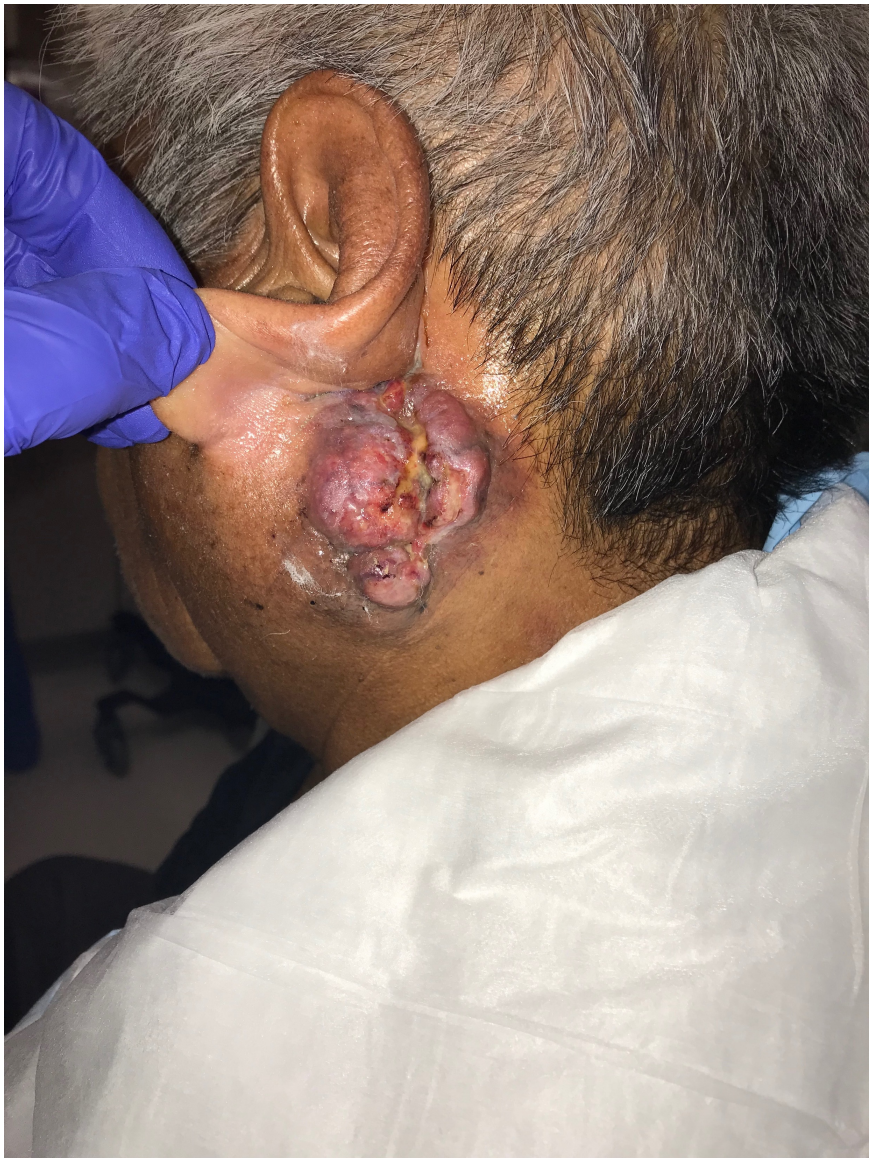


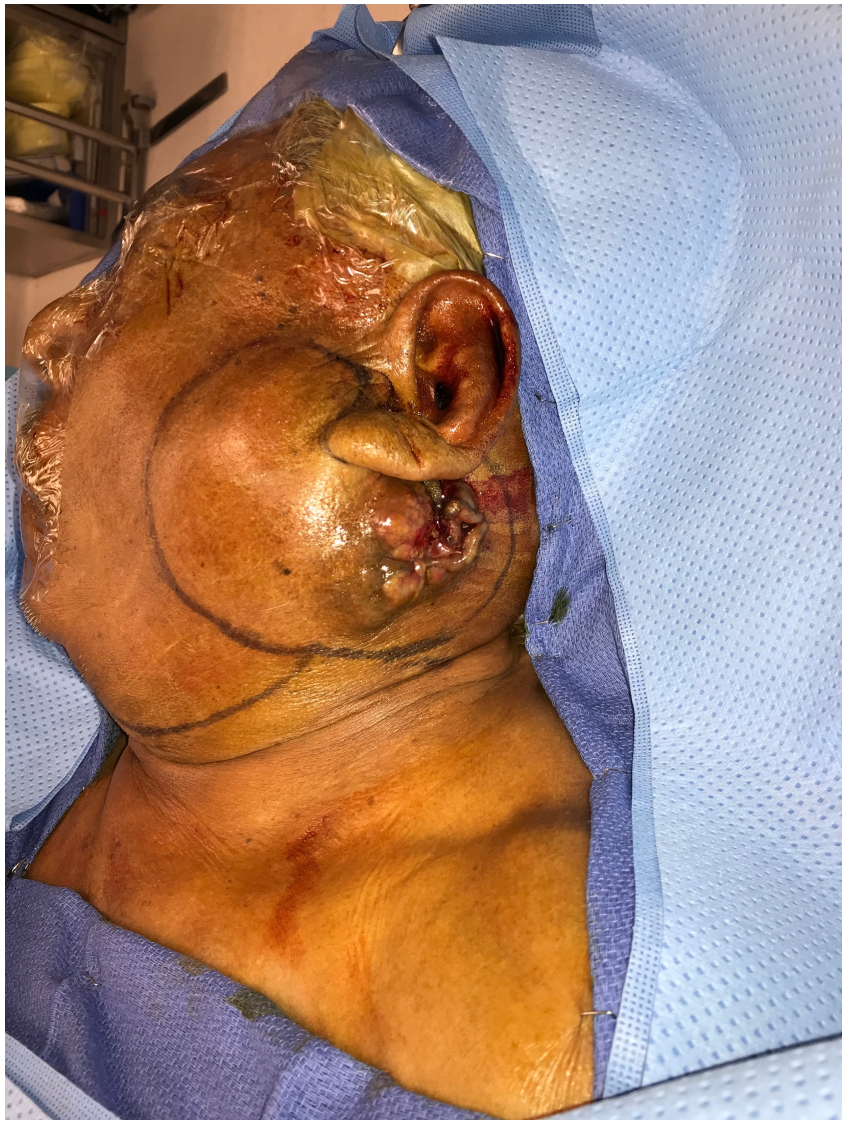
- *Cutaneous or mucosal origin*
  - *Squamous cell carcinoma*
- *Salivary*
  - *Parotid – 80% benign*
  - *Submandibular – 50% benign*
  - *Sublingual - 80% malignant*
- *Thyroid*
  - *Differentiated thyroid cancer*
    - *Papillary thyroid cancer*
    - *Follicular thyroid cancer*
    - *Anaplastic*

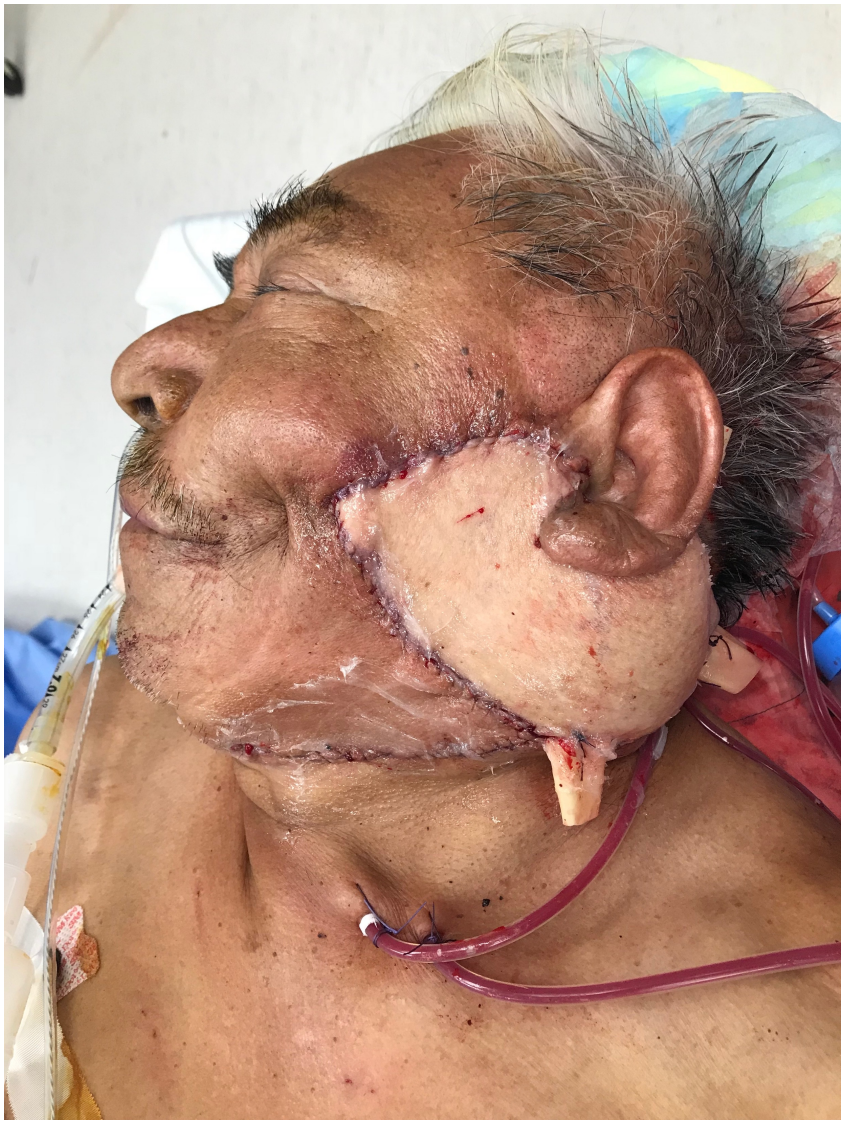
# Salivary Gland Tumors

- Enlarging mass anterior/inferior to ear or at the mandible angle
- Benign
  - Asymptomatic except for mass
- Malignant
  - Rapid growth, skin fixation, cranial nerve palsies
  - Minor > sublingual > submandibular > parotid



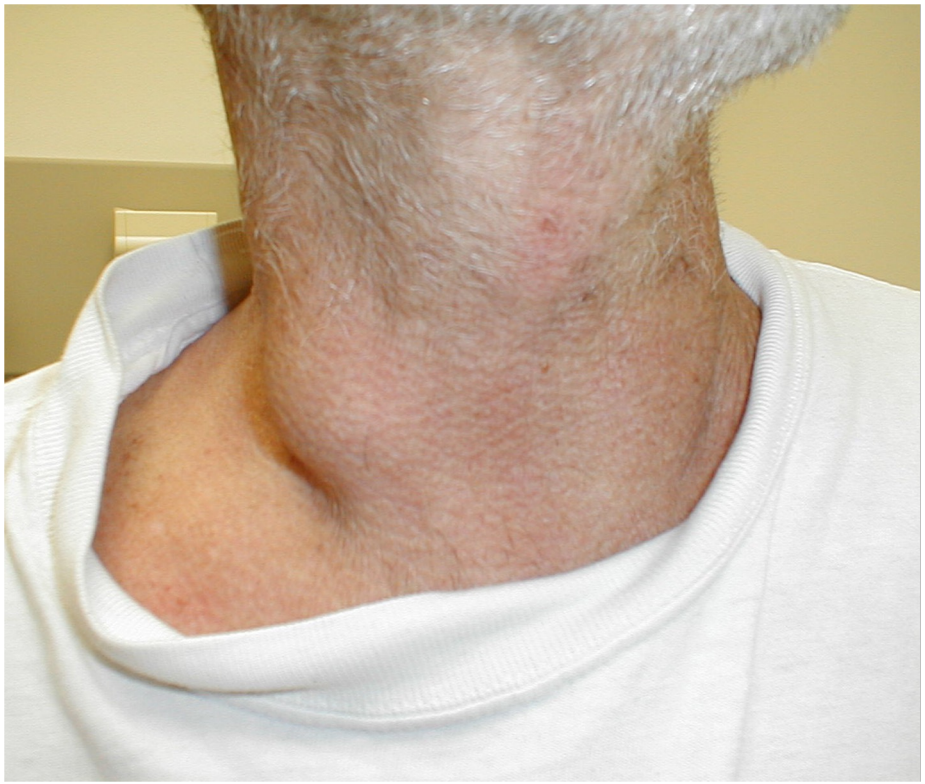






Neoplastic

# Firm lump on the side of the neck



*Pathologic lymph node*

ENT referral? Yes!
**(urgent)**

Needs imaging & biopsy

- CT scan
- FNA

Pathologic lymph nodes…

- are firm and non mobile
- do not involute

# Lymphoma

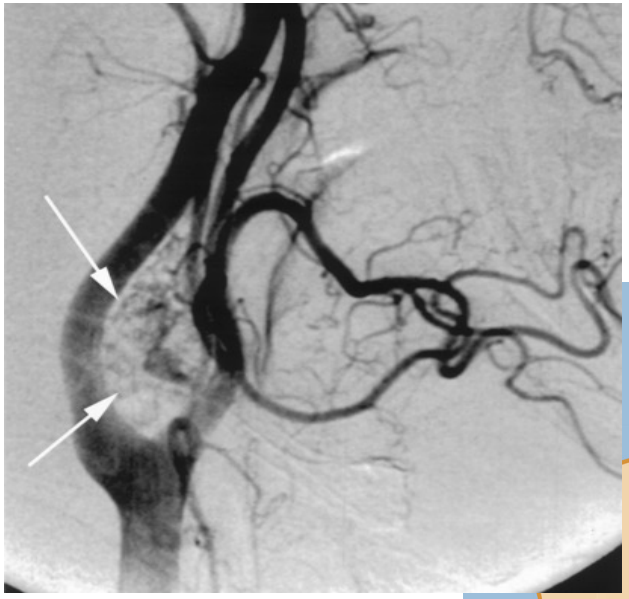

- Neck mass is common
  - Look for other sites of adenopathy
- "B symptoms"
- FNA →first line diagnostic test
  - Suggestive of lymphoma? –> **<u>surgical biopsy</u>**

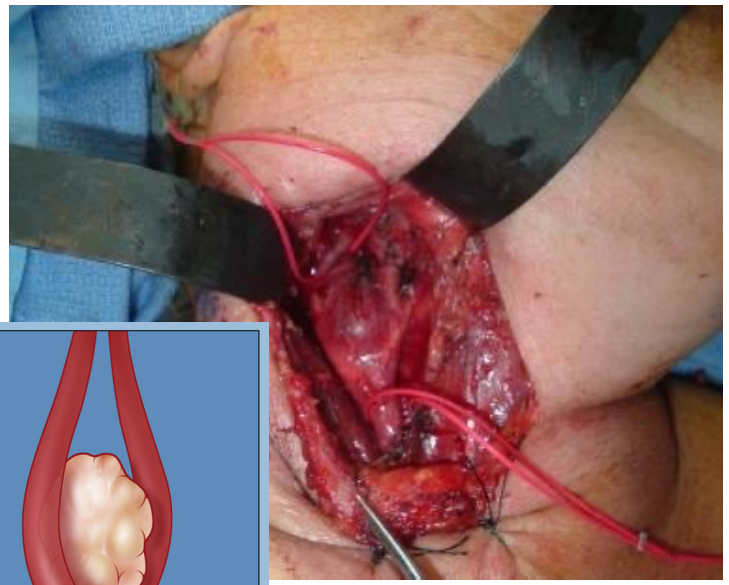
ENT (or surgical) referral? Yes! **<u>(urgent)</u>**

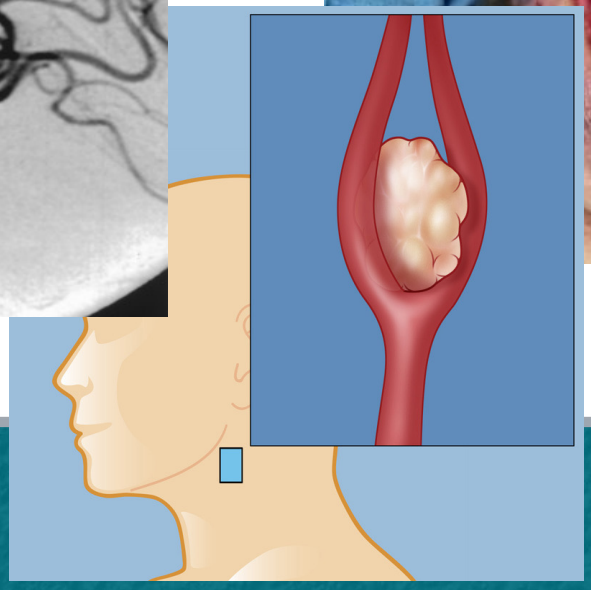
# VASCULAR neck masses to look out for

ENT referral? Yes!
**(non-urgent)**

- Carotid body tumor
  - Incidental >> symptomatic
  - CT scan (most common)
  - Carotid ultrasound will be ordered eventually
    - Not needed for referral
  - DO NOT SEND FOR BIOPSY!

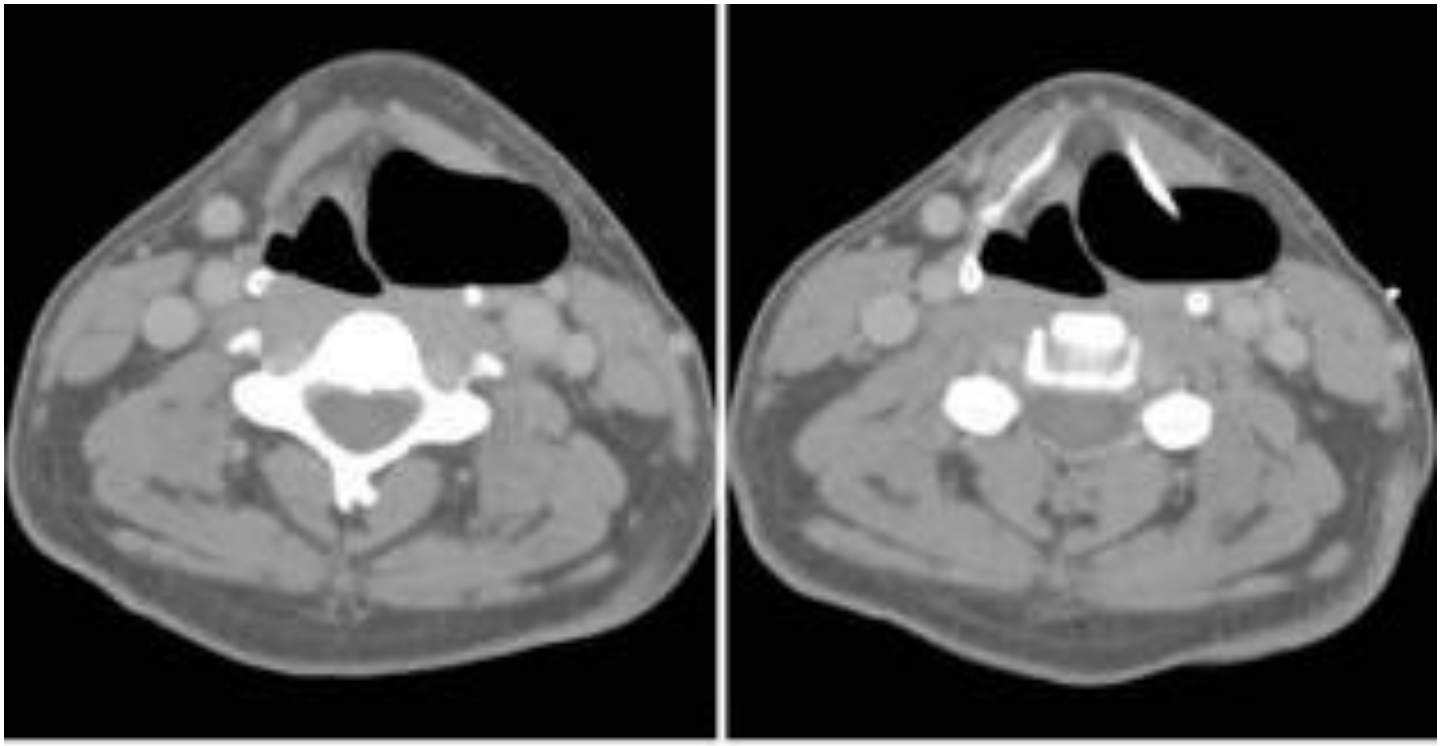






- **V** ascular
- **I** nfectious
- **N** eoplastic
- **D** egenerative
- **I** atrogenic
- **C** ongenital
- **A** utoimmune
- **T** raumatic
- **E** ndocrine

# Laryngocele



ENT referral? Yes!
**(non-urgent)**

# Early detection cannot be over-emphasized!

- Diagnosis of malignancy at an **early-stage** allows for less morbid treatment, better quality of life, and favorable survival
- Early-stage malignancies are frequently **asymptomatic**
- **Low threshold for biopsy (or referral)** is encouraged

# **Timely**, Multidisciplinary Care Matters

VOLUME 34 · NUMBER 2 · JANUARY 10, 2016

JOURNAL OF CLINICAL ONCOLOGY

ORIGINAL REPORT


## Survival Impact of Increasing Time to Treatment Initiation for Patients With Head and Neck Cancer in the United States

*Colin T. Murphy, Thomas J. Galloway, Elizabeth A. Handorf, Brian L. Egleston, Lora S. Wang, Ranee Mehra, Douglas B. Flieder, and John A. Ridge*

NCCN National Comprehensive Cancer Network®

**NCCN Guidelines Version 2.2018**
**Team Approach**

NCCN Guidelines Index
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Discussion

**MULTIDISCIPLINARY TEAM**

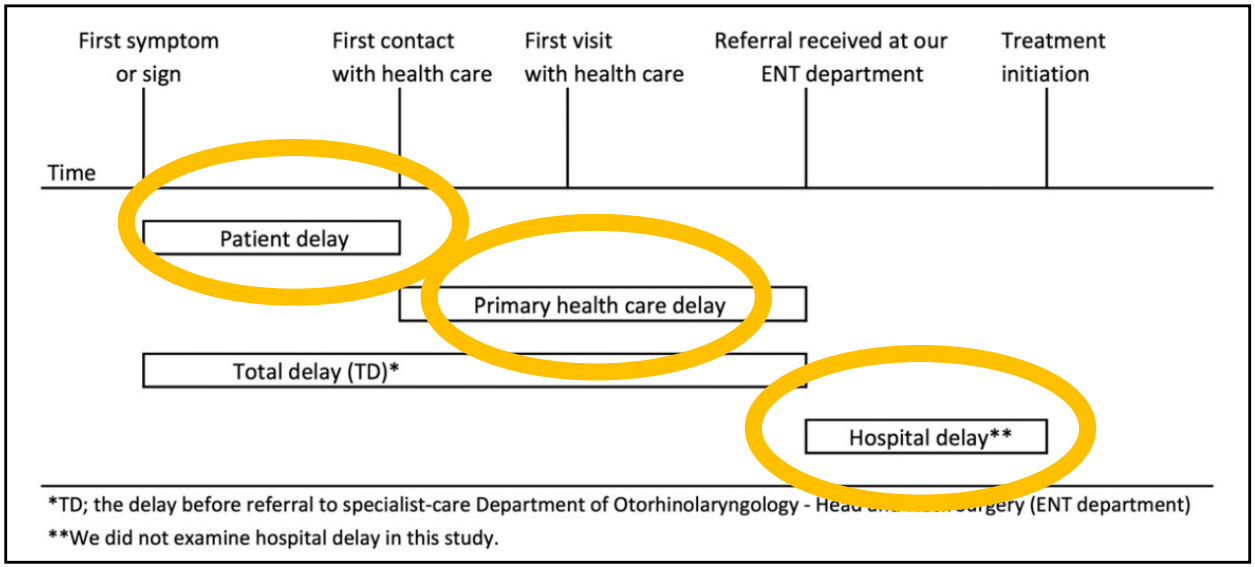
**The management of patients with head and neck cancers is complex. All patients need access to the full range of support services and specialists with expertise in the management of patients with head and neck cancer for optimal treatment and follow-up. Outcomes are improved when patients with head and neck cancers are treated in high-volume centers.**

- **Head and neck surgery**
- **Radiation oncology**
- **Medical oncology**
- **Plastic and reconstructive surgery**
- **Specialized nursing care**
- **Dentistry/prosthodontics**
- **Physical medicine and rehabilitation (including therapy for lymphedema of the neck)**
- **Speech and swallowing therapy**
- **Clinical social work**
- **Clinical nutrition**
- **Pathology (including cytopathology)**
- **Diagnostic and interventional radiology**
- **Adjunctive services**
  - **Neurosurgery**
  - **Ophthalmology**
  - **Psychiatry**
  - **Addiction services**
  - **Audiology**
  - **Palliative care**

## Causes for delay before specialist consultation in head and neck cancer

M. Nieminen[a], K. Aro[a], L. Jouhi[a], L. Bäck[a], A. Mäkitie[a,b] and T. Atula[a]

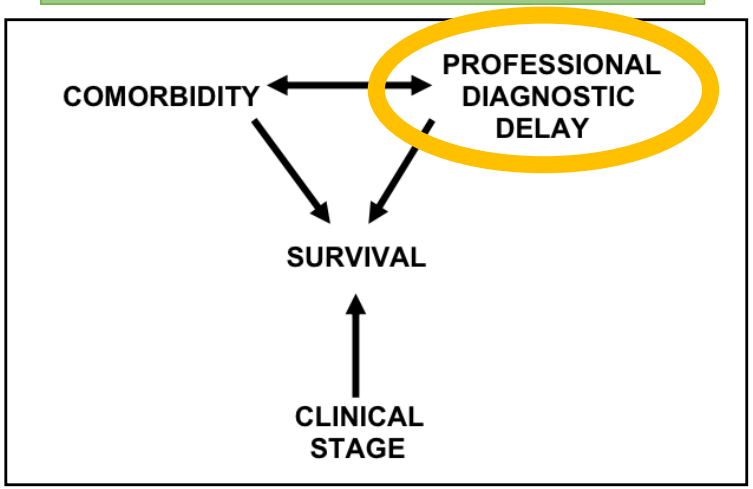
[a]Department of Otorhinolaryngology – Head and Neck Surgery, University of Helsinki and Helsinki University Hospital, Helsinki, Finland; [b]Division of Ear, Nose and Throat Diseases, Department of Clinical Sciences, Intervention and Technology, Karolinska Institutet, Karolinska University Hospital, Stockholm, Sweden




*TD; the delay before referral to specialist-care Department of Otorhinolaryngology - Head [illegible] surgery (ENT department)

**We did not examine hospital delay in this study.


**Call me if you want to discuss!!**




# Reasons that may delay presentation of worrisome neck masses (in my experience)

- Patient factors
  - Delayed presentation
  - Poor follow-through
- Absence of "significant smoking hx"
- Imaging workup
- Biopsy workup
- ENT clinic factors (working to minimize this)

## Comorbidity and diagnostic delay in cancer of the larynx, tongue and pharynx

Heikki Teppo [a,*], Olli-Pekka Alho [b]

[a] *Department of Otorhinolaryngology, Kanta-Häme Central Hospital, FIN-13530 Hämeenlinna, Finland*
[b] *Department of Otorhinolaryngology, University of Oulu, P.O. Box 5000, FIN-90014 Oulu, Finland*

# **Timely** Care Matters – QUALITY METRIC!

## Slide 22 Title: - Quality Measure Reports – Head and Neck

- **HadjRT:** Time to initiation of postoperative radiation therapy less than 6 weeks for patients with surgically-managed head and neck squamous cell carcinoma

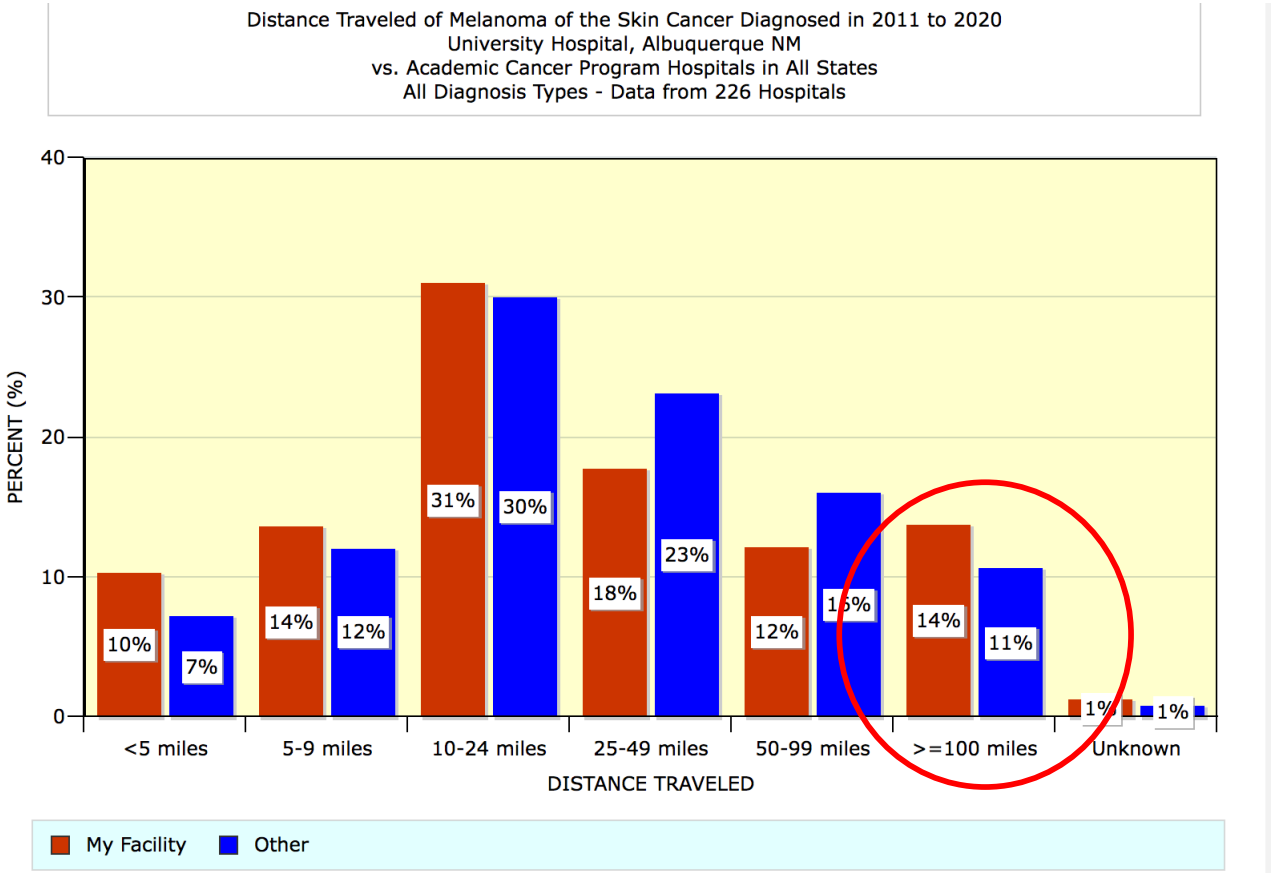
## Slide 23 Title: - HEAD&NECK, 2020,HadjRT: Time to initiation of postoperative radiation therapy less than 6 weeks for patients with surgically-managed head and neck squamous cell carcinoma

**Measure:** : Time to initiation of postoperative radiation therapy less than 6 weeks for patients with surgically-managed head and neck squamous cell carcinoma

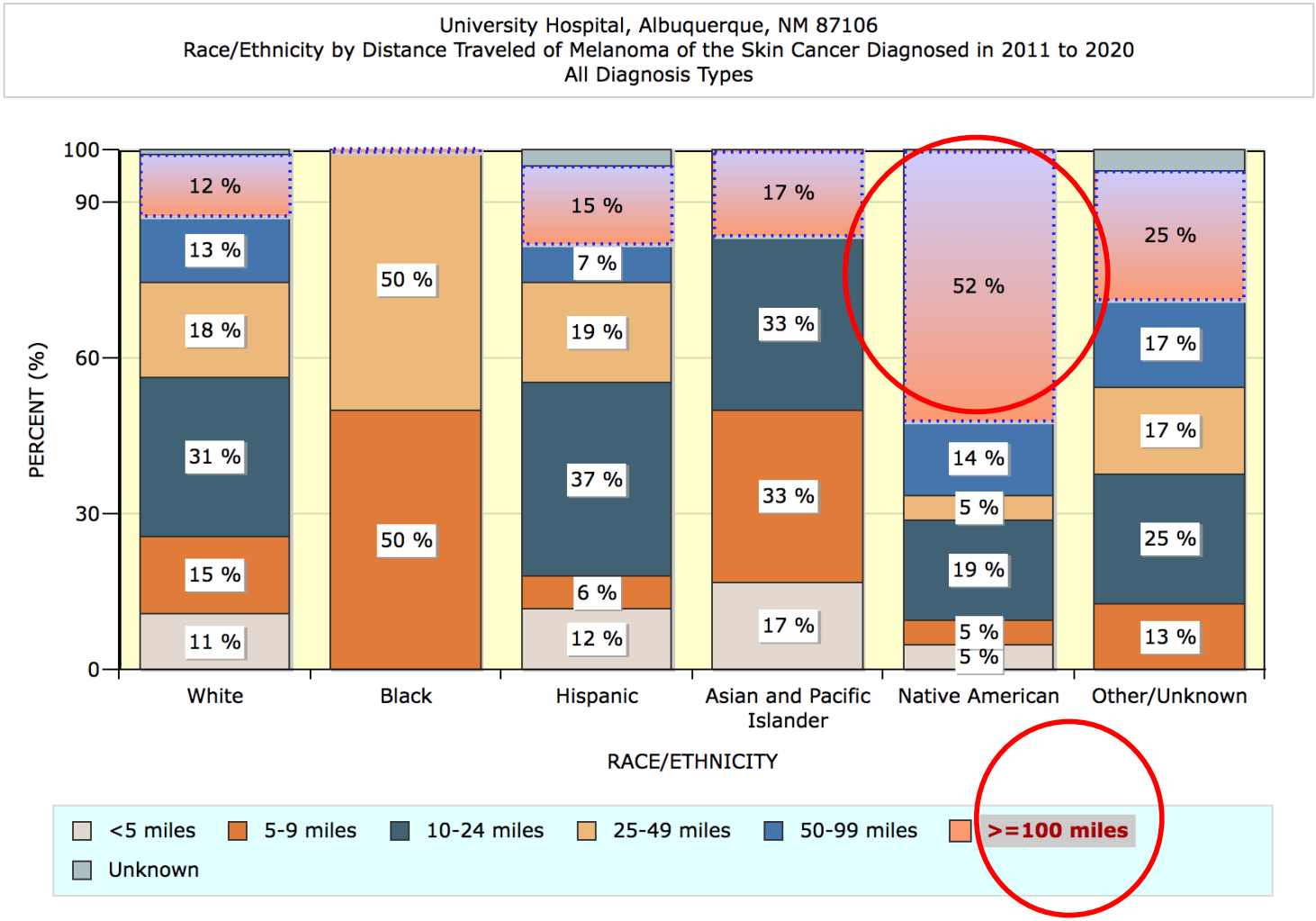
**Clinical Rationale:**
The following considerations support timely initiation of PORT (i.e. < 6 weeks postoperatively) as an important, impactful, and feasible measure of quality HNSCC care that has potential to drive improvements in care delivery, save lives, and improve equity in outcomes.

ACS CoC
Commission on Cancer
American College of Surgeons

# Ethnicity vs. distance traveled Melanoma in New Mexico



# Ethnicity vs. distance traveled Melanoma in New Mexico



# Summary: Neck mass

- Risk stratify
  - AGE, duration, associated symptoms
- Carefully consider management options
  - Observe
  - Refer immediately (I can help with logistics)
  - Imaging
    - Ultrasound for thyroid
    - CT for neck mass (2nd line is MRI)
  - Biopsy (FNA)
  - Refer
- Use the UNM ENT (Head & Neck) team as a safety net, support, guide
- Call me directly to discuss!

The Gross Clinic, or Portrait of Professor Gross by Thomas Eakins (1875)

Ryan Orosco cell 505.363.8976

NEW MEXICO MEDICAL SOCIETY

- **FOR CME → email Niles McCall (nmmcall@nmms.org)**
  - **Include your name, credentials**
  - **He will email you a certificate**