Approach to the Adult with a Neck Mass

SCHOOL OF

MEDICINE

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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 (<u>nmmcall@nmms.org</u>)

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



Head & Neck Surgeons at UNM

Spafford



Boyd







Cowan

Syme







Orosco



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





Perform <u>**H&P**</u>... 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







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")

Unlikely to need surgical evaluation





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 \rightarrow think infectious/inflammatory
- >3 weeks \rightarrow 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" \rightarrow 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?

<u>Ultrasound</u> is first-line imaging for thyroid nodules.



Malignant nodules typically...

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





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	



Thyroid Cytopathology, Faquin and Clark

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 <u>not</u> a concern
 - 4 passes flush in cytology media
 - Can send for flow cytometry
- <u>Rarely</u> need surgical biopsy (incisional or excisional)
 - EXCEPTION: lymphoma workup commonly requires

THYROID Volume X, Number X 2018 © Mary Ann Liebert, Inc. 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 <u>> 1cm</u> in greatest dimension with <u>high</u> 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-auality evidence)



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

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%





Haugen et al. Thyroid, 2015

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**

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



Thyroglossal Duct Cyst







ENT referral? Yes! (non-urgent) SCHOOL OF MEDICINE

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!









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

Suspected branchial cleft cyst in an adult = <u>CANCER</u> (until proven otherwise)





ENT referral? Yes! (urgent)



Common neck masses that I see that are worrisome...





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















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
- <u>do not involute</u>



Lymphoma



- Neck mass is common
 - Look for other sites of adenopathy
- "B symptoms"
- FNA \rightarrow 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



- Incidental >> symptomatic
- CT scan (most common)
- Carotid ultrasound will be ordered eventually
 - Not needed for referral



ENT referral? Yes!

(non-urgent)

ascular

nfectious

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



<u>Timely</u>, Multidisciplinary Care Matters

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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 Team Approach	on 2.2018	NCCN Guidelines Index Table of Contents Discussion
	MULTIDISCI	LINARY TEAM	
COMPREHENSIVE	The management of patients with head and neck cancers is complex. A specialists with expertise in the management of patients with head and improved when patients with head and neck cancers are treated in hig • 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	All patients need access to the full range of supp I neck cancer for optimal treatment and follow-u h-volume centers. • Clinical nutrition • Pathology (including cytopathology) • Diagnostic and interventional radiology • Adjunctive services • Neurosurgery • Ophthalmology • Psychiatry • Addiction services • Audiology • Palliative care	port services and p. Outcomes are

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 ()

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- 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

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<u>Timely</u> 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 surgicallymanaged 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.



Commission on Cancer American College of Surgeons





Ethnicity vs. distance traveled Melanoma in New Mexico

Distance Traveled of Melanoma of the Skin Cancer Diagnosed in 2011 to 2020 University Hospital, Albuquerque NM vs. Academic Cancer Program Hospitals in All States All Diagnosis Types - Data from 226 Hospitals 40 30 PERCENT (%) 20 31% 30% 23% 10-18% 16% 14% 14% 12% 12% 11% 10% 7% 1% 0-5-9 miles 50-99 miles >=100 miles Unknown <5 miles 10-24 miles 25-49 miles DISTANCE TRAVELED My Facility Other



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)







FOR CME → email Niles McCall (<u>nmmcall@nmms.org</u>)

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



