

Head and Neck Bumps Nebraska Academy of Family Physicians 70th Annual Meeting March 24, 2018

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Good Morning



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Overview

- ▶ Evaluation of Neck Bumps
- ▶ Differential Diagnosis and treatment pathways
- ▶ Specific Examples
 - ▶ Congenital
 - ▶ Infectious
 - ▶ Neoplastic
 - ▶ Traumatic



History

- ▶ Age
- ▶ Previous or family history
- ▶ Pain or no pain
- ▶ Incidental or causing symptoms
- ▶ Growth rate
- ▶ Who noticed it?



Physical Examination

- ▶ Location, location, location
- ▶ Round versus oval, hard versus soft, fixed versus mobile, moves with swallowing
- ▶ Careful Head and neck examination (mouth, teeth, pharynx, larynx, skin, etc)
- ▶ Associated signs (cranial nerves, other adenopathy, general health of patient)

Congenital Masses

- ▶ Younger age
- ▶ Location
- ▶ Physical findings
- ▶ Work up
 - ▶ Ultrasound
 - ▶ CT
 - ▶ MRI

Imaging Studies

- Computed tomography (CT)
 - Bone detail
 - Nodal definition
 - **Radiation exposure to children**
- Magnetic resonance imaging (MRI)
 - Excellent soft tissue definition
 - Nodal definition
 - **Takes a long time to perform**
- Positron emission tomography (PET)
 - No role
- Ultrasound
 - Helpful in characterizing the mass as cystic and defining location

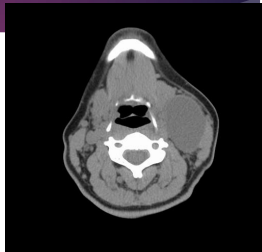
Thyroglossal Duct Cyst



- ▶ Location
 - ▶ Midline upper neck
- ▶ Findings
 - ▶ Firm
 - ▶ May be tender or infected
 - ▶ Moves up and down with swallowing

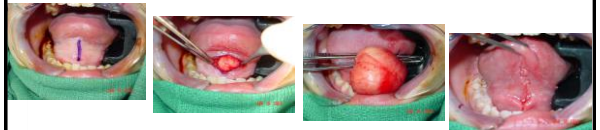
Branchial Cleft Cyst (thin walled)

- ▶ Location
 - ▶ Lateral upper neck most common
 - ▶ May also occur around the ear or low in the neck around the thyroid
- ▶ Findings
 - ▶ Firm but not hard
 - ▶ May be infected and tender
 - ▶ Typically limited mobility of the mass



Dermoid

Location midline, findings firm probably mobile



Inflammation

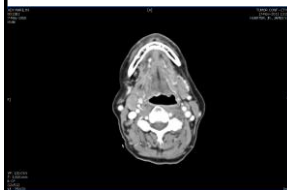
Infectious

- ▶ Viral
 - ▶ HIV
- ▶ Bacterial
 - ▶ Abscess
- ▶ Mycobacterial
 - ▶ Primarily Atypical
- ▶ Fungal
 - ▶ Histoplasmosis

Inflammatory

- ▶ Sarcoid
- ▶ Rheumatoid

Reactive Lymph Nodes



- ▶ Location
 - ▶ Anywhere in the neck but especially upper jugular and spinal accessory nodes
- ▶ Findings
 - ▶ Oval
 - ▶ Firm
 - ▶ May be tender
 - ▶ May be multiple

Ultrasound Findings

- ▶ Oval node
- ▶ Fatty hilum
- ▶ Longer than wide 2:1 ideally



Neoplastic

- ▶ Benign
 - ▶ Salivary gland
 - ▶ Thyroid
 - ▶ Nerve sheath tumor
- ▶ Malignant
 - ▶ Sarcoma
 - ▶ Lymphoma
 - ▶ Metastatic node



Well, yes it is...

Thyroid and Parathyroid

Thyroid Mass

- ▶ Location
 - ▶ Central Neck
- ▶ Findings
 - ▶ Moves with swallowing
 - ▶ Find the cricoid and move laterally
 - ▶ Soft to firm more reassuring

Imaging Studies

- Computed tomography (CT)
 - Iodinated contrast may preclude RAI for months
- Magnetic resonance imaging (MRI)
 - Excellent soft tissue definition
 - Nodal definition
- Positron emission tomography (PET)
 - Rarely used as most Thyroid CA doesn't show uptake
- **Ultrasound**
 - Helpful in obtaining a biopsy and characterizing
- Radioactive iodine scan
 - Very rarely used for tumor evaluation

Overview of Thyroid Cancer

- ▶ 2-3 times more common in women
- ▶ Much higher risk in those with radiation to HN
- ▶ Peak incidence is age 50

SEER Thyroid Cancer Estimates

Year	Total	Male	Female
2017	56,870 52%	14400	43640
2008	37340 117%	8930	28410
1998	17200 56%	4700	12500
1988	11000 33%	3000	8000
1978	8300	2200	6100

Worrisome Historical Findings

- Age
 - 25% of nodules in children < 14 are malignant
 - >55 has lower survival
- History of neck irradiation
- Family history of thyroid cancer
 - Medullary-familial and MEN 2A or 2B
 - Papillary - occasionally familial and associated with Gardner's syndrome and Ataxia-Telangiectasia
- Malenness
- Rapid but not sudden growth in a nodule
- Compression

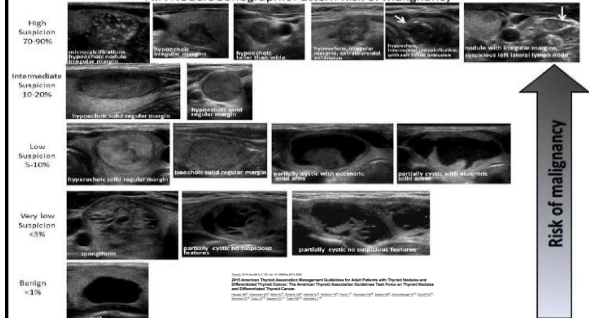
Worrisome Physical Findings

- Hard nodule
- Fixed mass
- Large mass
- Palpable round firm lymph nodes
- Vocal cord paralysis

Ultrasound

- More sensitive nodule detection
- Good method of following nodules
- No contrast, painless and safe
- Augments clinical exam for biopsy
- Limitations are depth of penetration, operator dependence and complete cervical nodal evaluation
- Normal gland is uniformly hyperechoic-good way to assess contralateral lobe
- Malignant nodules tend to be hypoechoic, irregular border, microcalcifications, nodes tend to be round without a fatty hilum

AIA Nodule Sonographic Pattern Risk of Malignancy



Treatment Decisions with US

- ▶ Assess the paratracheal nodes
- ▶ Assess the lateral neck nodes
- ▶ Assess for the extra thyroidal spread
- ▶ Ideal method of clinical follow up

Fine Needle Aspiration

- Technique – dependent
- Cytologist – dependent
- Ultrasound facilitates biopsy rendering fewer specimens non-diagnostic
- Best single technique for determining need for surgery

Bethesda FNA malignancy risk

▶ Diagnostic category	Risk of malignancy (%)	Usual management
▶ Unsatisfactory	1–4	Repeat FNA with ultrasound
▶ Benign	0–3	Clinical follow-up
▶ Atypia or FLUS	5–15	Follow/Lobectomy/Affirma
▶ Follicular neoplasm	15–30	Surgical lobectomy/Affirma
▶ Suspicious for malignancy	60–75	Surgical lobectomy or total
▶ Malignant	97–99	Thyroidectomy (Lobe/total)

Risk Group Definitions for WDTC

- **Low Risk (39%)**
 - Age less than 45
 - Size less than 4 cm
 - Low grade
 - No extra thyroidal extension
 - No distant metastases
- **Intermediate Risk (39%)**
 - Low risk tumor and high risk patient or high risk tumor and low risk patient
- **High Risk (22%)**
 - High risk patient, high risk tumor

Shaha et al, Head Neck 20:26-30, 1998

Extent of Operation

- **High risk** - total thyroidectomy
- **Intermediate risk** - typically total thyroidectomy
- **Low risk** - significant controversy exists since these patients do very well regardless of extent of operation
- Must weigh risks and benefits with the patient to determine course of action
- Outcome is related to experience of the surgeon
 - 100 thyroidectomies per year have lowest complications
 - 10 or fewer thyroidectomies per year have 4 times the rate

Failure and Survival By WDTC Risk Group

- **Low**
 - Recurrence 13% (mostly regional)
 - 5 yr survival 100%
 - 20 year survival 99%
- **Intermediate**
 - Recurrence 26% (about equal distribution)
 - 5 year survival 96%
 - 20 year survival 85%
- **High**
 - Recurrence 50% (mostly distant)
 - 5 year survival 72%
 - 20 year survival 57%

Parotid Masses



History

- Duration of mass
- Growth rate of mass
- Pain
- Numbness
- Facial nerve weakness
- Radiation exposure

Physical Examination

- Facial nerve weakness
- Skin involvement
- Loss of sensation
- Nodal enlargement
- Hardness, mobility and location of tumor
- Pharyngeal mass (asymmetrical tonsil)
- Trismus

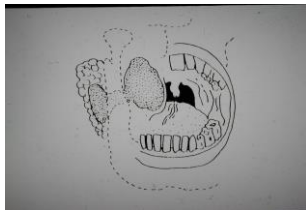
Imaging Studies

- **Computed tomography (CT)**
 - Bone detail
 - Nodal definition
- **Magnetic resonance imaging (MRI)**
 - Excellent soft tissue definition
 - Nodal definition
- **Positron emission tomography (PET)**
 - Evolving role in evaluation of head and neck malignancies not yet defined for parotid
- **Ultrasound**
 - Helpful in obtaining a biopsy and can suggest PA
- **Sialography**
 - Very rarely used for tumor evaluation

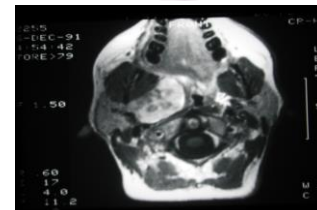
Pharyngeal Mass



Dumbbell tumor with parapharyngeal extension



MRI demonstrating deep lobe tumor with parapharyngeal space extension



Sometimes the mass isn't subtle



Head and Neck Metastases

- ▶ History of **tobacco and alcohol**
- ▶ History of **skin cancer**
- ▶ **Non-healing** sore or lump in mouth, often painless
- ▶ **Hoarseness** that doesn't resolve in 2-3 weeks
- ▶ **Otalgia** especially with swallowing
- ▶ **Unilateral** nosebleed, hearing loss, cranial nerve weakness
- ▶ **Painless** lump in neck or mouth

Head and Neck Metastases

- ▶ **Location**
 - ▶ Higher in the lateral neck likely from oral cavity or oropharynx
 - ▶ Posterior neck likely skin or nasopharynx
 - ▶ Inferior neck thyroid, larynx or pharynx
- ▶ **Findings**
 - ▶ Hard mass
 - ▶ Single or multiple
 - ▶ May or may not be moveable

Head and Neck Cancer Incidence Over Time

▶ Year	<u>2010</u>	<u>2012</u>	<u>2014</u>	<u>2016</u>
▶ OC/OP	36,540	40,250	42,440	48,330
▶ Larynx	12,720	12,360	12,630	13,430
▶ Sinus +	5,370	5,660	5,710	6,000
▶ Subtotal	<u>54,630</u>	<u>58,270</u>	<u>60,780</u>	<u>67,760</u>
▶ Thyroid	44,670	56,460	62,980	64,300
▶ Total	<u>99,300</u>	<u>114,730</u>	<u>123,760</u>	131,060

Risk Factors

- ▶ Male Sex 2:1 ratio
- ▶ TOBACCO especially smoking 80-90%
- ▶ Alcohol especially with tobacco and at high doses alone
- ▶ Viral EBV, **HPV**, HIV
- ▶ Diet low fruits and vegetable, low fiber
- ▶ Industrial exposures
- ▶ Age



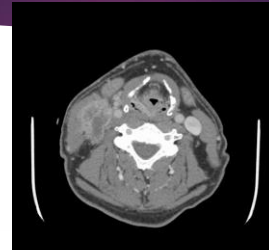
Imaging Studies

- **Computed tomography (CT)**
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- **Positron emission tomography (PET)**
 - Evolving role in evaluation of head and neck malignancies
- Ultrasound
 - Helpful in obtaining a biopsy and characterizing number of abnormal nodes although doesn't give depth like CT or MRI

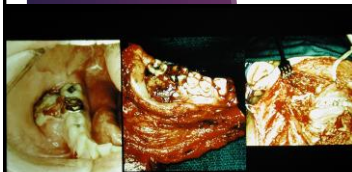
Oral Cancer



Cancer of Pyriform and neck



surgery Preferred as Primary Modality



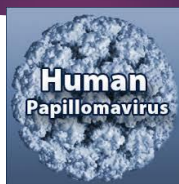
- **Almost all**
 - Oral Cavity
 - Thyroid
 - Salivary Gland
 - Major- Parotid, Submandibular and Sublingual
 - Minor- Oral Cavity, Paranasal Sinuses, etc
- **Most**
 - Early stage laryngeal and oropharyngeal cancer
 - T4 Laryngeal with cartilage destruction
 - Ethmoid and Maxillary Sinus
- **Selected**
 - Hypopharyngeal

Radiation Preferred

- ▶ **Primary**
 - ▶ Early stage larynx if function better
 - ▶ Early stage oropharynx if function better
- ▶ **Radiation with chemotherapy**
 - ▶ Stage III larynx
 - ▶ Stage II and III oropharynx
 - ▶ Stage II and III hypopharyngeal cancer
 - ▶ Certain sinus cancers
 - ▶ Unresectable cancers
- ▶ **Adjuvant**
 - ▶ Perineural invasion
 - ▶ Multiple positive nodes or large node



Oropharynx

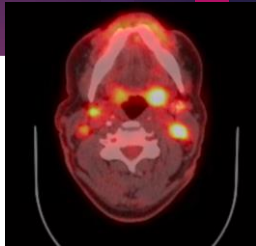


HPV infections

- ▶ 75% of women and 80% of men have been exposed
- ▶ 10-15% of these infections are of the high risk types (16, 18, 31, 33, 35, 45, 51, 52, 56, 58, 59 and 68)
- ▶ Sexually transmitted virus including oral sex

HPV in HNSCC

- ▶ HPV in 70+% or more (Tonsil and Base of Tongue)
- ▶ **5% per year increase in incidence**
- ▶ Clinically
 - ▶ Younger
 - ▶ Males twice as common
 - ▶ Less tobacco and alcohol exposure but is associated with marijuana
 - ▶ Better prognosis
 - ▶ Most patients presented as Stage IV



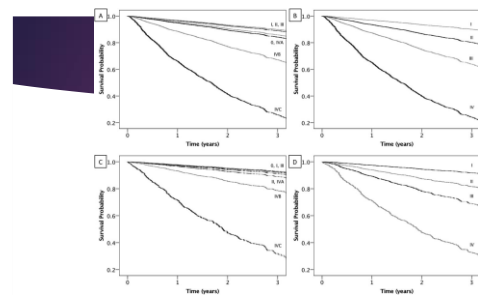
What does it mean to have stage IV cancer?



Ingmar Bergman, The Seventh Seal

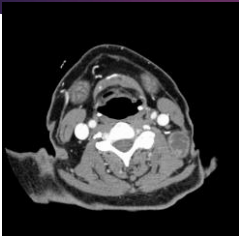
7th Edition Staging of HPV associated HNC

- ▶ Most present in stage III or IV
- ▶ New disease entity
- ▶ January 1, 2018 8th Edition of AJCC staging manual implemented
- ▶ Majority of patients are now stage I



Cramer et al. Head Neck 2017

HPV Positive SCC Neck



- ▶ Enlarged Tonsil with painless cystic neck mass
- ▶ Treatment is in evolution with both TOS and radiation being very successful
- ▶ Cure rate of stage I is 90%
- ▶ Long term side effects are now a major concern

PREVENTION HPV Vaccination

- No evidence yet for prevention of Tonsil and BOT cancer
- Vaccination for prevention of high grade cervical dysplasia and anogenital disease
 - Quadrivalent and nonavalent vaccine (16, 18, 6, 11) FDA approved as safe and effective for use in females ages 9-26
 - Equally effective in boys in reducing infection risk
 - Other strains of HPV are not blocked

It is a person
that has the
disease and
they define
how to best
be treated



Wisdom is not a product of schooling but of
the lifelong attempt to acquire it.
Albert Einstein

Miles Kington

Knowledge is knowing a tomato is a fruit. Wisdom
is knowing not to put a tomato in a fruit salad.

Thank You For Your Attention