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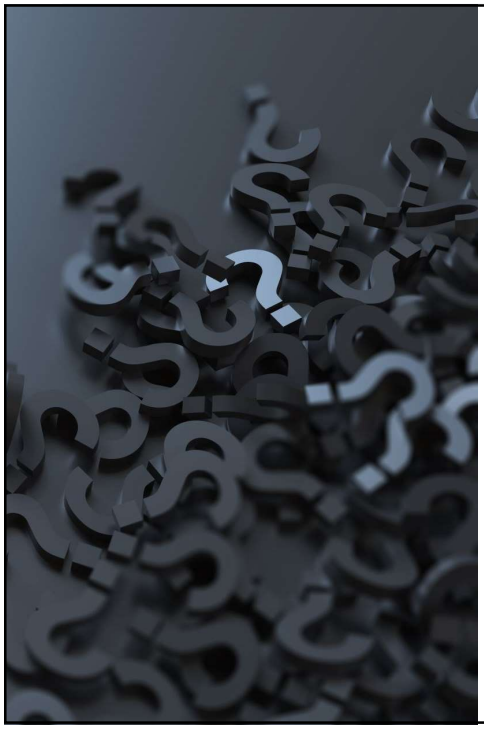

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Q&A

Please submit all questions concerning the webinar content through the Q&A panel.

If you have participants watching this webinar at your site, please collect their names and emails.

We will be distributing a Q&A document in about one week. This document will fully answer questions asked during the webinar and will contain any corrections that we may discover after the webinar.

2

2

Fabulous Prizes

3

3

Guest Presenters

- Amy Bamburg, RHIA, ODS
- Gillian Howell, MSc, PhD, ODS
- Recinda Sherman, PhD, MPH, ODS-C

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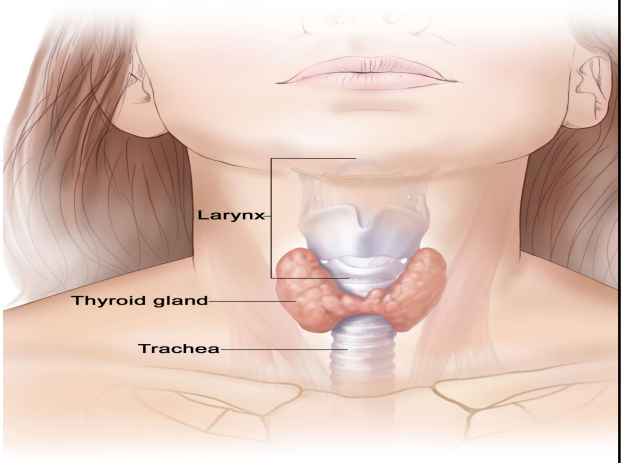
4

Agenda

- Overview
- Anatomy
- Solid Tumor Rules
- Genetics
- Staging, SSDIs, and Treatment
- Case Scenarios



The Butterfly in Your Neck

5

Epi Moment: Thyroid

Recinda Sherman, PhD, CTR

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Thyroid cancer: Symptoms & Risk factors

- Symptoms
  - Lump/swelling neck
  - Pain neck & throat (often in front, up to ears)
  - Voice changes, trouble swallowing or breathing, constant cough
- Risk Factors
  - High dose ionizing radiation (rx tx may increase risk)
  - Low iodine diet, diabetes medication (MTC)
  - Benign thyroid or breast conditions, Hereditary conditions (MTC)
  - Women

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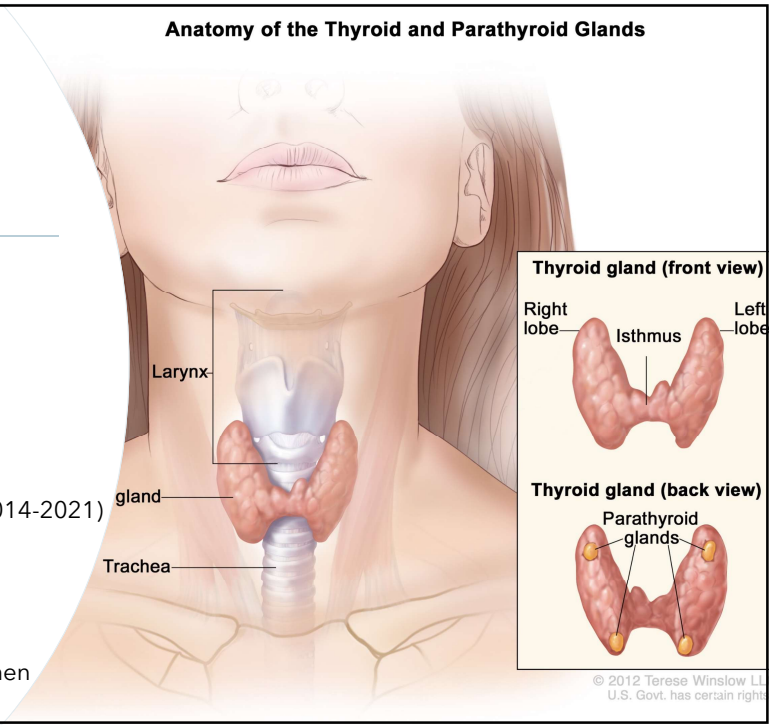
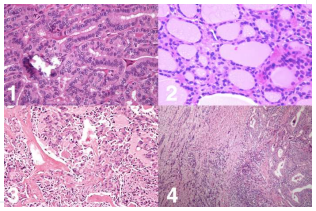
Epidemiology of Thyroid cancer

- Analyzed alone
  - Subsite of Endocrine System
  - Incidence (historically) increasing,
  - 63,000
- 5th women; 16th men
  - 13.0 per 100,000 incidence
  - 0.5 per 100,000 mortality
- Women
  - 3x higher (19.1 vs 6.7 per 100,000 2014-2021)
  - Mortality same
- Young
  - 80% under 65
- Survival high
  - 5-year survival 94.1% men; 97.3 women



8

Four Major Histologies



- Papillary 85% -- Generally asymptomatic
  - Slow growing, develop from follicular cells and can develop in one or both lobes
  - Incidence is increasing; radiation exposure is a risk; 30-50 yo women
  - Prognosis related to tumor size; survival quite high
- Follicular 10% -- Symptomatic (difficulty swallowing, enlarged nodes, hoarseness, shortness of breath)
  - Less common in US, iodine deficiency; Radiation not a risk; 40-60 yo women
  - Prognosis related to tumor size; good survival
- Medullary 4% -- Aggressive
  - Develops from C cells (parafollicular), more aggressive and less differentiated than more common types
  - 40 – 50 yo; effects men & women equally; 15% familial
- Oncocytic Carcinoma <2% -- Aggressive
  - Formerly considered subtype of follicular (shares clinical presentation & pattern of spread); oxyphilic cell carcinoma (Hürthle cell)
- Anaplastic–rare (<1%) -- Aggressive
  - Mutations of papillary, follicular or oncocytic moves to trachea & interferes with breathing
  - Slightly more common among women than men; 65+
- Lymphoma–very rare (<.5%) -- Hashimoto's disease is risk factor

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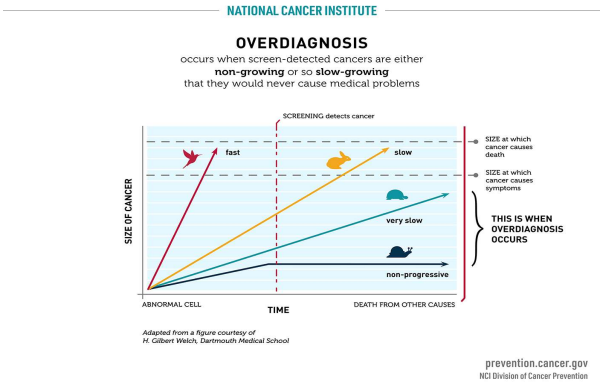
Thyroid: Screening & Overdiagnosis

- Encapsulated follicular variant of papillary thyroid carcinoma (EFVPTC) re-classed to non-malignant condition
  - non-invasive follicular thyroid neoplasms with papillary-like nuclear features or NIFTP
- Consensus-based, histopathologic diagnostic criteria to appropriately distinguish NIFTP from malignant thyroid cancer
- Paper: JAMA Oncology, August 2016 (Nikiforov)
  - **Nomenclature Revision for Encapsulated Follicular Variant of Papillary Thyroid Carcinoma** A Paradigm Shift to Reduce Overtreatment of Indolent Tumors
- Will we see a decline in thyroid cancer incidence?
  - Spurious or real?



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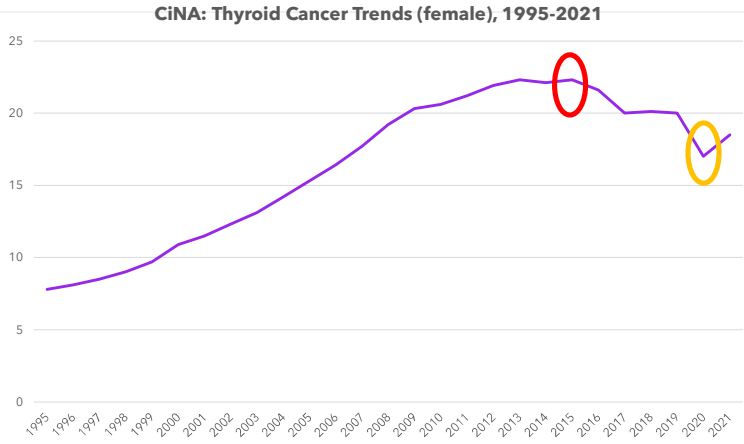
Thyroid Trends 1995-2021



Joinpoint APC:

2001-2009 7.4*

2009-2015 1.9*

2015-2019 -2.4*

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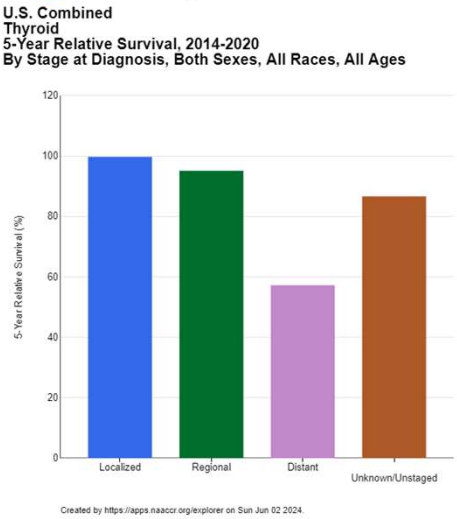
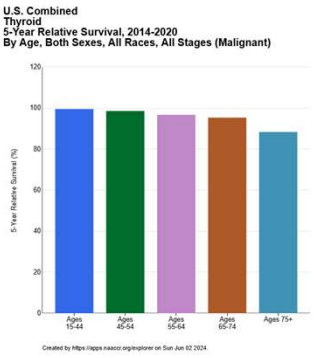
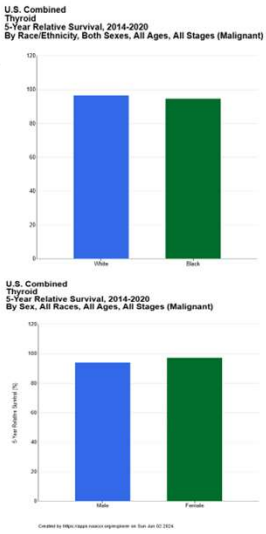
Thyroid Survival CiNA 2014-2020







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MTC Study

- MTC
- Post-market surveillance of diabetes drugs
  - United BioSource
  - GLP-1 agonists (type 2 tx); mimic glucagon-like peptide 1 (GLP-1), a hormone that enhances insulin secretion; to reduce blood glucose levels.
  - Increased risk of MTC in animal studies
- Effect diabetes treatment
  - 10% of US population
  - FDA approved along with required surveillance
  - Registry data is an integral part of surveillance
- Additional information here: https://clinicaltrials.gov/ct2/show/NCT01511393
- Ozempic – GLP-1 mimic; weight loss
  - Early data (<5 years follow up) do not indicate increase in risk

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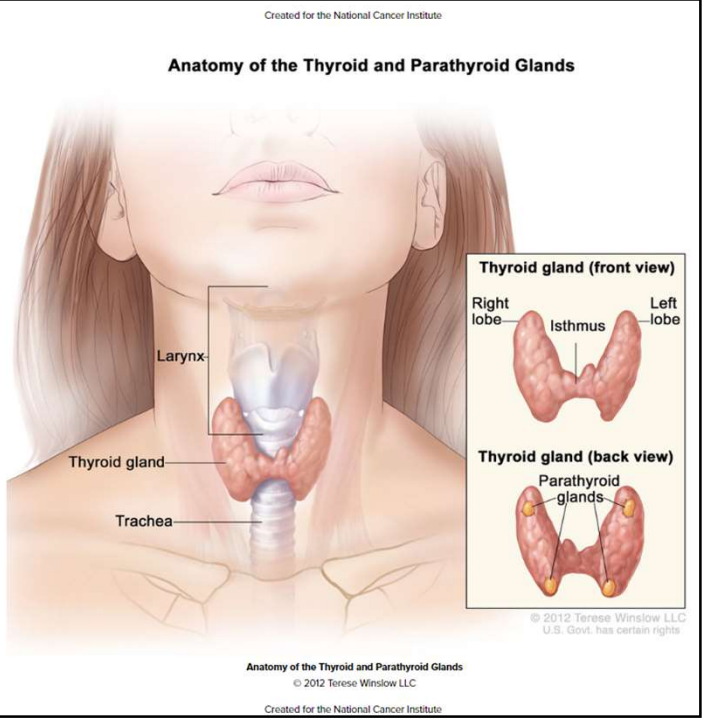
Anatomy

- Thyroid
  - Endocrine gland
  - Left lobe, right lobe, isthmus
  - Capsule
- Parathyroid glands
- Thyroglossal Duct



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SSDI – Schema Discriminator 1

- Used to differentiate between whether the cancer is arising in the thyroid gland itself or the thyroglossal duct
  - There is no AJCC Chapter for Thyroglossal Duct
- This discriminator ensures that the appropriate chapter and schema are used

- The thyroid gland starts developing in the oropharynx in the fetus and descends to its final position taking a path through the tongue, hyoid bone and neck muscles.
- The connection between its original position and its final position is the thyroglossal duct.
- This duct normally atrophies and closes off as the foramen cecum before birth but can remain open in some people.

Code	Description
1	Thyroid Gland; Thyroid, NOS
2	Thyroglossal Duct Cyst (no TNM staging)

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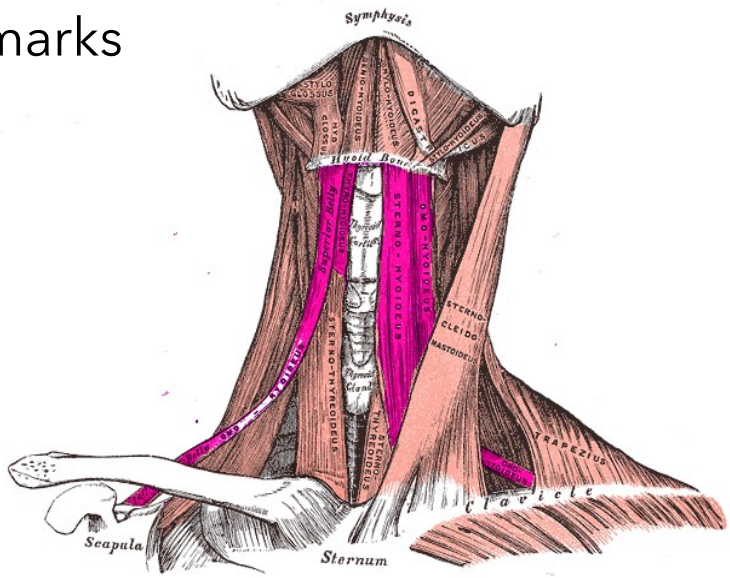
Regional Landmarks

- Strap muscles
  - Sternohyoid
  - Sternothyroid
  - Thyrohyoid
  - Omohyoid
- Beyond the strap muscles
  - Soft tissue
  - Larynx
  - Trachea
  - Esophagus
  - Recurrent laryngeal nerve
- Major Blood vessels
  - Carotid artery (encased)
  - Jugular vein
  - Thyroid artery or vein
- Thyroid Cartilage
- Further extension



. DOI:10.15347/wjm/2014.008. ISSN 2002-4436. Public Domain

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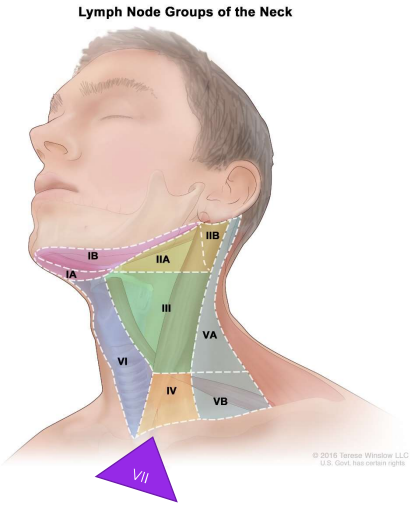
Regional Lymph Nodes

- Lower deep cervical nodes
  - Isthmus
  - Inferior lateral lobes
- Prelaryngeal nodes
- Pretracheal nodes
  - Superior portions of thyroid
- Paratracheal nodes
  - Isthmus
  - Inferior lateral lobes



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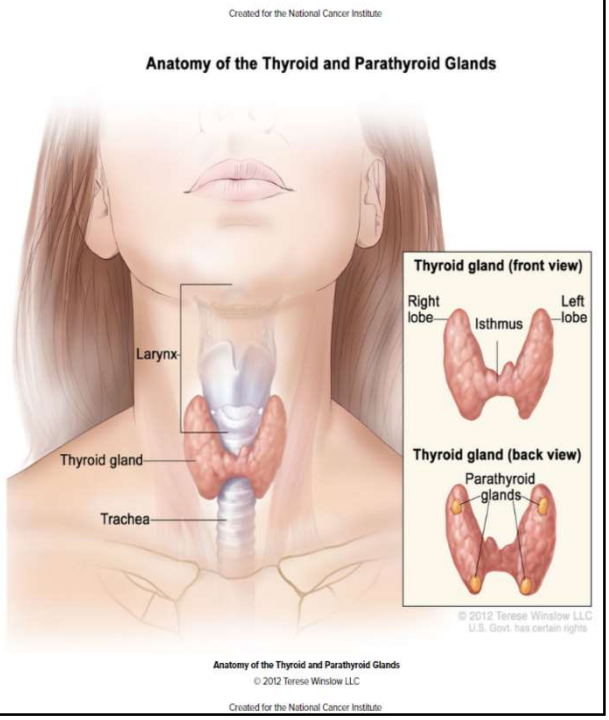
Distant Metastasis

- Fewer than 5% of newly diagnosed patients present with distant metastasis
- Most common sites of distant metastasis are:
  - Lung
  - Bone
- Less common sites of distant metastasis are:
  - Liver
  - Kidney
  - Adrenal gland
  - Pituitary gland
  - Skin



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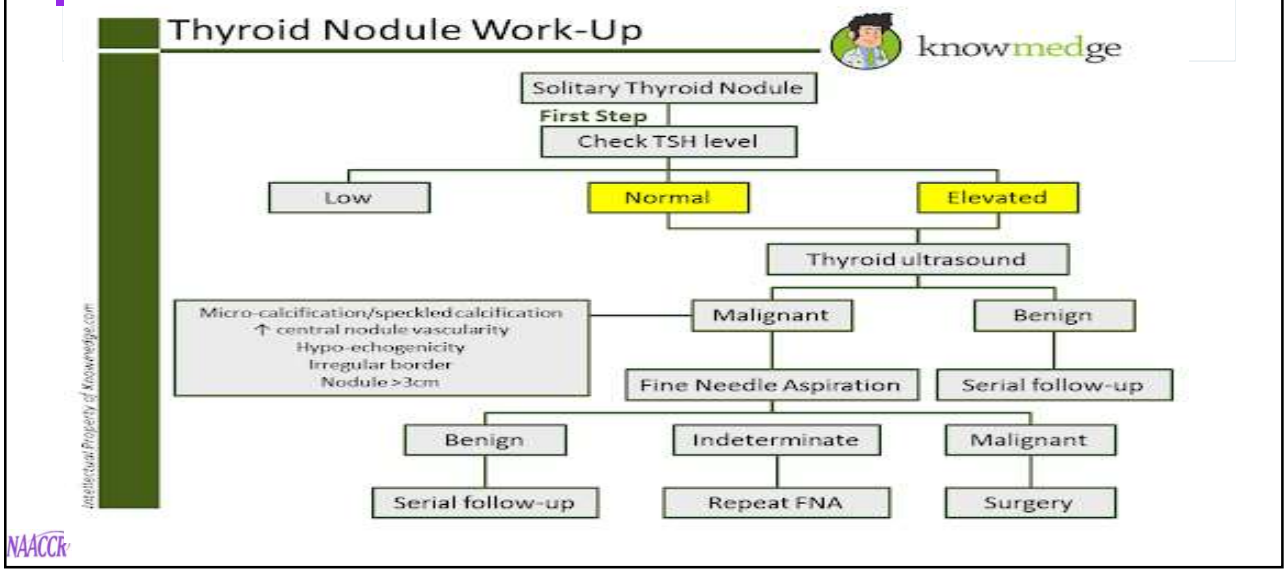
Thyroid Nodule Work-Up
(knowmedge.com)



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THYROID CANCER

PROBLEMS WITH DIAGNOSIS

GENETICS

PROBLEMS WITH OVERTREATMENT

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THYROID DISEASE AND THYROID CANCER

- THYROID CANCER INCIDENCE INCREASING
- *BETTER DIAGNOSIS OR REAL INCREASE IN NUMBERS?*

CAUSES:

- EXPOSURE IONIZING RADIATION
- GENDER- FEMALES > MALES
- FAMILY HISTORY
- OBESITY
- SUBSTANCE ABUSE
- EXPOSURE TO FLAME RETARDANTS
- IN WOMEN, HX OF BREAST CANCER
- ELEVATED TSH

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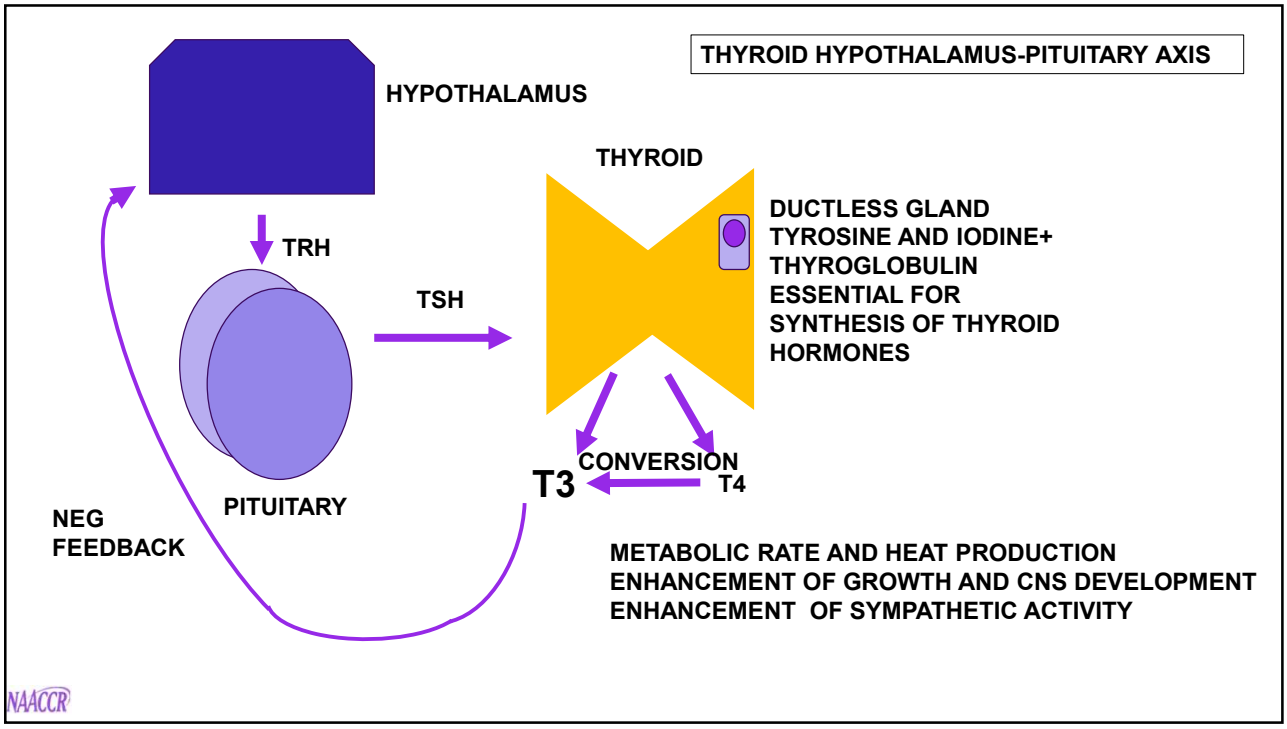

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DIAGNOSIS OF THYROID CANCER

THYROID NODULES
SWOLLEN NECK LYMPH NODES
VOICE CHANGE

↓

ULTRASOUND

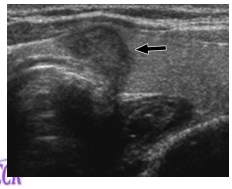
↓

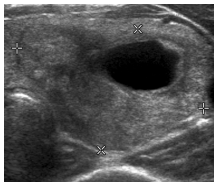
NODULE CHARACTERISTICS
LEADING TO FNA BIOPSY

KIM CRITERIA: ANY SUSPICIOUS FEATURE:-
MARKED HYPOGENICITY
IRREGULAR/MULTILOBULATED MARGINS
MICROCALCIFICATIONS
LONG AXIS TO SHORT AXIS >1

SOCIETY OF RADIOLOGISTS:-
>/=1CM W/ MICROCALCS
>/=1.5CM SOLID W/ COURSE CALCS
>/=2CM IF MIXED SOLID AND CYSTIC COMPONENTS ARE PRESENT; NODULE ALMOST ENTIRELY CYSTIC WITH A SOLID MURAL COMPONENT; SUBSTANTIAL GROWTH

AMER ASSOCN OF CLIN ENDOCRINOLOGISTS CRITERIA:-
ALL HYPOECHOIC NODULES WITH AT LEAST ONE OF THESE ADDITIONAL US FEATURES:
IRREGULAR MARGINS, INTRANODULAR VASCULAR SPOTS (REQUIRES COLOR DOPPLER, LONGER THAN WIDE SHAPE, MICROCALCIFICATIONS





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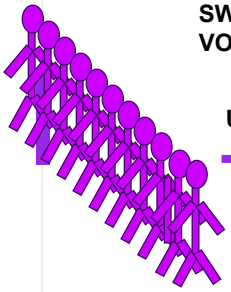
THE PROBLEM WITH IMAGING AND BX BASED DIAGNOSTIC TESTING

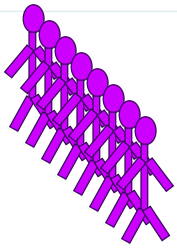


THYROID NODULES
SWOLLEN NECK LYMPH NODES
VOICE CHANGE

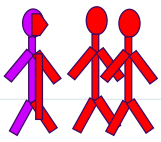
US AND FNA BX

PATHOLOGY RETURNS INDETERMINATE

SURGERY

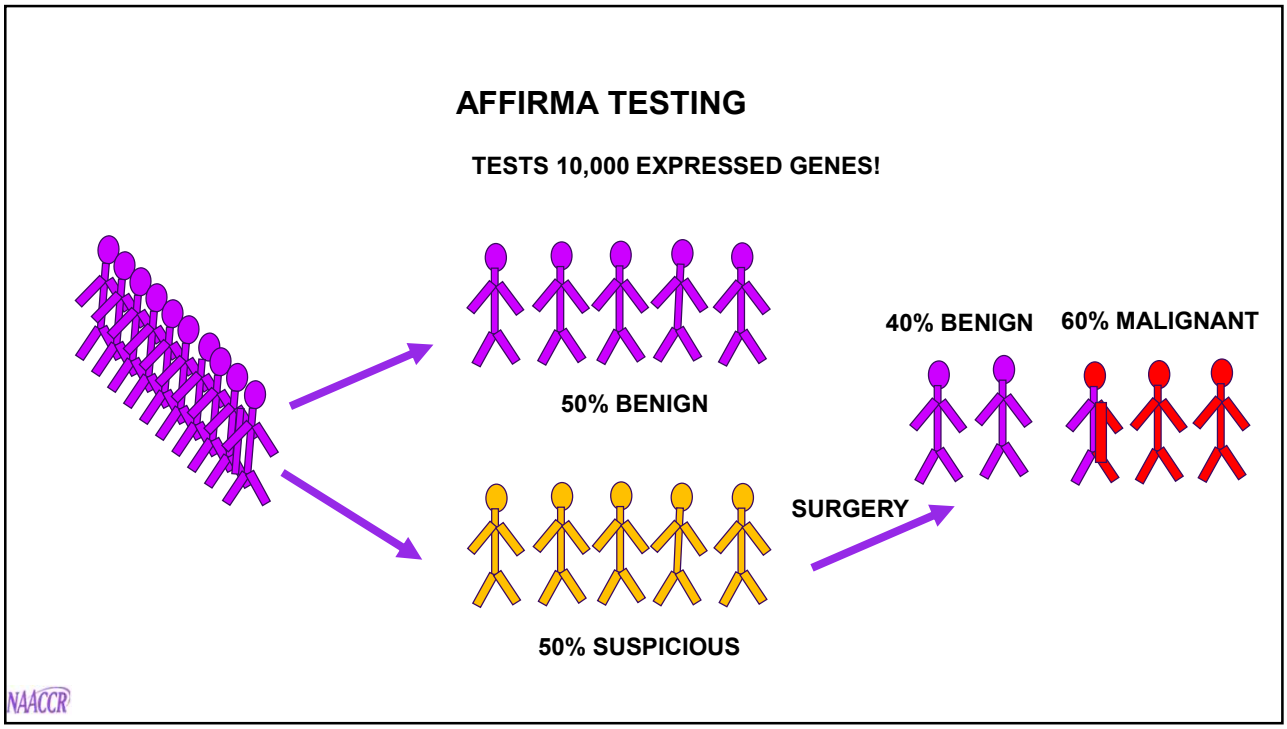


76% BENIGN



24% CONFIRMED MALIGNANT

24



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AFFIRMA GENE EXPRESSION CLASSIFIER

TEST DISPLAYS-

- 90% SENSITIVITY
- 90% OF ALL MALIGNANT NODULES RETURN SUSPICIOUS
- 50% SPECIFICITY
- OVER HALF (52%) OF BENIGN NODULES WITH INDETERMINATE CYTOLOGY RECEIVE A BENIGN RESULT

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ASSOCIATION BETWEEN THYROID DISEASES AND THYROID GLAND DISEASE

NON-TOXIC GOITER

- ASSOCIATED LOW IRON. 50% PATIENTS WITH PTC HAD THIS VS 16% CONTROLS

HASHIMOTOS THYROIDITIS

- AUTOIMMUNE DISEASE LEADING TO CHRONIC INFLAMMATION OF THE THYROID
- INCIDENCE OF HT AND PTC INCREASING
- THYROID HORMONE DECREASED DUE COMPROMISED FUNCTION RESULTING IN ELEVATED TSH LEADING CONTINUED PROLIFERATION OF THYROID GLAND CELLS.
- PROTECTIVE IN PTC

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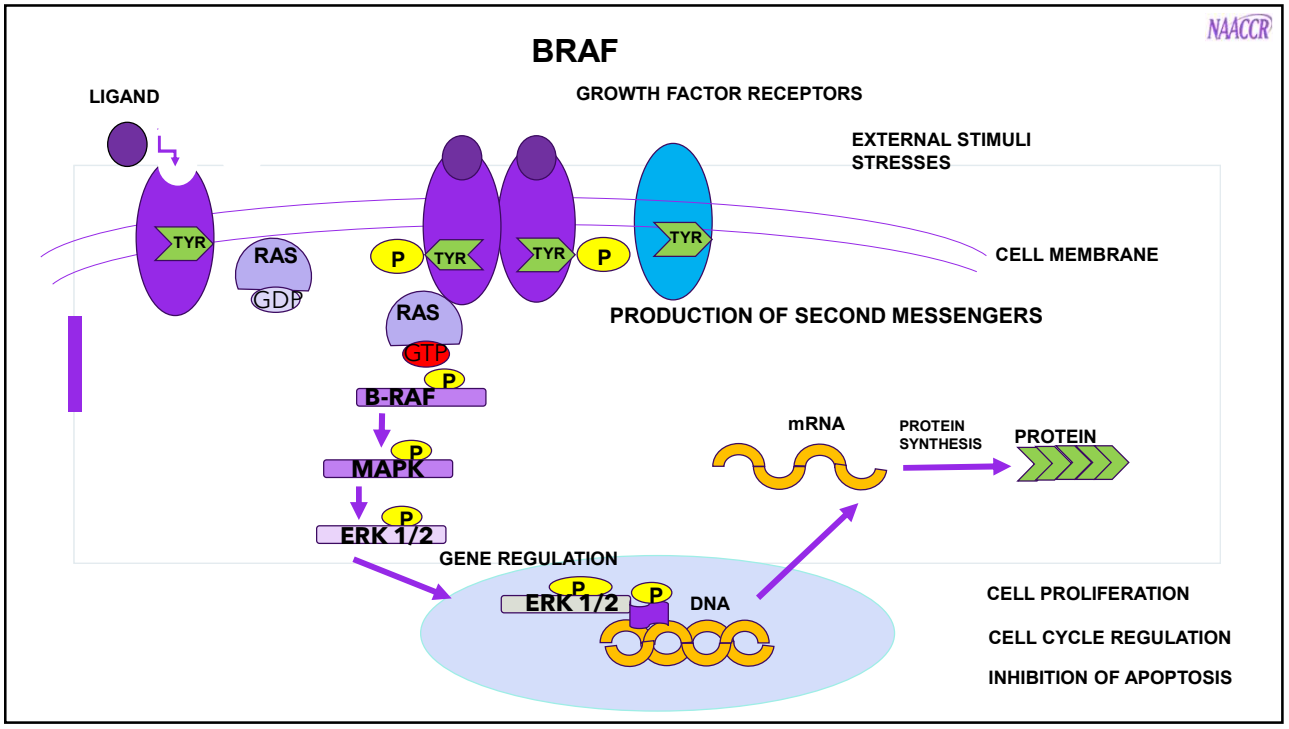

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BRAF MUTATION

- **BRAF V600E MOST COMMON MUTATION IN THYROID CANCER**
  - **45% OF SPORADIC PTCs, PARTICULARLY IN AGGRESSIVE SUB-TYPES eg TALL CELL PTC.**
  - **ANAPLASTIC THYROID CANCER**

THIS MUTATION IS ASSOCIATED WITH:

- **LOSS OF I-131 AVIDITY**
- **INCREASED LIKELIHOOD OF RECURRENCE**
- **THE FINDING OF BRAF MUTATION IN AN INDETERMINATE NODULE INCREASES PTC RISK TO 100%**

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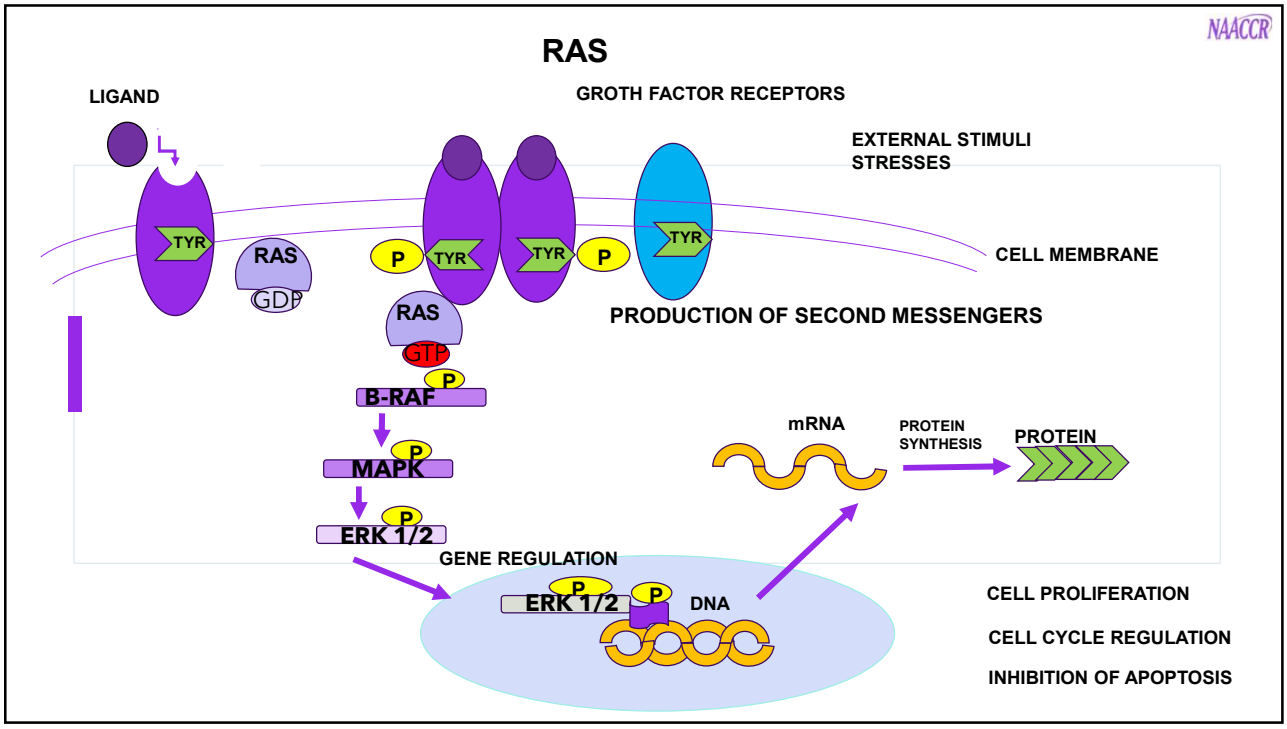

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RAS MUTATION

- RAS MUTATION FOUND IN 30-45% OF FOLLICUALAR THYROID CANCER /FOLLICULAR VARIANT OF PTC
- 10-20% OF THYROID MEDULLARY CANCER
- INCREASING EVIDENCE OF UTILITY OF RAS MUTATION STAUS COMBINED WITH INDETERMINATE CYTOLOGY FNA BXS. AS RAS MUTATION ASSOCIATED CANCER PROGRSSION AND DEDIFFERENTIATION
- NRAS MOST COMMON IN PAPILLARY THYROID CARCINOMA
- HRAS AND KRAS IN MEDULLARY CARCINOMA (NEUROENDOCRINE DERIVED PAPILLARY CELLS)

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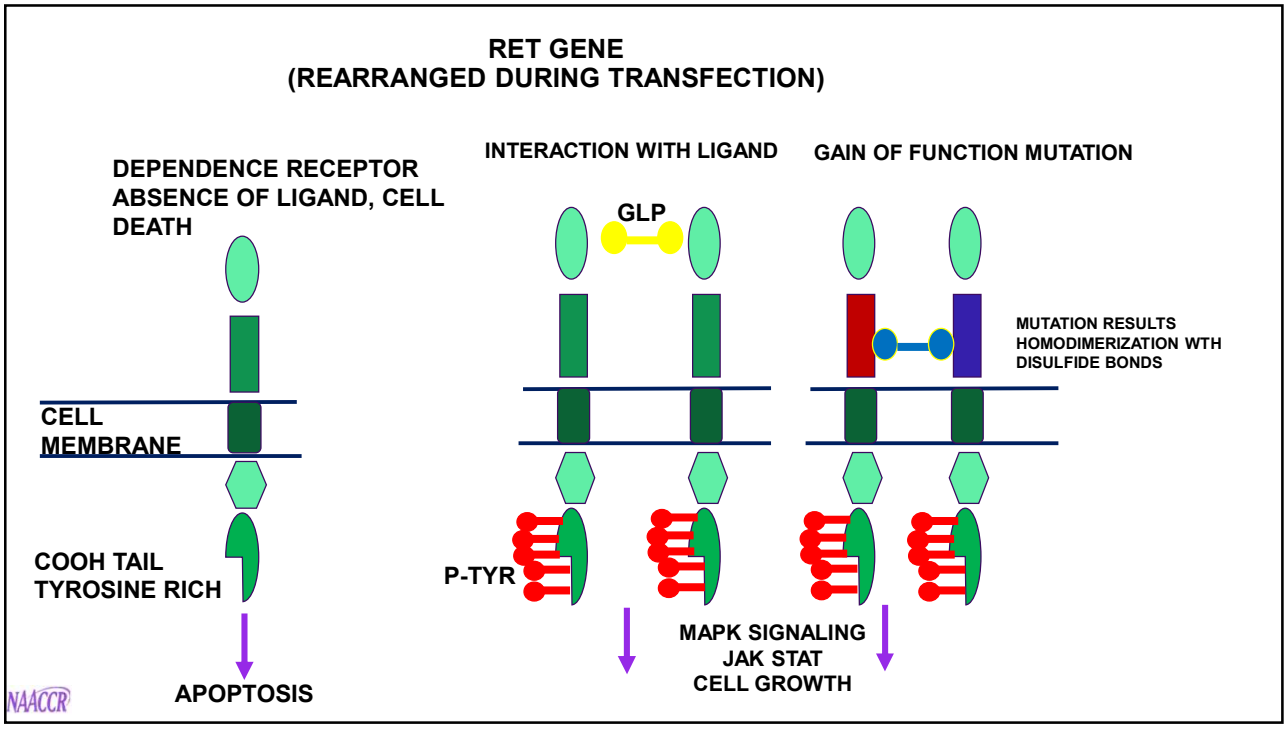

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RET GENE

NEURAL CREST DERIVED CELL LINEAGES, KIDNEY AND MALE GERM CELLS. ENTERIC GANGLIA, ADRENAL MEDULLA, CHROMAFFIN CELLS, THYROID C-CELLS, SENSORY AND AUTONOMIC GANGLIA IN THE PERIPHERAL NERVE SYSTEM. SUBSET OF CNS NUCLEI.

GERMLINE LOSS OF FUNCTION- CONGENITAL MEGACOLON, INTESTINAL AGANGLIOSIS AND HIRSCHPRUNG DISEASE.

GAIN OF FUNCTION MUTATION FOUND IN PAPILLARY AND MEDULLARY THYROID CANCER.

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MEN2
MULTIPLE ENDOCRINE NEOPLASIA TYPE 2

- CLASSICAL TYPE MEN2A

MEDULLARY CARCINOMA- 100% AFFECTED

PHAEOCHROMOCYTOMA – 50% AFFECTED

PARATHYROID ADENOMA/HYPERPLASIA- 5-10% AFFECTED

- MEN2A WITH CUTANEOUS LICHEN AMYLOIDOSIS
- MEN2A HIRSCHPRUNG DISEASE.
- FAMILIAL MEDULLARY THYROID CARCINOMA
- MEN2B- 5% OF MEN2 FAMILIES
- MEDULLARY CANCER- 98-100%
- PHAEOCHROMOCYTOMA 50%
- MUCOSAL NEUROMA (TONGUE, LIPS, GI TRACT NEURAL TISSUE) 95-98% AFFECTED
- MUSCLE, JOINT AND SPINAL PROBLEMS, 95%
- TYPICAL FACIAL FEATURES- SWOLLEN LIPS AND THICKENED EYELIDS- 75-90%

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GENETIC MUTATIONS PROVIDE NEW TARGETS FOR TREATMENT

	DIFFERENTIATED PAPILLARY THYROID CARCINOMA	UNDIFFERENTIATED THYROID CARCINOMA	MEDULLARY THYROID CARCINOMA
	PAPILLARY 84%	ANAPLASTIC 1%	MEDULLARY THYROID CANCER 4%
	FOLLICULAR 4%		
	ONCOCYTIC 2%		
	HIHG GRADE OR POORLY DIFF 5%		
SYSTEMIC TREATMENT			
SORAFENIB			
VEGFR, PDGFR, RET	RADIOIODINE REFRACTORY PTC		
LEVATINIB			
VEGFR, PDGFR, FGFR, RET	RADIOIODINE REFRACTORY PTC		
VENDETINIB			
VEGFR, PGGFR, RET		ATC	MTC
CARBOZANTINIB			
VEGFR, RET, MET	2ND LINE RADIOIODINE REFRACTORY PTC		MTC
TARGETED TREATMENT DABRAFETINIB			
BRAF	RADIOIODINE REFRACTORY PTC		
SELPERCATINIB			
RET	PTC	ATC	MTC
PRALSETINIB			
RET	PTC	ATC	
LAROTRCTINIB			
NTRK	PTC	ATC	
ENTRECTINIB			
NTRK	PTC	ATC	

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AGE AND THYROID CANCER STAGING (PROGNOSIS)

NEGATIVE PROGNOSTIC FACTORS:

- MORE AGGRESSIVE TUMORS, LARGER, EXTENSION, LYMPH NODES AND DISTANT METS ASSOCIATED MORE AGGRESSIVE HISTOLOGIES
- INCREASED TSH
- COMORBIDITIES
- DISABILITIES
- DELAYED DIAGNOSES
- CONSIDER TSH SUPPRESSION WITH LEVOTHYROXINE.
- TYROSINE KINASE INHIBITORS AND LEVATINIB

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OVERTREATMENT OF PAPILLARY THYROID CARCINOMA

- SURGERY GO TO TX
- ACTIVE SURVEILLANCE
- JAPANESE STUDY WELL DIFF THYROID CANCER NODULE </= 1CM AND US STUDY WELL DIFF THYROID CANCER NODULES </=1.5CM. INCLUDES MICROPAPILLARY CARCINOMAS. FOLLOWED UP TO 15 YEARS.
- 15.9% MICROCARCINOMAS GREW >/=3MM.
- 3.4% CASES DEVELOPED CERVICAL LYMPH NODE METS AT 10 YEARS
- NO DISTANT METS AT 10 YEARS
- VERY INDOLENT DISEASE!

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THYROID REFS

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cancer.net multiple endocrine neoplasia type 2

approved by the cancer.net editorial board, 05/2019

Laura Boucai, MD; Mark Zafereo, MD; Maria E. Cabanillas, MD (2023) THYROID CANCER: A REVIEW; JAMA.

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Solid Tumor Rules

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Multiple Primary Rules

Multiple Tumors

- Rule M7 Abstract a single primary when follicular and papillary tumors in the thyroid are diagnosed within 60 days and tumors are:
  - Papillary thyroid carcinoma, NOS and follicular carcinoma, NOS OR
  - Papillary carcinoma, follicular variant and papillary thyroid carcinoma OR
  - Papillary carcinoma, follicular variant and follicular carcinoma OR
  - Any papillary thyroid carcinoma subtype/variant and any follicular subtype/variant listed in Column 3, Table 12.
- Rule M8 Abstract multiple primaries when separate/non-contiguous tumors are anaplastic carcinoma and any other histologies in the thyroid.
  - Note: This rule does not apply to multiple tumors that are anaplastic carcinoma and undifferentiated carcinoma.

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Histology Rules

- Rule H27 Code the histology when only one histologic type is identified.
  - Note: Do not code terms that do not appear in the histology description.
  - Example: Do not code squamous cell carcinoma non-keratinizing unless the words "non-keratinizing" actually appear in the diagnosis

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Histology Rules

Multiple tumors single primary

- Rule H30 Code papillary carcinoma, follicular variant of thyroid (8340) when there are multiple papillary and follicular carcinoma subtypes/variants:
  - Papillary thyroid carcinoma, NOS and follicular carcinoma, NOS OR
  - Papillary carcinoma, follicular variant and papillary thyroid carcinoma OR
  - Papillary carcinoma, follicular variant and follicular carcinoma OR
  - Any papillary thyroid carcinoma subtype/variant and any follicular subtype/variant listed in Column 3, Table 12
- Rule H31 Code papillary microcarcinoma of thyroid to papillary carcinoma/adenocarcinoma of the thyroid to 8260.
  - Note: For thyroid primaries only, the term micropapillary/papillary microcarcinoma does not refer to a specific histologic type. In North America, it means the papillary component of the tumor is minimal or occult.

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Table 12

Specific and NOS Terms and Code	Synonyms	Subtypes/Variants
Carcinoma, anaplastic **8021/3**		Carcinoma, undifferentiated **8020/3**
Follicular thyroid carcinoma, NOS **8330**	Follicular adenocarcinoma Follicular carcinoma Follicular carcinoma, widely invasive **8330/3** Infiltrative follicular carcinoma **8330/3**	Follicular carcinoma, encapsulated angioinvasive **8339/3** Follicular thyroid carcinoma, minimally invasive **8335/3** Well differentiated follicular adenocarcinoma **8331** Moderately differentiated follicular adenocarcinoma/ trabecular follicular carcinoma **8332**
Medullary thyroid carcinoma **8345**	C cell carcinoma Parafollicular cell carcinoma Medullary carcinoma with amyloid stroma Medullary microcarcinoma	
Oxyphilic adenocarcinoma **8290**	Encapsulated angioinvasive oncocytic carcinoma of the thyroid Hurthle cell adenocarcinoma Hurthle cell carcinoma Follicular carcinoma, oxyphilic cell Minimally invasive oncocytic carcinoma of the thyroid Oncocytic adenocarcinoma Oncocytic carcinoma Widely invasive oncocytic carcinoma of the thyroid	

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Table 12

DO NOT assign 8050 (papillary carcinoma)

Specific and NOS Terms and Code	Synonyms	Subtypes/Variants
Papillary thyroid carcinoma, NOS **8260** *Note:* For thyroid cancer only, the terms micropapillary and papillary microcarcinoma do not refer to a specific histologic type. It means that the papillary portion of the tumor is minimal or occult.	Classical (usual) papillary carcinoma Clear cell papillary thyroid carcinoma Cribriform-morular variant of PTC Hobnail variant of PTC Micropapillary thyroid carcinoma (see note) Papillary microcarcinoma (see note) Papillary thyroid carcinoma with fibromatosis/fasciitis-like stroma PTC Solid/trabecular variant of PTC Spindle cell papillary thyroid carcinoma Warthin-like papillary thyroid carcinoma	Columnar cell variant of PTC/Tall cell PTC **8344** Diffuse sclerosing PTC **8350** Encapsulated variant of PTC **8343/3** Follicular variant of papillary thyroid carcinoma **8340** Oncocytic variant of PTC **8342**
Poorly differentiated thyroid carcinoma **8337/3**	Differentiated high-grade thyroid carcinoma Insular carcinoma	

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Pop Quiz 1

- 1-21-2023 Thyroid, left lobectomy and isthmusectomy:
  - **Papillary thyroid carcinoma, classic subtype**, multiple masses in left lobe, largest 1.7 cm, and isthmus. Extrathyroidal extension absent.
  - Minimally invasive **follicular thyroid carcinoma**, 4.4 cm, focal capsular invasion present. extrathyroidal extension absent.
  - Lymph nodes, left lateral neck levels II, thru anterior V,: 2(of 17) positive for metastatic PTC.
- How many primaries? Single primary per rule M7
- What histology is assigned? papillary carcinoma, follicular variant of thyroid (8340) Per Rule H30

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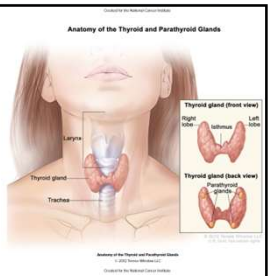
Pop Quiz 2



- In 9/2020, the patient had a papillary thyroid carcinoma.
  - A total thyroidectomy w/partial anterior trachea resection was done with mets found in the trachea.
- 5/2023, an FNA of a "left thyroidectomy bed" lesion showed "malignant cells, consistent with history of papillary thyroid carcinoma." Several months later, left pleural effusion cytology showed the same.
- Is the tumor bed lesion a second primary?
  - Yes
  - No

No

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Pop Quiz 3

- Final Diagnosis" Partially encapsulated papillary carcinoma of the thyroid
  - What histology would be assigned?
    A. 8260/3 Papillary thyroid carcinoma
    B. 8343/3 Encapsulated variant of papillary carcinoma of the thyroid

A. 8260/3

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Pop Quiz 4

- Path report for a thyroid resection with 2 separate tumors that reads:
  - Tumor 1 histologic type: minimally invasive follicular carcinoma
  - Tumor 2 histology type: papillary carcinoma, class type
- Question 1: Is there a histology code for minimally invasive follicular carcinoma? Yes-8335/3
- Question 2: Are these one or two primaries?

Single primary per rule M7 (papillary and follicular).
Histology 8340/3 Follicular variant of papillary thyroid carcinoma per rule H30.

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Thyroid Terminology

- Pathologists often include descriptors in their diagnoses. This is problematic as some valid histology terms include these descriptors in the WHO histology term.
- Common descriptors include encapsulating, encapsulated, angioinvasive, minimally invasive.
- When you have a histology with one of these terms, first check table 12 and ICD-O-3.2 to see if the term is listed there.
- If it isn't, this means the pathologist is using a descriptor. In this case, ignore the descriptor and code histology based on the remaining term.

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Grade

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Grade Clinical

- Grade the tumor before any treatment
- Can not be blank
- Highest grade assessed during the clinical time frame
- Grade 9 when:
  - Grade not documented
  - Clinical workup is not done
  - Can not determine if clinical, path or post therapy code as clinical, code 9 for path and blank for post therapy grade

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Grade Clinical Codes

- A Well differentiated
- B Moderately differentiated
- C Poorly differentiated
- D Undifferentiated, anaplastic
- 9 Grade can not be assessed, Unknown

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Grade Pathological

- Grade of a resected tumor with no neoadjuvant therapy
- Can not be blank
- Highest grade, if clinical grade is higher use the clinical grade
- Code 9 when:
- Grade not documented
  - No resection of primary site done/Clinical case only
  - Neoadj therapy followed by resection
  - Can not determine if clinical, path or post therapy

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Grade Pathological Codes

- A Well differentiated
- B Moderately differentiated
- C Poorly differentiated
- D Undifferentiated, anaplastic
- 9 Grade can not be assessed, Unknown

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Grade Post Therapy Clin (yc) Grade Post Therapy Clin (yc)

- Grade of tumor that has been resected after neoadjuvant therapy
- Leave blank when:
  - No neoadjuvant therapy given
  - Only one grade available and cant determine if clinical, path or neoadj
- (yc) Assign the highest grade after the completion of neoadjuvant therapy, but before resection of the primary tumor
- (yp) Assign the highest grade from the resected primary tumor assessed after the completion of neoadjuvant therapy
- Code 9 when surgical resection is done after neoadjuvant therapy and grade is not documented

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Pop Quiz

Patient with the complaint of a neck mass first noticed two weeks ago. The mass has increased in size and is palpable. Ultrasound of the thyroid and lateral neck showed a large mass of the left thyroid, but no right or left neck lymphadenopathy. Fine needle aspiration (FNA) of neck mass was performed and the pathology report indicated a diagnosis of carcinoma. Patient will be admitted for total thyroidectomy. Final diagnosis from total thyroidectomy: Left thyroid lobe with papillary carcinoma, 8 cm in size.

- Grade Clinical ?
- Grade Pathologic ?
- Grade Post Therapy Clin (yc) ?
- Grade Post Therapy Clin (yc) ?

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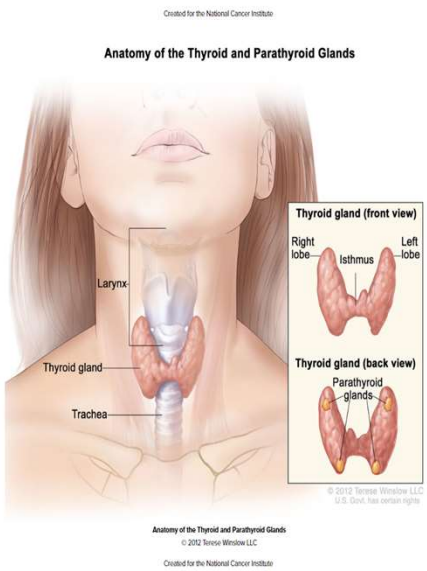
Answers

Grade Clinical	9
Grade Pathologic	9
Grade Post Therapy Clin (yc)	*(Blank)*
Grade Post Therapy Clin (yc)	*(Blank)*



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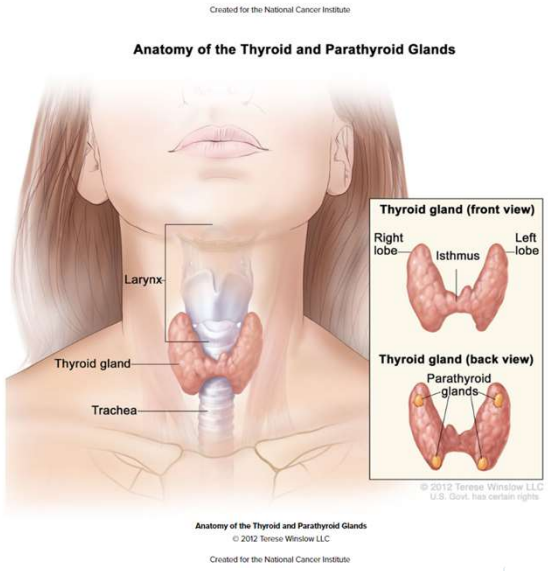
Thyroid Staging

Thyroid-Differentiated and Anaplastic Carcinoma

Thyroid-Medullary

SS2018 and AJCC TNM



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Summary Stage 2018: Thyroid

Summary Stage 2018

Notes
Thyroid

8000-8700, 8720-8790, 9700-9701

C739
C739 Thyroid gland

Note 2: See the following chapters for the listed histologies

- 8710-8714, 8800-8934, 8940-9137, 9141-9582: *Soft Tissue*
- 8935-8936: *GIST*
- 9140: *Kaposi Sarcoma*

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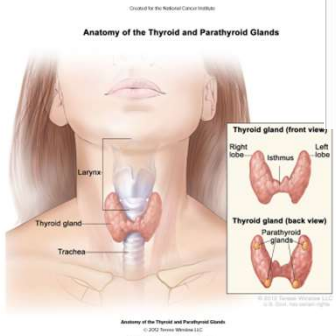
SS2018-Codes 0 and 1



SS2018	Description
0	In situ: noninvasive, intraepithelial
1	Localized only (localized, NOS) - Confined to thyroid, NOS - Into thyroid capsule, but not beyond - Multiple foci confined to thyroid - Single invasive tumor confined to thyroid

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SS2018 –Code 2

Regional by direct extension only

- Blood vessel(s) (major)
  - Carotid artery (encased)
  - Jugular vein
  - Thyroid artery or vein
- Cricoid cartilage
- Esophagus
- Extrathyroidal extension (microscopic, macroscopic, NOS)
- Larynx
- Nerves
  - Recurrent laryngeal
  - Vagus nerve
- Parathyroid
- Pericapsular soft tissue/connective tissue
- Sternocleidomastoid muscle
- Strap muscle(s)
  - Omohyoid
  - Sternohyoid
  - Sternothyroid
  - Thyrohyoid
- Subcutaneous soft tissue
- Thyroid cartilage
- Trachea
- Tumor described as "FIXED to adjacent tissues"

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Regional Lymph Nodes-Code 3

- Levels 1-7
- Other Groups of head and neck.

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7	Distant site(s)/lymph node(s) involved › Distant site(s) (including further contiguous extension) › Gross extrathyroidal extension invading › Bone › Mediastinal tissues › Prevertebral fascia › Skeletal muscle, other than strap or sternocleidomastoid muscle › Distant lymph node(s), NOS › Distant metastasis, NOS › Carcinomatosis › Distant mets WITH or WITHOUT distant lymph node(s)

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AJCC 8th Review

- Rules for Classification-General Rules
- SSDI's-None
- 1 Schema Discriminator

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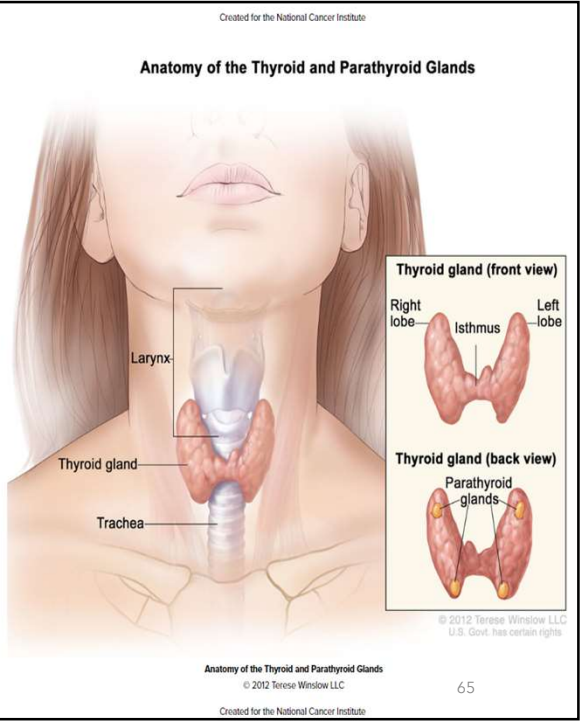
Primary Tumor

- How big is the tumor?
- Are the strap muscles involved (gross involvement)?
- Is their gross extension beyond the strap muscles?
- Is there more than one tumor?
- TX-T4b



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T Suffix

- (m) for multiple synchronous tumors OR For thyroid differentiated and anaplastic only, multifocal tumors
- (s) For thyroid differentiated and anaplastic only, solitary tumor

- *Must be filled in for clinical and pathologic AJCC T suffix*

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Primary Nodes N

- Have the nodes been biopsied?
- Are level 6 or 7 nodes involved?
- Are level 1-5 or retropharyngeal nodes involved?
- NX-N1b

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Mets M

- No distant mets M0
- Distant mets M1

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Stage Groups (Differentiated and Anaplastic)

- Differentiated (Papillary or Follicular)
  - <55 and no distant mets - Stage 1
  - <55 yrs distant mets- Stage 2
  - ≥ 55 may be stage 1, 2, 3, 4a, or 4b
    - Pathologic stage group may be assigned even if not lymph nodes removed.
- Anaplastic
  - Age doesn't matter for stage grouping
  - All cases are stage 4A or higher

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Pop Quiz

- A 65-year-old patient presents with a nodular thyroid.
  - Ultrasound shows 2 nodules in the left lobe of the thyroid.
  - The largest nodule measures 1.6 cm's.
  - All nodules are confined to the thyroid.
  - No enlarged lymph nodes were identified.
- An FNA confirms papillary carcinoma.

Data Item	8th ed
Clinical T	cT1b
Clinical T Suffix	(m)
Clinical N	cN0b
Clinical N Suffix	
Clinical M	cM0
Stage	1

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Treatment

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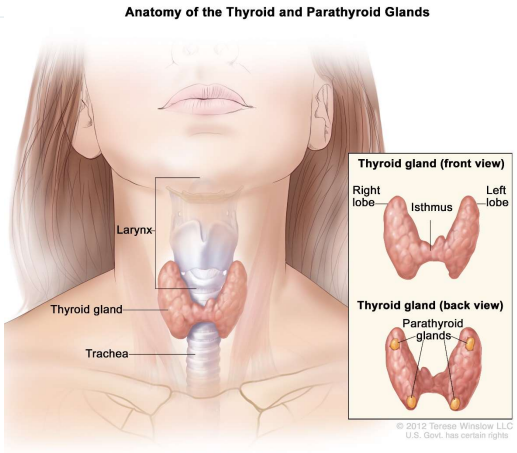
Active Surveillance

- A treatment plan that involves closely watching a patient's condition but not giving any treatment unless there are changes in test results that show the condition is getting worse.
- May be an option for patients with

72

Treatments - Surgery

- B200 Removal of less than a lobe, NOS
  - B210 Local surgical excision
  - B220 Removal of a partial lobe ONLY
- B250 Lobectomy and/or isthmectomy
  - B251 Lobectomy ONLY (right or left)
  - B252 Isthmectomy ONLY
  - B253 Lobectomy WITH isthmus



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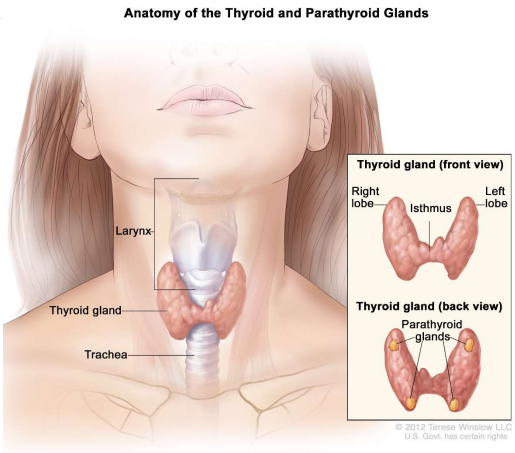
Treatments - Surgery

- B300 Removal of a lobe and partial removal of the contralateral lobe
- B400 Subtotal or near total thyroidectomy
- B500 Total thyroidectomy
- B800 Thyroidectomy, NOS



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Treatments – RAI Radioiodine (I-131)

CTR Guide to Coding Radiation Therapy Treatment in the STORE	• Version 6.0 – January 2024 • Questions – CAnswer Forum
Volume – 98 (Other)	• This is to maintain historic consistency • Do not use 93 (Whole Body) – for whole body treatment using external beam
XRT Dose Fields – 999998 not prescribed in cGy	
Planning Technique – 88	• No conventional plan – based on risk of residual disease and complications
Date started/ended	• Consider one injection of RAI as both the start and end dates

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Treatments - Systemic

- Hormone Therapy
  - Levothyroxine; L-Thyroxine
  - Liothyronine
  - Liotrix
  - Methimazole (also treats Grave's Disease)

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Treatments - Systemic

- Targeted Therapy Medullary/Anaplastic types typically
  - Selpercatinib or pralsetinib – tumor is RET+
    - Proto-oncogene c-Src
      - Turns off these genes that work in conjunction with others for tumor growth and activation
  - Cabozantinib – Medullary thyroid
    - Multikinase inbhibitor
  - Dabrafenib +/- trametinib – BRAF V600E+
    - BRAF instructs the gene to make proteins that signal cell growth, maturity, movement, and self-destruction
  - Lenvatinib
    - Used for tumors where RAI is ineffective
    - Multikinase inhibitor
      - Block several types of kinase proteins

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Case Scenarios

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CASE STUDY 1

FEMALE, 62 YO, PRESENTED FOR ANNUAL EXAM AND THYROID NODULE FOUND ON RT SIDE OF THYROID. NO LOWER NECK LNS BUT MARKEDLY ENLARGED BILAT SYMMETRIC LEVEL II LNS. PT'S VOICE IS STRONG. NO HOARSENESS. NO SYMPTOMS OF HYPO- OR HYPER-THYROIDISM.

1/12/24 US NECK: A DOMINANT NODULE, 2.8CM, WHICH IS HYPOECHOIC WITH MICROCALCIFICATIONS AND ILL-DEFINED BORDERS ON THE RT. NO PATHOLOGIC LYMPHADENOPATHY NOTED.

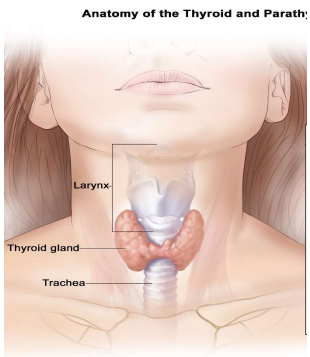
1/12/24 FNA THYROID NODULE CONSISTENT WITH PAPILLARY THYROID CARCINOMA.

1/24/24 TOTAL THYROIDECTOMY. INTRAOPERATIVELY ABNORMAL APPEARING PRE-TRACHEAL LNS NOTED AND REMOVED.

- PAPILLARY THYROID CARCINOMA CLASSIC SUBTYPE
  - RT LOBE: 2.7CM PTC
  - LT LOBE 0.4CM PTC.
- NO PNI. NO LVI. NEG MARGINS.
- 2/5 LEVEL VI LNS. NO ENE.

DUE TO POS LNS TUMOR BOARD RECOMMENDED RADIOACTIVE IODINE I-131.

- 2/12/24 ADMINISTERED 95MCI I-131.
  - SUBSEQUENT SPECT I-131 IMAGING. REMNANT IN THE THYROID FOSSA.



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CASE STUDY 2

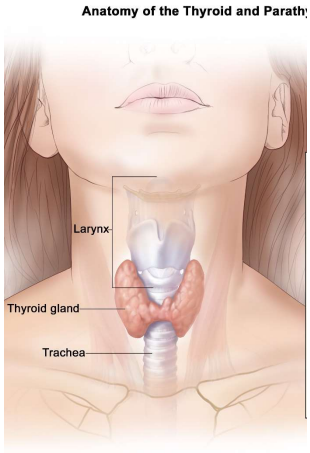
PT 46 YO PRESENTED WITH 2MO HX OF NECK PAIN AND SWELLING. VOICE DIFFERENT. ON EXAM, PALPABLE LYMPHADENOPATHY IN THE RIGHT NECK.

PER ENDOCRINOLOGIST PT SEES FOR THYROIDITIS, T3 ELEVATED AND TSH SUPPRESSED.

IMAGING:
2/12/24 CT NECK: MULTIPLE ENLARGED BILAT CERVICAL (ONE NECROTIC) AND SUPRACLAVICULAR LNS. DENSE THICKENING OF THE LT THYROID INVOLVING THE ISTHMUS AND CROSSING THE MIDLINE TO THE RT LOBE, 6.5CM. SEVERAL ENLARGED UPPER MEDIASTINAL LNS.

2/12/24 US: THYROID MASS. CLEARLY PATHOLOGICAL RT PARATRACHEAL LYMPHADENOPATHY AND BILATERAL NECK LYMPHADENOPATHY.

2/15/24 CT CHEST: SEVERAL CALCIFIED AND NON-CALC PULM NODULES UP TO 6MM, W/ SOMEWHAT MILIARY APPEARANCE. NODULES. UPPER MEDIASTINAL AND PROBABLY LT HILAR ADENOPATHY. PROMINENT THYROID.



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CASE STUDY 2

PATHOLOGY:
2/12/24 BX OF RT NECK LN. MET PAPILLARY THYROID CARCINOMA

2/21/24 TOTAL THYROIDECTOMY, BILAT HIGH-GRADE PAPILLARY THYROID CARCINOMA, TALL CELL VARIANT. 11.0CM, UNIFOCAL. MITOTIC RATE: >/= 5 MITOSES PER 2 MM2 TUMOR NECROSIS PRESENT ANGIOINVASION (VASCULAR INVASION) PRESENT, EXTENT NOT SPECIFIED. LVI PRESENT. NO PNI. INTRAOPERATIVE EXTRATHYROIDAL EXTENSION AND A POSITIVE POSTERIOR MARGIN.

51/68 LNS (NODAL LEVEL(S) INVOLVED: LEVEL VI, RT AND LT LATERAL NECK, A SINGLE LT AXILLARY). ENE PRESENT, LGEST MET DEPOSIT 5.9CM.

PATH STAGING: PT4A, PN1B

> *Note on path report from pathologist: Axillary lymph node metastasis from papillary thyroid carcinoma is unusual and the mechanism is somewhat controversial. Some experts would consider this pM1 disease, whereas others have postulated it results from obstruction of lymphatic channels by tumor resulting in retrograde flow along the transverse cervical lymph nodes in the supraclavicular region ultimately culminating in axillary lymph node metastasis, more akin to pN1b disease.*

THE ENTIRE GLAND IS INFILTRATED BY PTC W/ MULTIPLE FOCI OF LYMPHATIC AND VASCULAR INVASION. TUMOR HAS AREAS OF NECROSIS AND ELEVATED MITOTIC ACTIVITY MEETING CRITERIA FOR DIFFERENTIATED HI-GRD THYROID CARCINOMA.

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CASE STUDY 2

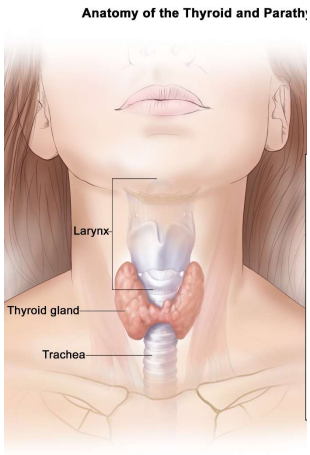
MED ONC NOTES:
SENT HOME WITH INSTRUCTIONS TO TAKE LEVOTHYROXINE DAILY IN AM

3/25/24 RECEIVED 205MCI OF I-131
SUBSEQUENT SPECT I-131 IMAGING. FAINT UPTAKE IN LEFT FOSSA. INCREASED UPTAKE IN RT SUBSTERNAL NODULE.

6/5/24 CT CAP:PROG OF MEDIASTINAL AND LT HILAR ADENOPATHY.
- LUNG NODULES MIN INCREASE/ STABLE.
- NEW 1.1CM GG NODULE LT LL NECK BASE ADENOPATHY INCREASED. T1 LESION CONCERNING MET.
- RT LAT RIB FRACTURE, LIKELY PATH.
- INDETERM RT LIVER LOBE HYPODENSITY. PELVIC OSSEOUS MET DZ.

7/14/24 CT NECK: MET LAD IN BILAT SUPRACLAV, LT>RT. INCR'D MEDIASTINAL ADENOPATHY. OSSEOUS MET DZ T-SPINE, UPPER STERNUM, LT LAT SKULL BASE AND MASTOID CELLS

7/21/24 INIT PALLIATIVE LENVATINIB PO DAILY.



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Fabulous Prizes

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Coming UP…

- Life in a CoC Accredited Facility in 2024
  - Jennie Jones, MSHI-HA, CHDA, CTR
  - Kim Rodriguez, CPH, RHIT, CTR
- CNS
  - Carol Kruchko, BA
  - Jennifer Ruhl, RHIT, CCS, CTR

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CE Certificate Quiz/Survey

CE Phrase

- *Endocrine*

Link

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