Thyroid Cancer: What Family Physicians Need to Know When Caring for Their Patients

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ENDOCRINOLOGY AND METABOLISM

MY BACKGROUND

- Work at BCCA Surrey, half days every Monday providing ongoing Thyroid Cancer Care and seeing patients with Endocrine complications of Oncologic therapy
- General Endocrinology clinic at Trio Medical in Surrey with interest in Endocrine Hypertension, Pituitary Disorders, Thyroid Disorders and Transgender Care
- Diabetes and Pregnancy Clinics at Jim Pattison Outpatient Centre and Abbotsford Regional Hospital

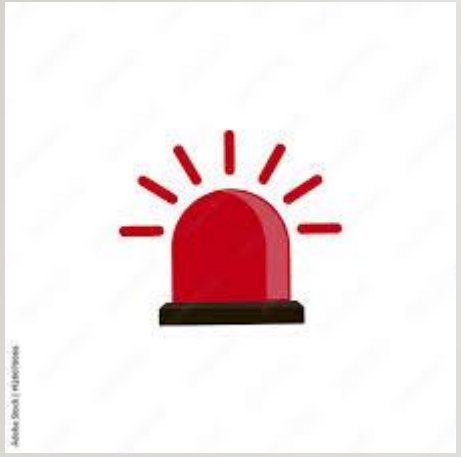
LEARNING OBJECTIVES

- Describe an approach to a thyroid nodule
- Cite the diagnostic process
- Summarize post-thyroid cancer treatment surveillance recommendations.
- Describe the primary care practitioner's role in TSH monitoring and management with thyroid suppressive medication.

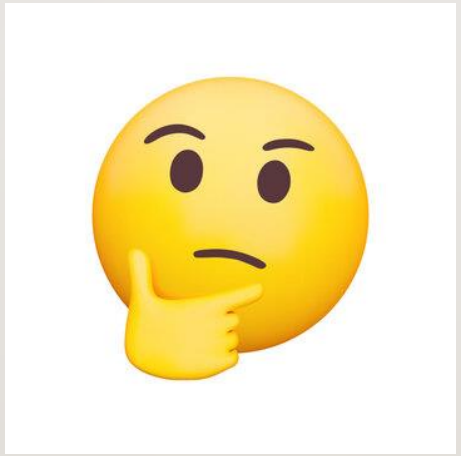
DISCLOSURES

- None

SYMBOLS YOU MAY SEE



Very Important Slide



Interesting/Controversial

Question

BACKGROUND

- Thyroid Cancer is a very common cancer, increasing in incidence
  - Increase incidence driven by early detection and increase in diagnosis
  - Mortality remains unchanged
- Traditional Presentation:
  - Palpable lump, slowly growing, self palpated
  - Incidental finding in the context of head or neck imaging
  - Local compressive symptoms *less common*

CASE BASED APPROACH

- 55 yo female presents to clinic with ongoing neck fullness. Family has noted larger neck. Taking no medications, no supplements. No prior medical history. No allergies.
- What further questions do you want to ask?

WHAT OTHER QUESTIONS WOULD YOU LIKE TO ELICIT FROM THE HISTORY?

A. Any previous history of head or neck radiation

B. Any previous nuclear fallout exposure

C. Any family history of thyroid cancer

D. Any dysphagia, shortness of breath or change to voice

E. Any symptoms of hyper or hypothyroidism?

F. All of the Above

ANSWER: F: ALL OF THE ABOVE

CASE BASED APPROACH

- Further history delineates: No risk factors noted. No family history and no symptoms of hyperthyroidism or hypothyroidism.
- Patient sent for the following:
  - Thyroid Function tests and Thyroid Ultrasound.
- TSH: 1.95 mU/L
- Thyroid Ultrasound shows:…

THYROID ULTRASOUND

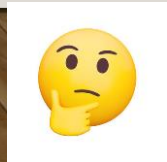
- Right Thyroid Lobe is 5.3 x 2 x 2.4 cm.
- **Dominant heterogonous mixed cystic solid nodule in the interpolar region of the right lobe measuring 3.5 cm cranial caudal by 2.2 cm and transverse by 1.7 cm**.
- Multiple cystic areas and small tiny punctate echogenic foci.
- Left Thyroid Lobe appears normal.
- Impression: Recommend FNA biopsy

BEFORE WE GET TO THE ULTRASOUND, WHY IS TSH IMPORTANT?

- What if the TSH is <0.01?
  - Functional lesion needs to be ruled out. (IE: Autonomous nodule, multimodular goitre or Graves Disease with autonomous nodule)
  - This is a case where a 1123 Thyroid Uptake and Scan is indicated.
  - Need to normalize TSH prior to reassessing/reestablishing risk of thyroid nodule.
- What if the TSH is 100?
  - Need to treat to normalize TSH
  - Then reassess with neck ultrasound to reassess risk of thyroid nodule.

WHAT IS THE RISK OF MALIGNANCY IN A HYPERTHYROID NODULE?

- Hyperfunctioning nodules historically were rarely malignant.
  - Based on studies conducted in the 1960s to 1980s
  - Rates reported as low as 0.34%
- Current recommendations are that hyperfunctioning nodules be excluded from malignancy risk stratification.
- Recent studies question that number and it may be higher



Malignancy risk of hyperfunctioning thyroid nodules compared with non-toxic nodules: systematic review and a meta-analysis

Lorraine W Lau [1 2], Sana Ghaznavi [1 2], Alexandra D Frolkis [1], Alexandra Stephenson [3], Helen Lee Robertson [4], Doreen M Rabi [2 5], Ralf Paschke [6 7 8]

MAIN TAKEAWAYS

- 1. Hyperfunctioning nodules malignancy risk varies between 0.34 to 44% among patients undergoing thyroid surgery (Selection Bias)
- 2. Malignancy odds in hyperfunctioning nodules are **reduced by 49–62%** compared to non-toxic nodules
- 3. However, **reported incidence** in this meta-analysis was **higher than expected as it was upto 44%.**

MY TAKEAWAYS

- Hyperfunctioning thyroid nodules are **NOT as low risk** as we thought in the past, **ongoing surveillance is still needed.**
- Treat biochemical hyperthyroid status to euthyroid
- Continue ongoing risk stratification of thyroid nodules with ultrasound once euthyroid and as much as possible, **ONLY FNA thyroid nodules that are nonfunctioning.**
- Further studies needed

WHAT CHARACTERISTICS MAKE UP THE TIRADS SCORE?

A. COMPOSITION, ECHOGENICITY, MARGINS AND ECHOGENIC FOCI

B. COMPOSITION, ECHOGENICITY, SHAPE, MARGINS AND ECHOGENIC FOCI

C. COMPOSITION, ECHOGENICITY, SHAPE, MARGINS, INVASION AND ECHOGENIC FOCI

D. COMPOSITION, ECHOGENICITY, MARGINS, INVASION AND ECHOGENIC FOCI

ANSWER: B: COMPOSITION, ECHOGENICITY, SHAPE, MARGINS AND ECHOGENIC FOCI

COMPOSITION (choose 1)	
cystic or almost completely cystic	0 points
spongiform	0 points
mixed cystic and solid	1 point
solid or almost completely solid	2 points

ECHOGENICITY (choose 1)	
anechoic	0 points
hyperechoic or isoechoic	1 point
hypoechoic	2 points
very hypoechoic	3 points

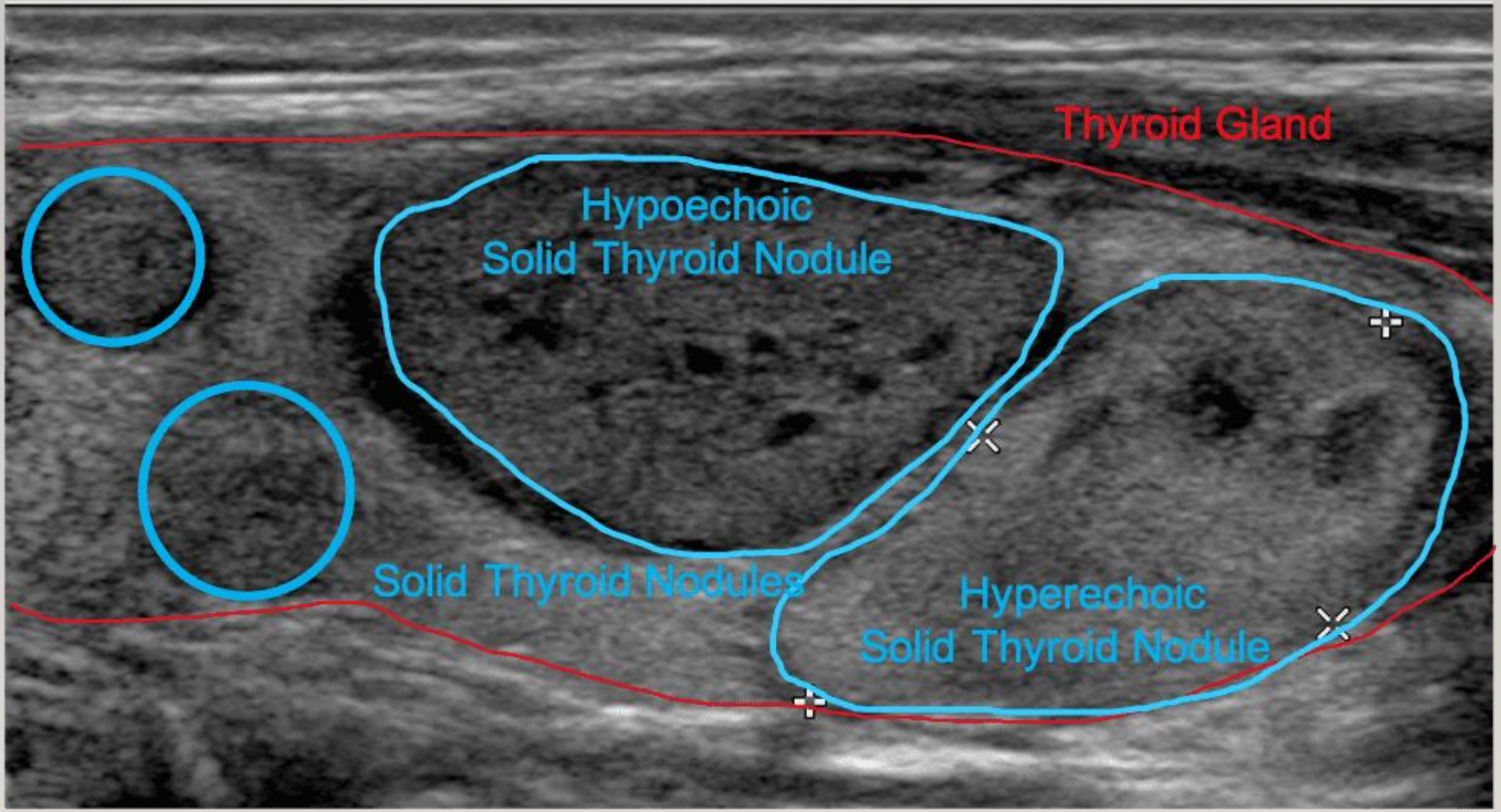
SHAPE (choose 1)	
wider than tall	0 points
taller than wide	3 points

MARGIN (choose 1)	
smooth	0 points
ill-defined	0 points
lobulated/ irregular	2 points
extra-thyroidal extension (ETE)	3 points

ECHOGENIC FOCI (choose all that apply)	
none or large comet tail artefact	0 points
macro-calcifications	1 point
peripheral/rim calcifications	2 points
punctate echogenic foci	3 points

summation of points from each column to determine TI-RADS grade

Source: ACR White Paper 2017


Thyroid Gland
Hypoechoic
Solid Thyroid Nodule
Solid Thyroid Nodules
Hyperechoic
Solid Thyroid Nodule

BEYOND TIRADS BEWARE OF THE FOLLOWING FEATURES

1. Microcalcifications
2. Irregular margins
3. Taller-than-wide configuration
4. Hypoechoic Nodules

summation of points from each column to determine TI-RADS grade

0 points	2 points	3 points	4-6 points	≥7 points
TR1 benign	TR2 not suspicious	TR3 mildly suspicious	TR4 moderately suspicious	TR5 highly suspicious

Source: ACR White Paper 2017

TIRADS RISK OF MALIGNANCY

- **TR1**: 0.3%
- **TR2**: 1.5%
- **TR3**: 4.8%
- **TR4**: 9.1%
- **TR5**: 35%
- Important to note that the above risks from the initial paper, since then papers looking at TIRADS, Bethesda pathology and Surgical pathology have been concordant with above, showing TIRADS 5 may have a malignancy risk as high as 90%

0 points	2 points	3 points	4-6 points	≥7 points
TR1 benign	TR2 not suspicious	TR3 mildly suspicious	TR4 moderately suspicious	TR5 highly suspicious
no FNA	no FNA	≥ 1.5 cm follow up ≥ 2.5 cm FNA	≥ 1.0 cm follow up ≥ 1.5 cm FNA	≥ 0.5 cm follow up ≥ 1.0 cm FNA

Source: ACR White Paper 2017

TIRADS FOLLOW UP

- **TR1**: no FNA required
- **TR2**: no FNA required
- **TR3**: ≥1.5 cm follow up, ≥2.5 cm FNA
  - follow up: 1, 3 and 5 years
- **TR4**: ≥1.0 cm follow up, ≥1.5 cm FNA
  - follow up: 1, 2, 3 and 5 years
- **TR5**: ≥0.5 cm follow up, ≥1.0 cm FNA
  - annual follow up for up to 5 years

BACK TO OUR PATIENT

- Dominant heterogonous **mixed cystic solid nodule** in the interpolar region of the right lobe measuring 3.5 cm cranial caudal by 2.2 cm and transverse by 1.7 cm. Multiple cystic areas and small tiny **punctate echogenic foci.**
  - **Mixed cystic solid (1)**
  - Punctate echogenic foci (3)
- **TIRADS 4**

PATIENT ASKS: WHAT COULD BE THE POTENTIAL RESULTS OF THE FNA?

- Bethesda1: Non diagnostic or unsatisfactory
- Bethesda 2: Benign
- Bethesda 3: Atypia of Undetermined significance or follicular lesion of undetermined significance (AUS or FLUS)
- Bethesda 4: Follicular Neoplasm or suspicious for a follicular neoplasm
- Bethesda 5: Suspicious for malignancy
- Bethesda 6: Malignant

WHAT ARE THE MALIGNANCY RISKS WITH EACH FNA RESULTS?

Bethesda Category	Risk of Malignancy
1. Non-Diagnostic	5-10%
2. Benign	0-3%
3. FLUS AUS	10-30%
4. Follicular Neoplasm or suspicious for a follicular neoplasm	25-40%
5. Suspicious for Malignancy	50-75%
6. Malignant	97-99%

WHAT DO YOU DO WITH AUS/FLUS NODULES?

A. Refer to Surgery for lobectomy

B. Monitor with Ultrasound at 6-12 month intervals

C. Repeat FNA in 3 months +/- BRAF testing

D. Reassure the patient no follow up needed

ANSWER: C: REPEAT FNA IN 3 MONTHS +/- BRAF TESTING

LET'S DIVE INTO THE UNKNOWN..

- Non-Diagnostic Nodules
  - American Thyroid Association (ATA) Recommends repeat FNA.
  - Higher risk for non diagnostic in cystic aspirates
  - Non diagnostic nodules with microcalifications carry a higher risk for malignancy
- FLUS Nodules
  - ATA recommends repeat FNA +/- BRAF mutation
  - BRAF Mutation higher likelihood of malignancy with FLUS, but lesser percentage of FLUS nodules are BRAF positive
- AUS Nodules
  - ATA recommends repeat FNA +/- BRAF mutation
  - 98.9% cancer probability for AUS cases with BRAF mutation.

FNA RESULTS

NON DIANGOSTIC

Repeat FNA in 3-6 months

Repeat Non diagnostic: consider monitoring versus repeat FNA

If it is any of the other follow from start again

BENIGN

Monitor as per TIRADS Guidelines

AUS/FLUS

Repeat FNA +/-BRAF mutation in 3 months

AUS/FLUS X2: HEMITHYROIDECTOMY, REFERRAL TO SURGEON

FOLLICULAR NEOPLASM

Refer to Surgery (Hemithyroidectomy or Total Thyroidectomy)

SUSPICIUS FOR MALIGNANCY

Refer to Surgery (Hemithyroidectomy or Total Thyroidectomy)

MALIGNANT

Refer to Surgery (Hemithyroidectomy or Total Thyroidectomy)

BRAF MUTATION

- Results in higher cellular proliferation, inhibition of differentiation and apoptosis. This causes a loss of cell cycle.
- Some studies suggest: faster rate of growth, spread and a higher risk of death
- Most present in Papillary Thyroid Carcinomas (PTC). Most thyroid cancer are PTC
- Not readily available in BC
  - Can be requested through Thyroid Cancer Rounds currently and special request.

WHEN TO RE-FNA?

- Repeat FNA
  - Increase in size in a minimum of two dimensions (over 20%) on follow-up ultrasounds

  OR

  - Increase in nodule volume (over 50%)

BACK TO OUR PATIENT

- Scattered regular follicular cell groups are present amongst a background of blood, inflammatory cells, and macrophages. Cellular crowding. Few small mildly disorganized follicular cell groups with **slightly enlarged irregular nuclei are present**. A few nuclear grooves are noted but there is no intranuclear cytoplasmic inclusion or papillation. No dense colloid nodes. Best categorized as **atypia of undetermined significance.**

BACK TO OUR PATIENT

- Repeat FNA 3 months later shows AUS again
- Reviewed with patient ongoing malignancy risk with AUS thyroid nodules, recommended consultation with surgeon to review for hemithyroidectomy versus total thyroidectomy.
- Patient agreed and had a hemithyroidectomy.
- Final Pathology?

FINAL PATHOLOGY

- Unifocal minimally invasive follicular carcinoma with capsular invasion, pT2
  - tumour size: 2.6 cm
  - mitotic rate: less than 3 mitoses per 2 mm squared
  - tumour necrosis: not identified
  - angioinvasion: not identified
  - Lymphovascular invasion: not identified
  - extrathyroidal extension: not identified
  - margin status: all margins negative for carcinoma
  - regional lymph nodes: none submitted or found

WHAT IS NEXT?

A. Refer to Surgery for completion thyroidectomy

B. Refer to BC Cancer for Thyroid Cancer Care rounds for decision

C. Reassure patient and order TSH

D. Arrange a I123 Thyroid Uptake and Scan

ANSWER: B. REFER TO BC CANCER FOR THYROID CANCER CARE ROUNDS FOR DECISION

ADVISED TO FOLLOW UP WITH FAMILY DOCTOR NO RAI OR COMPLETION RECOMMENDED

WHAT'S NEXT?

THYROID CANCER FOLLOW UP

- For this talk we will stick with Differentiated Thyroid Cancers and a small note on Medullary Thyroid Cancer.
- Well Differentiated Thyroid Cancers (DTC) fall into the following:
  - Papillary Thyroid Carcinoma (PTC)
    - Tall Cell Variant
    - Follicular Variant
  - Follicular Thyroid Carcinoma (FTC)
    - Widely Invasive
  - Hurthle Cell
- Medullary Thyroid Cancer (MTC)
  - Arise for C-Cell so the thyroid may be considered a neuroendocrine tumour
  - Can be associated with Multiple Endocrine Neoplasia (MEN)

WHAT FACTORS FAVOUR LOBECTOMY?

A. Tumour< 4 cm, no evidence of gross extra-thyroidal extension/invasion , no clinical evidence of associated lymph node metastasis or distant mets and no suspicious lesions in other thyroid bed

B. Tumour< 4 cm, no evidence of gross extra-thyroidal extension/invasion and no clinical evidence of associated lymph node metastasis

C. Tumour< 4 cm and no evidence of gross extra-thyroidal extension/invasion

D. Tumour <4cm

ANSWER A.

- Tumour< 4 cm, no evidence of gross extra-thyroidal extension/invasion , no clinical evidence of associated lymph node metastasis or distant mets, no suspicious lesions in other thyroid bed

1. EXTENT OF SURGERY

- Thyroid Cancer Factors:
  - Tumour< 4 cm, no evidence of gross extra-thyroidal extension/invasion , no clinical evidence of associated lymph node metastasis or distant mets, no suspicious lesions in other thyroid bed
- Patient Factors:
  - 1. Lifelong thyroid cancer surveillance will be required regardless of the extent of the initial operation
  - 2. Increased risk of recurrence after lobectomy versus total thyroidectomy, mortality risk is similar.
  - 3. Potential of requiring levothyroxine regardless of the extent of surgery
  - 4. Completion of thyroid lobectomy MAY STILL be recommended if the final pathology reveals features higher or intermediate risk factors (IE: higher risk pathology)

BACK TO OUR PATIENT

- Less than 4 cm
- No clinical evidence of metastasis
- No evidence of gross extension
- No distant mets
- Patient desired least invasive procedure

Definition of Primary Tumor (T)

For Papillary, Follicular, Poorly differentiated, Hurthle cell and Anaplastic Thyroid Carcinoma

T Category	*T Criteria*
TX	Primary tumor cannot be assessed
T0	No evidence of primary tumor
T1	Tumor ≤ 2 cm in greatest dimension limited to the thyroid
T1a	Tumor ≤ 1 cm in greatest dimension limited to the thyroid
T1b	Tumor > 1 cm but ≤ 2 cm in greatest dimension, limited to the thyroid
T2	Tumor > 2 cm but ≤ 4 cm in greatest dimension limited to the thyroid
T3*	Tumor > 4cm limited to the thyroid, or gross extrathyroidal extension invading only strap muscles
T3a*	Tumor > 4 cm limited to the thyroid
T3b*	Gross extrathyroidal extension invading only strap muscles (sternohyoid, sternothyroid, thyrohyoid, or omohyoid muscles) from a tumor of any size
T4	Includes gross extrathyroidal extension into major neck structures
T4a	Gross extrathyroidal extension invading subcutaneous soft tissues, larynx, trachea, esophagus, or recurrent laryngeal nerve from a tumor of any size
T4b	Gross extrathyroidal extension invading prevertebral fascia or encasing carotid artery or mediastinal vessels from a tumor of any size
Note: All categories may be subdivided: (s) solitary tumor and (m) multifocal tumor (the largest tumor determines the classification).	

Definition of Regional Lymph Node (N)

N Category	*N Criteria*
NX	Regional lymph nodes cannot be assessed
N0	No evidence of regional lymph nodes metastasis
N0a*	One or more cytological or histologically confirmed benign lymph node
N0b*	No radiologic or clinical evidence of locoregional lymph node metastasis
N1*	Metastasis to regional nodes
N1a*	Metastasis to level VI or VII (pretracheal, paratracheal, or prelaryngeal/Delphian or upper mediastinal) lymph nodes. This can be unilateral or bilateral disease.
N1b*	Metastasis to unilateral, bilateral, or contralateral lateral neck lymph nodes (Levels I, II, III, IV, or V) or retropharyngeal lymph nodes

Definition of Distant Metastasis (M)

M Category	*M Criteria*
M0	No distant metastasis
M1	Distant metastasis

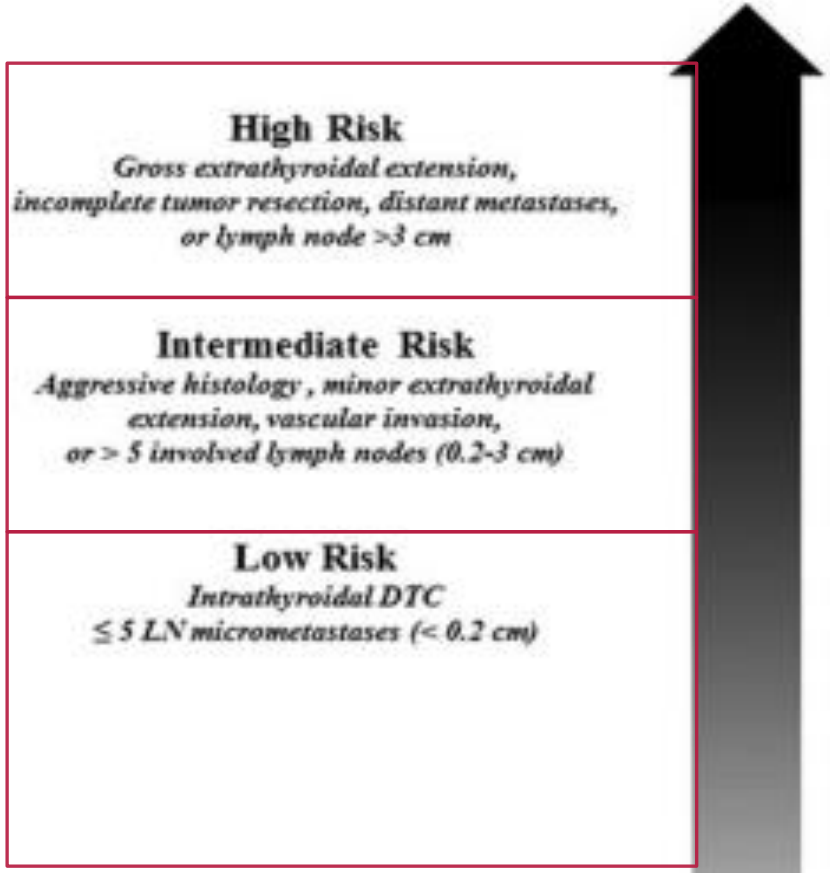
FIG. 1. Eighth edition definitions for primary tumor (T), lymph node status (N), and distant metastasis (M). Changes from the seventh edition are marked with an asterisk (see text for descriptions).

2. STAGING

- Our Patient:
  - pT2 Nx M0

Risk of Structural Disease Recurrence

(In patients without structurally identifiable disease after initial therapy)



- FTC, extensive vascular invasion (≈ 30-55%)
- pT4a gross ETE (≈ 30-40%)
- pN1 with extranodal extension, >3 LN involved (≈ 40%)
- PTC, > 1 cm, TERT mutated ± BRAF mutated* (>40%)
- pN1, any LN > 3 cm (≈ 30%)
- PTC, extrathyroidal, BRAF mutated*(≈ 10-40%)
- PTC, vascular invasion (≈ 15-30%)
- Clinical N1 (≈20%)
- pN1, > 5 LN involved (≈20%)
- Intrathyroidal PTC, < 4 cm, BRAF mutated* (≈10%)
- pT3 minor ETE (≈ 3-8%)
- pN1, all LN < 0.2 cm (≈5%)
- pN1, ≤ 5 LN involved (≈5%)
- Intrathyroidal PTC, 2-4 cm (≈ 5%)
- Multifocal PTMC (≈ 4-6%)
- pN1 without extranodal extension, ≤ 3 LN involved (2%)
- Minimally invasive FTC (≈ 2-3%)
- Intrathyroidal, < 4 cm, BRAF wild type* (≈ 1-2%)
- Intrathyroidal unifocal PTMC, BRAF mutated*, (≈ 1-2%)
- Intrathyroidal, encapsulated, FV-PTC (≈ 1-2%)
- Unifocal PTMC (≈ 1-2%)

3. RISK STRATIFICATION FOR RAI

Intermediate Risk	High Risk
Aggressive PTC histology	Distant metastases
>5 lymph nodes	Gross ETE into trachea, esophagus etc
Clinical adenopathy	Lymph node >3 cm
PTC with vascular invasion	FTC with extensive vascular invasion

4. RADIOACTIVE IODINE (BRIEF SUMMARY)

- Low Risk DTC
  - 30 mCi not routinely done, can be monitored with TG and Neck Ultrasound. 30 mCi can be done to aid in long term follow up
  - NO RAI in LOBECTOMY
- Intermediate Risk DTC
  - RAI is considered 30-150 mCi
- High Risk DTC
  - RAI is considered at dose of 100-200 mCi

5. POST INITIAL TREATMENT FOLLOW UP

- Post initial treatment recommend initial Thyroglobulin with Thyroglobulin AB
  - Non stimulated Thyroglobulin should suffice (Some centres still do stimulated Thyroglobulin)
- Neck Ultrasound
- Diagnostic Whole Body Scan
  - Reserved for High risk and at times Intermediate Risk

WHAT ARE THE RESPONSES?

RESPONSE TO THERAPY	DEFINITION
Excellent Response	No clinical, biochemical (non-stimulated Thyroglobulin <0.2) or structural evidence of disease (negative imaging)
Biochemically Incomplete Response	Negative imaging and Thyroglobulin >1 or Negative imaging and rising Thyroglobulin AB
Structurally Incomplete Response	Structural evidence of disease at any level of Thyroglobulin
Indeterminate Response	Nonspecific imaging findings and Thyroglobulin is <1 but >0.2 or Thyroglobulin AB is stable or declining, but no structural disease

WHAT ARE THE INITIAL TSH TARGETS?

- ATA LOW RISK (INITIAL TARGETS)
  - TSH: 0.5-2.0 (LOBECTOMY)
  - Indeterminate or Incomplete Response: INITIAL TSH TARGET: 0.1-0.5
- ATA INTERMEDIATE RISK (INITIAL TARGETS)
  - TSH: 0.1-0.5
- ATA HIGH RISK (INITIAL TARGETS)
  - TSH: <0.1

WHAT ARE THE ONGOING TSH TARGETS

- Excellent Response or Indeterminate Response for Low-Risk Disease or Patients who underwent Total Thyroidectomy with NO RAI or Lobectomy
  - Target TSH: 0.5-2 ongoing, continue to re evaluate
- Excellent Response or Indeterminate Response for High-Risk Disease
  - Target TSH: 0.1-0.5 for 5 years, continue to reevaluate
- Biochemically Incomplete Response:
  - Target TSH: 0.1-0.5, continue to re evaluate
- Structurally Incomplete Response:
  - Target TSH: <0.1 indefinitely, unless if contraindications, continue to re evaluate

LEVOTHYROXINE DOSING

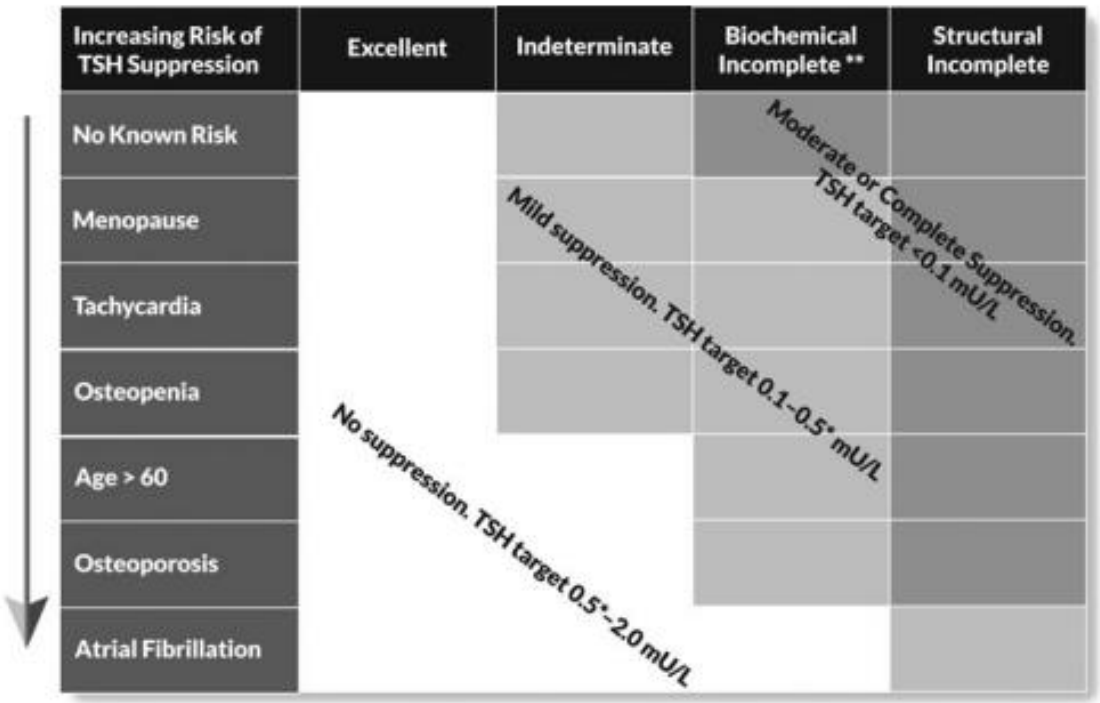
Levothyroxine is the cornerstone of therapy, starting at 1.6-2.0 mcg/kg/day depending upon degree of TSH suppression

Ensure patient taking adequately:

Morning empty stomach, wait at least 30 mins before eating

No calcium or iron supplement for at least 4 hours after

TABLE 15. THYROTROPIN TARGETS FOR LONG-TERM THYROID HORMONE THERAPY



* 0.5 mU/L represents the lower limit of the reference range for the TSH assay which can be 0.3–0.5 mU/L depending on the specific assay

** TSH target for patients with a biochemical incomplete response can be quite different based on original ATA risk, Tg level, Tg trend over time and risk of TSH suppression

No suppression. TSH target 0.5*–2.0 mU/L

Mild suppression. TSH target 0.1–0.5* mU/L

Moderate or Complete suppression. TSH target <0.1 mU/L

THYROID FUNCTION TESTS

- Changes in Synthroid dose can take upto 6-8 weeks to show in TSH
  - Thus, this may lag behind and is a better marker of long-term control
- Changes to Free T4 can be seen within 2-3 weeks
  - Good to monitor at short intervals if needed
- Changes to Free T3 can be seen within 1-2 weeks
  - Good to monitor very closely for initial response to therapy in severely hypothyroid or hyperthyroid patients in hospital (once a week at times)
- Recall that Thyroglobulin Stimulation for Thyroid Cancer treatment is meant to have a high TSH

THYROGLOBULIN (TG)

- Tg, protein produced stored and secreted from thyroid follicular cells.
- Produced by DTC
- Prior to a total thyroidectomy TG measures cannot determine the presence, absence or bulk of thyroid cancer (malignant and benign thyroid cells produce it). **NO ROLE for pre-operative TG**
- Most Common Problem: Tg AB
  - Present in 20-30% of patients with DTC
  - Mass Spec assays at SPH can help look for true TG elevation. Would still be concerned in TG AB is rising.

THYROGLOBULIN

- Some cancer may or may become less differentiated and less able to synthesise Tg at all. Low Tg levels may be misleading
- Tg levels may not follow clear trends, especially at lower levels, thus small increases or decreased may not be concordant to disease activity.
- Non-Thyroid Cancer Use (**WITH INTACT THYROID**)
  - Investigation of hyperthyroid patient in whom there is suspicion of exogenous thyroid hormone intake.
  - In actual thyroid disease related hyperthyroidism, the Tg will often be high
  - If Tg is low despite hyperthyroid status, suggests exogenous use.

POST TREATMENT SURVEILLANCE

- Total Thyroidectomy+/- RAI (Excellent Response or Indeterminate Response to Low-Risk Disease)
  - Annual TSH with Thyroglobulin and Thyroglobulin AB with initial Neck Ultrasound and one at 2-5 year mark.
  - No need for routine neck ultrasound imaging, yearly clinical exam suffices.
  - Decrease frequency after 5 years. Can liberalize TSH target to normal reference range based upon emerging evidence
- Lobectomy (Excellent Response)
  - Can do baseline Thyroglobulin and Thyroglobulin AB** (the exact target level is controversial, data set in lobectomy show levels ranging from 10-50 post lobectomy, some data shows no correlation to recurrence risk. Interpret with caution
  - TSH at 12 month intervals
  - Yearly Neck Ultrasound (can be decreased to 2-5 year intervals as per newer evidence). If contralateral nodules follow TIRADS guidelines

POST TREATMENT SURVEILLANCE

- Total Thyroidectomy +/- RAI (Structurally incomplete response)
  - TSH AT 3-6-month intervals with imaging (Neck US or CT) at 6-12-month intervals
  - Tg and Tg AB at 6-12-month intervals
  - Imaging may be sooner depending upon extent of disease, treatment and risk of pathology
- Total Thyroidectomy+/- RAI (Biochemically indeterminate response)
  - TSH AT 3–6-month intervals with imaging (Neck) at 12-month intervals
  - Tg and Tg AB at 6–12-month intervals
  - Intervals may change depending upon extent of disease, treatment and risk of pathology

NEW THINGS UPCOMING

1. Follow-Up for Low Recurrence Risk Thyroid Cancer Patients in Canada: A Consensus Statement (2025 or 2026)

2. ATA Differentiated Thyroid Cancer Guidelines (2025 or 2026)

THANK YOU

REFERENCES

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