Reporting Thyroid Nodules Quality Improvement

Body Division Rounds- October 15, 2018

Schulich MEDICINE & DENTISTRY

London Health Sciences Centre
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St. Joseph's Health Care London

Western

The Ultrasound Report

Evaluate background thyroid parenchyma
- homogeneous or heterogeneous

Provide size of thyroid gland

Nodule Characteristics (for all nodules*):
- Size in 3-dimensions
- Location
  - Right vs Left vs Isthmus
  - Upper, Mid, or Lower pole
- Sonographic characteristics of the nodule
  - Composition – solid, cystic, mixed solid and cystic, or spongiform
  - Echogenicity – Hyper, iso, or hypoechoic
  - Margins – Well-defined, ill-defined, irregular, or
  - Presence and type of calcifications
  - Shape – taller than wide
- Risk classification
- Recommendation
  - Do nothing, follow with US, or FNA

Report #1

FINDINGS:

In the right lobe, there is avascular hyperechoic nodule in the lower pole measuring 2.1 x 1.9 x 1.4 cm. There is also a heterogeneous nodule in the midpole laterally measuring 0.6 cm.

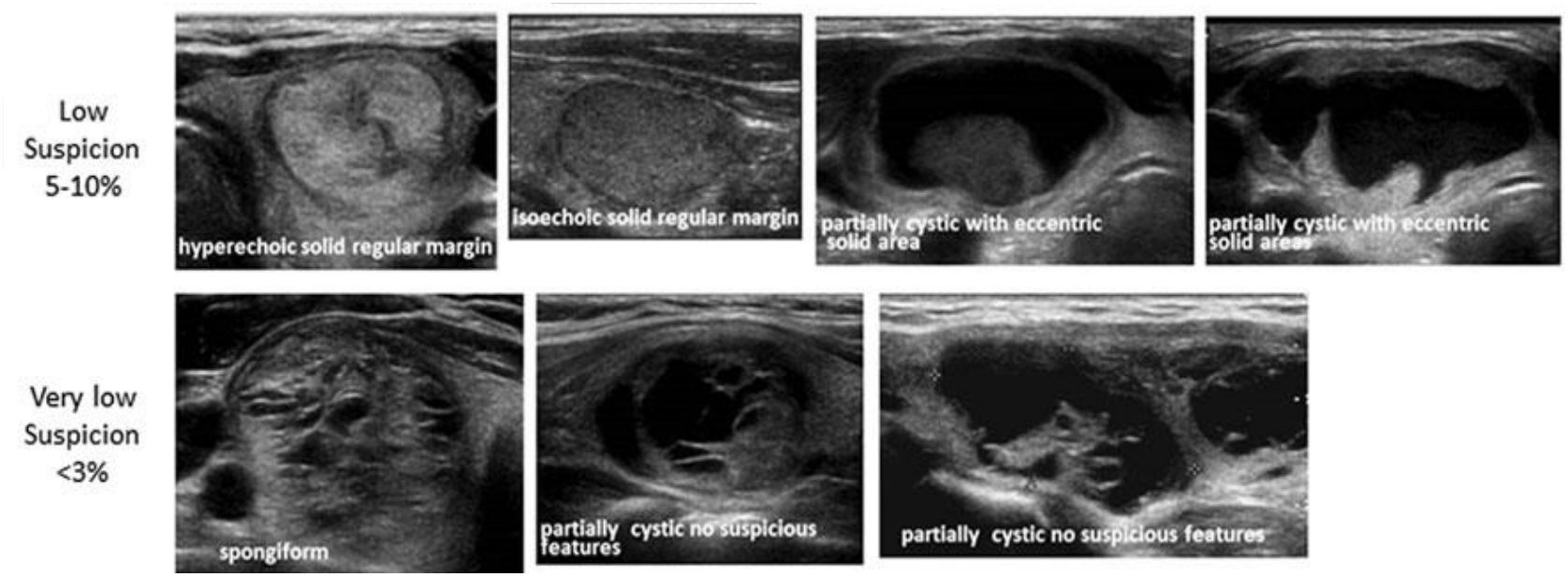
In the left lobe there is a heterogeneous midpole nodule measuring 1.0 cm.

IMPRESSION:

Bilateral thyroid nodules with measurements above.

Sonographic characteristics of the nodule

- **Composition – solid, cystic, mixed solid and cystic, or spongiform**
- **Echogenicity – Hyper, iso, or hypoechoic**
- **Margins – Well-defined, ill-defined, irregular, or**
- **Presence and type of calcifications**
- **Shape – taller than wide**



On the right, there is a heterogeneous **part solid/cystic nodule** in the upper pole measuring 1.2 x 0.8 x 0.9 cm with no microcalcifications identified. At the upper/midpole level on the right, there is a heterogeneous part **solid/cystic nodule** measuring 1.4 x 1.2 x 1.1 cm with a similar appearing nodule at the midpole level measuring 1.3 x 1.1 x 1.1 cm. No microcalcifications are identified.

On the left, there is a heterogeneous **part solid/cystic nodule** in the upper pole measuring 1.5 x 1.1 x 0.8 cm with no microcalcifications identified.

No cervical lymphadenopathy.

Report # 3

Irregular and Lobulated margins are high-risk features!

FINDINGS:

The right lobe measures 6.5 cm x 3.7 cm x 2.9 cm. The left lobe measures 4.8 cm x 2.3 cm x 2.0 cm. There are several nodules noted in both lobes of the thyroid gland. The dominant nodule is in the midpole on the right and measures 3.2 cm x 2.5 cm x 1.4 cm. This is predominantly **solid**, heterogeneous and mildly **hypoechoic**. The **margins** are slightly *lobulated*. **No internal microcalcifications** are seen. Mild internal vascularity is noted. There is **no concerning lymphadenopathy** in the neck.

IMPRESSION:

Several bilateral thyroid nodules. **Recommend FNA** of the dominant nodule in the midpole on the right. The remainder of the thyroid nodules can be followed up with follow-up thyroid ultrasound in 1year.

Report # 4

Thyroid ultrasound.
Reference is made to ultrasound from February 11, 2016.

FINDINGS:
Thyroid lobes are normal in size. Mildly heterogeneous echo-pattern of the thyroid parenchyma bilaterally. Normal vascularity on Doppler interrogation.

There is a well-circumscribed solid echogenic nodule in the left mid hemi thyroid measuring 1.6 x 1.4 x 1 cm previously measuring 1.4 x 1.1 x 1 cm.

Previously visualized subcentimeter thyroid nodules elsewhere are not evident on the current scan.

IMPRESSION:
Dominant echogenic nodule has demonstrated **interval increase in size** from prior ultrasound.

Growth = increase in size of 20% in 2 dimenstions

The Ultrasound Report

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Provide size of thyroid gland

Nodule Characteristics (for all nodules*):
- Size in 3-dimensions
- Location
  - Right vs Left vs Isthmus
  - Upper, Mid, or Lower pole
- Sonographic characteristics of the nodule
  - Composition – solid, cystic, mixed solid and cystic, or spongiform
  - Echogenicity – Hyper, iso, or hypoechoic
  - Margins – Well-defined, ill-defined, irregular, or
  - Presence and type of calcifications
  - Shape – taller than wide
- Risk classification
- Recommendation
  - Do nothing, follow with US, or FNA

THYROID ULTRASOUND SYNOPTIC REPORT

CLINICAL HISTORY:
COMPARISON:
FINDINGS:
The right thyroid lobe measures [] cm. The left thyroid lobe measures [] cm.
The following nodules are identified (*In the case of multiple thyroid nodules, only those which are ≥1 cm or have a high suspicion appearance will be listed):

1.
Location: []
Size: [] cm
Composition: []. (solid, cystic, complex cyst, spongiform)
Echogenicity: []. (hypoechoic, isoechoic, hyperechoic)
Margins: []. (regular, irregular, illdefined, extra-thyroidal extension)
Calcifications: []. (none, microcalcifications, macracalcifications, rim calcification)
Taller than wide: []. (no, yes)
Sonographic Pattern: []. (benign, very low suspicion, low suspicion, intermediate suspicion, high suspicion)

IMPRESSION:

Recommendations From ATA Criteria 2015:
Thyroid nodule diagnostic FNA is recommended for:
High suspicion sonographic pattern > 1cm in greatest dimension
Intermediate suspicion sonographic pattern > 1cm in greatest dimension
Low suspicion sonographic pattern > 1.5cm in greatest dimension
Very low suspicion sonographic pattern: FNA or observation is reasonable for nodules > 2cm

THYROID ULTRASOUND

CLINICAL HISTORY: reassess thyroid nodule for growth book sept 2018

COMPARISON: Ultrasound from September 6, 2017.

FINDINGS:

The right thyroid lobe measures 5.7 x 2.0 x 2.3 cm. The left thyroid lobe measures 5.6 x 2.3 x 2.1cm.

The following nodules are identified (only those greater then 1 cm or have high suspicion features will be listed):

1.

- Location: Posterior midpole of the right thyroid lobe
- Size: 1.1 x 0.8 x 0.6 cm (previously 1.0 x 0.8 x 0.5 cm
- Composition: Appears predominately solid with small internal cystic areas. I question whether this is actually a spongiform nodule.
- Echogenicity: Hypoechoic
- Margins: Regular, well-defined
- Calcifications: None
- Taller than wide?: No
- Sonographic Pattern: Intermediate suspicion (10-20% risk of malignancy), however this may in fact represent a spongiform/very low suspicion nodule
-

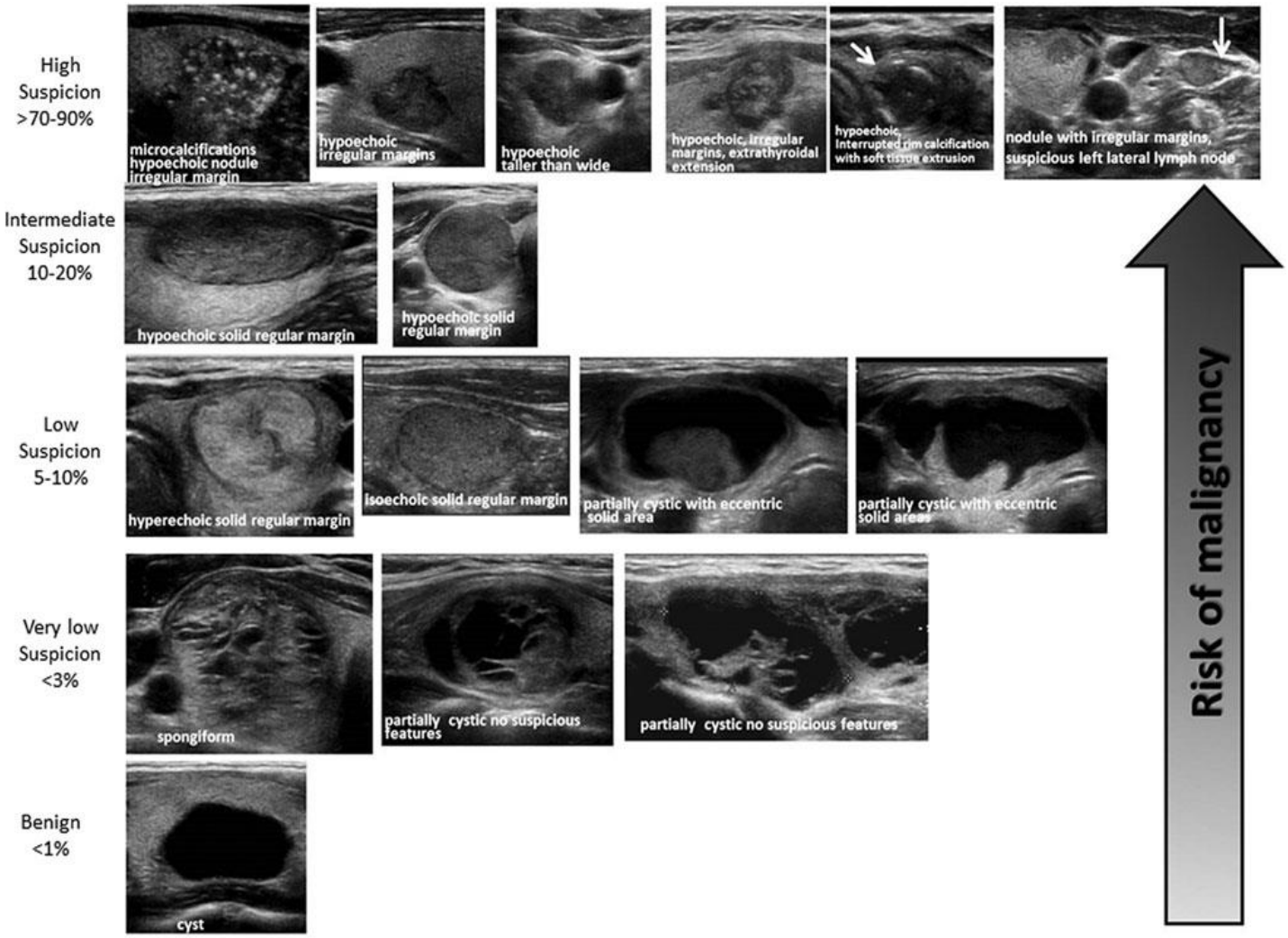
2.

- Location: Left mid thyroid lobe
- Size: 2.5 x 2.0 x 1.8 cm (previously 2.5 x 2.0 x 1.8 cm)
- Composition: Solid
- Echogenicity: Hyperechoic
- Margins: Regular
- Calcifications: No
- Taller than wide?: No
- Sonographic Pattern: Low suspicion (5-10% risk of malignancy)

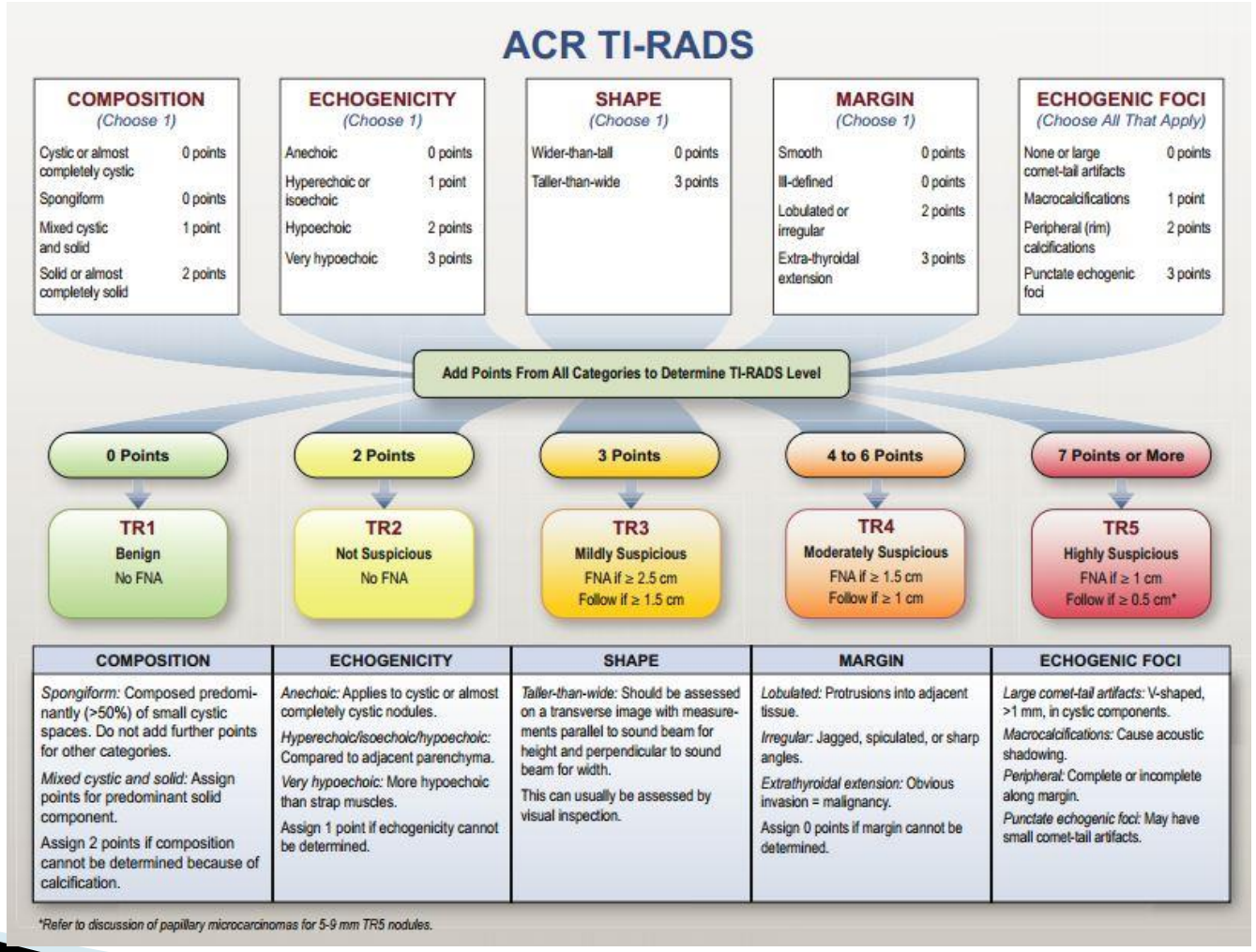
IMPRESSION:

Stable thyroid nodules.

ATA Criteria



ACR TI-RADS


ACR TI-RADS
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 or irregular 2 points
Extra-thyroidal extension 3 points
ECHOGENIC FOCI
(Choose All That Apply)
None or large comet-tail artifacts 0 points
Macrocalcifications 1 point
Peripheral (rim) calcifications 2 points
Punctate echogenic foci 3 points
Add Points From All Categories to Determine TI-RADS Level
0 Points
TR1
Benign
No FNA
2 Points
TR2
Not Suspicious
No FNA
3 Points
TR3
Mildly Suspicious
FNA if ≥ 2.5 cm
Follow if ≥ 1.5 cm
4 to 6 Points
TR4
Moderately Suspicious
FNA if ≥ 1.5 cm
Follow if ≥ 1 cm
7 Points or More
TR5
Highly Suspicious
FNA if ≥ 1 cm
Follow if ≥ 0.5 cm*
COMPOSITION
Spongiform: Composed predominantly (>50%) of small cystic spaces. Do not add further points for other categories.
Mixed cystic and solid: Assign points for predominant solid component.
Assign 2 points if composition cannot be determined because of calcification.
ECHOGENICITY
Anechoic: Applies to cystic or almost completely cystic nodules.
Hyperechoic/isoechoic/hypoechoic: Compared to adjacent parenchyma.
Very hypoechoic: More hypoechoic than strap muscles.
Assign 1 point if echogenicity cannot be determined.
SHAPE
Taller-than-wide: Should be assessed on a transverse image with measurements parallel to sound beam for height and perpendicular to sound beam for width.
This can usually be assessed by visual inspection.
MARGIN
Lobulated: Protrusions into adjacent tissue.
Irregular: Jagged, spiculated, or sharp angles.
Extrathyroidal extension: Obvious invasion = malignancy.
Assign 0 points if margin cannot be determined.
ECHOGENIC FOCI
Large comet-tail artifacts: V-shaped, >1 mm, in cystic components.
Macrocalcifications: Cause acoustic shadowing.
Peripheral: Complete or incomplete along margin.
Punctate echogenic foci: May have small comet-tail artifacts.
*Refer to discussion of papillary microcarcinomas for 5-9 mm TR5 nodules.