



# ACR Thyroid Imaging, Reporting and Data System Lexicon Directory

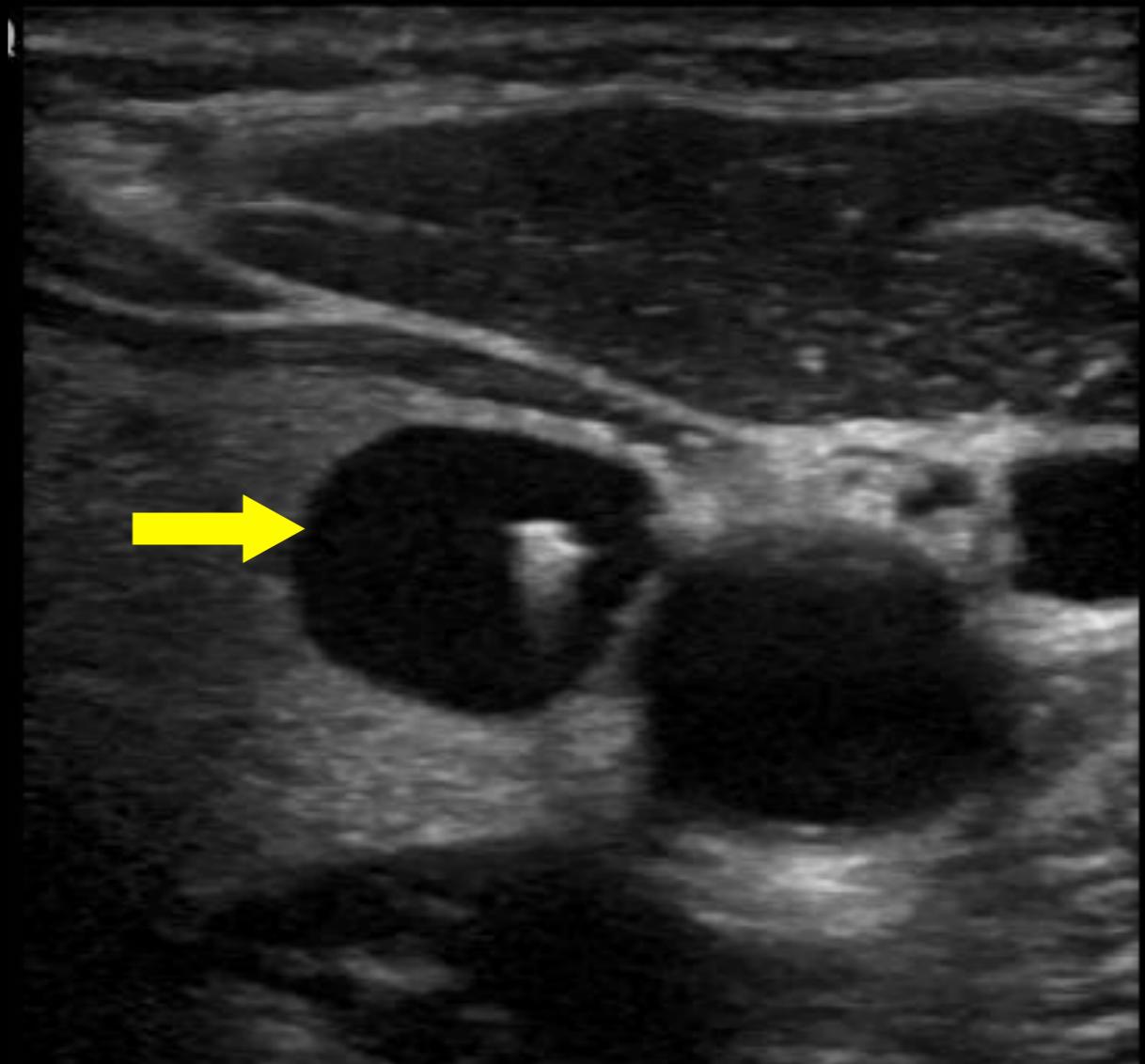
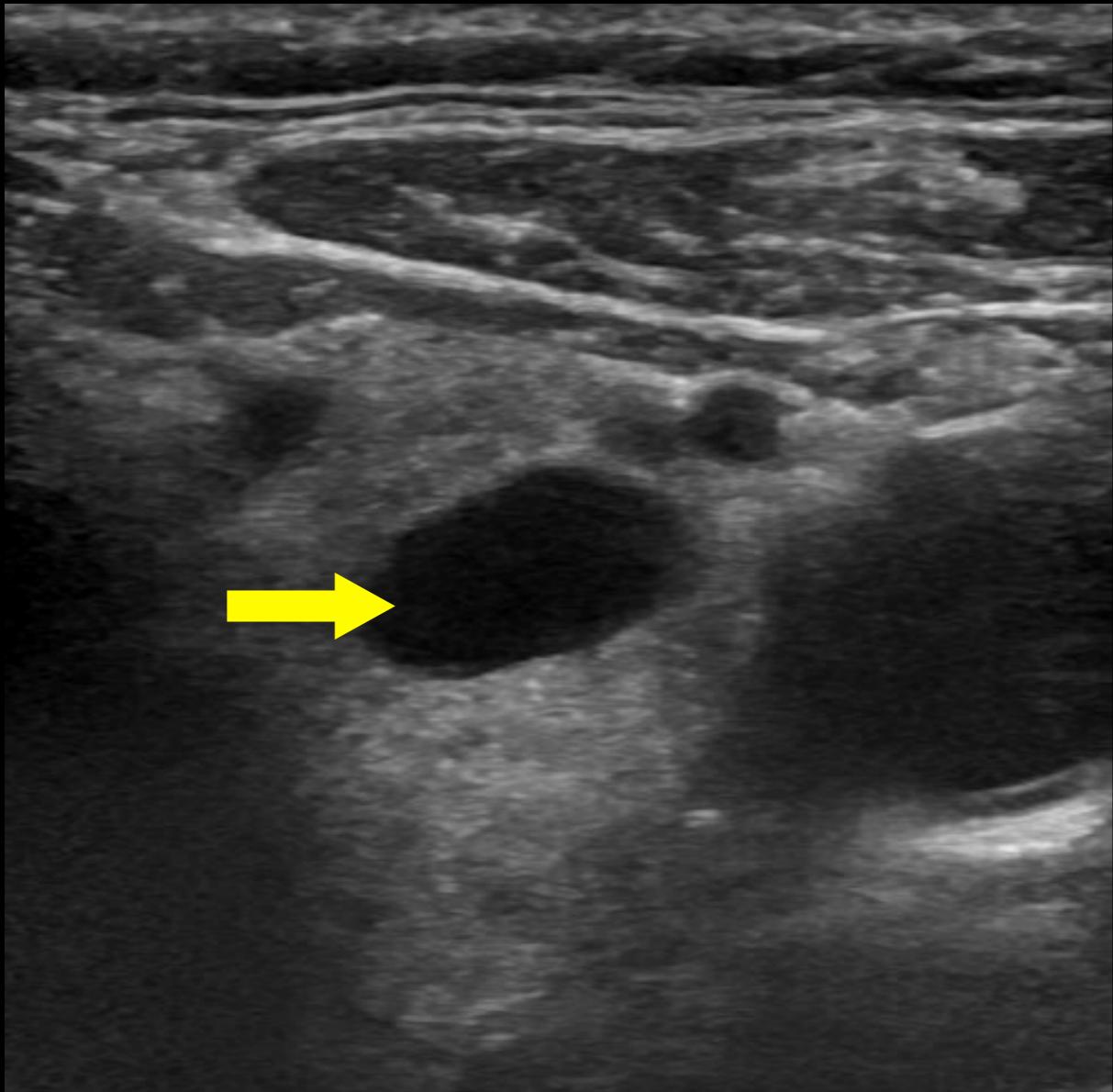
# ACR TI-RADS Categories

- Composition - Choose 1
- Echogenicity - Choose 1
- Shape - Choose 1
- Margin - If more than one type, choose the most suspicious
- Echogenic foci - Choose all that apply

# Assumptions

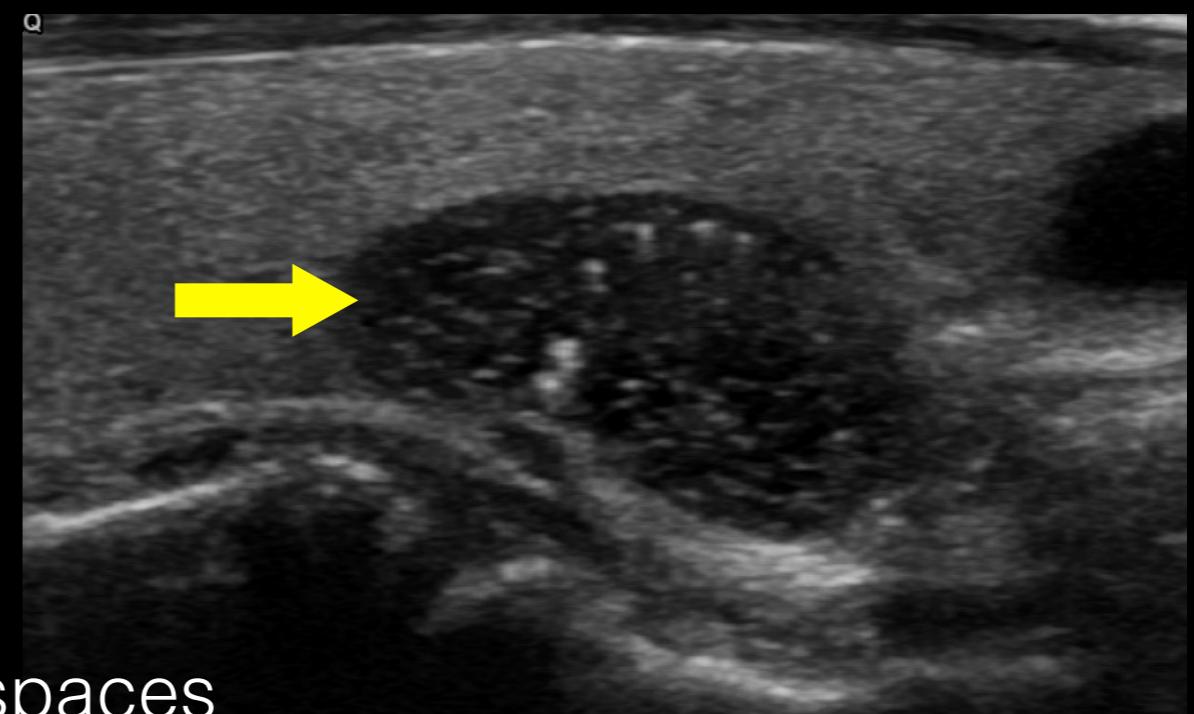
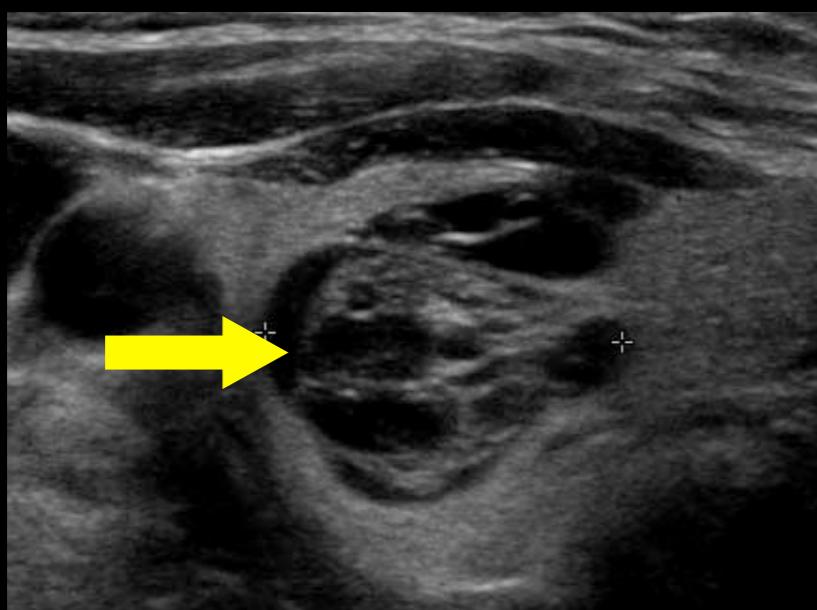
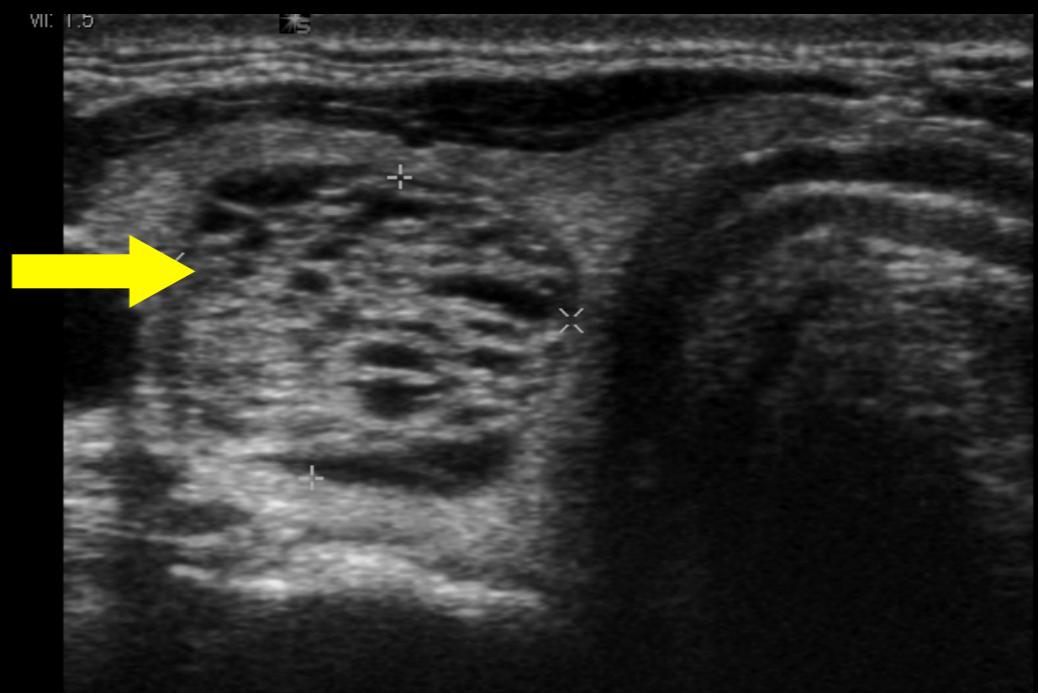
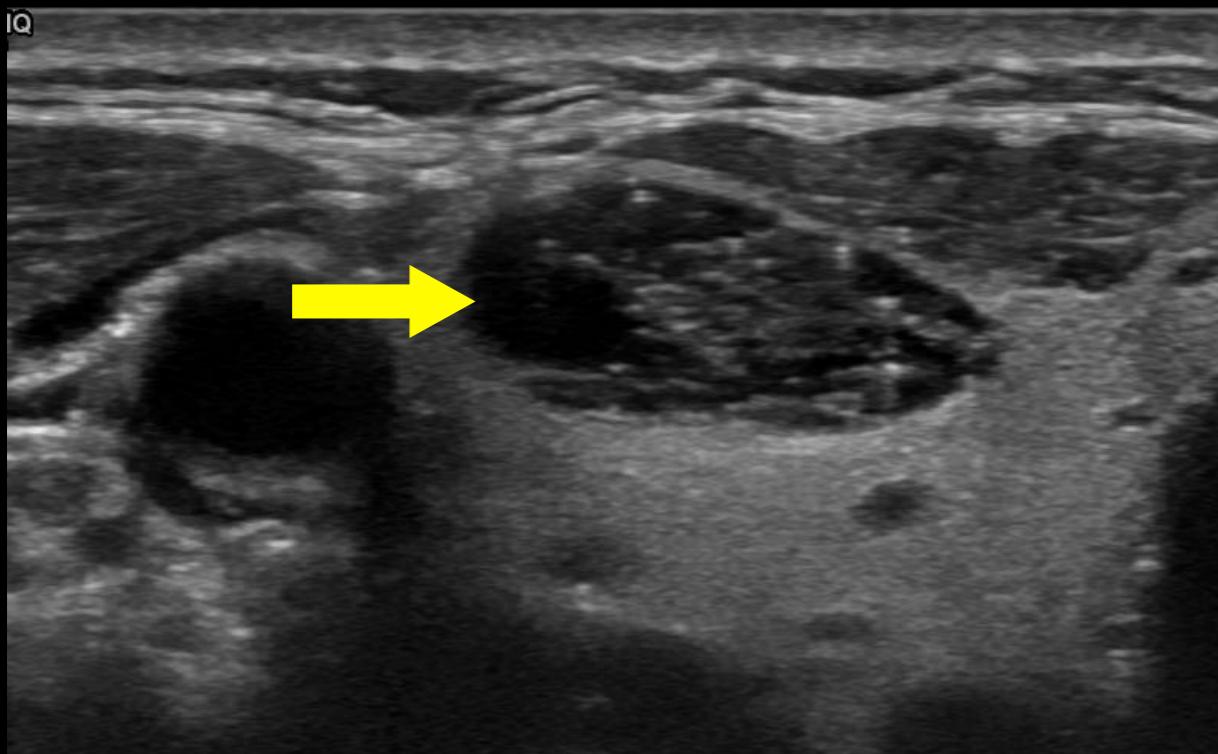
- If rim calcifications obscure the nodule completely, choose composition to be “solid” and echogenicity to be “isoechoic”.
- If the margin cannot be determined, choose “ill-defined margin”.
- If echogenicity cannot be determined, choose “isoechoic”.
- If composition cannot be determined, choose “solid”.

Composition: Cystic or  
almost completely cystic



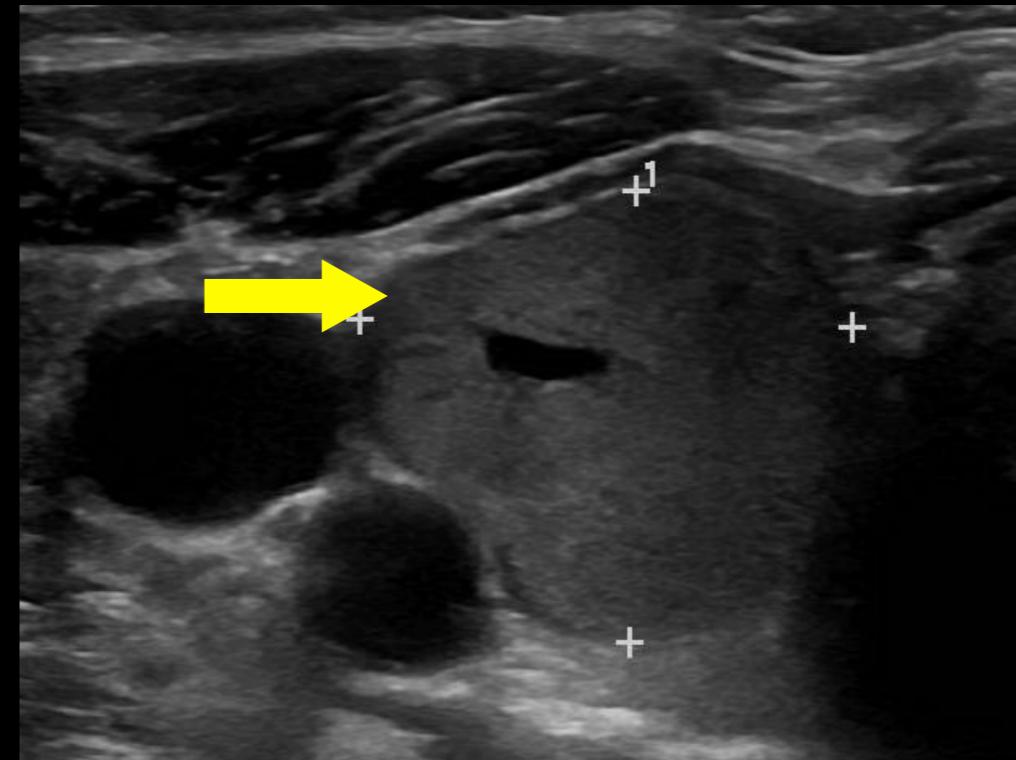
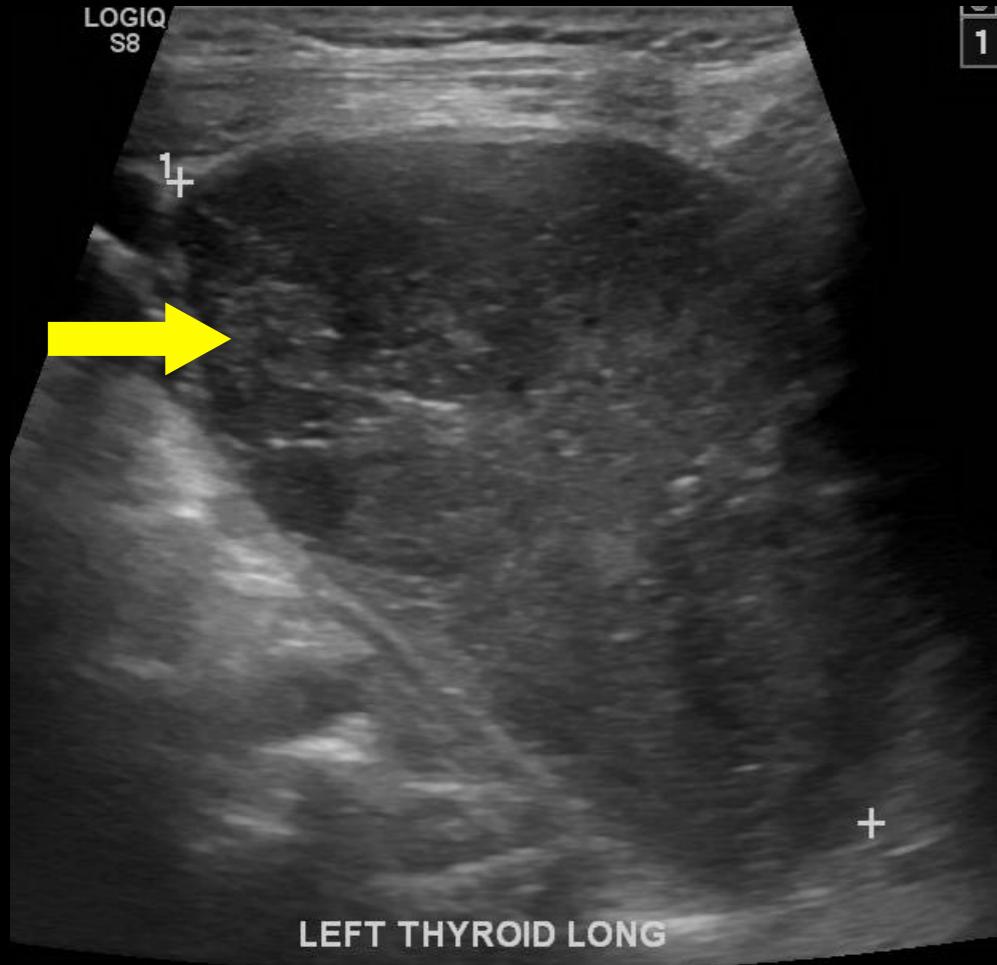
Entirely or nearly entirely cystic

# Composition: Spongiform



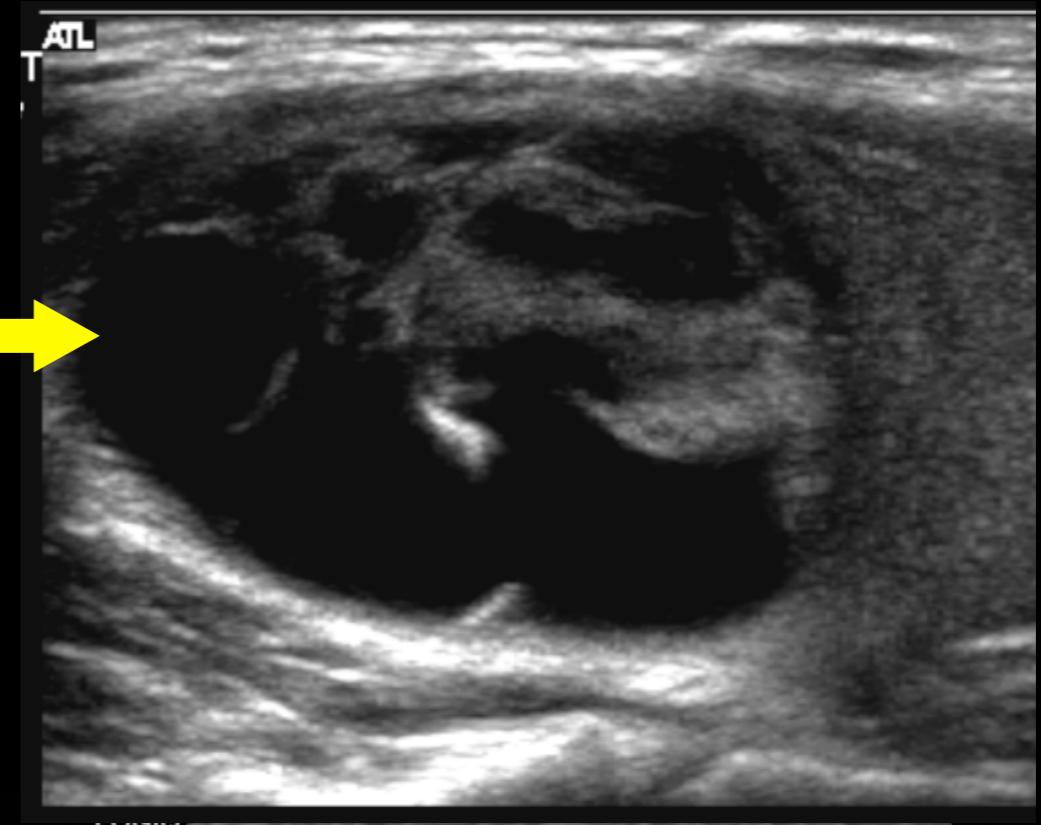
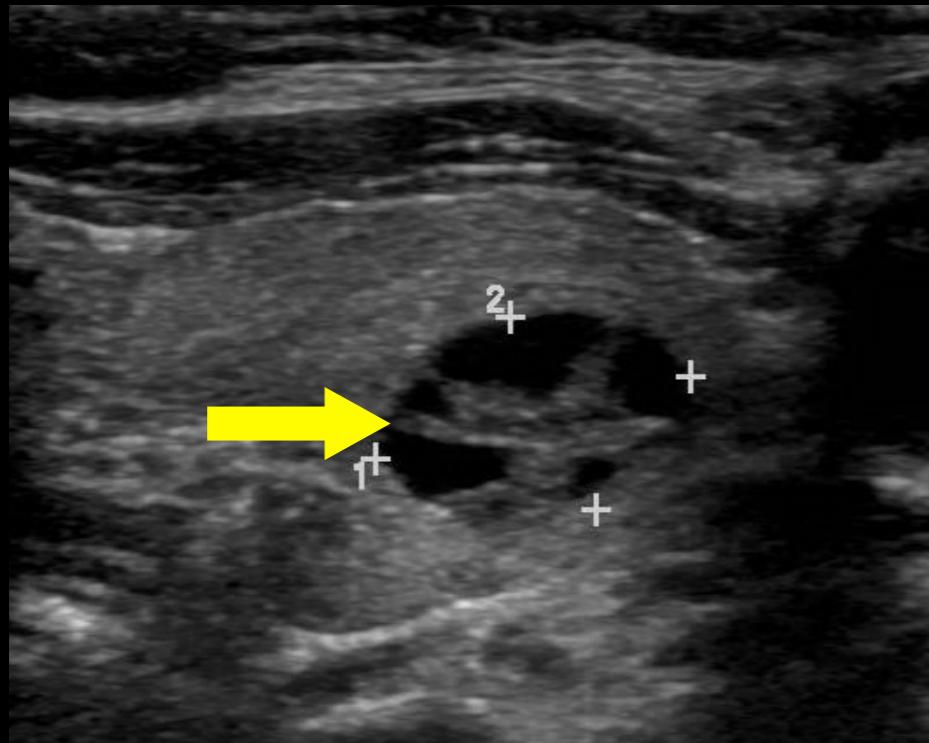
Composed predominately of tiny cystic spaces

# Composition: Solid or almost completely solid



Composed entirely or nearly entirely of soft tissue, with only a few tiny cystic spaces

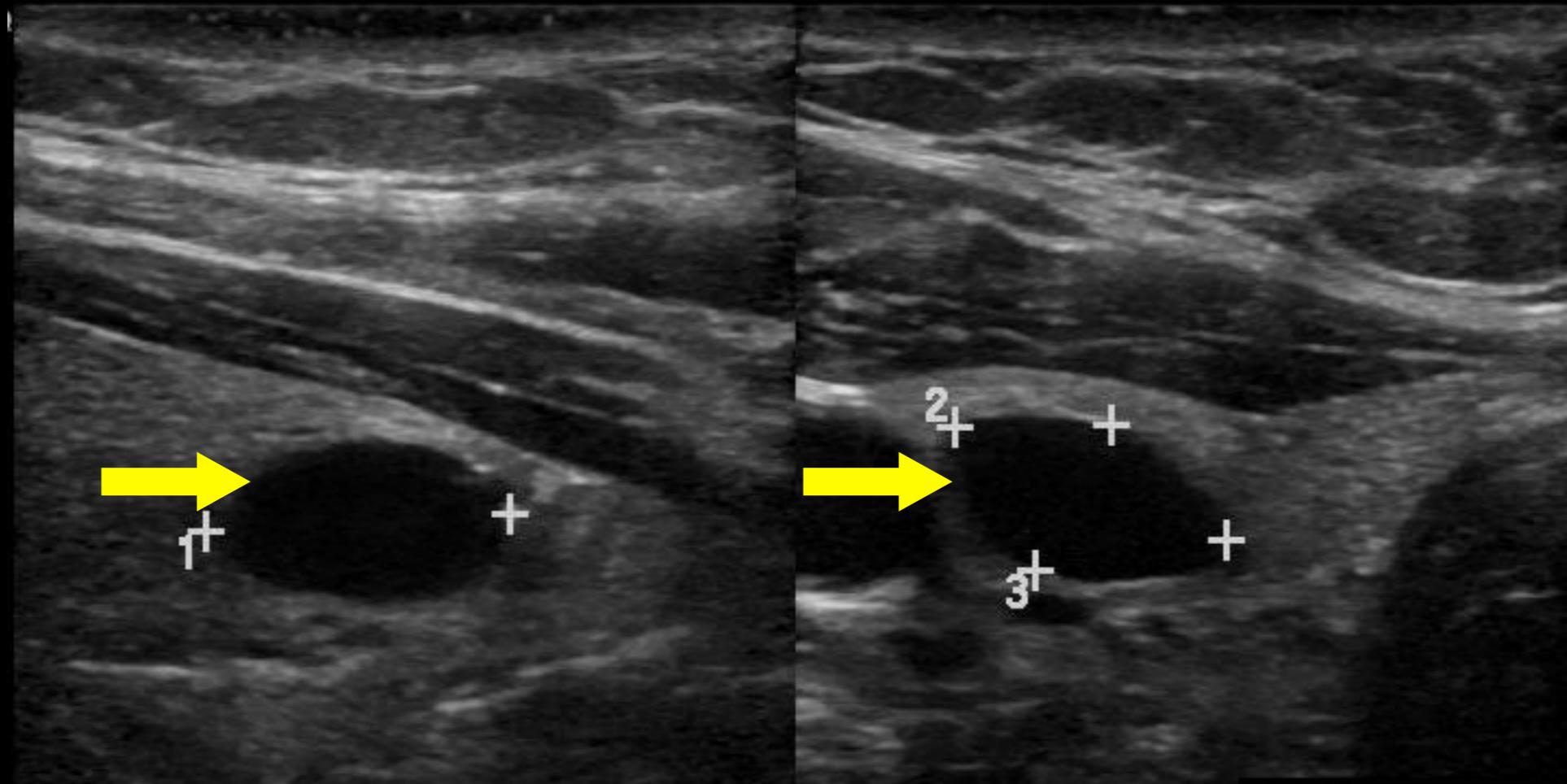
# Composition: Mixed cystic solid



Composed of soft tissue and cystic spaces. Base all other lexicon nodule characteristics on the solid component.

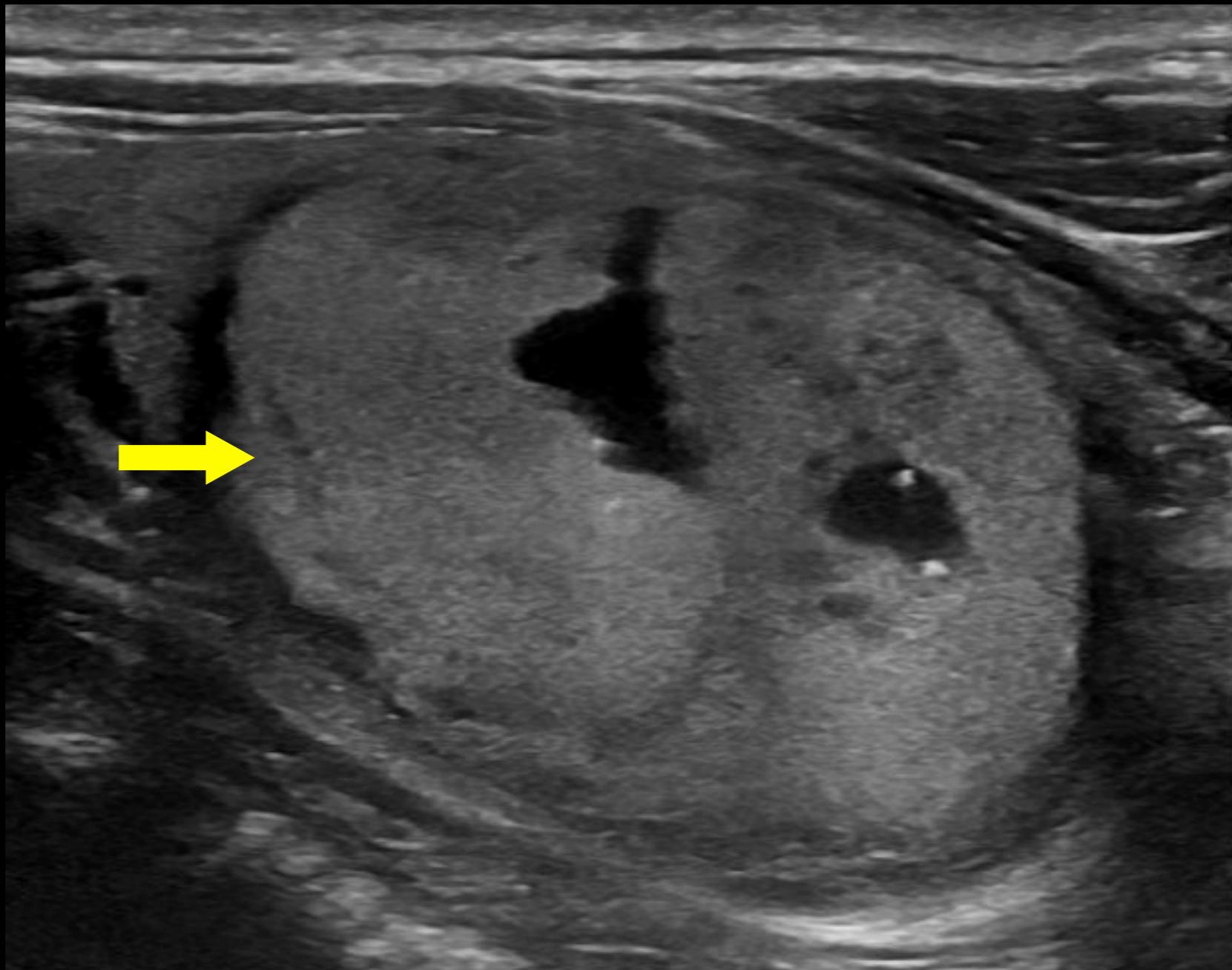


# Echogenicity: Anechoic



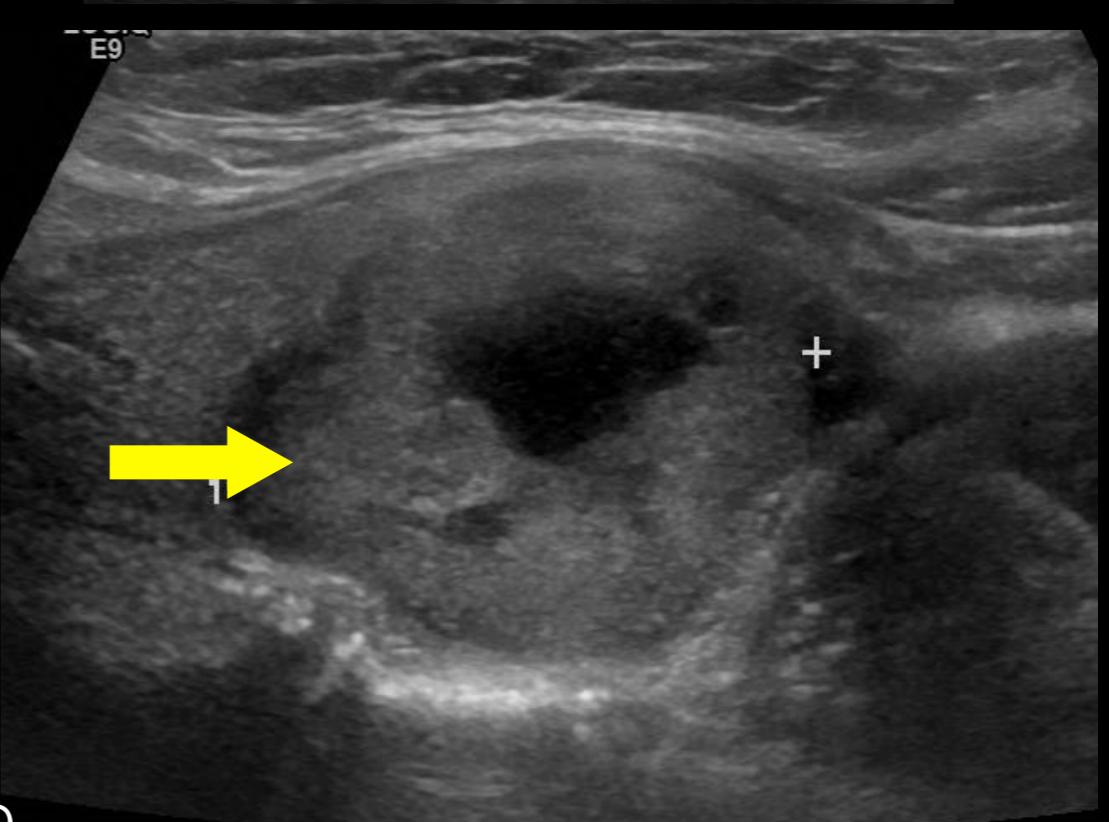
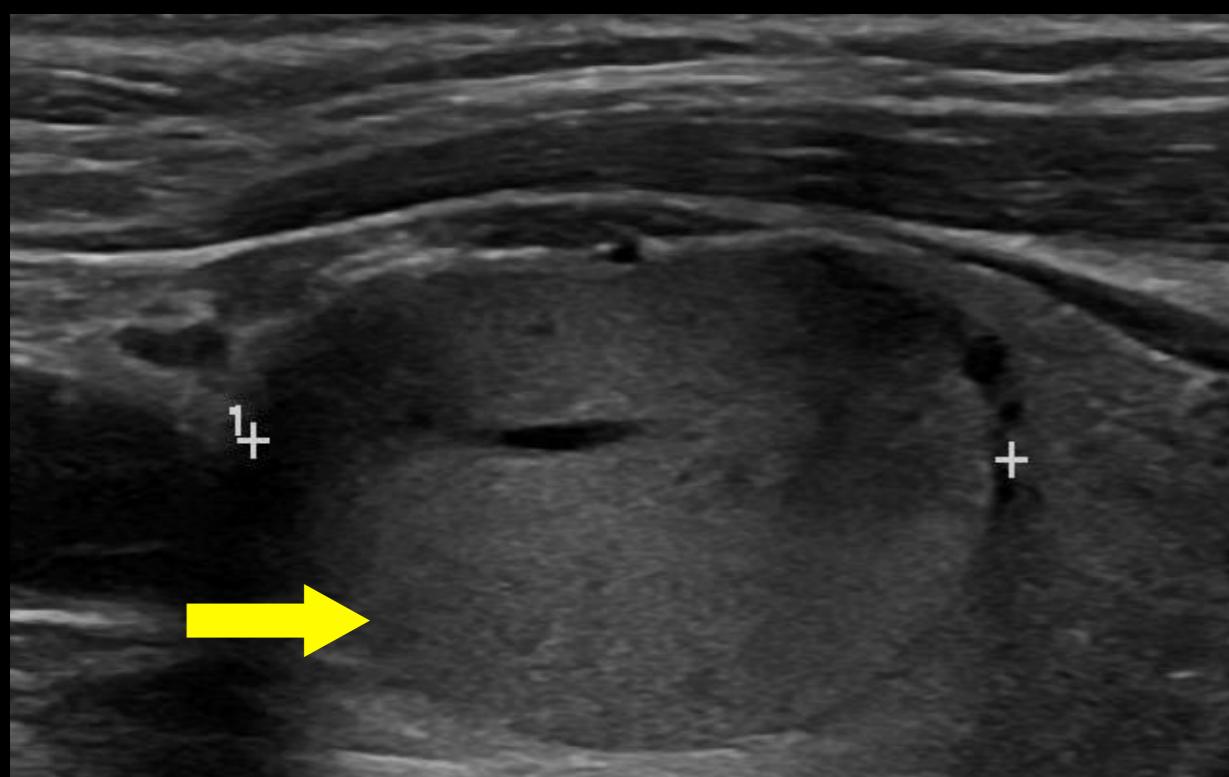
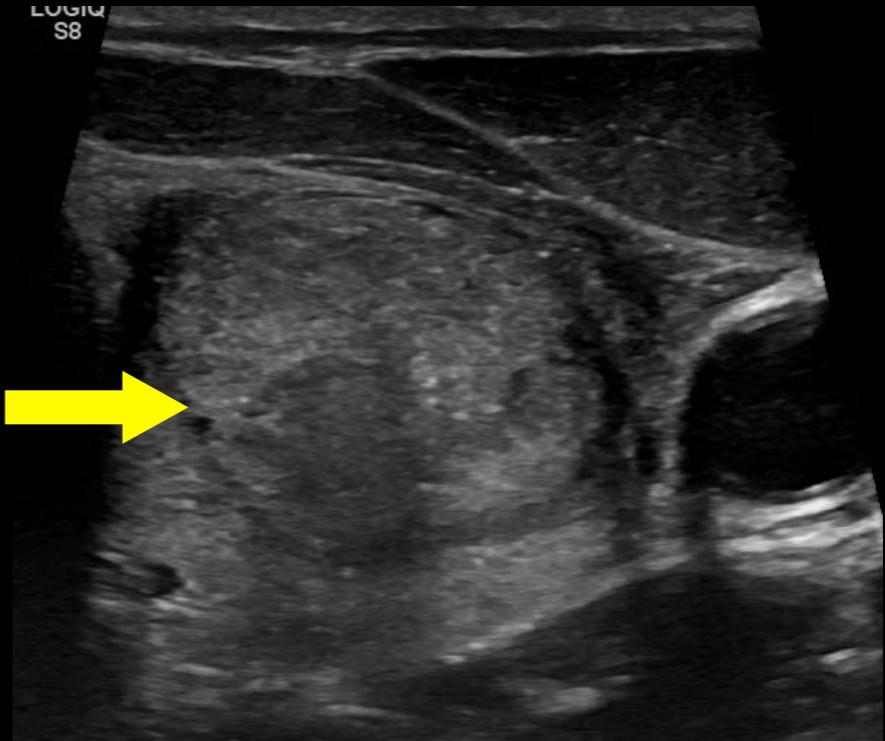
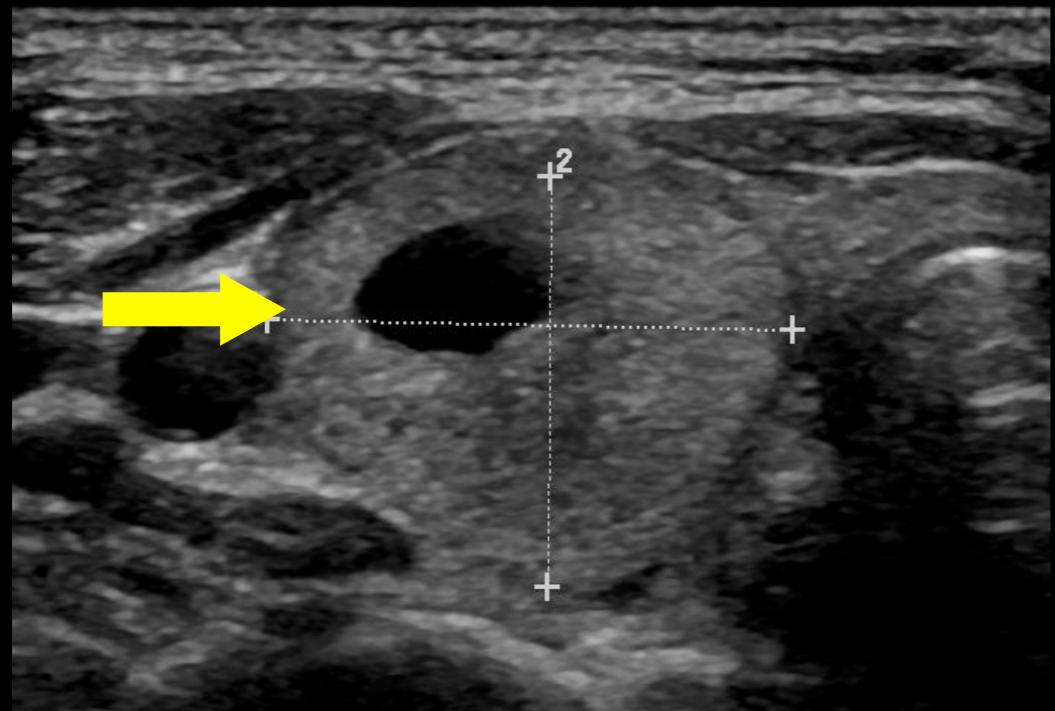
Without soft tissue component. Applies to cystic or almost completely cystic nodules.

# Echogenicity: Hyperechoic



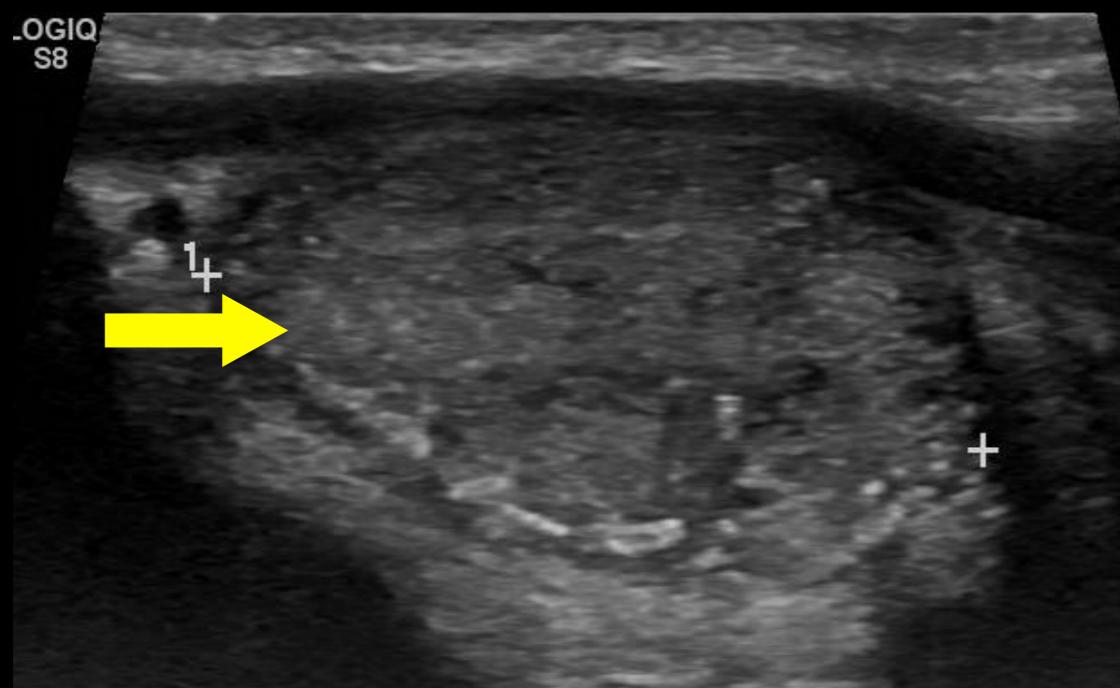
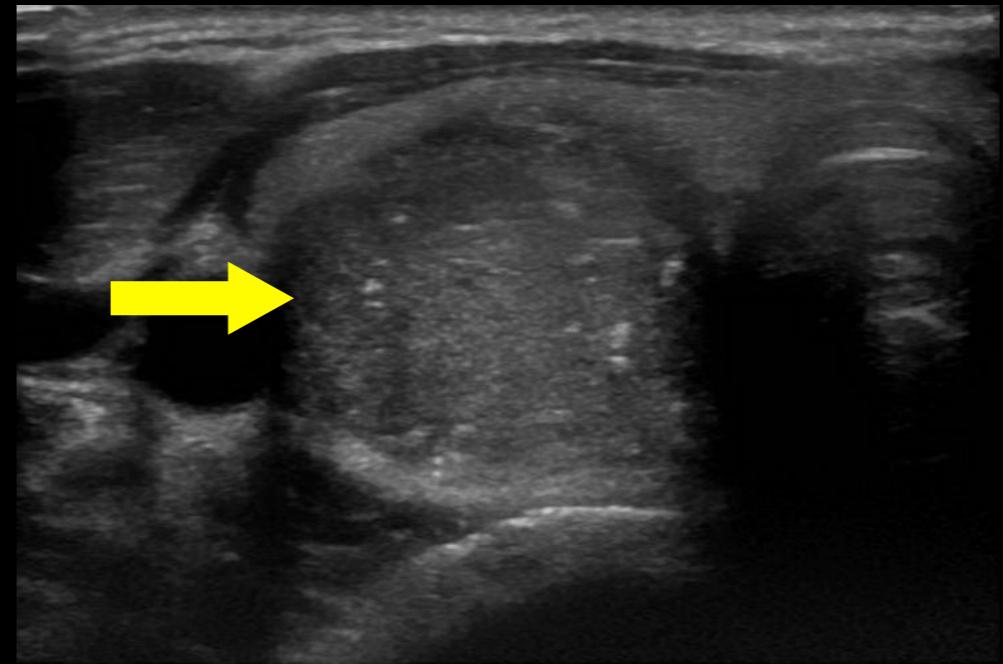
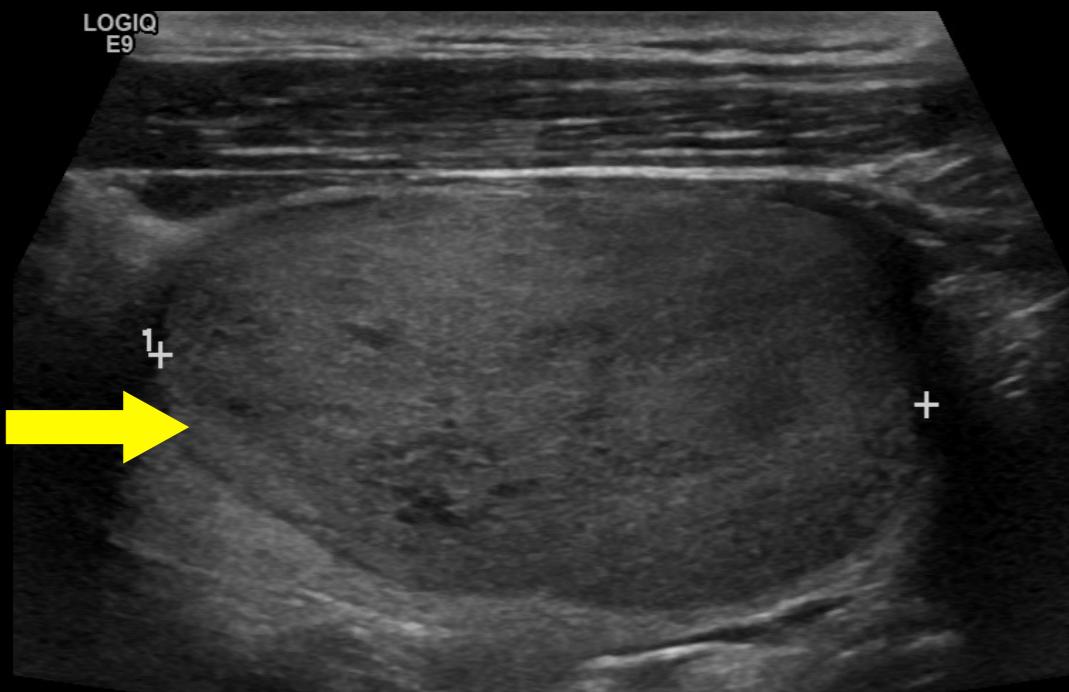
Increased echogenicity relative to thyroid tissue

# Echogenicity: Isoechoic



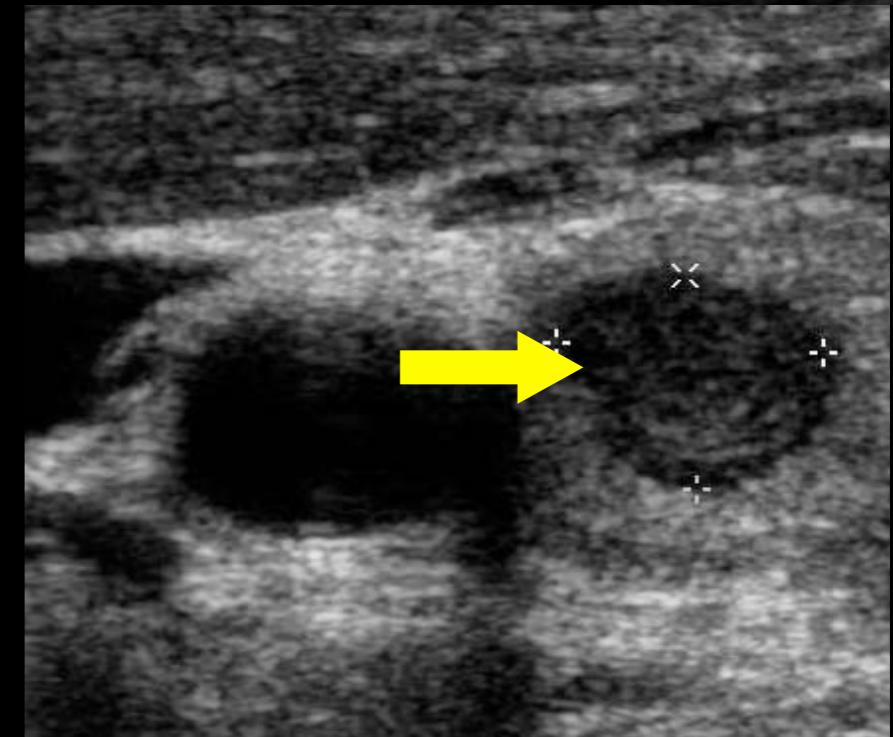
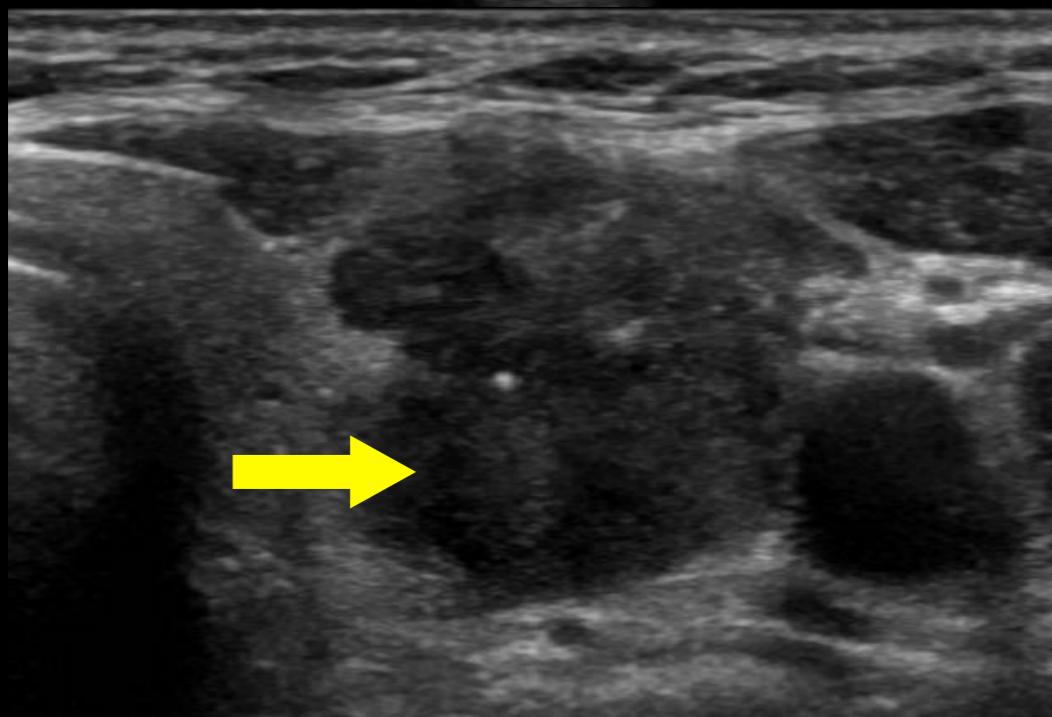
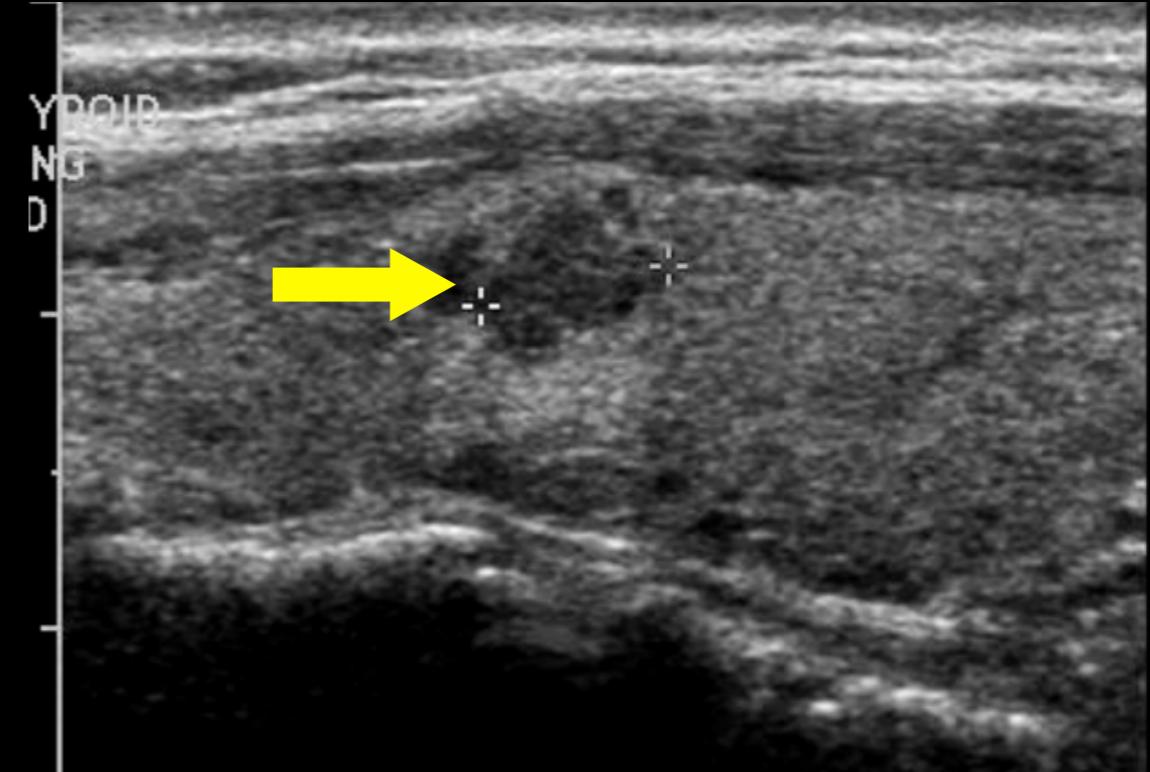
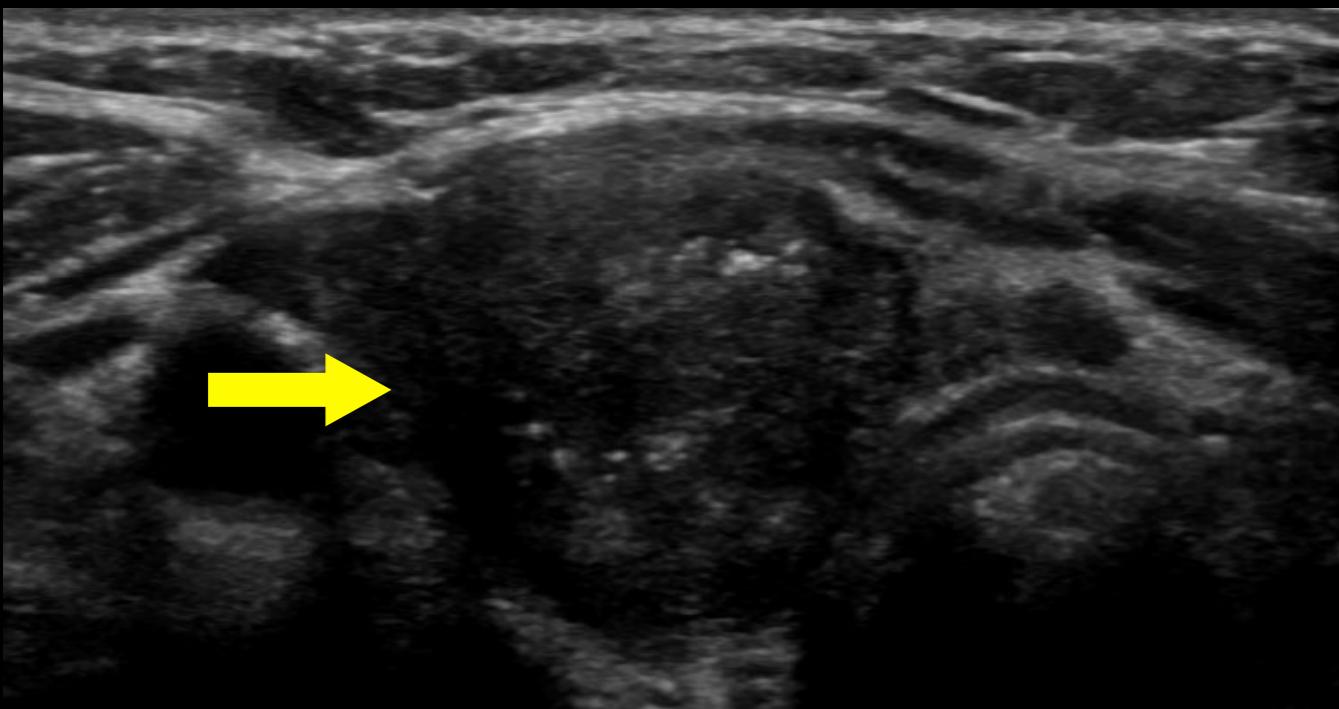
Similar echogenicity relative to thyroid tissue

# Echogenicity: Hypoechoic



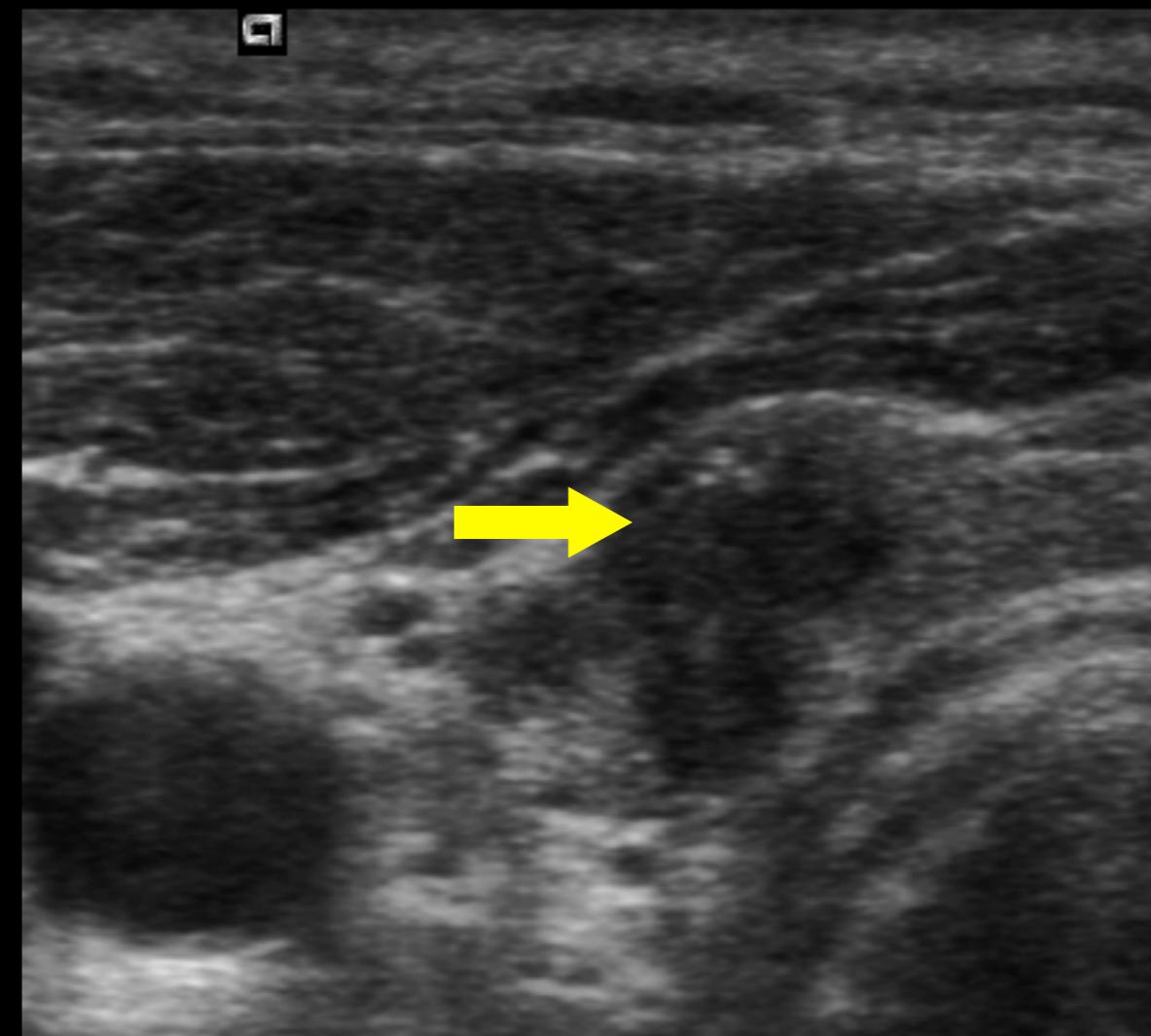
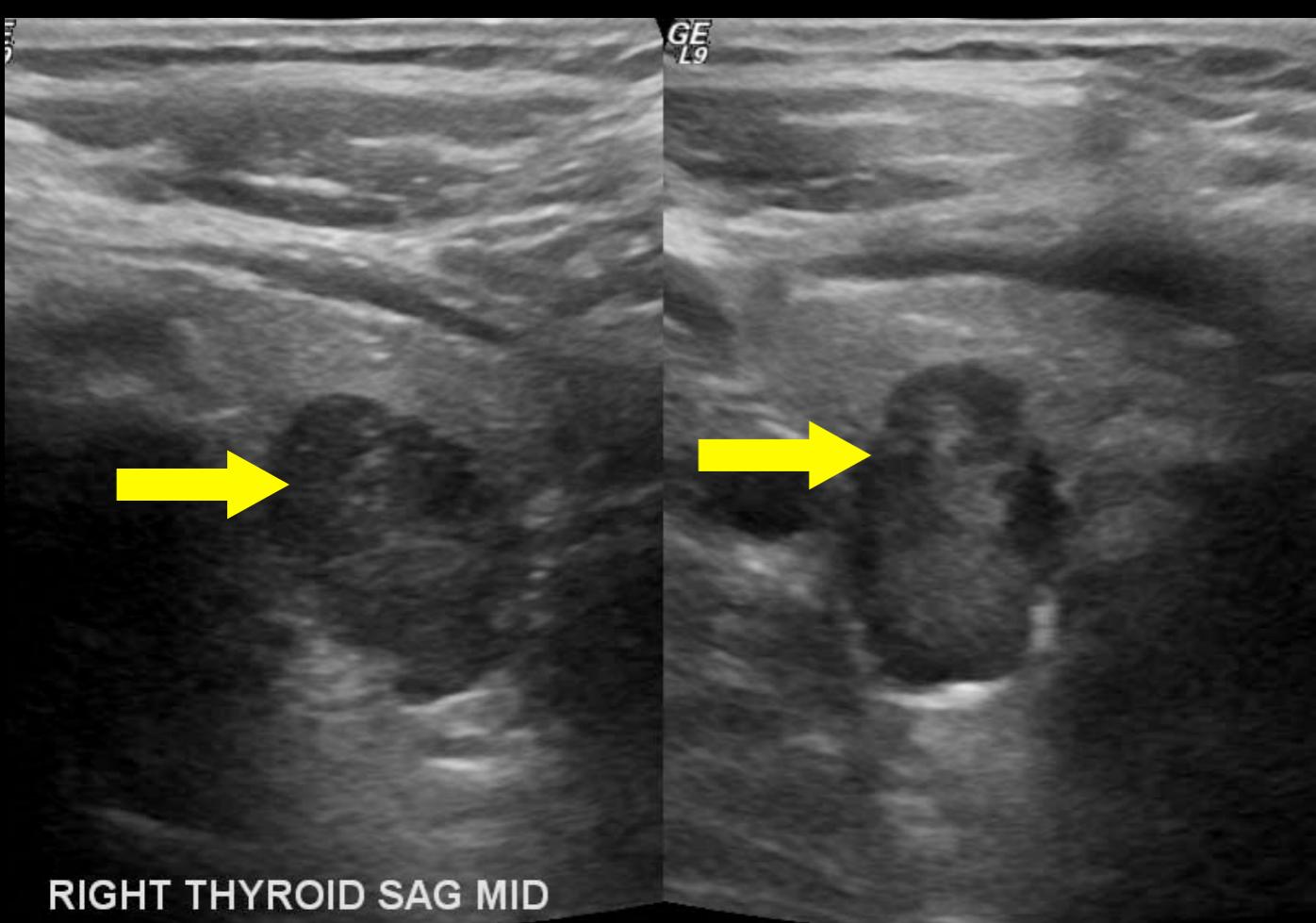
Decreased echogenicity relative to thyroid tissue

# Echogenicity: Very Hypoechoic



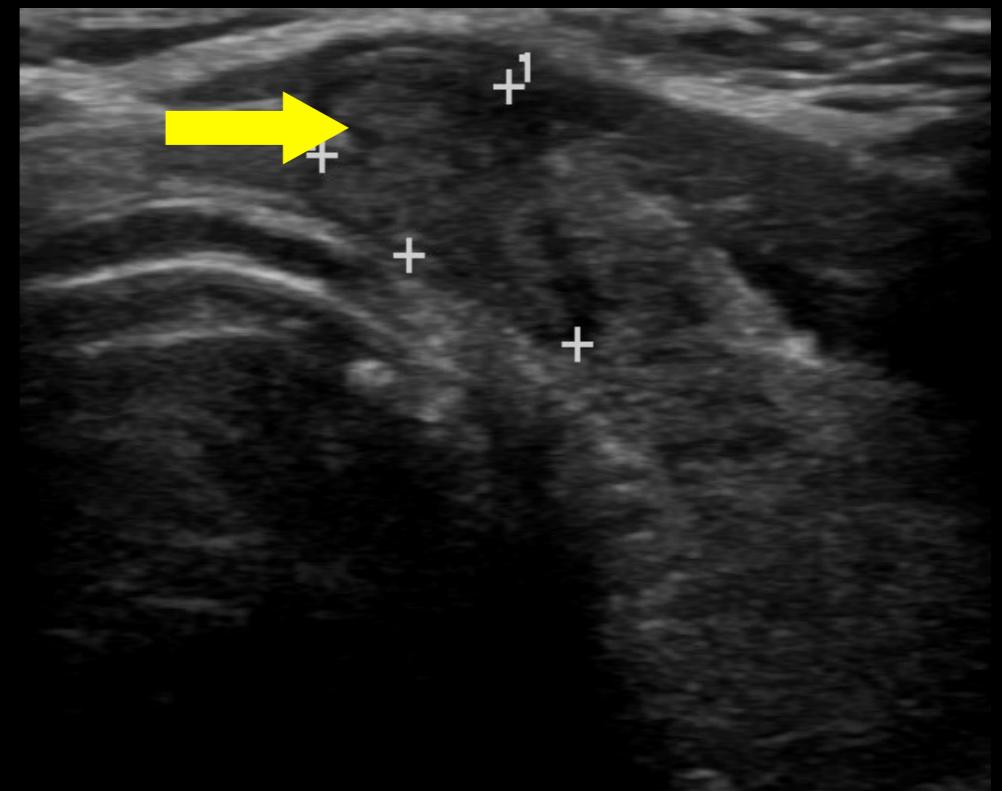
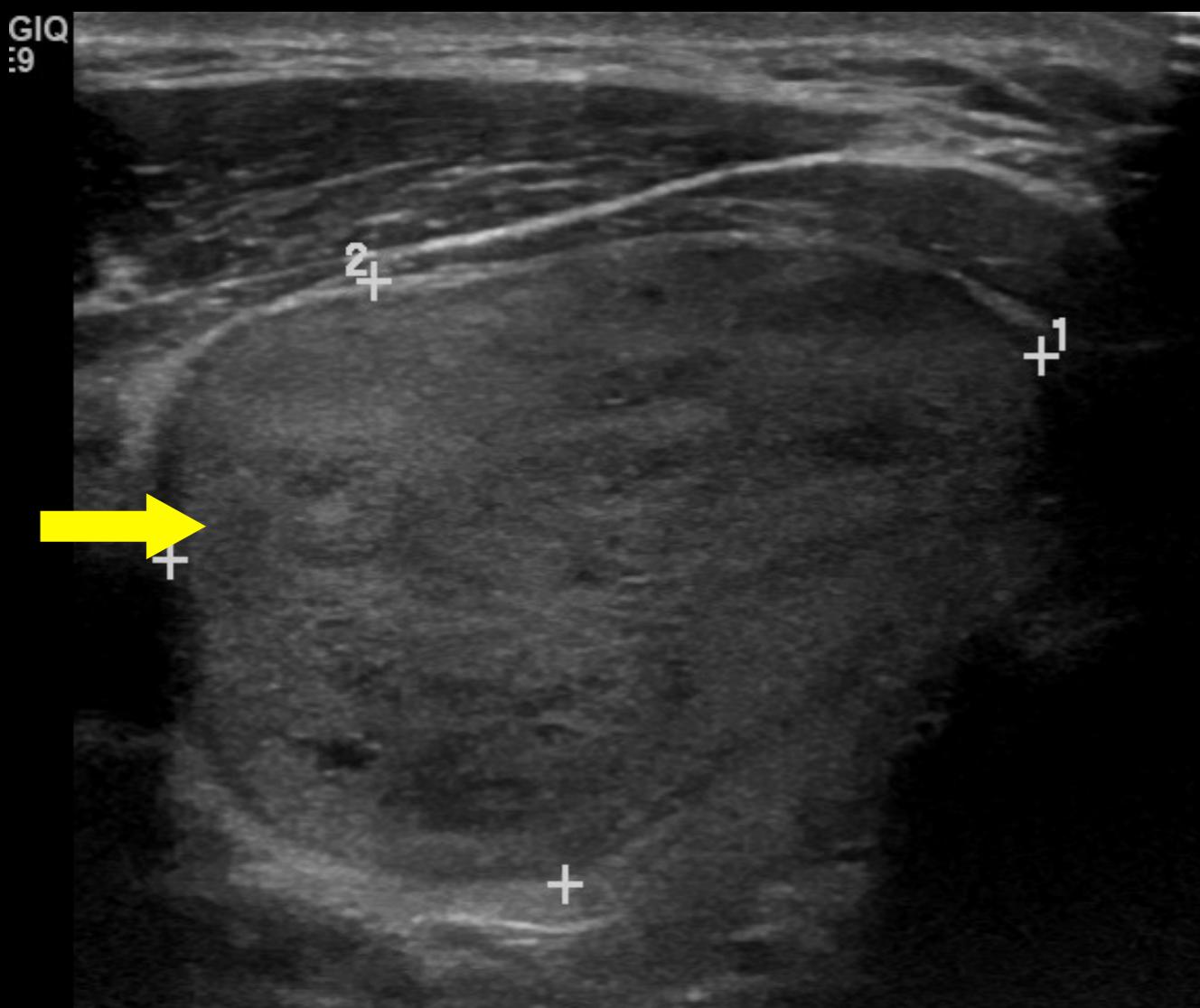
Decreased echogenicity relative to adjacent neck musculature

# Shape: Taller-than-wide



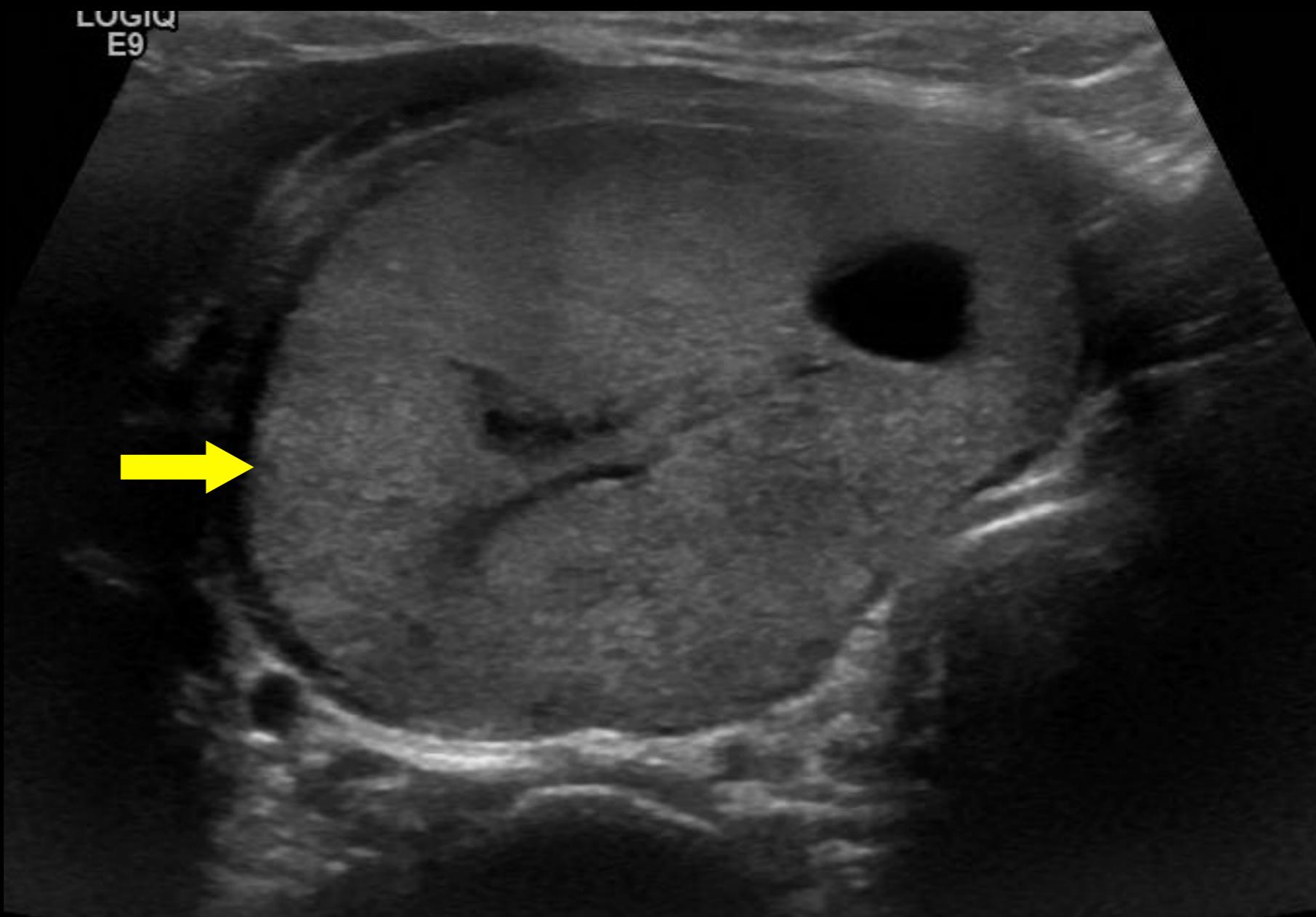
A taller-than-wide shape is defined as a ratio of  $>1$  in the anteroposterior diameter to the horizontal diameter when measured in the **transverse** plane

# Shape: Wider-than-tall



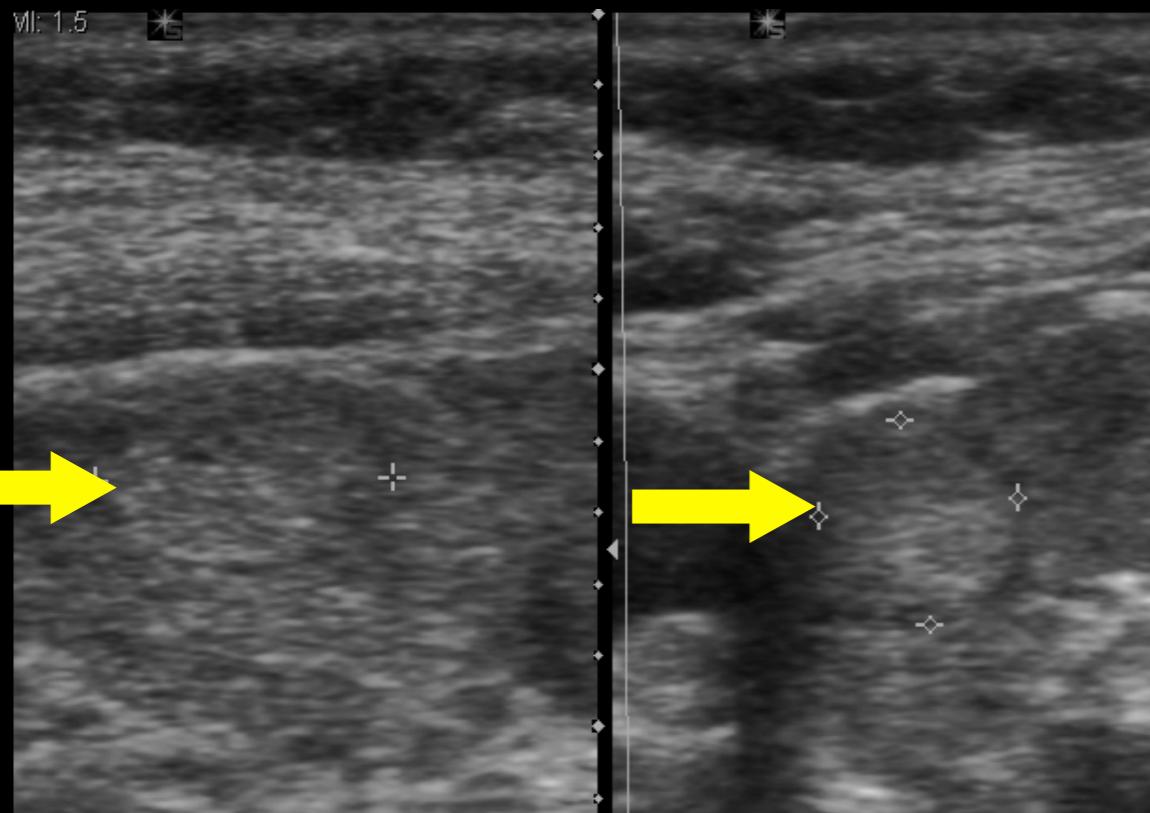
A wider-than-tall shape (not taller-than-wide) is defined as a ratio of  $\leq 1$  in the anteroposterior diameter to the horizontal diameter when measured in the **transverse** plane.

# Margin: Smooth



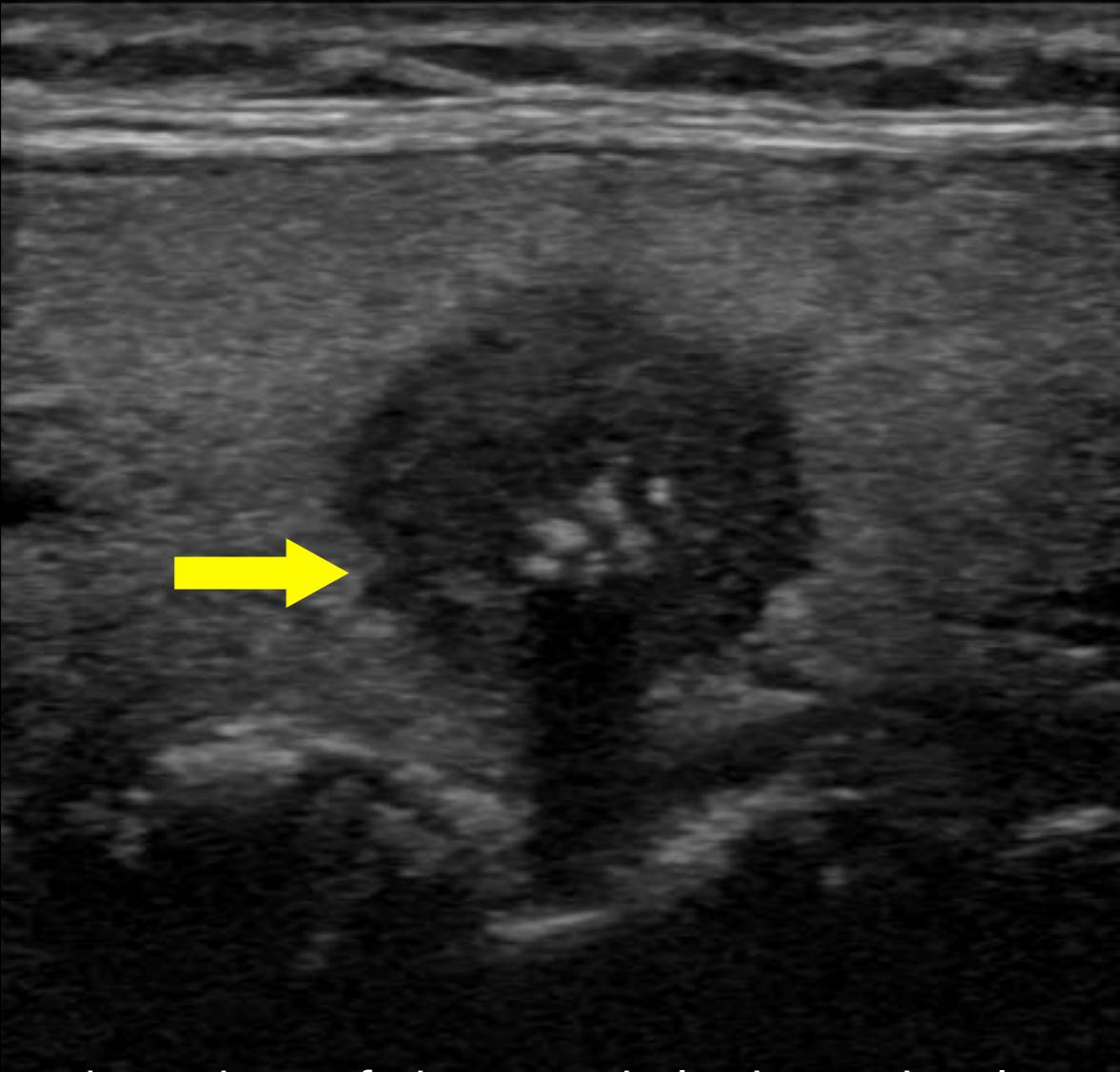
Uninterrupted, well-defined, curvilinear edge typically forming a spherical or elliptical shape

# Margin: Ill-defined



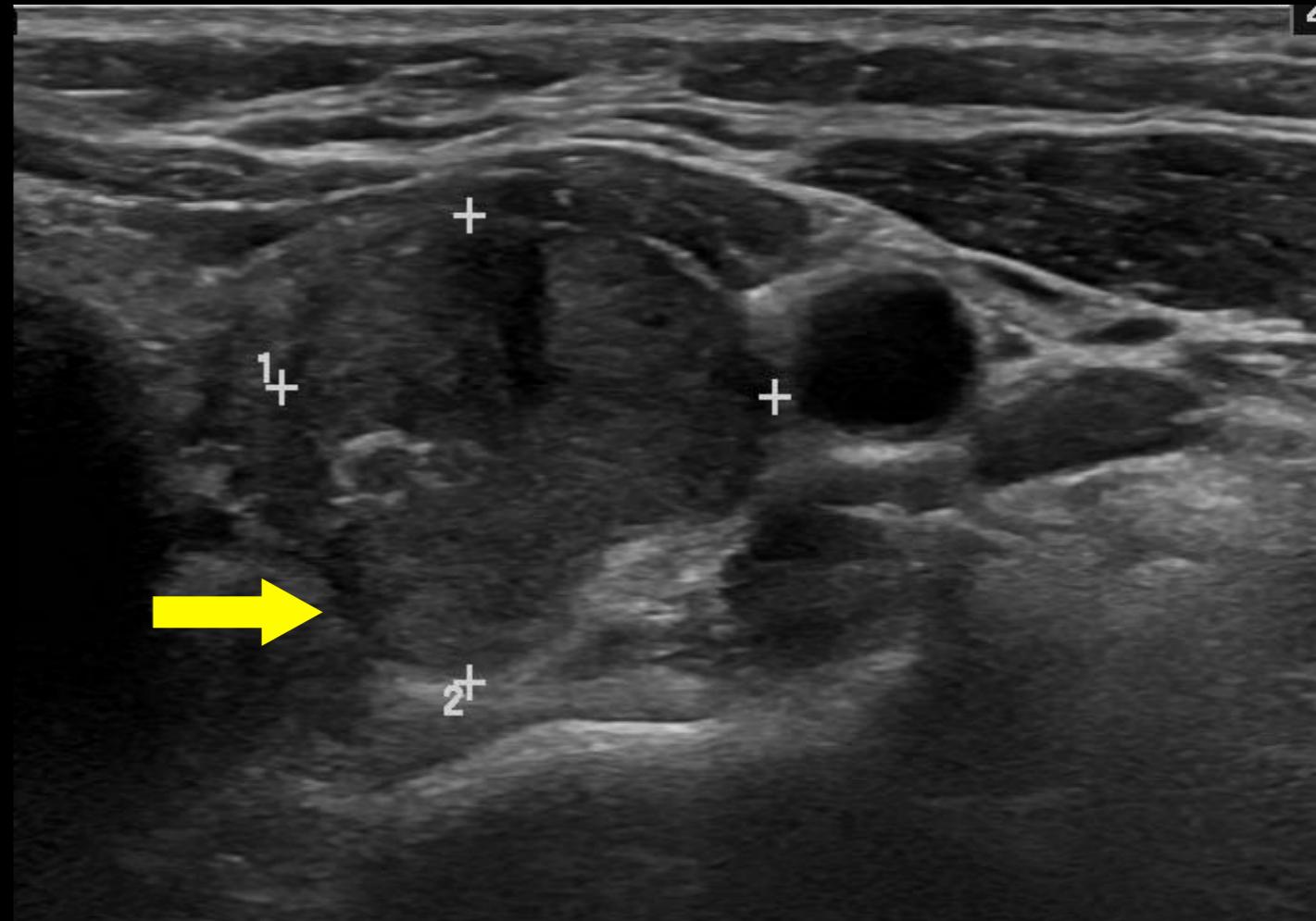
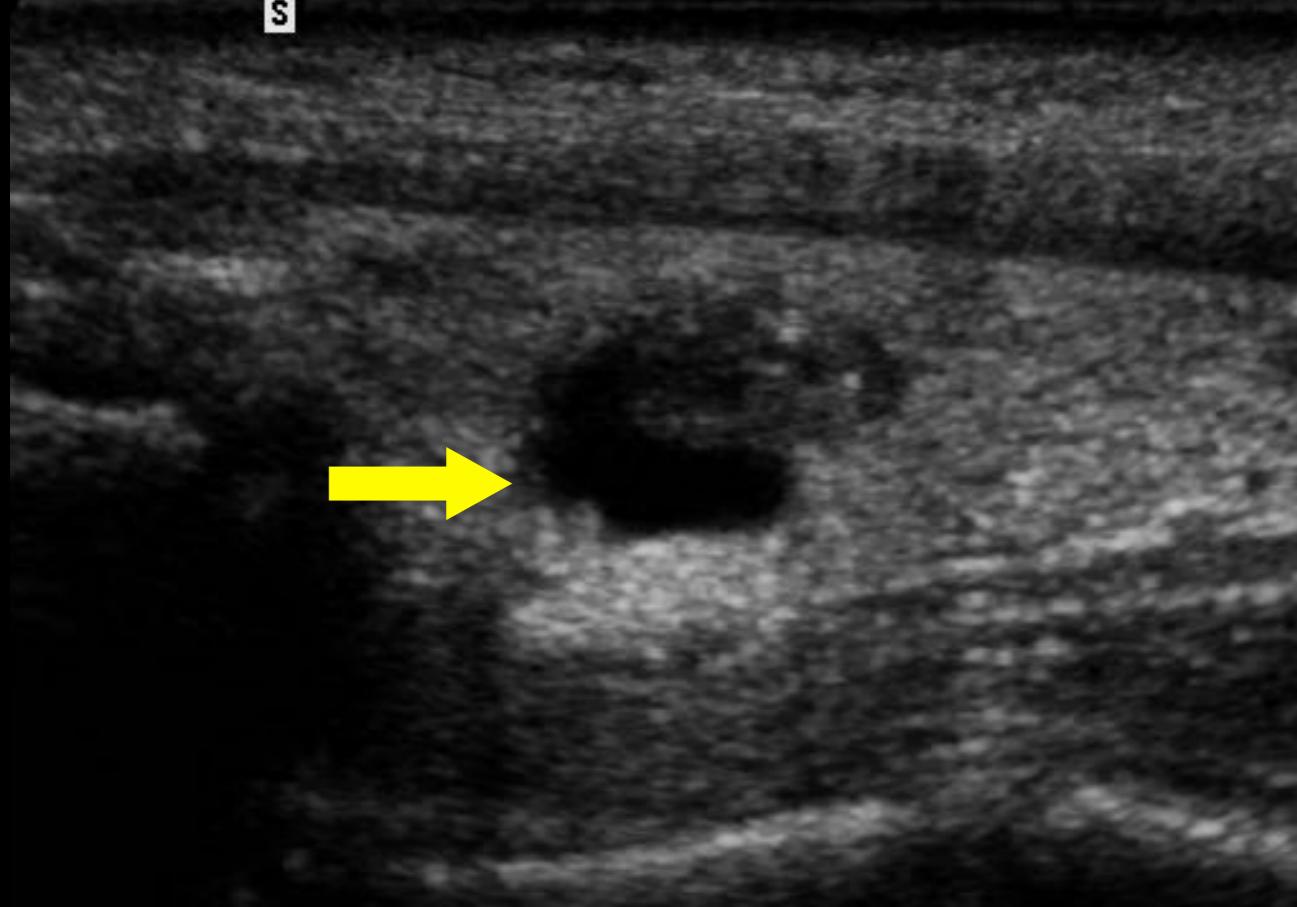
Border of the nodule is difficult to distinguish from thyroid parenchyma

# Margin: Irregular



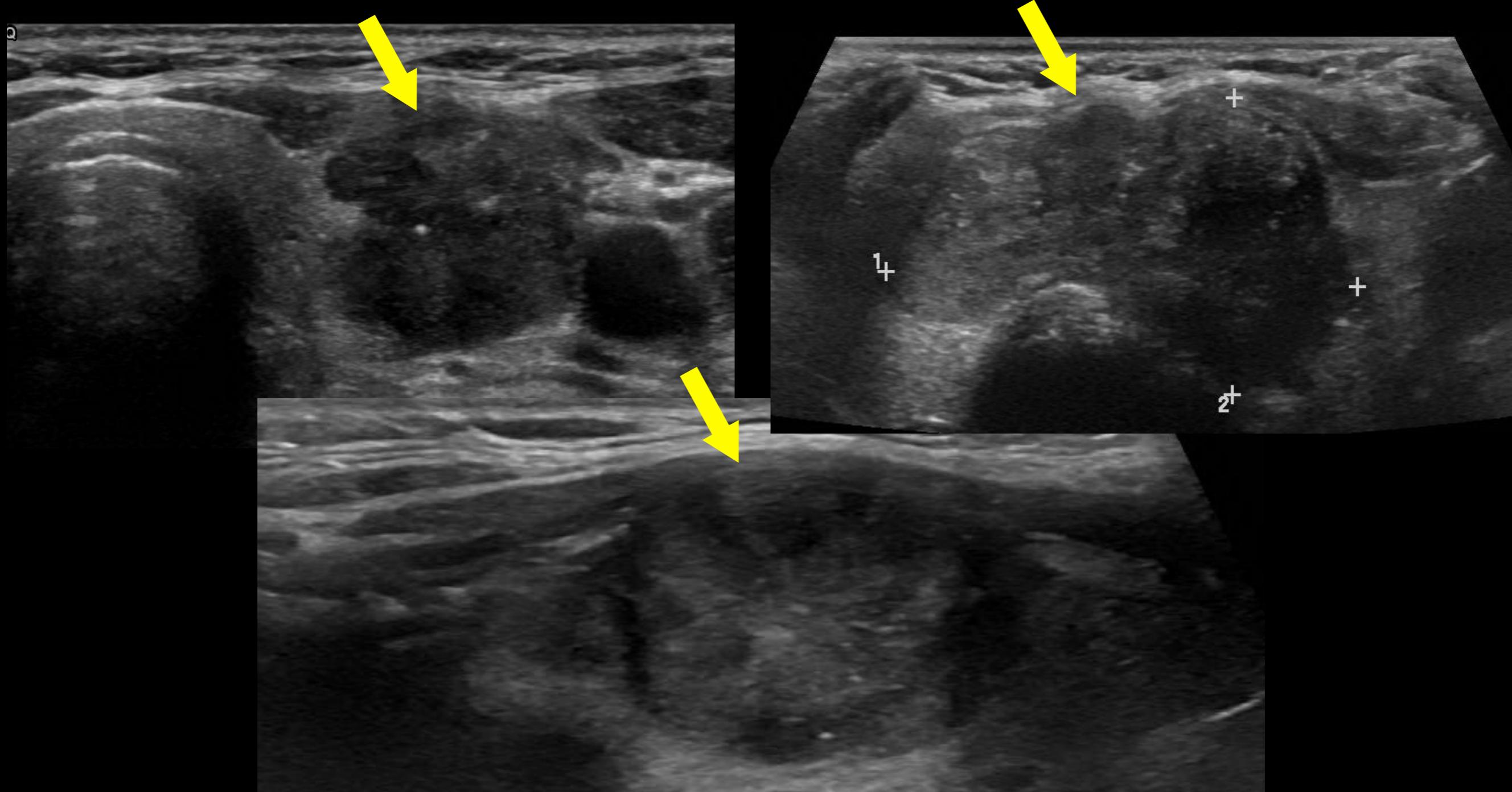
The outer border of the nodule is spiculated, jagged, or with sharp angles with or without clear soft tissue protrusions into the parenchyma. The protrusions may vary in size and conspicuity and may be present in only one portion of the nodule

# Margin: Lobulated



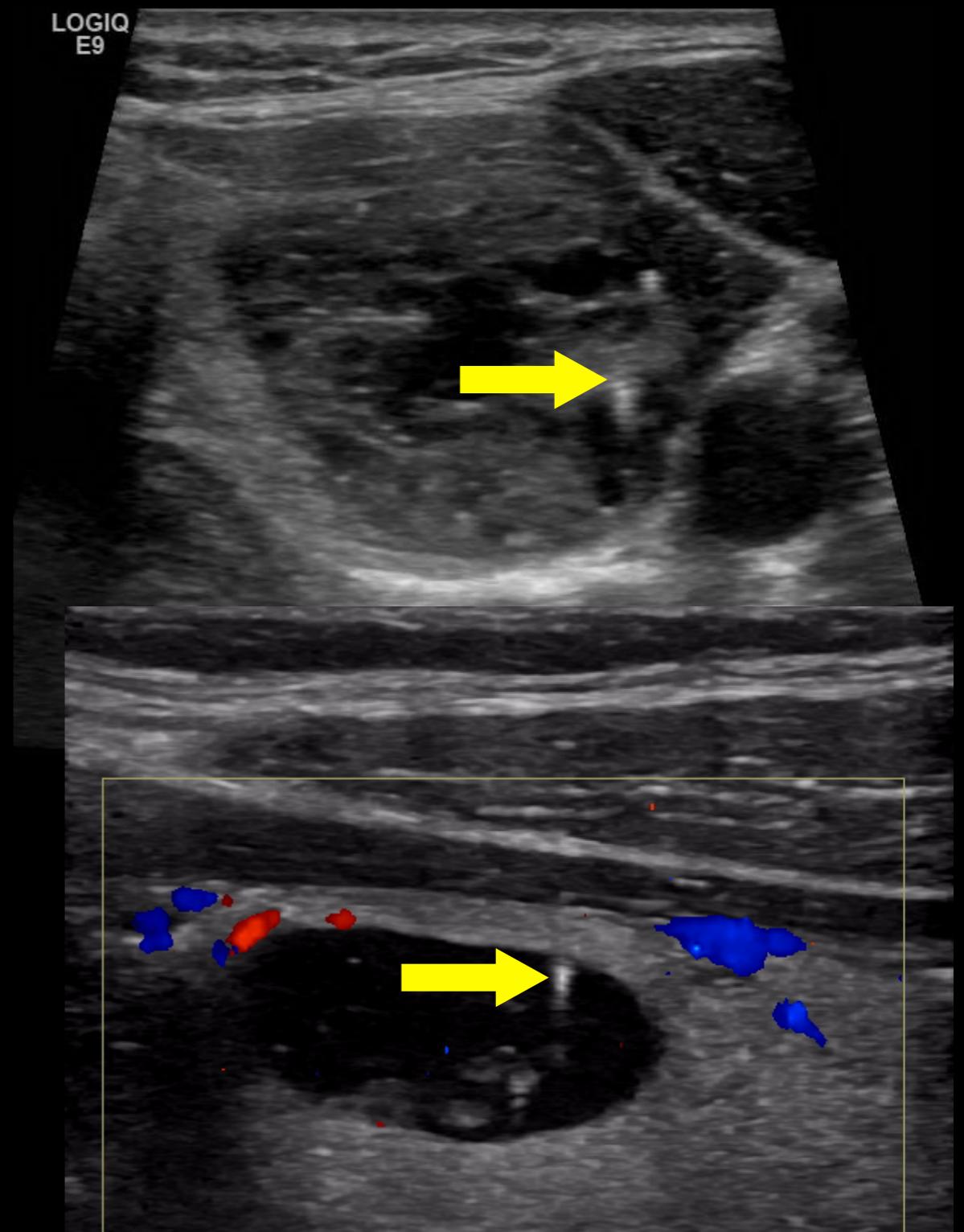
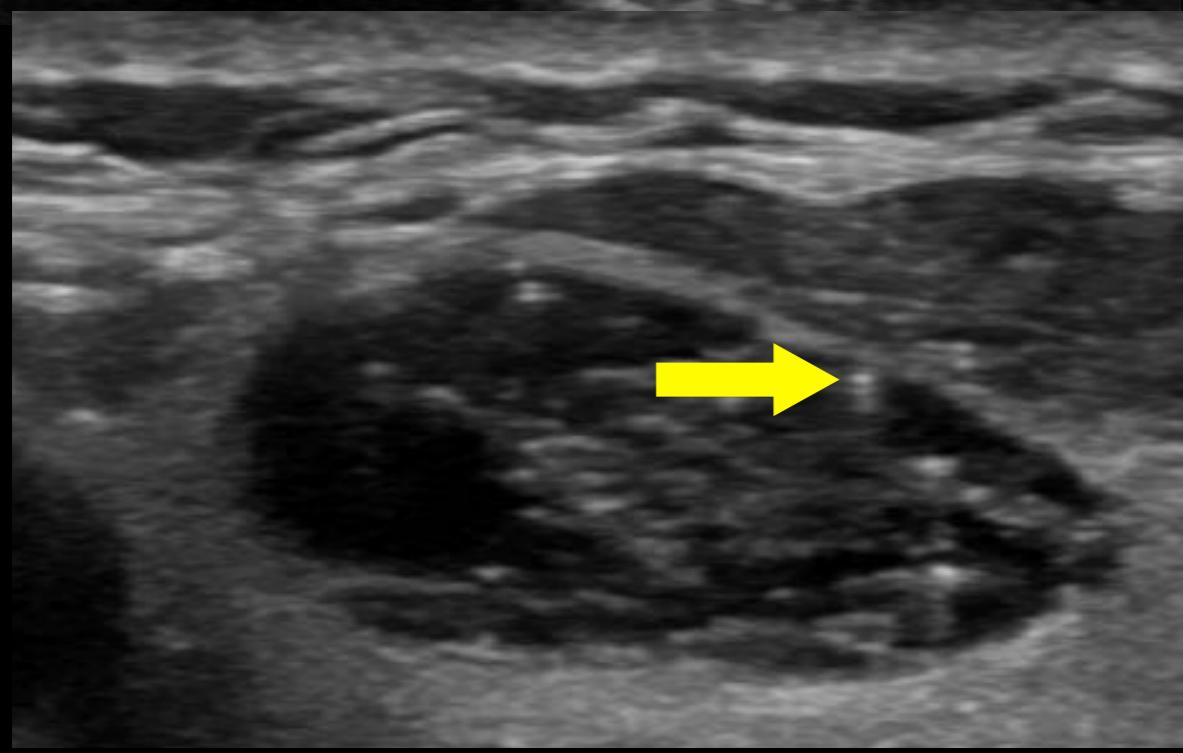
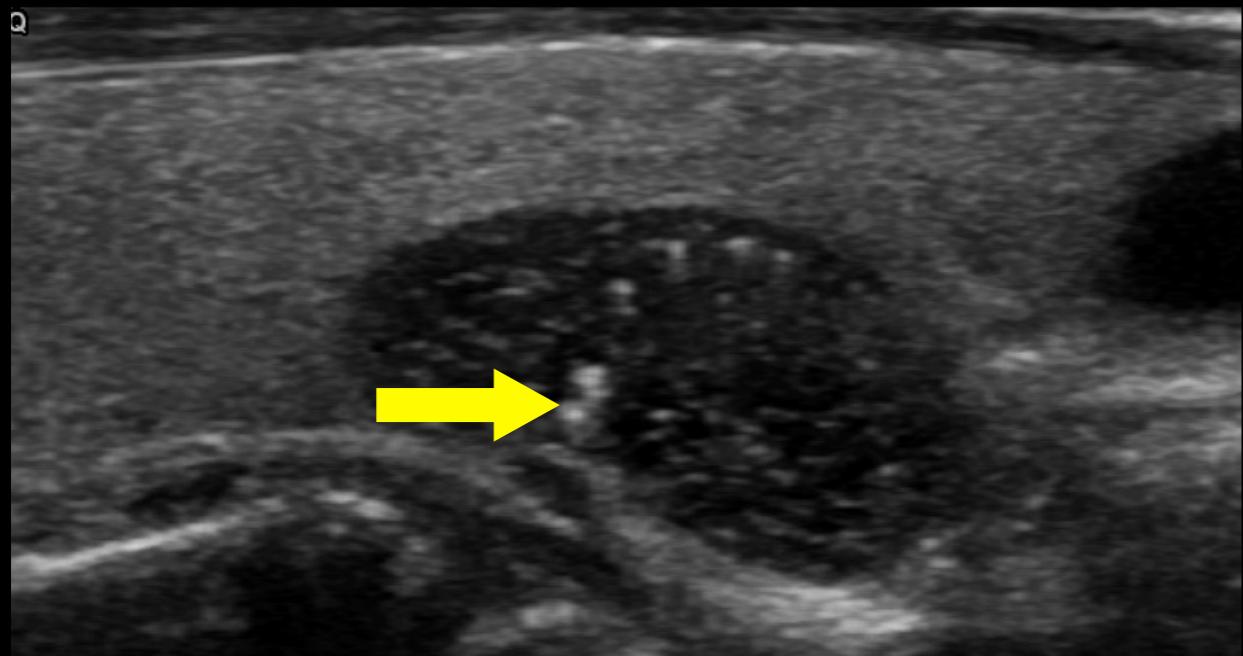
Border has focal rounded soft tissue protrusions that extend into the adjacent parenchyma. The lobulations may be single or multiple and may vary in conspicuity and size (small lobulations are referred to as microlobulated)

# Margin: Extrathyroidal Extension



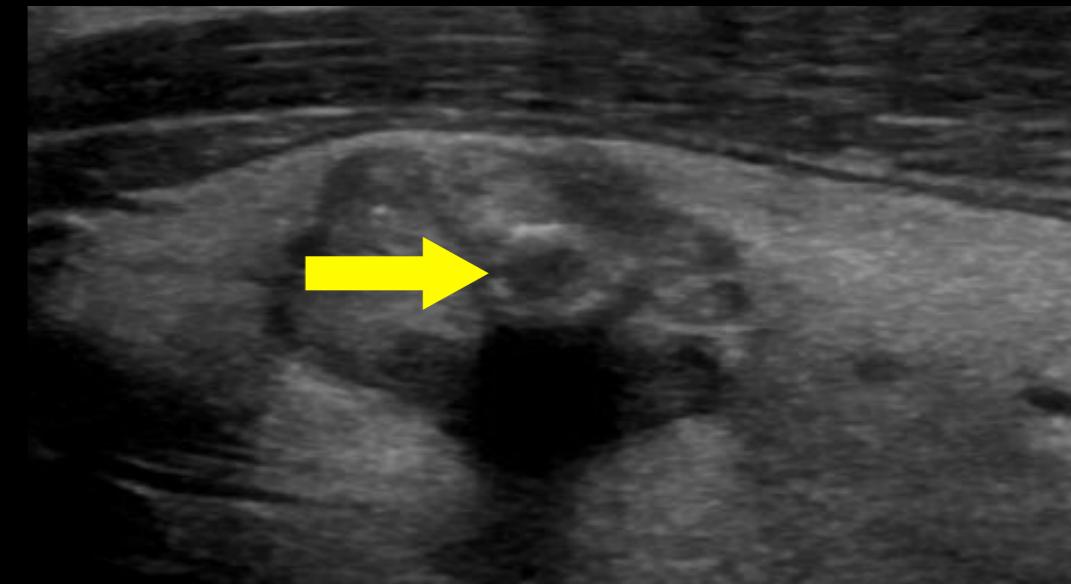
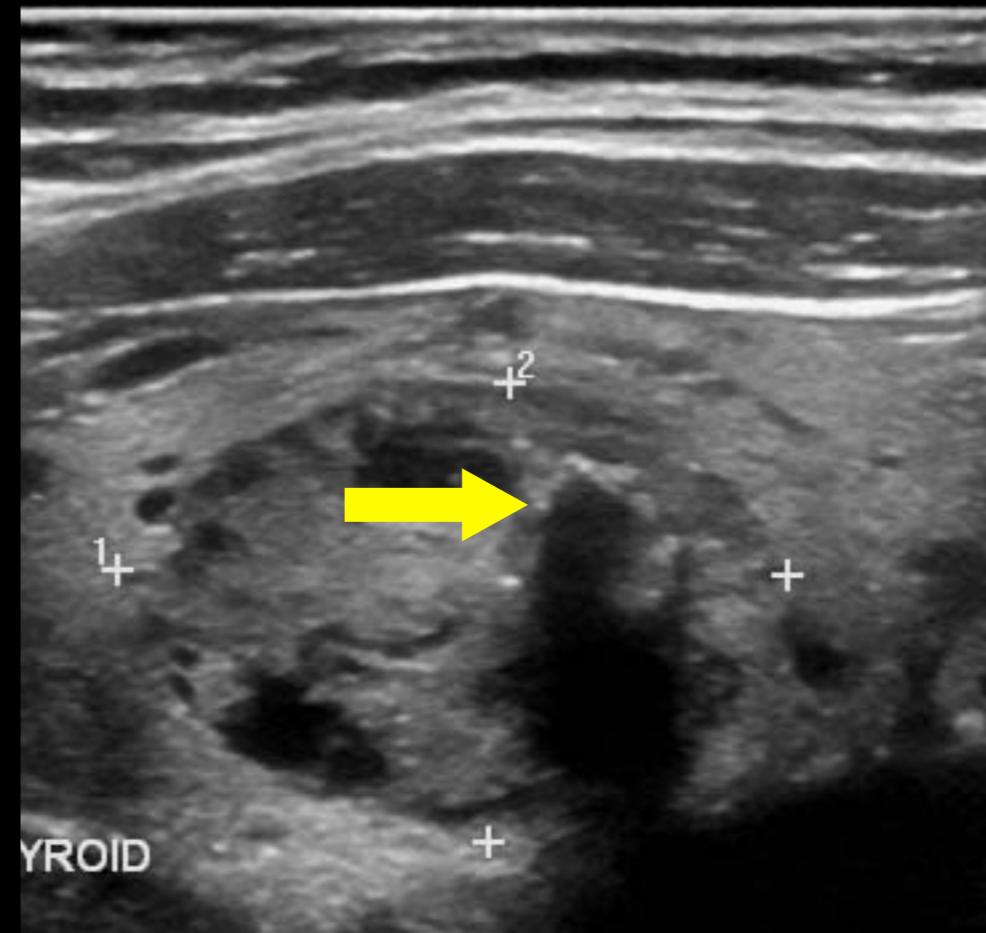
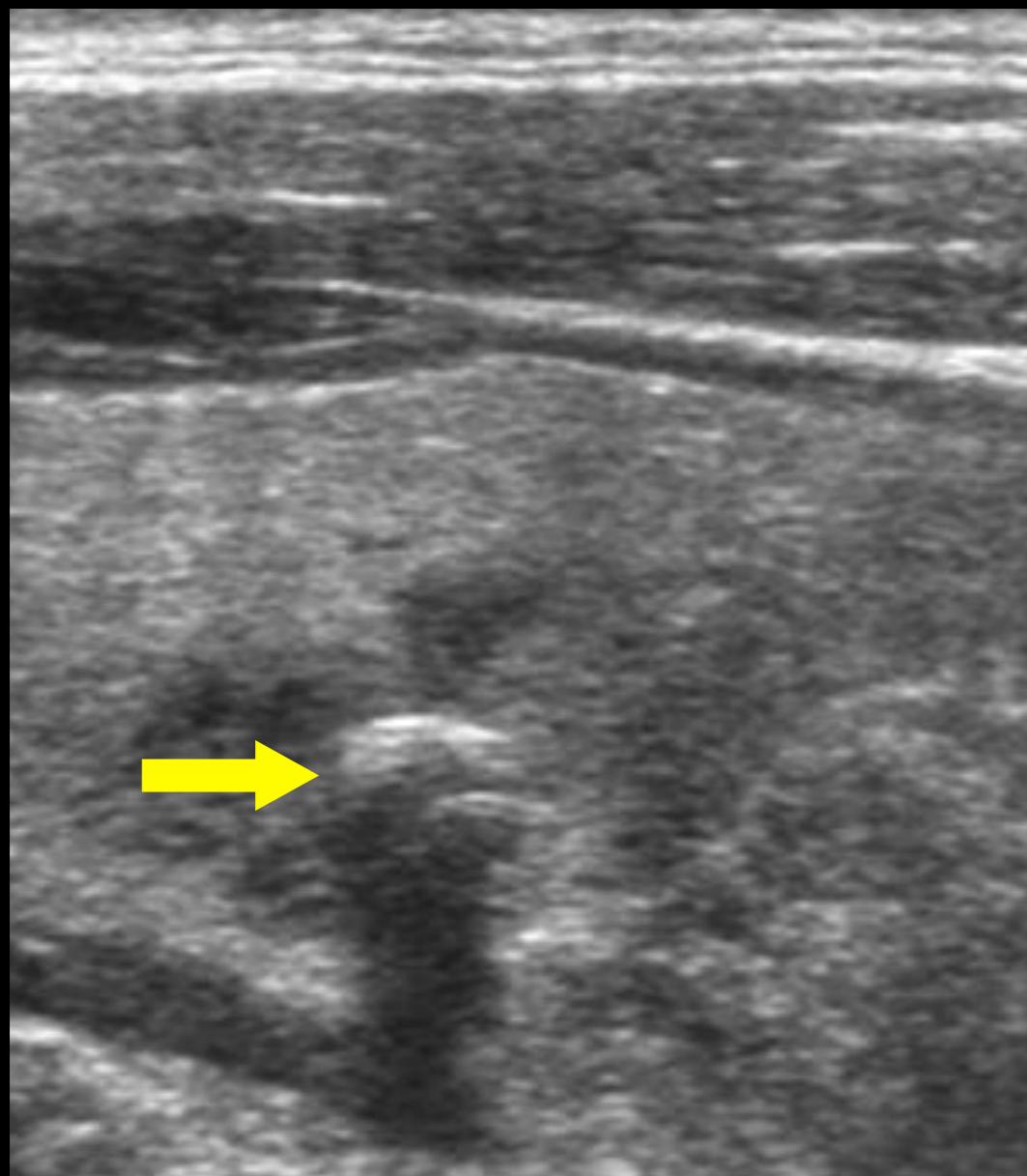
Nodule extends through the thyroid margin

# Echogenic Foci: Large Comet Tail



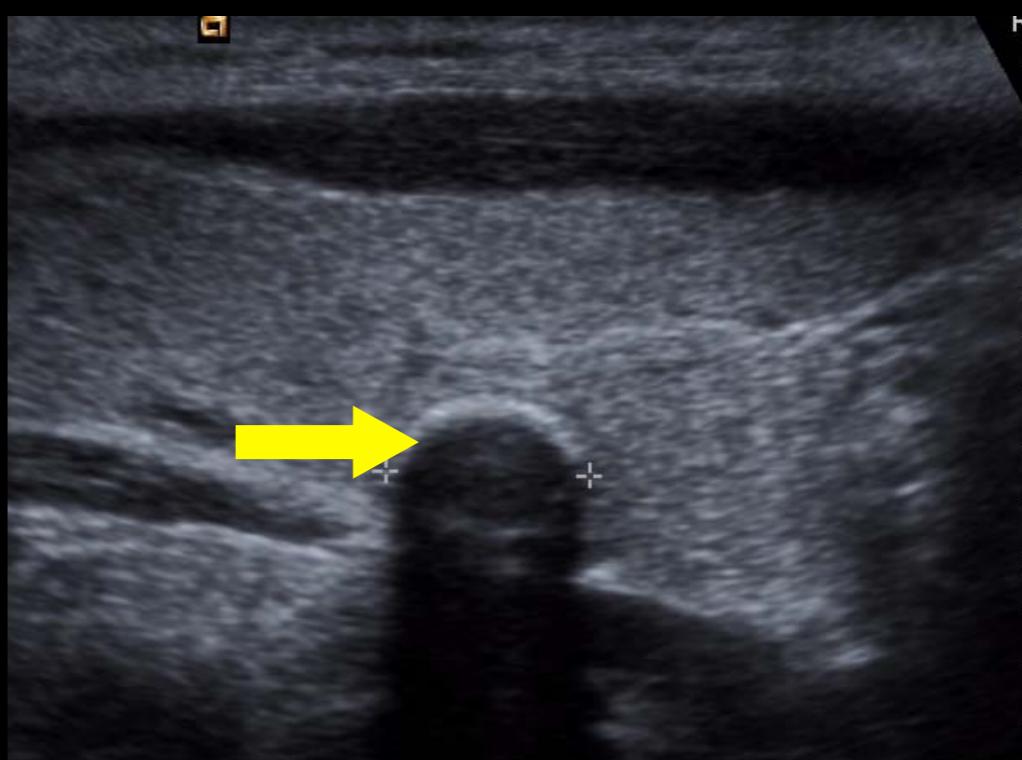
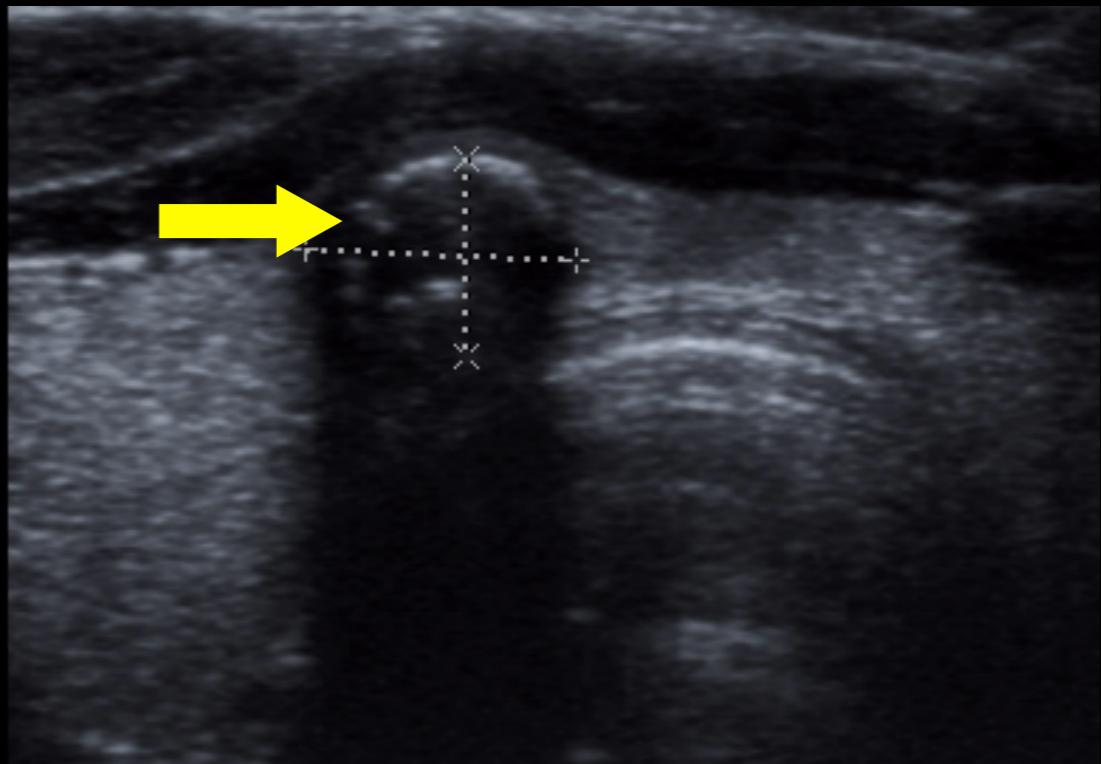
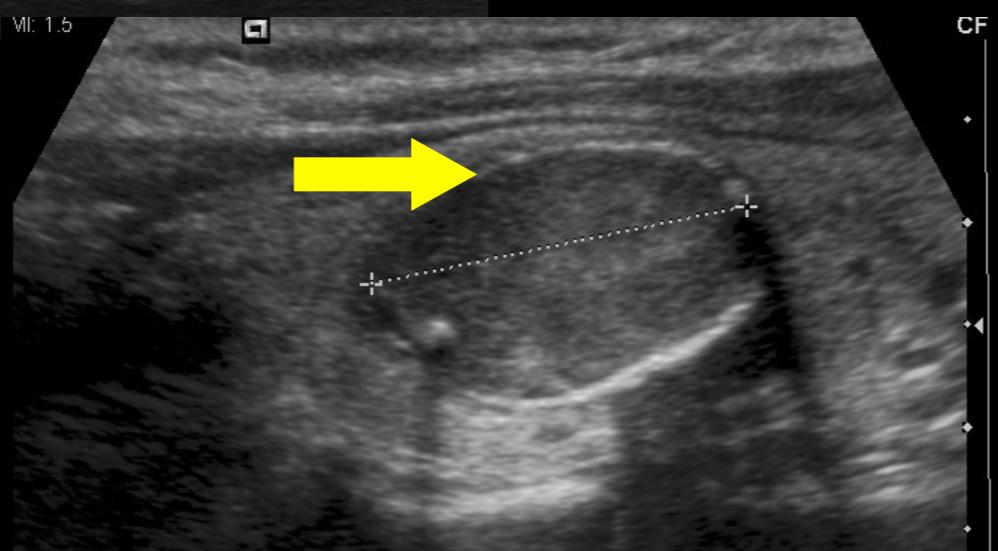
A comet-tail artifact is a type of reverberation artifact. The deeper echoes become attenuated and are displayed as decreased width, resulting in a triangular shape.

# Echogenic Foci: Macrocalcifications



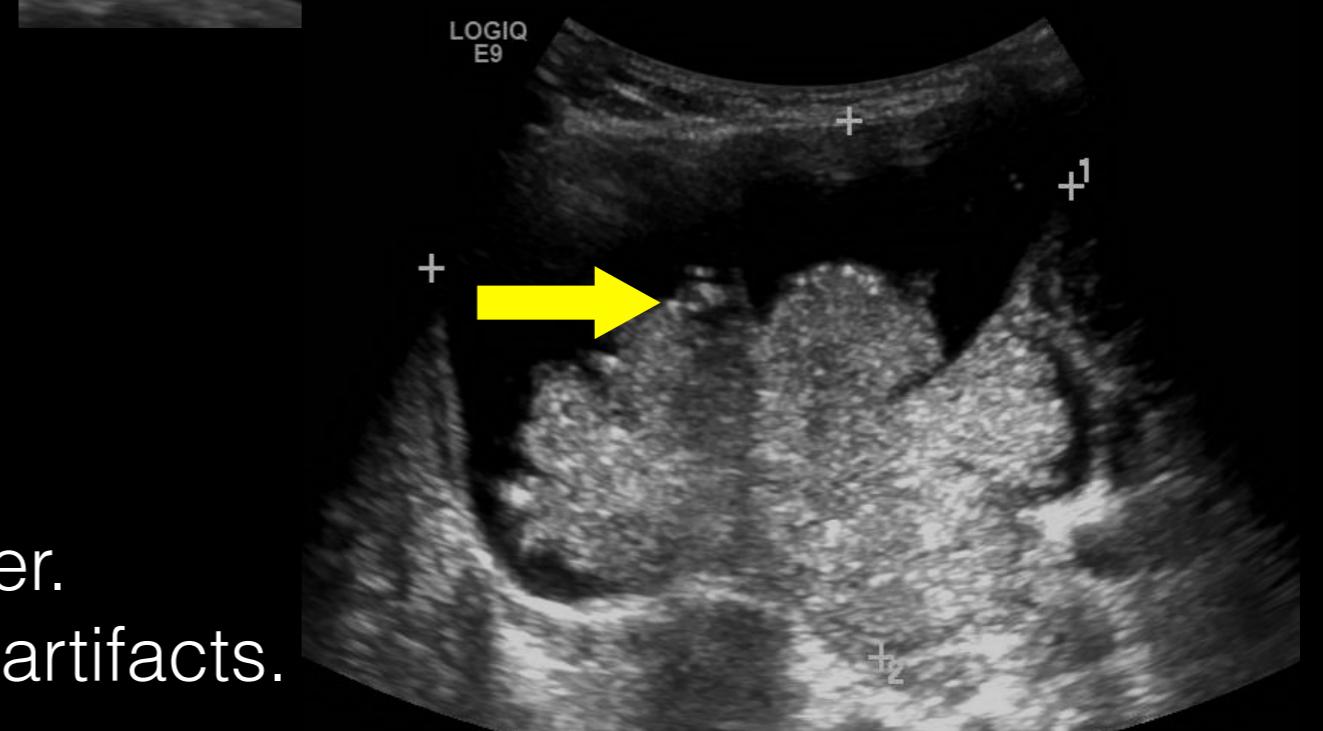
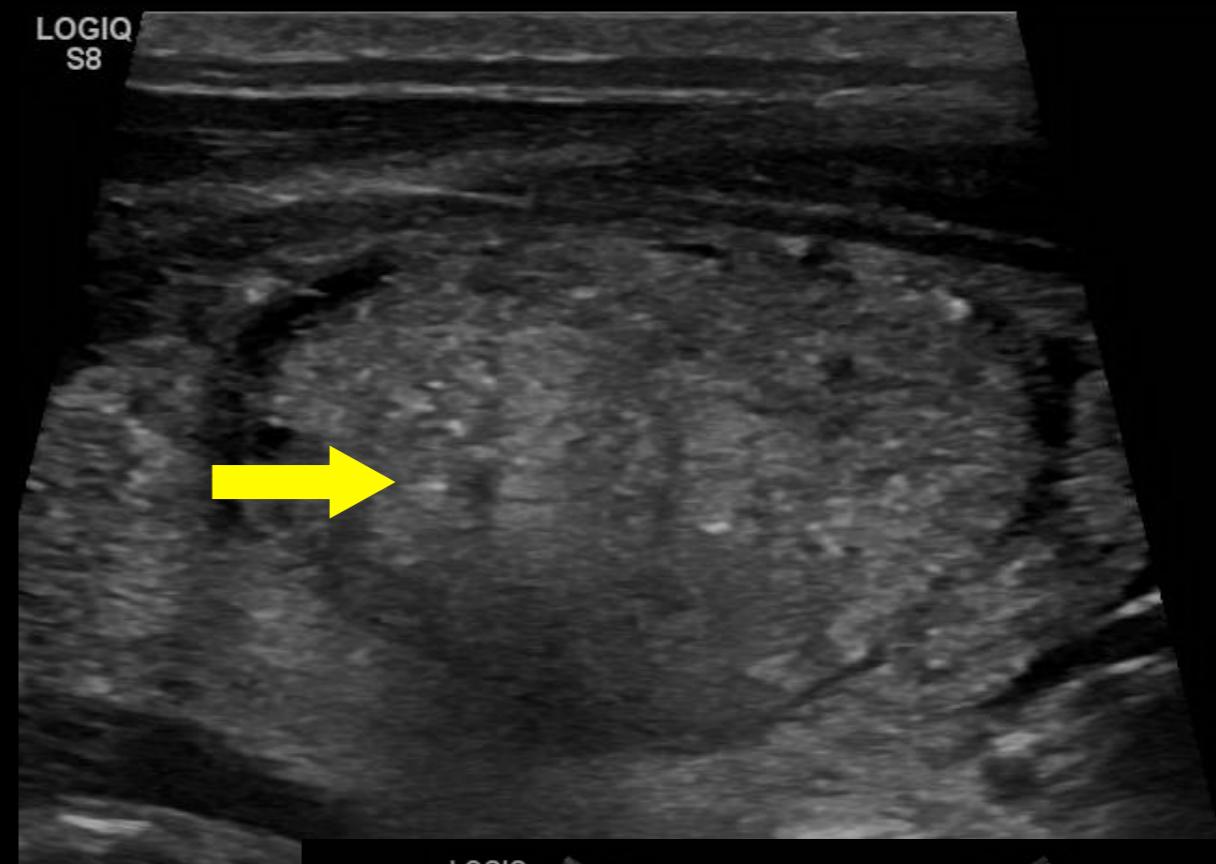
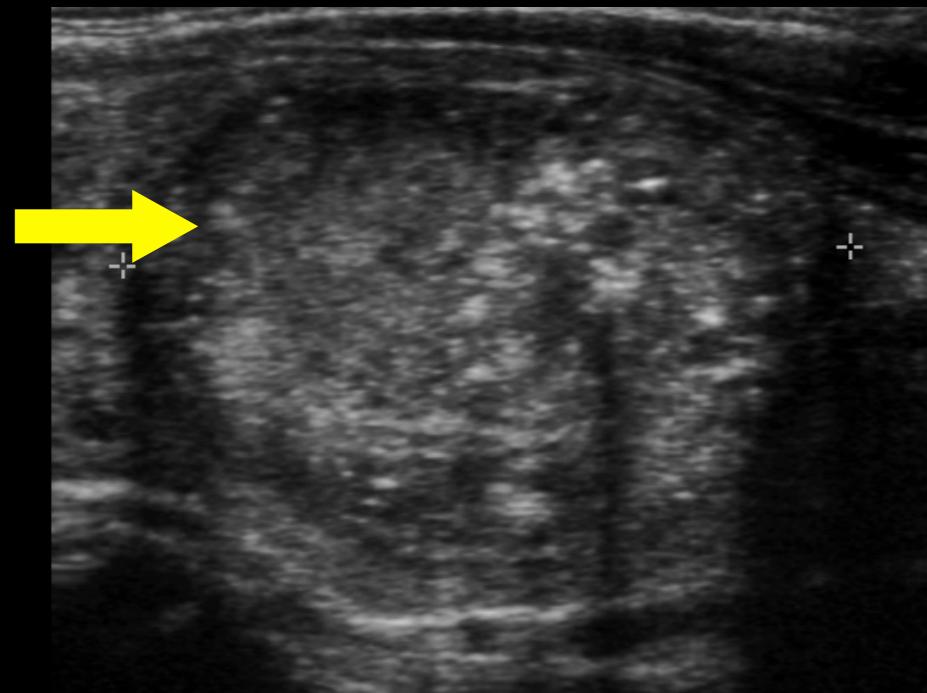
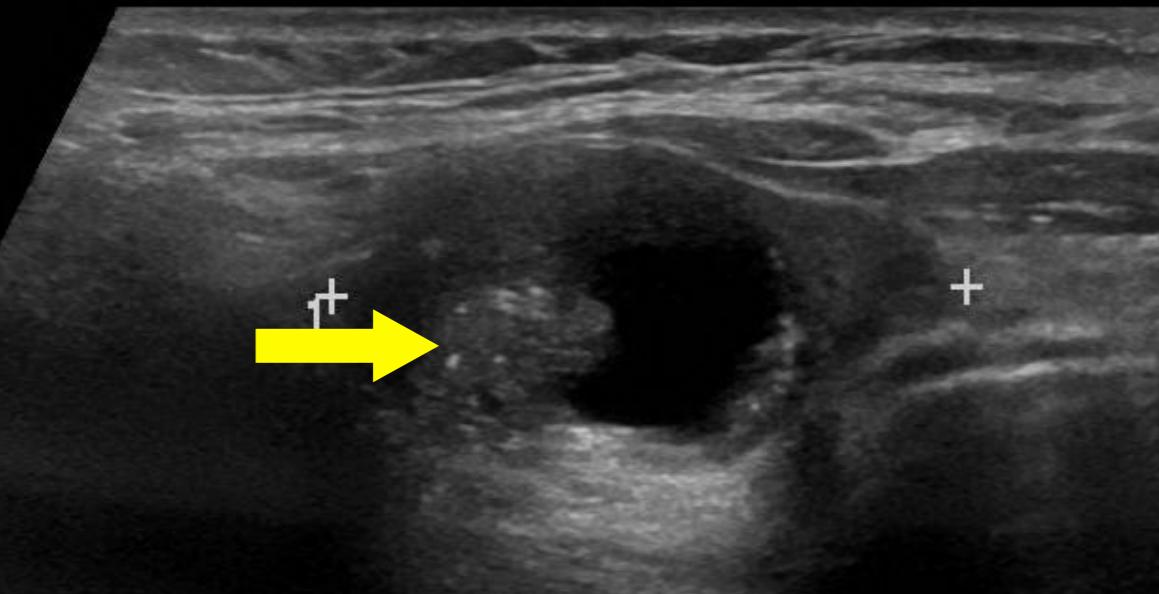
Calcifications that are large enough to result in posterior acoustic shadowing

# Echogenic Foci: Peripheral Calcifications



Calcifications occupy the periphery of the nodule. May not be continuous but generally involves the majority of the margin. Often dense enough to obscure the central components of the nodule (see Assumptions).

# Echogenic Foci: Punctate Echogenic Foci



“Dot-like” foci less than 1 mm in diameter.  
Occasionally can have small comet tail artifacts.

# REFERENCE

[http://www.jacr.org/article/S1546-1440\(15\)00684-5/abstract](http://www.jacr.org/article/S1546-1440(15)00684-5/abstract)

Grant EG, Tessler FN, Hoang JK, Langer JE, Beland MD, Berland LL, Cronan JJ, Desser TS, Frates MC, Hamper UM, Middleton WD, Reading CC, Scoutt LM, Stavros AT, Teefey SA. Thyroid Ultrasound Reporting Lexicon: White Paper of the ACR Thyroid Imaging, Reporting and Data System (TIRADS) Committee. J Am Coll Radiol. 2015 Dec;12(12 Pt A):1272-9. Review. PubMed PMID: 26419308.

ORIGINAL ARTICLE

CLINICAL PRACTICE MANAGEMENT



## Thyroid Ultrasound Reporting Lexicon: White Paper of the ACR Thyroid Imaging, Reporting and Data System (TIRADS) Committee



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Images from Sharlene A. Teefy

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