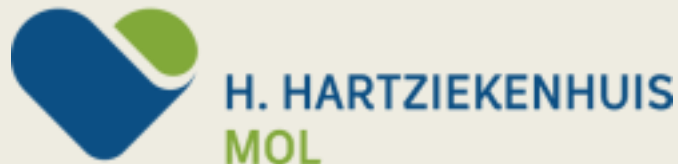


# Beeldvorming bij schildklierpathologie

Erik R. Ranschaert, MD, PhD  
Radioloog

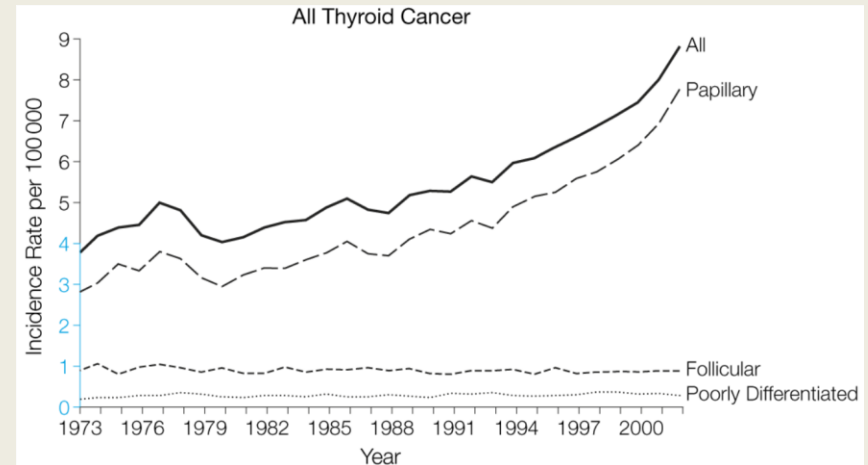


# Inleiding

- **Schildkliernodi:** steeds frequenter gediagnosticeerd vnl. door toenemend gebruik van echo  
->“incidentalomen”
- **Frequentie**
  - Bij > 50% van de mensen +40 jaar
  - *Palpabele* schildkliernodi: bij 38% van de volwassenen
  - SKca is echter vrij zeldzaam
  - A priori kans op maligniteit van *palpabele* nodus waarmee patiënt bij de huisarts komt  $\approx$  *max. 5%*.

# Incidentie SKca

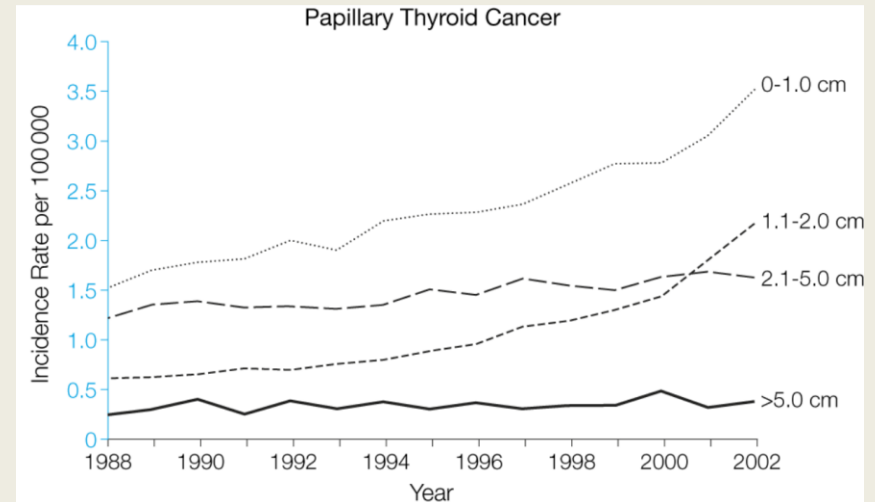
- **Schildkliercarcinoom** is zeldzaam
- Frequentie neemt toe.
  - M: 2/100.000/jaar
  - F: 4,5/100.000/jaar
  - In NL incidentie x2 op 10j
  - In VS incidentie x3
- In 56% < 1,5 cm
- Frequentiestijging vnl tgv toenemende gebruik **echografie**



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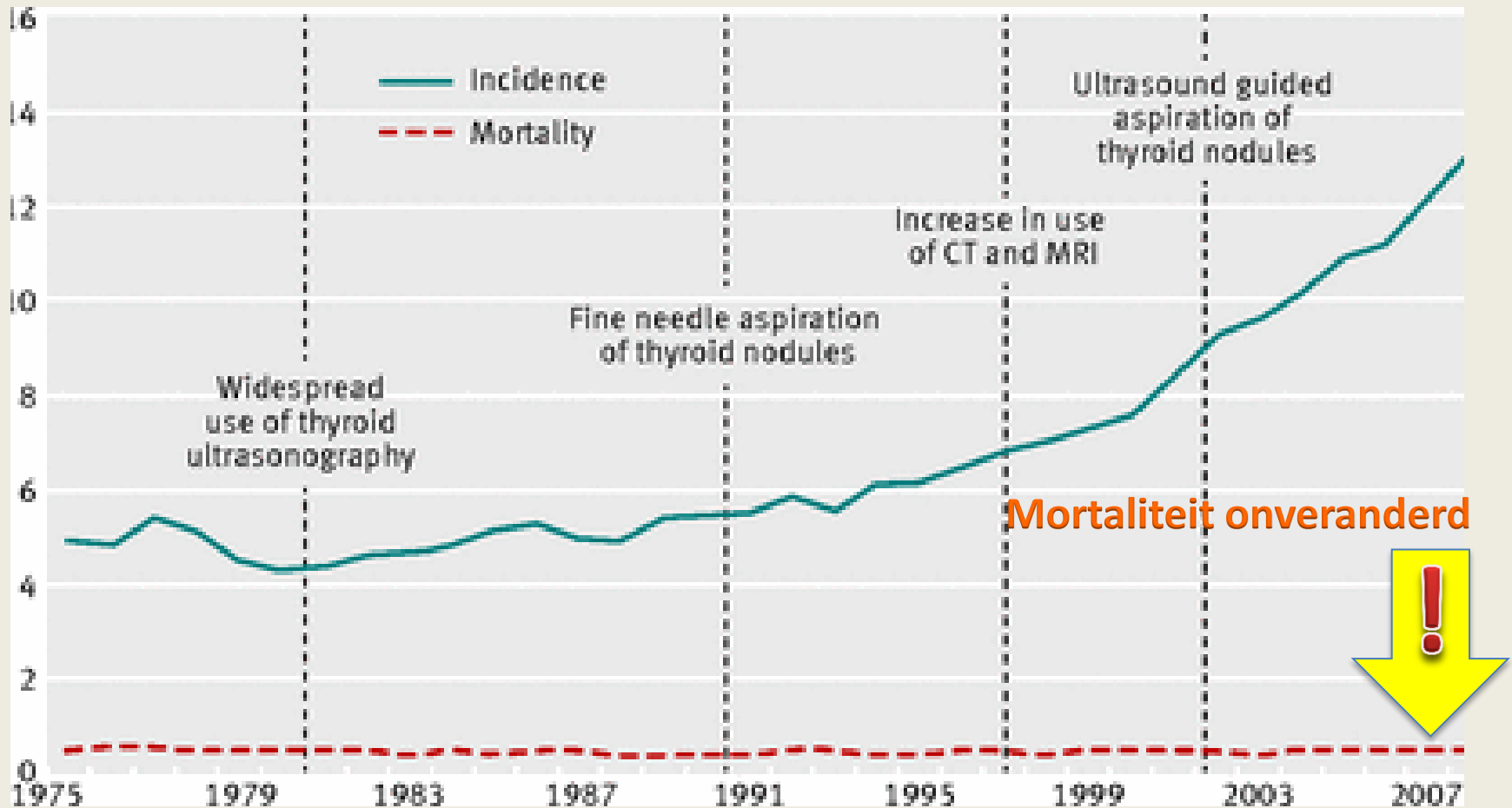
# Meest frequente types

- Meest frequent:  
Gedifferentieerd SKca:
  - $\pm 80\%$
  - papillair vs folliculair 4:1
- Typische kenmerken:
  - *jodiumopnemend vermogen*
  - productie van *thyreoglobuline* tumormarker
- Hoge overlevingskansen:  
resp. 95% en 70%
- Slecht gedifferentieerde vormen
  - medullair, anaplastisch, metastasen...



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# Impact van beeldvorming



*Thyroid cancer: zealous imaging has increased detection and treatment of low risk tumours.  
Brito et al. BMJ 2013; 347: 18 – 21.*

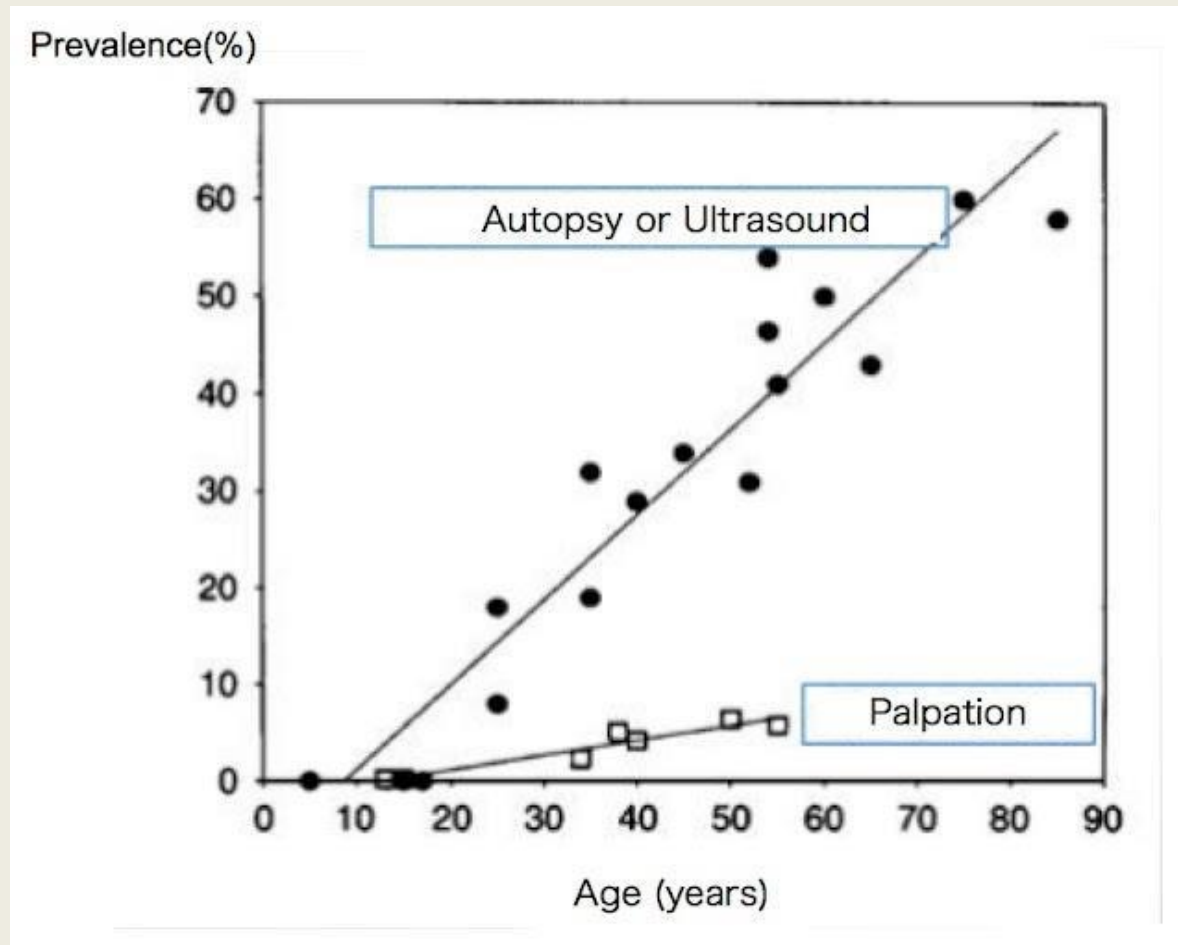
# Feiten

1. De incidentie van schildkliertumoren neemt toe
2. Rol van beeldvorming neemt toe
3. De mortaliteitscijfers blijven onveranderd



er is **overdiagnose**

# Het probleem van de SK nodus



Oneigenlijk gebruik en onjuiste verslaglegging leiden naar een epidemie van schildkliernodi, waarvan de meeste benigne zijn

# Richtlijnen

- Echografie is onderzoek van 1<sup>e</sup> keus
- Er wordt geadviseerd om gebruik te maken van echogeleide FNAC
- De *meest recente* richtlijnen houden meer rekening met *gestandaardiseerde beoordeling en verslaglegging* bij beeldvorming



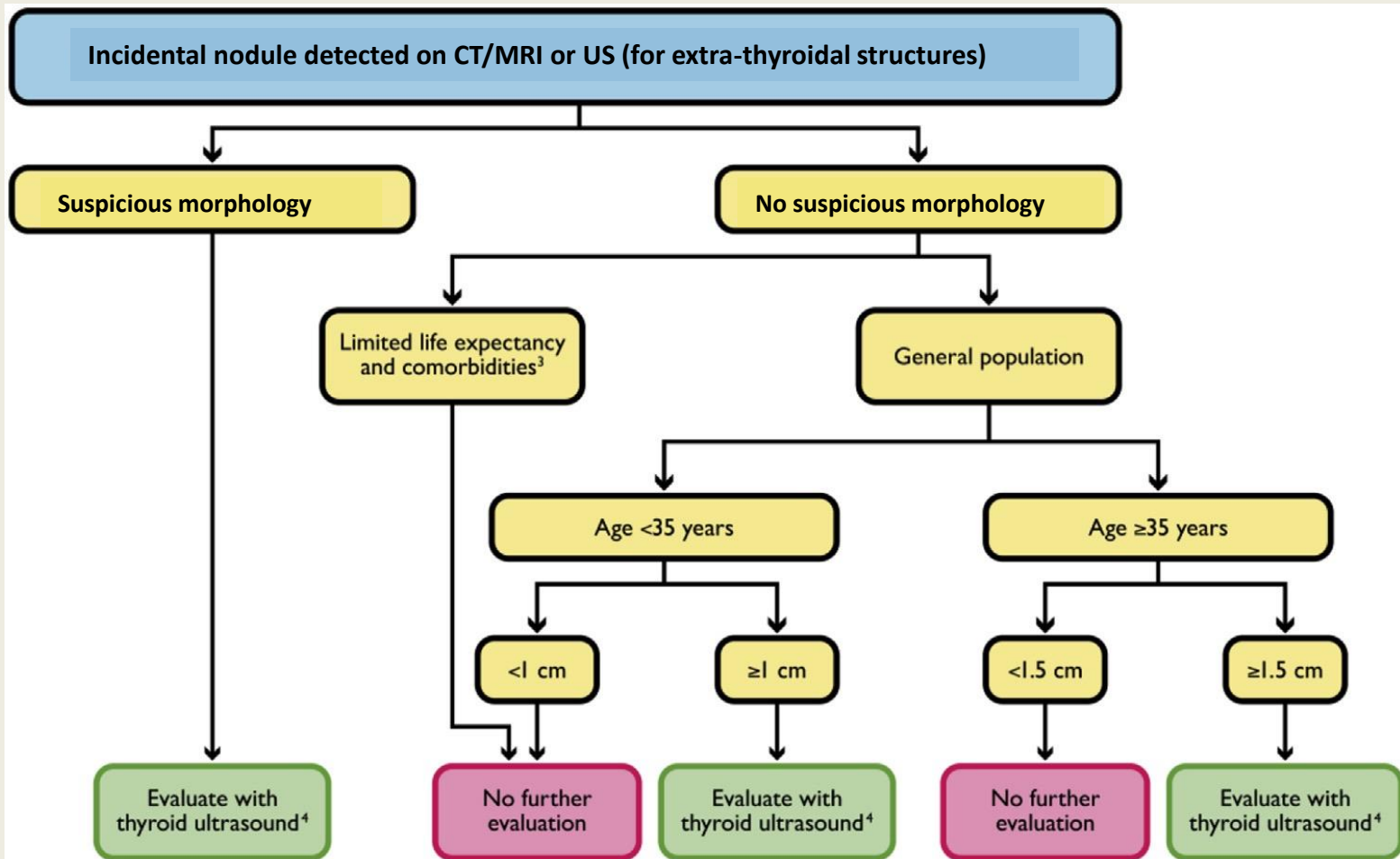
# Toepassing richtlijn

- Oncoline.nl adviseert duidelijk om alléén bij aanvullende argumenten diagnostiek te verrichten bij patiënten met een incidentaloom.
- Aanvullende argumenten:
  - *Verontrustende echografische kenmerken*
  - *Voorgeschiedenis patiënt, bv. uitwendige radiotherapie hals op jonge leeftijd, belaste familieanamnese*
  - *Ongerustheid bij patiënt...*
- Daarom is deze richtlijn ook van belang voor de eerste lijn.

# ACR richtlijn (2015)

- Indien nodi bij CT/MRI onregelmatig of wazig begrensd zijn -> “suspect” -> echografie.
  - Technisch moeilijk en “subjectief”. In NL wordt SK niet beoordeeld op CT tenzij in kader van massawerking op trachea/mediastinum
- Indien morfologie “niet-suspect” is -> verdere beleid ngl *leeftijd patiënt* en *grootte van letsels*
- Bij patiënten met *lage levensverwachting* (omw. van oncologie, co-morbiteit, ...) -> geen verdere diagnostiek

# Incidentalomen bij CT/MRI/echo



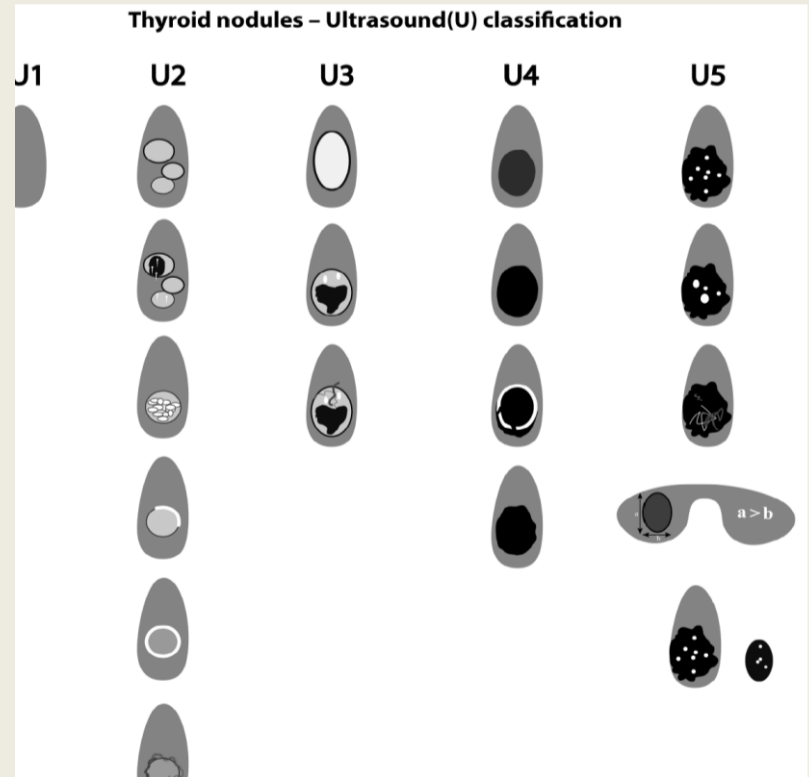
The Committee recommends that all patients with ITNs with suspicious features have ultrasound to confirm the findings, with consideration for FNA.

# Echografie SK

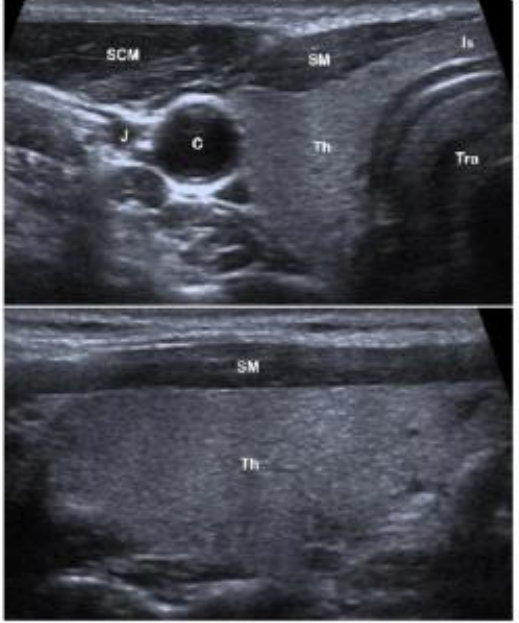
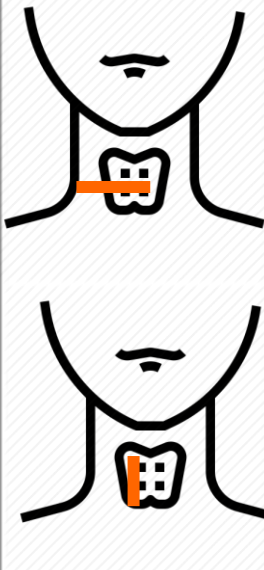
- Echo is sensitief in het identificeren van verdachte letsels die FNAC nodig hebben
- U1–5 classificatie kan de beslissing tot noodzaak van FNAC mee onderbouwen
- De noodzaak voor FNAC wordt gebaseerd op de combinatie van echografische én klinische bevindingen
- Voor 1<sup>e</sup> lijn: bij U3 -> consult endocrinoloog

# U 1-5 classificatie

- De British Thyroid Association (BTA) introduceerde de classificatie van SK nodules (U1–U5)
- Doel:
  - Beoordeling en verslaglegging standaardiseren
  - Beslissing mbt het al dan niet uitvoeren van FNAC vereenvoudigen
  - Communicatie en evaluatie vereenvoudigen



# U1

BTA U-classification	Thyroid ultrasound & description	Fine needle aspiration cytology (FNAC)
<p>U1 – Normal</p>	 <p>a. Axial view of right thyroid lobe (Th). Isthmus (Is) is anterior to the trachea (Tra). The carotid artery (C) is round and hypo-echogenic located laterally to the thyroid. Internal jugular vein (J) is lateral to the carotid artery. Strap muscle (SM) and sternocleidomastoid muscle (SCM) wrap around the anterior aspect of the thyroid.</p> <p>b. Longitudinal view of the right thyroid lobe.</p>	<p>Not required*</p> 

# U2 – benigne (cyste)

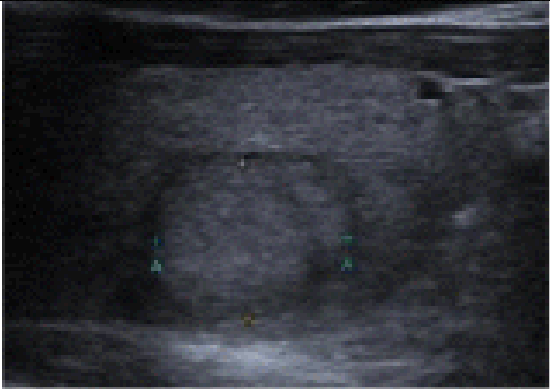

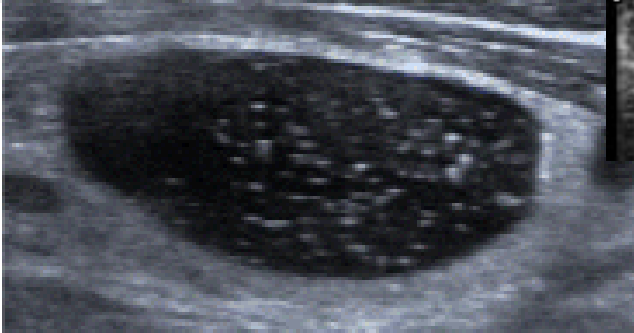


# U2: grote cyste met septae



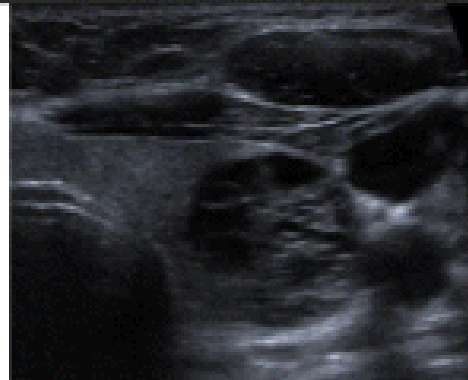


# U2: benigne

BTA U-classification	Thyroid ultrasound & description	Fine needle aspiration cytology
<p>U2 (a) – Benign:  <span style="border: 1px solid orange; border-radius: 50%; padding: 2px;">halo, iso-echoic / mildly hyper-echoic</span></p>	 <p>a. A benign nodule. It is iso-echoic relative thyroid, and surrounded by a hypoechoic</p>	 <p>Iso-echoegen</p>
<p>U2 (b) – Benign:  <span style="border: 1px solid orange; border-radius: 50%; padding: 2px;">cystic change +/- ring down sign (colloid)</span></p>	 <p>b. A benign cystic nodule with multiple colloids, which are seen as hyper-echoic spots with comet-tail.</p>	

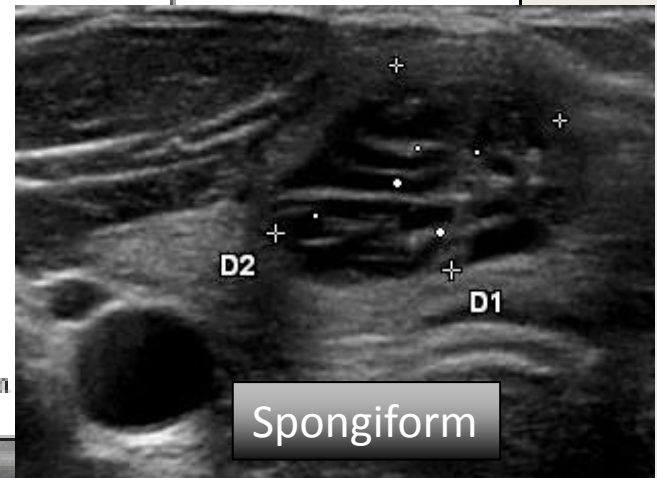
# U2

U2 (c) – Benign:  
Micro-cystic /  
spongiform



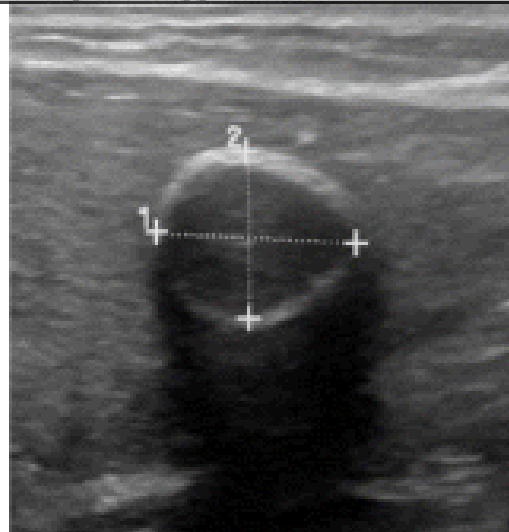
c. A benign nodule with hypo-echoic cystic spaces resulting in a spongiform honeycomb appearance.

Not required\*

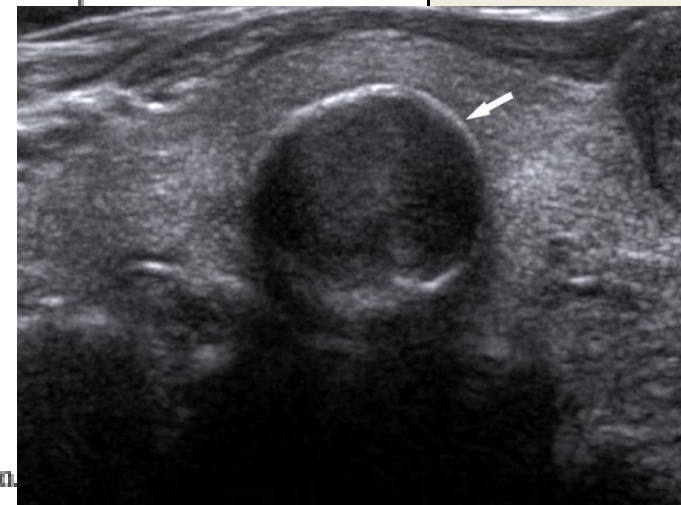


Spongiform


U2 (d & e) –  
Benign. Peripheral  
egg shell  
calcification



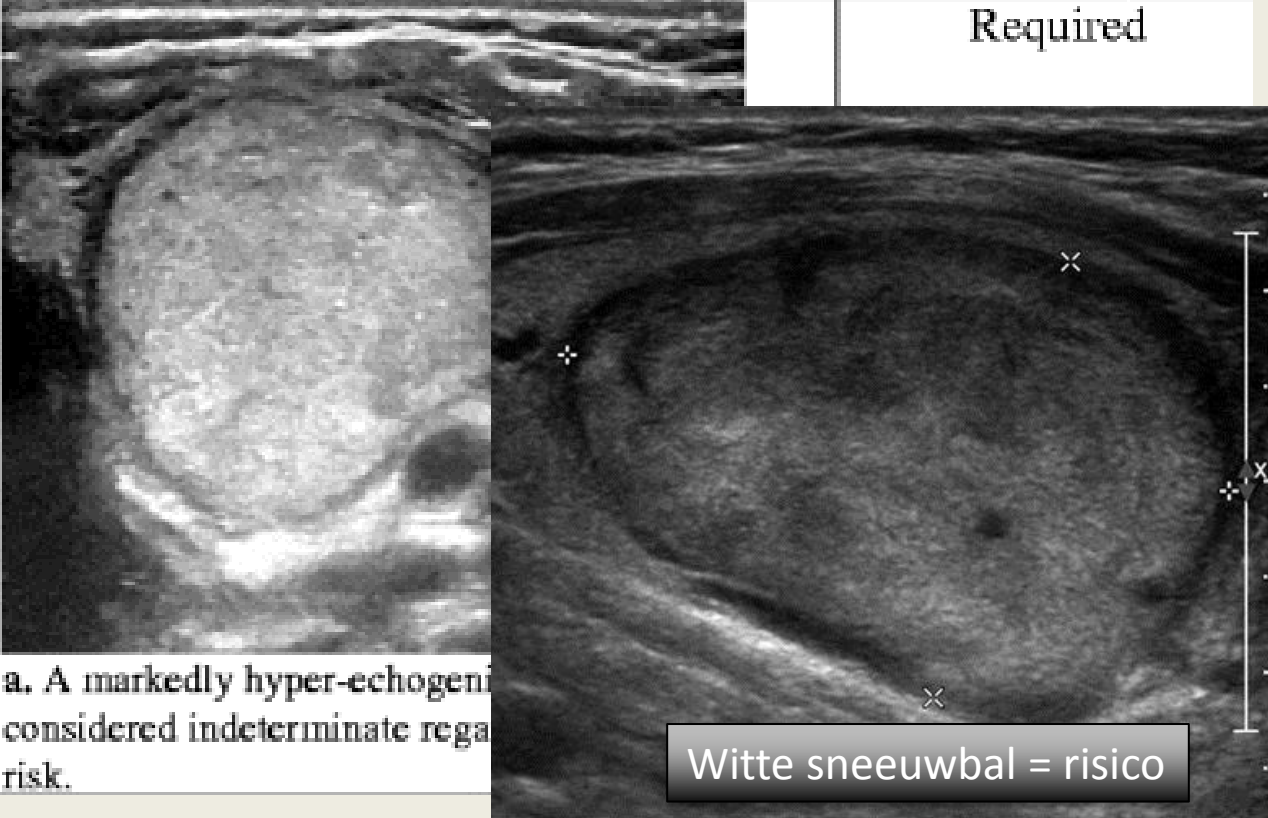
d. A benign nodule with eggshell calcification. Note the acoustic shadowing produced by the calcific ring.




# U2

<p>U2 (f) – Benign: Peripheral vascularity</p>	 <p data-bbox="788 896 1006 1029">Ring of Fire</p> <p data-bbox="633 986 1083 1053">f. A benign peripheral vascularity on doppler assessment.</p>	<p>Not required*</p>
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# U3 = indeterminate

BTA U-classification	Thyroid ultrasound & description	Fine needle aspiration cytology (FNAC)
<p>U3 (a) – Indeterminate: Homogenous, <b>hyper-echoic</b> (markedly), solid, halo (follicular lesion)</p>	 <p>a. A markedly hyper-echogenic nodule is considered indeterminate regarding malignancy risk.</p>	<p>Required</p>

# U3

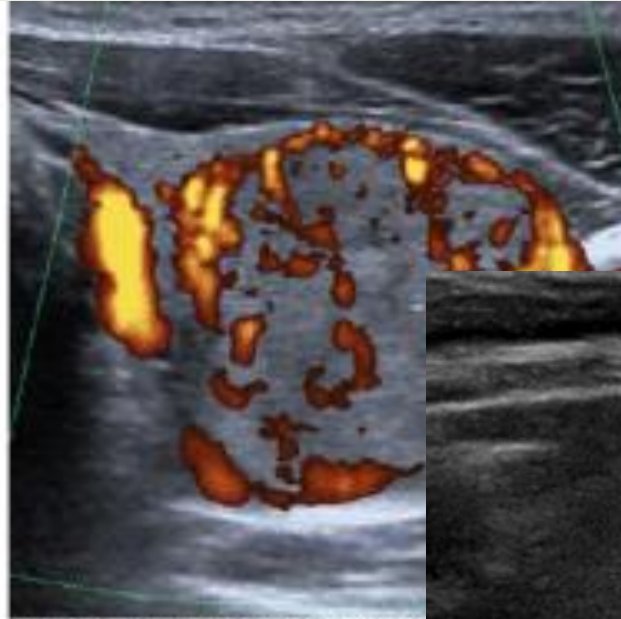
<p>U3 (b) – Indeterminate: ?Hypo-echoic, equivocal <b>echogenic focus</b> cystic change</p>	 <p data-bbox="548 1011 1321 1090"><b>b.</b> A nodule containing an echogenic focus that appears to be cystic is indeterminate.</p>	<p>Required</p>
---	--	-----------------

# U3

U3 (c) –  
Indeterminate:

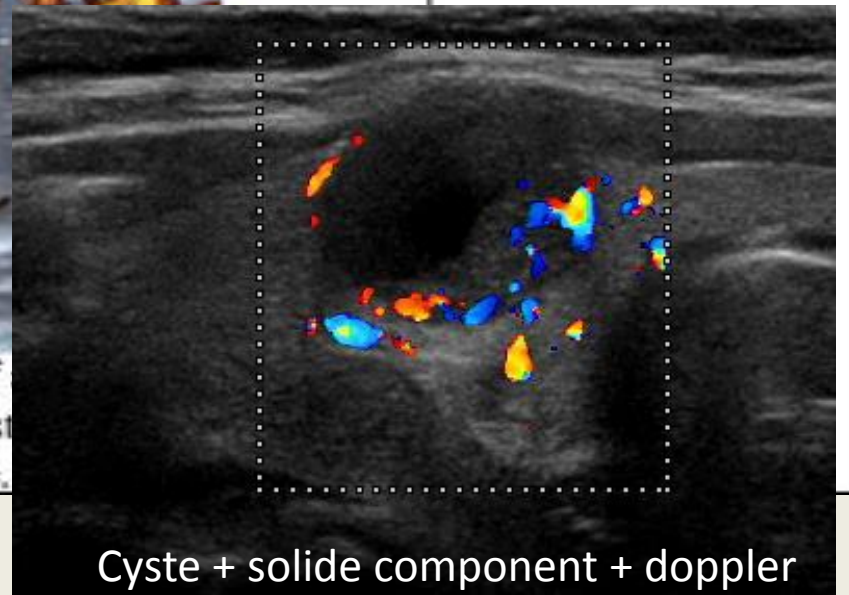
Mixed vascularity

Ring + intern



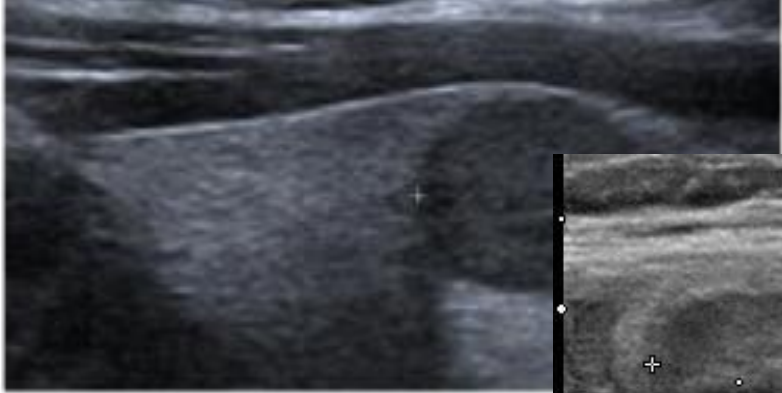
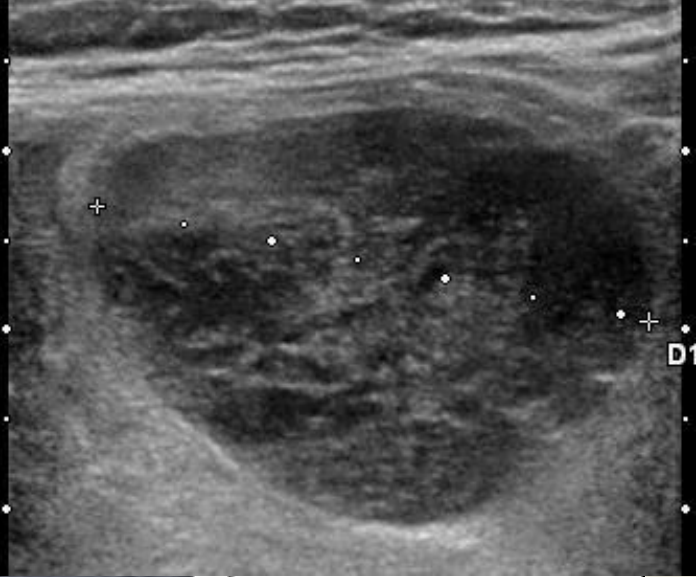
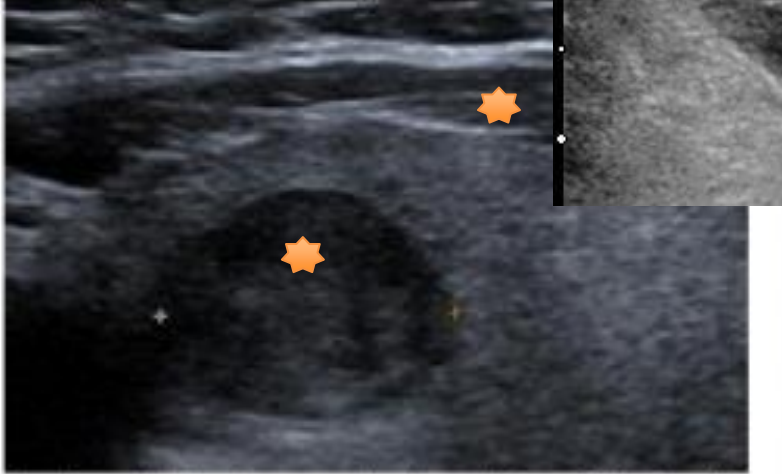
c. Doppler assessment of vascularity, which consists of intra-nodular vasculature.

Required



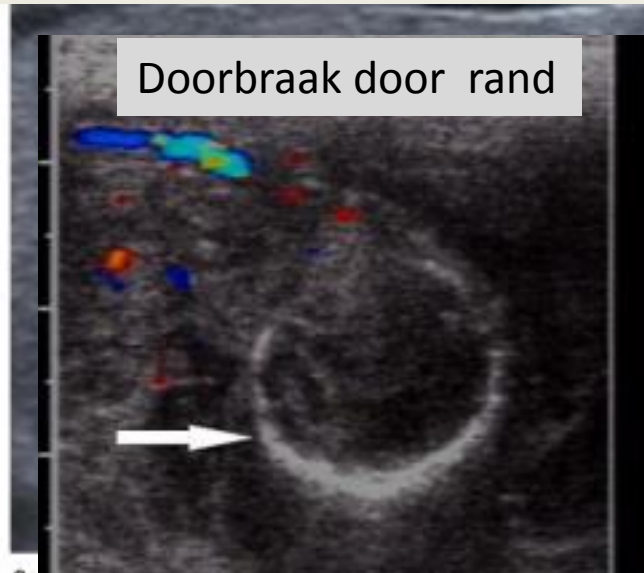
Cyste + solide component + doppler

# U4 = suspicious

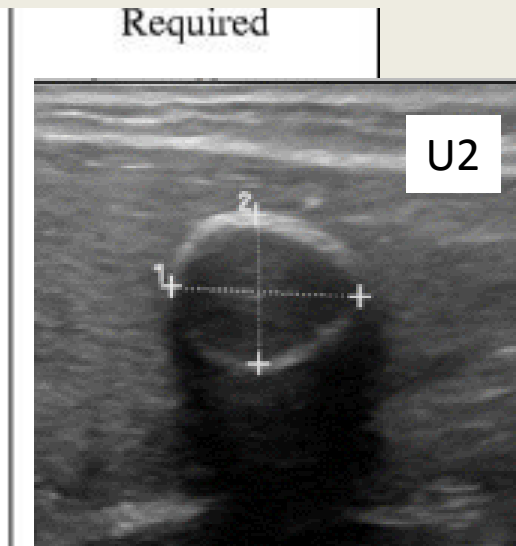
<p>U4 (a) – Suspicious: Solid, <b>hypo-echoic</b> (cf thyroid)</p> <p>DISCREET echoarm Heterogeen</p>		<p>Required</p>
	<p>a. A suspicious hypo-echoic nodule signal lower than the surrounding th but higher than the strap muscle abo</p>	
<p>U4 (b) – Suspicious: Solid, very hypo-echoic (cf strap muscle)</p>		
	<p>b. A suspicious hypo-echoic nodule with signal lower than both thyroid tissue and strap muscle.</p>	

# U4

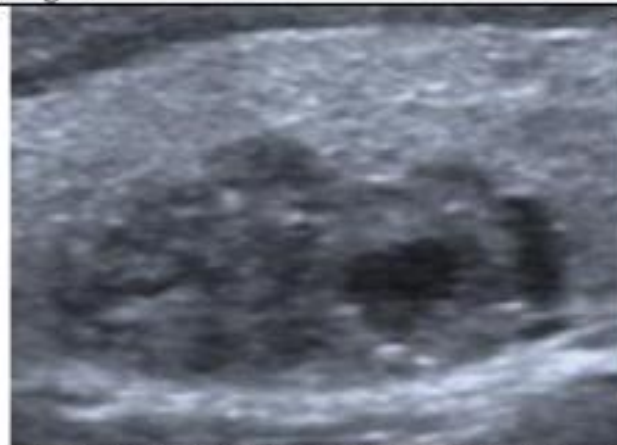
U4 (c) –  
Suspicious:  
**Disrupted**  
peripheral  
calcification, **hypo-**  
echoic



c. A suspicious hypo-echoic nodule with interrupted eggshell calcification around the edges.



U4 (d) –  
Suspicious:  
**Lobulated** outline

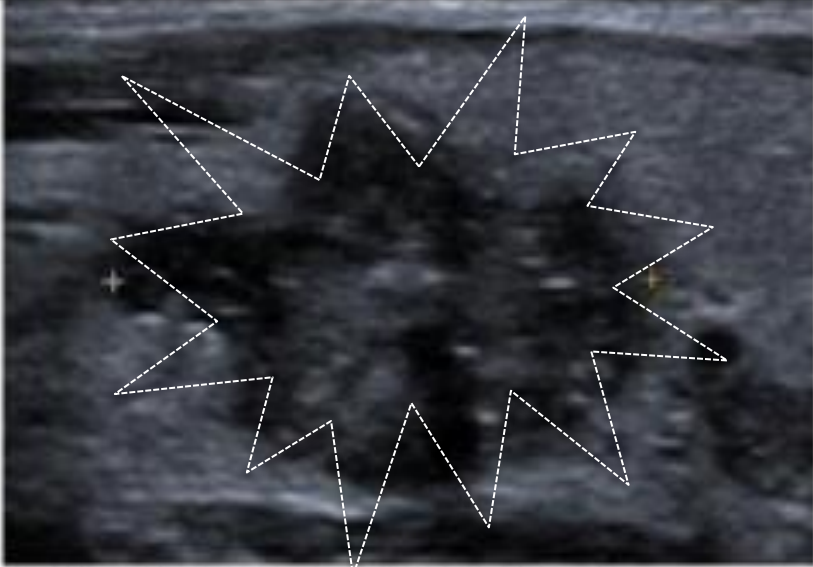


d. A suspicious hypo-echoic nodule with a lobular margin.

Required

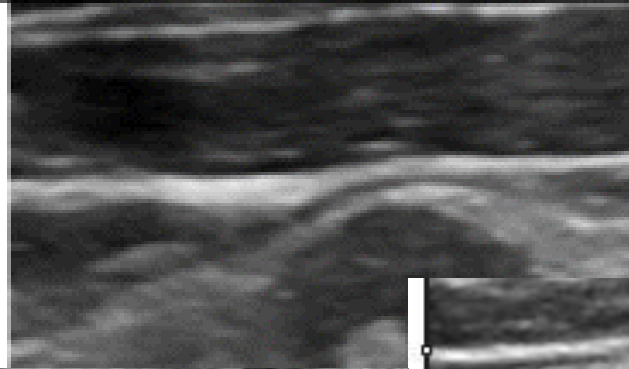


# U5 = maligne

<p>U5 (a) – Malignant: Solid, hypo-echoic, lobulated / irregular outline, micro-calcification (?Papillary carcinoma)</p>		<p>Required</p>
	<p>a. This hypo-echoic nodule has small hyper-echoic foci of calcification and an irregular lobulated contour. FNAC confirmed papillary thyroid cancer.</p>	

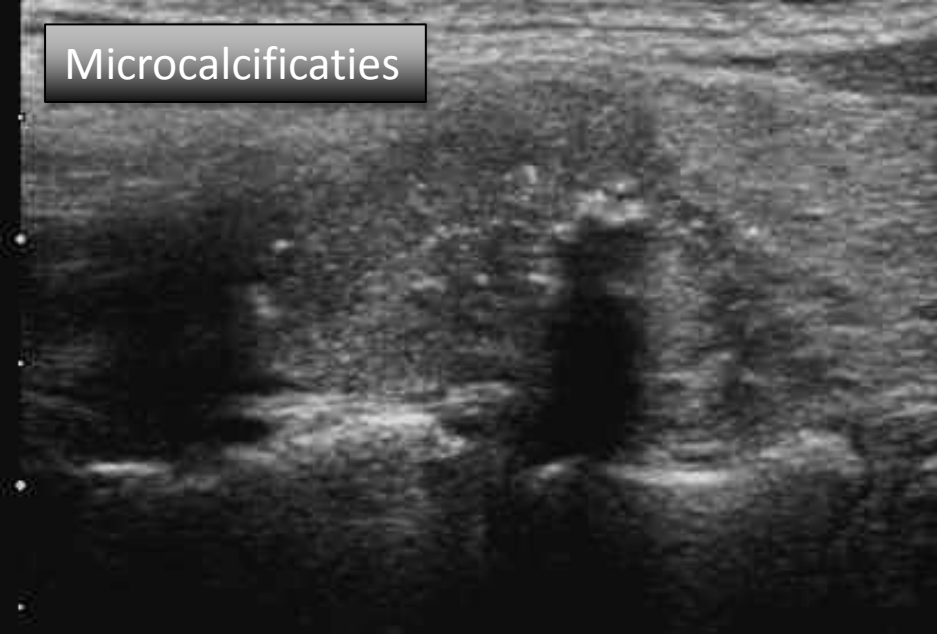
# U5

U5 (b) –  
Malignant: Solid,  
hypo-echoic,  
lobulated /  
irregular outline,  
globular  
calcification

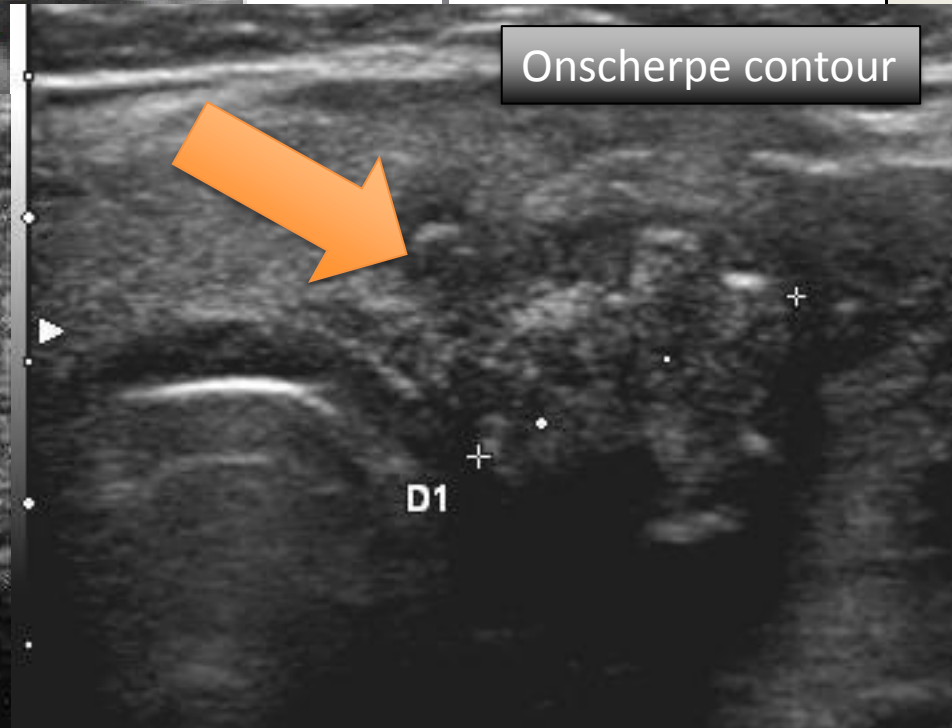


Required

Microcalcifications

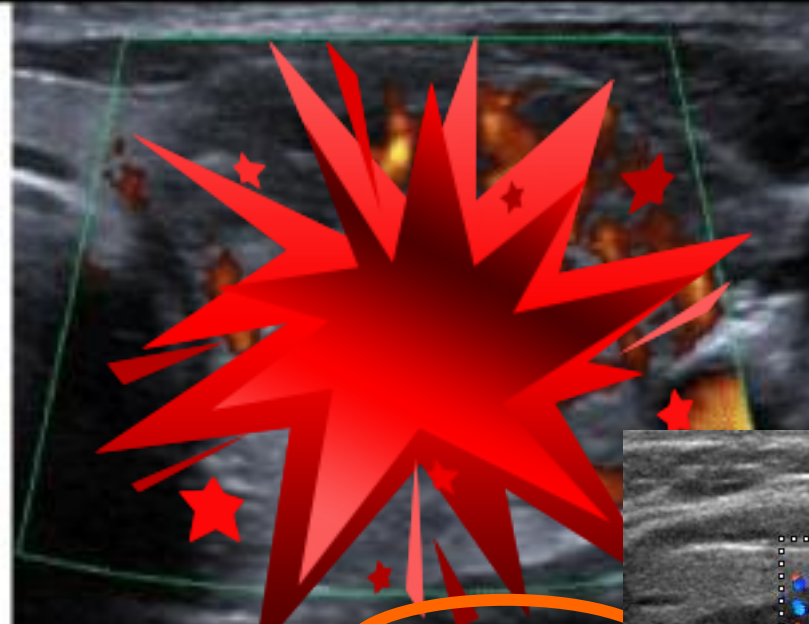


Onscherpe contour



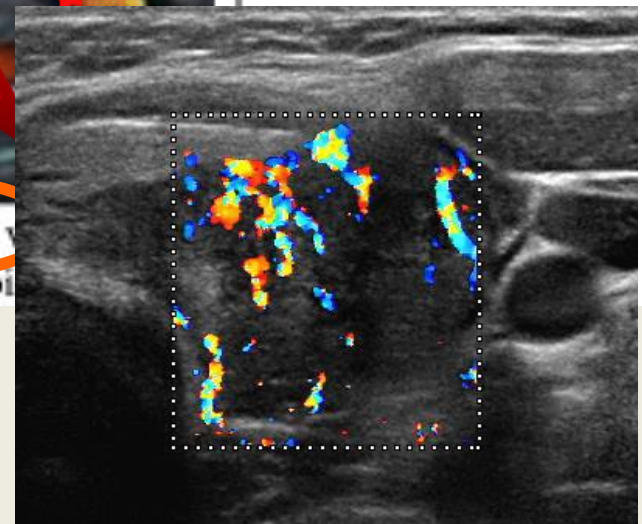
# U5

U5 (c) –  
Malignant: Intra-  
nodular vascularity

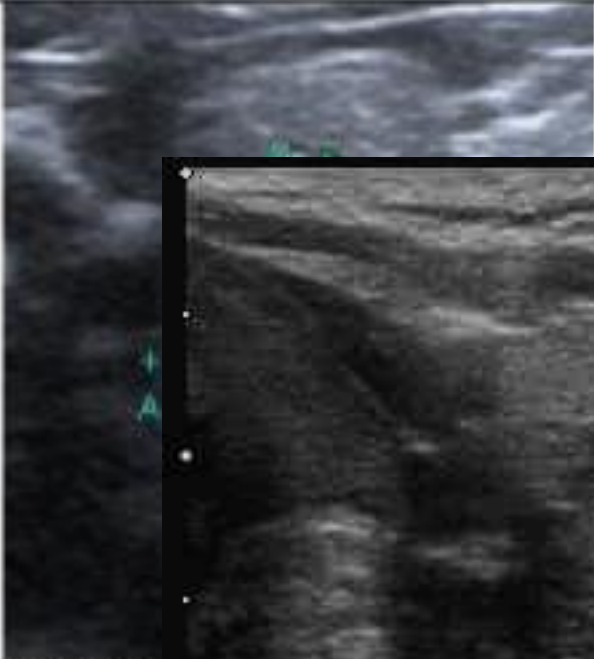

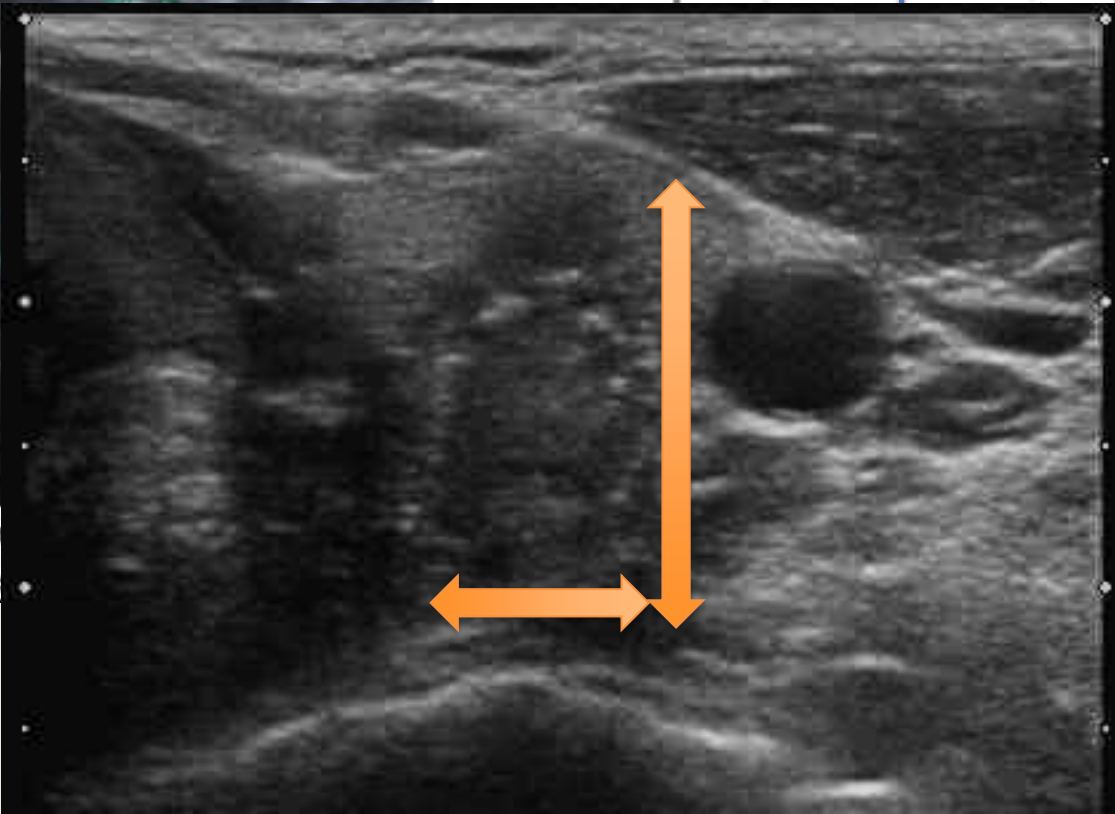


c. Thyroid nodule with intra-nodular vascularity. Later confirmed to be papillary thyroid carcinoma.

Required



# U5

<p>U5 (d) – Malignant. Shape (taller &gt; wide)</p>			<p>Required</p> 
<p>d. A hypo is consid</p>			

# Echogeleide FNAC

- Elke onduidelijke (indeterminate) of verdachte (suspicious) laesie -> FNAC
- Alle letsels **groter dan U2**
- Bij een nodus > 1 cm die geclassificeerd wordt als > U2 wordt advies endocrinoloog aanbevolen.
- *U3 zal meestal benigne zijn, echter folliculaire letsels zitten erbij, dwz. occasioneel kan Ca aanwezig zijn*
- Samenvattend: echogeleide FNAC na consult endocrinoloog, bij
  - een palpabele nodus, én bij
  - een echografische nodus > 1 cm én > U2 classificatie.

# Het gaat altijd over appels...

