

An anatomical illustration of a lymph node and its associated lymphatic and blood vessels. The lymph node is a central, brown, textured structure with a network of yellow lymphatic vessels and red blood vessels branching out from it. The background is a dark, muted blue-grey color.

# Lymph Nodes

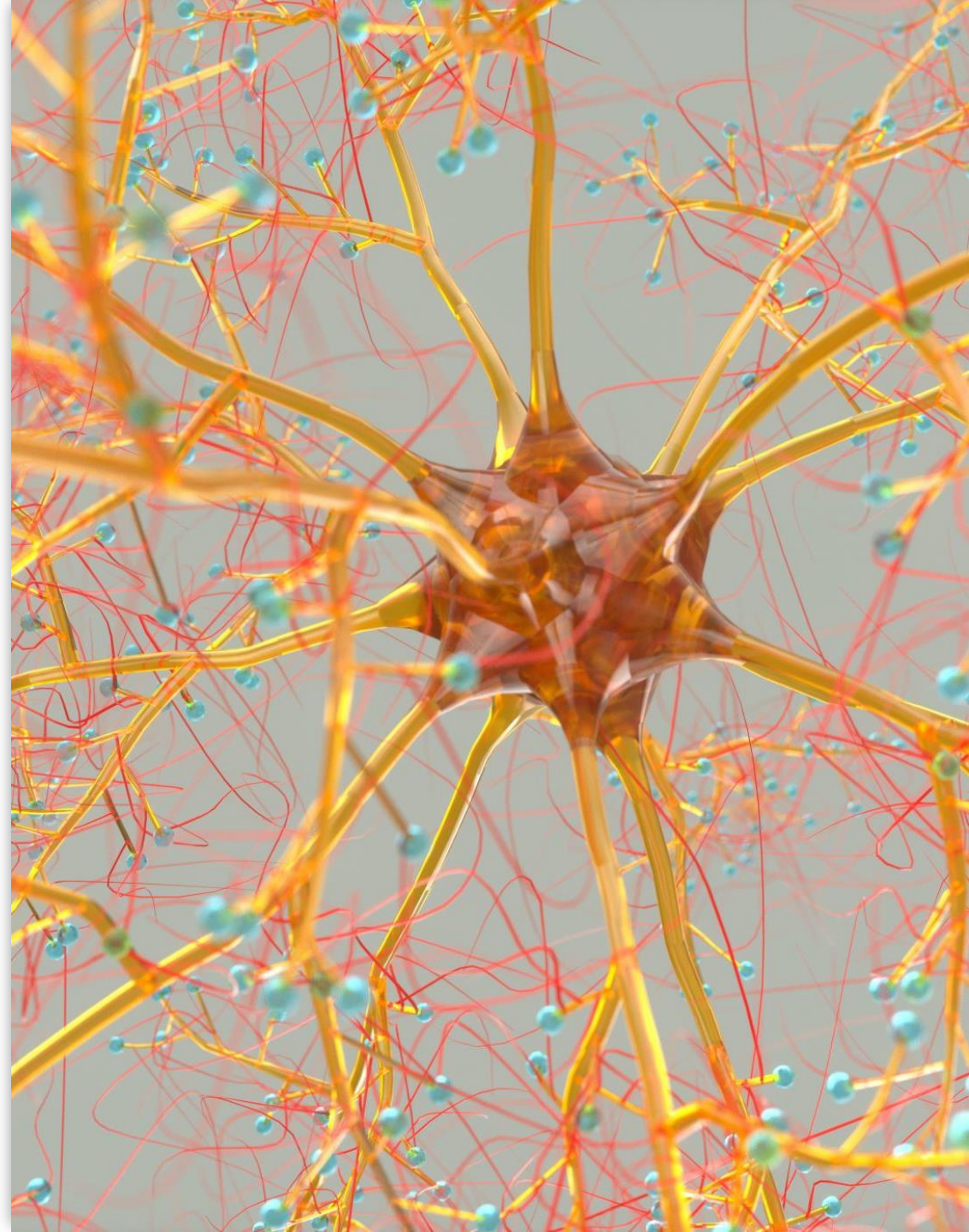
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University Hospitals of Leicester

# Aims

- Understand basic function & importance
- Describe normal lymph node
- Recognise abnormal features
- Tips/hints



# Why?

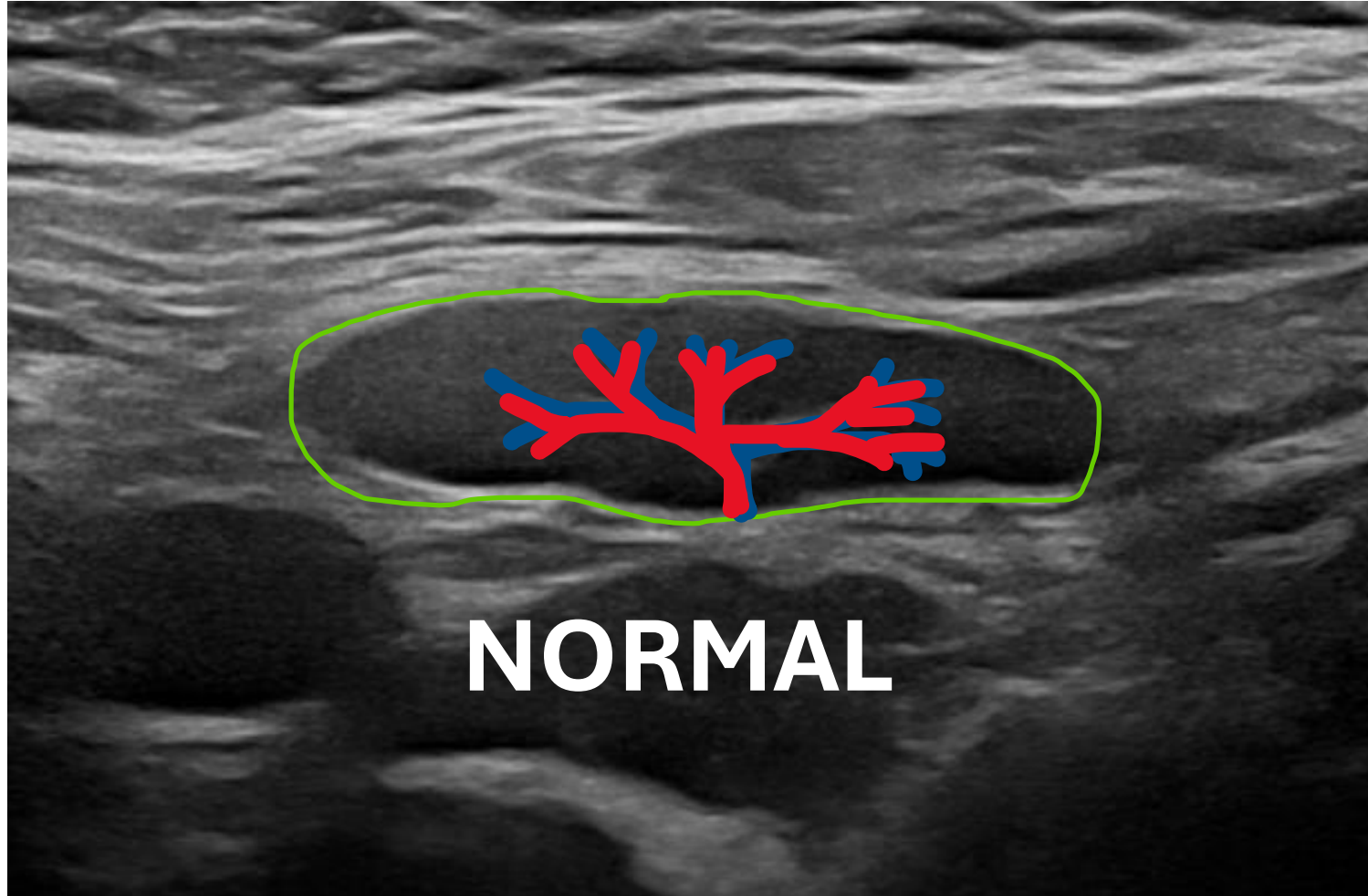
- SCC: ↓50% & ↓25%
- US 96.8 % vs palpation 73.3%
- Impact on treatment
- Not only cancer!



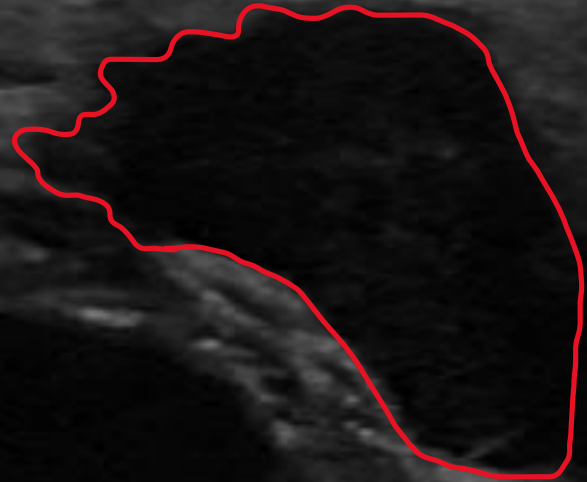
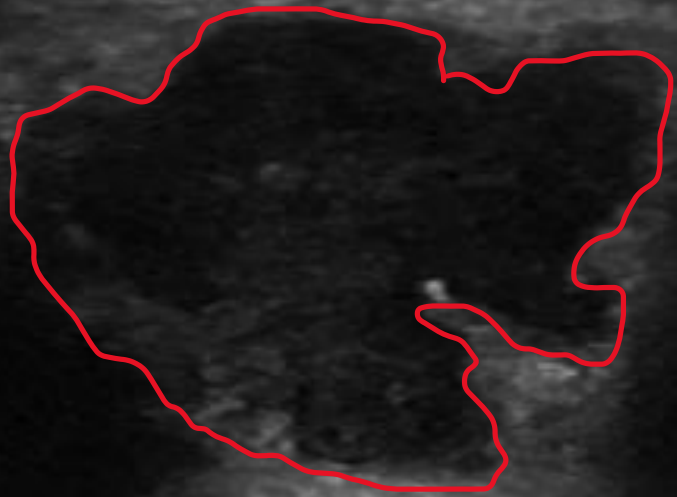
# US features

- Borders
- Shape
- Texture
- Hilum
- Vascularity
- Size/Biopsy?

43F, left level II lump, fluctuating in size, was enlarged previously when unwell, now reduced in size



# 63M, firm lump, right pre-auricular region

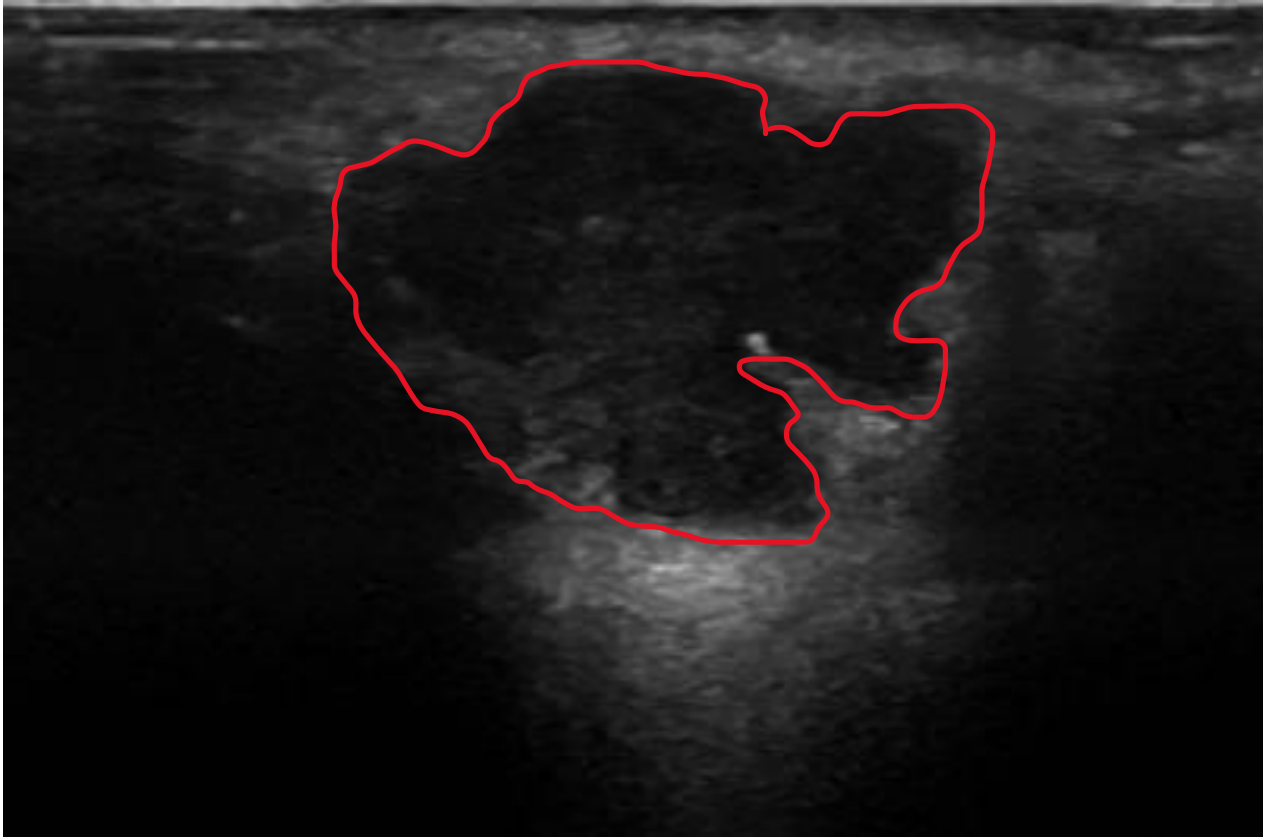


## Conclusion

Irregular lymph node right inferior irregular region - in keeping with metastatic squamous cell carcinoma

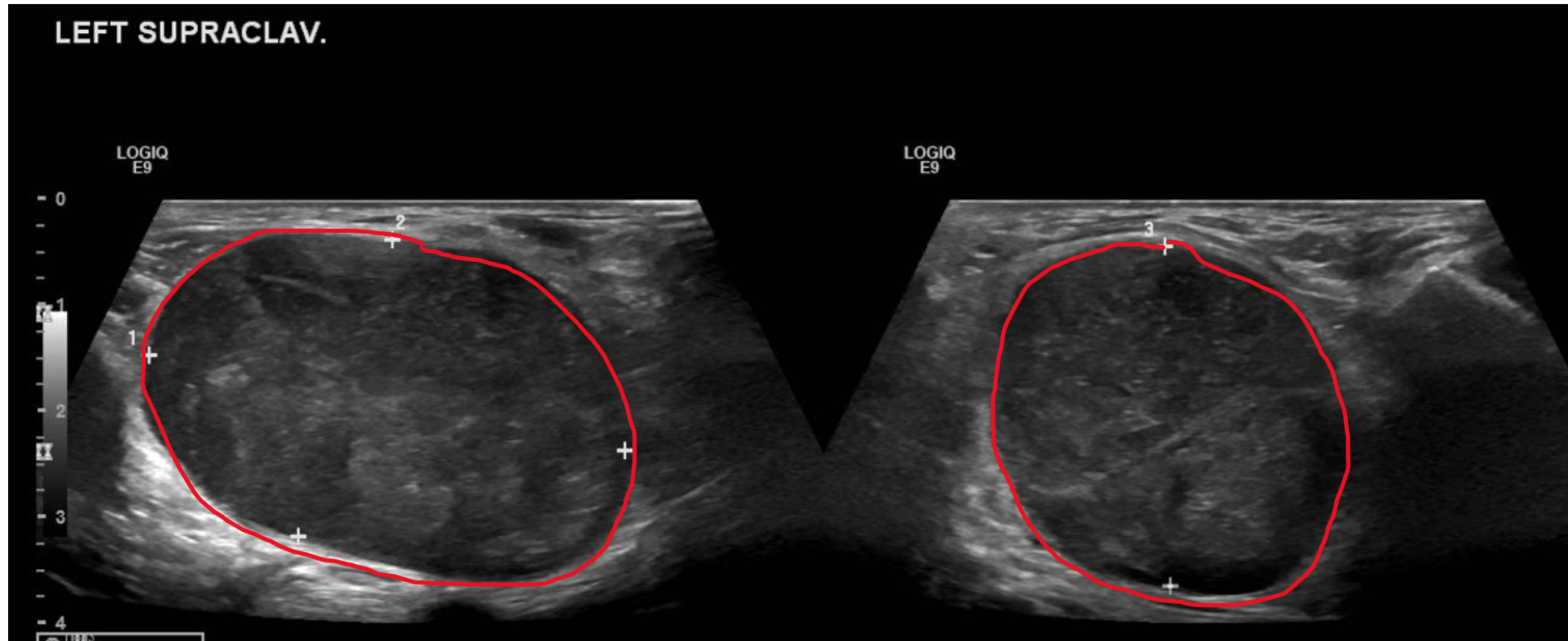
# Border

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Ill-defined borders may suggest extracapsular spread

# 88M, 2-3m L supraclavicular lump



1	L 4.57 cm
2	L 2.93 cm
3	L 3.20 cm
+d	L 3.64 cm
	L 0.00 cm

Conclusion:

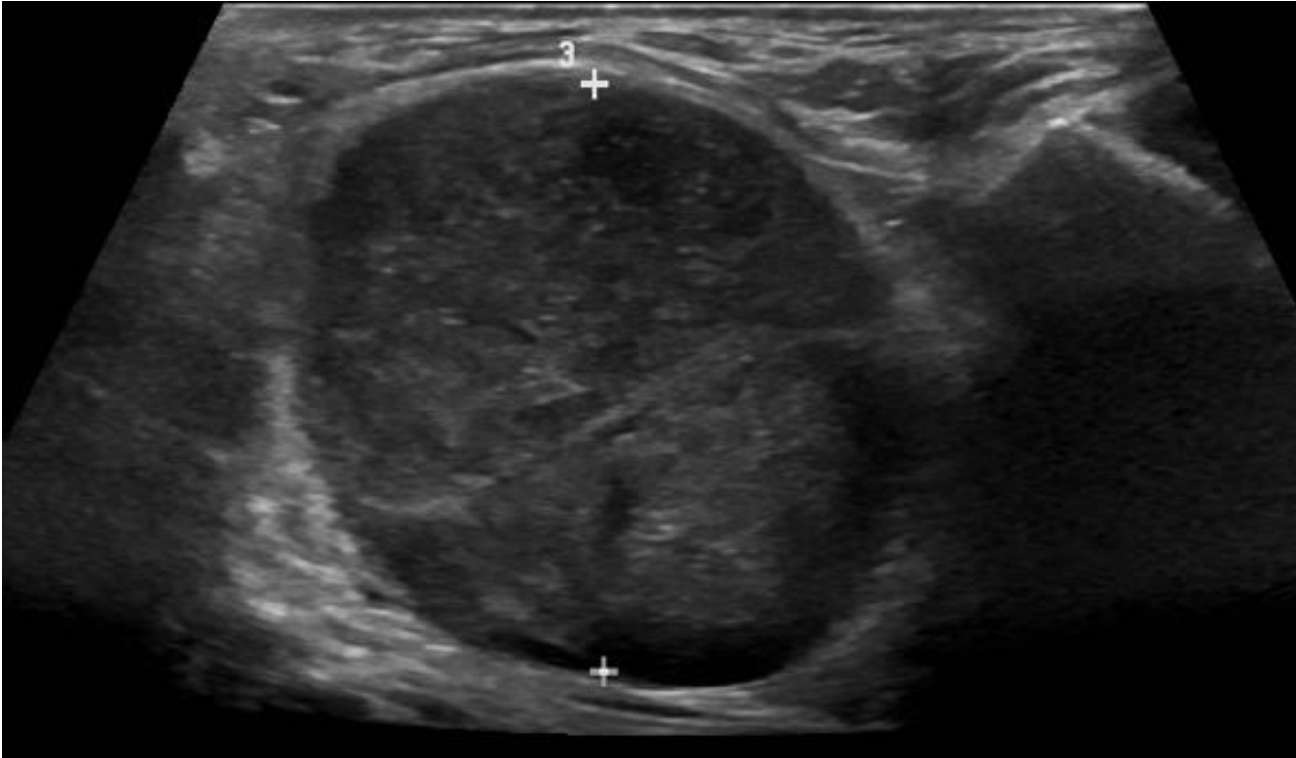
Core biopsy left supraclavicular lymph node:

- Metastatic high grade (G3) neuroendocrine carcinoma, showing features of small cell carcinoma,



# Morphology

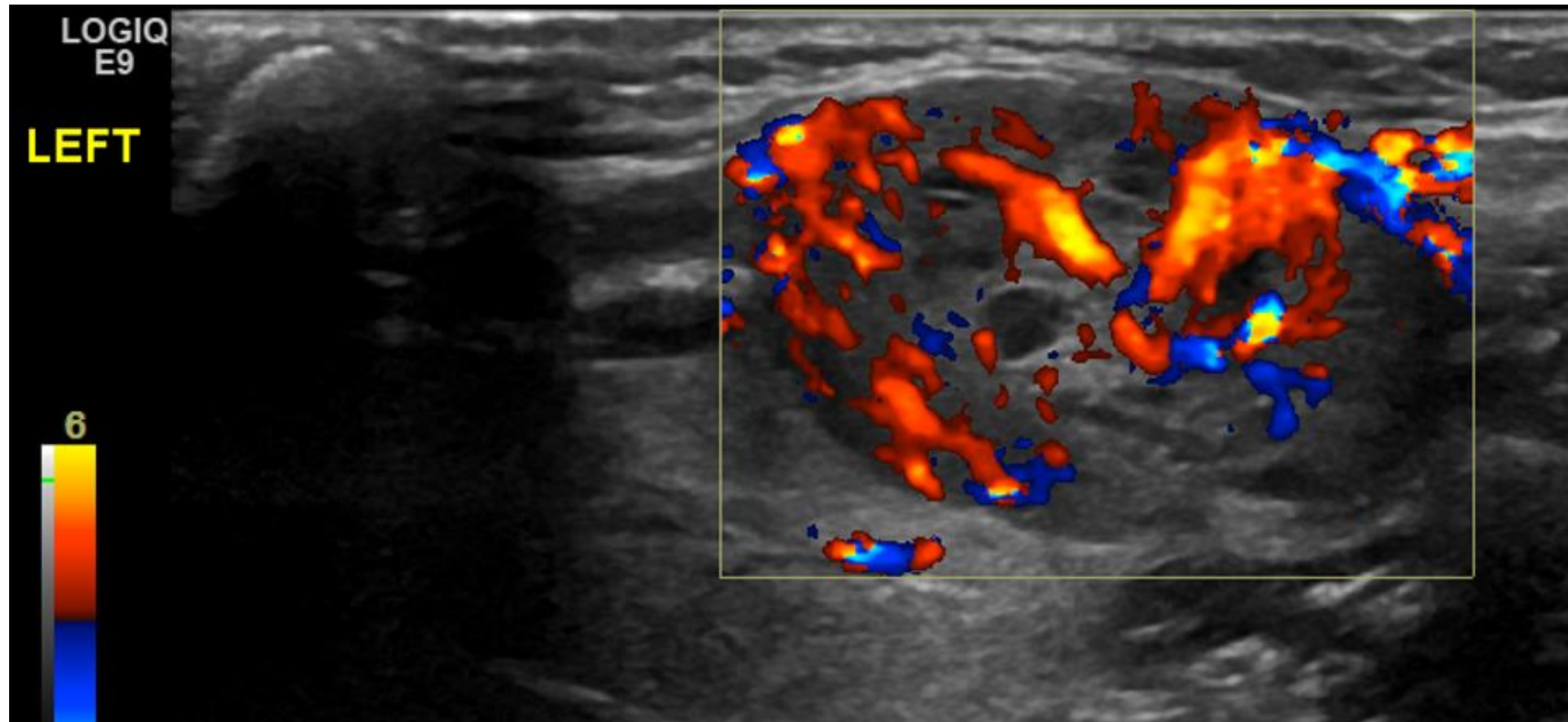
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Abnormal shape

Short axis:long axis ratio  
>0.5

84F, large, fixed, 5 cm craggy left neck lump

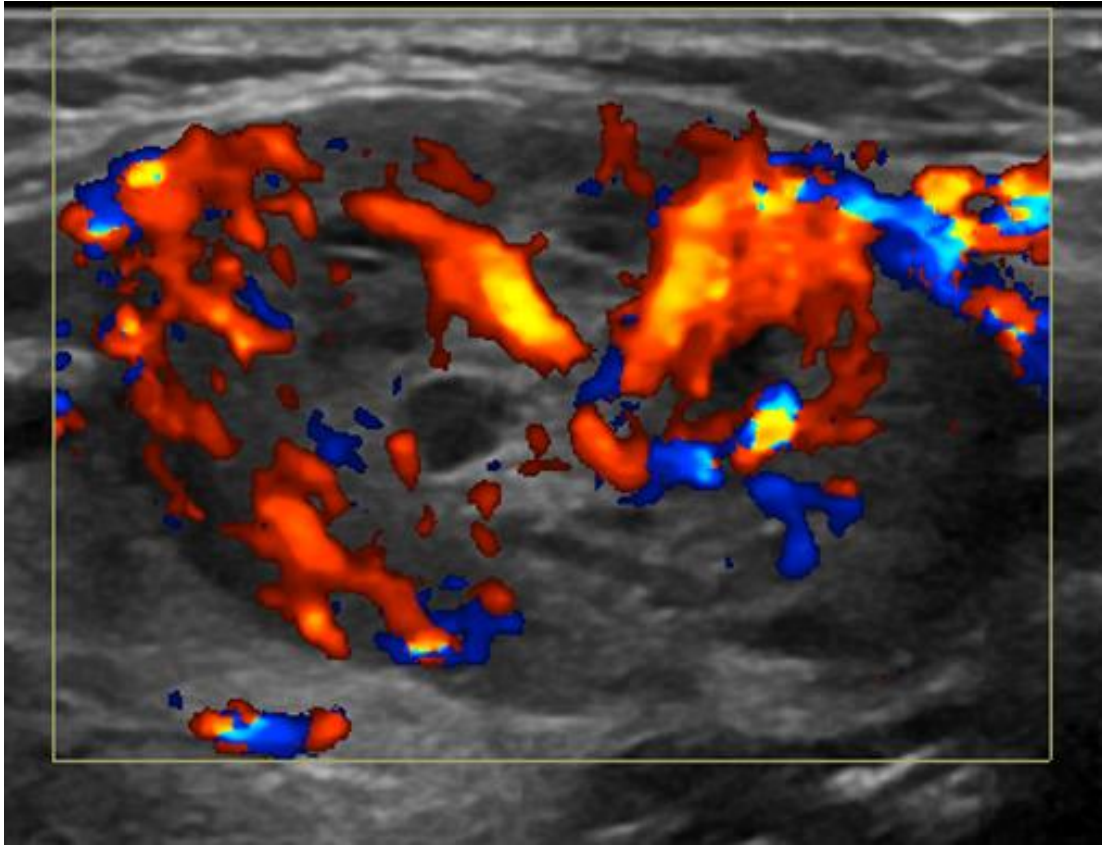


Conclusion

Core biopsy left level Ib/submandibular lesion - metastatic clear cell renal  
cell carcinoma

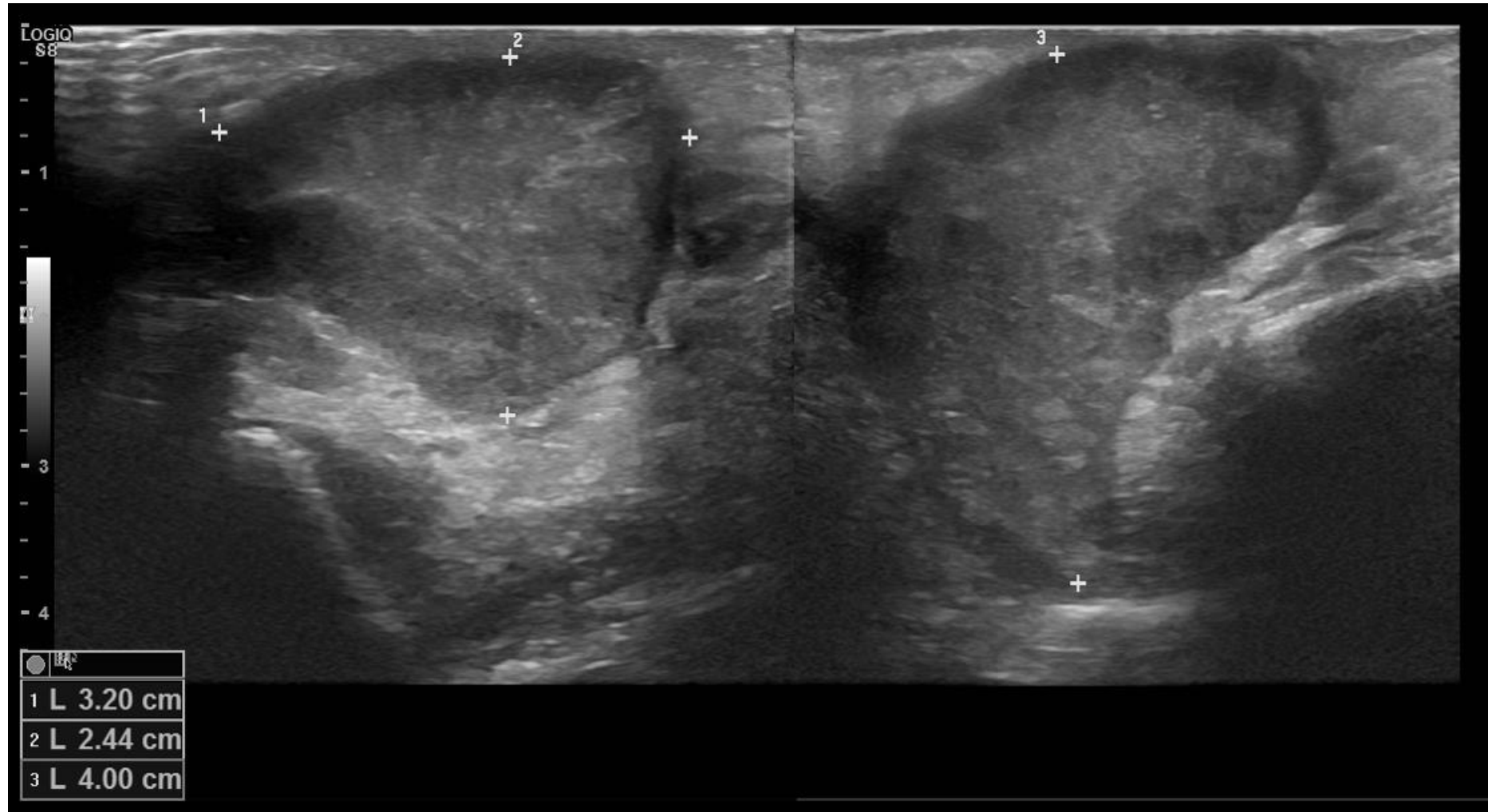
# Vascularity

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Normal nodes tend to show hilar vascularity or be avascular

52M, T4N2 buccal mucosa SCC, new lower neck lump

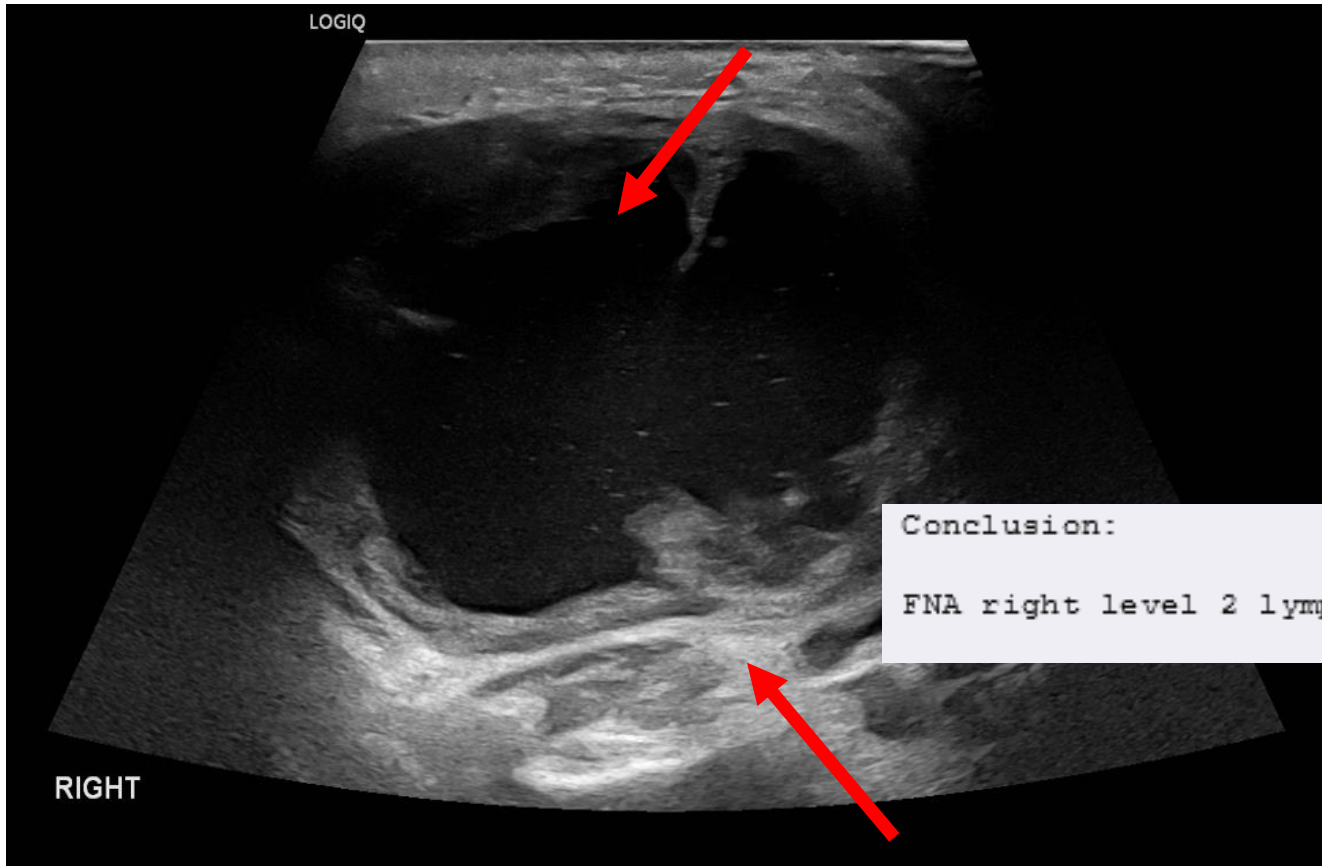


# Hilum missing



Most normal nodes have hilum

80M, 2.5 cm right neck swelling, smooth



Conclusion:

FNA right level 2 lymph node - malignant; metastatic squamous cell carcinoma

# 30M, 3/52 right neck 2cm lump/swelling



A panel of immunohistochemistry has been performed on the agar cellblock generated from this specimen. The malignant cells are positive for both TTF1 and calcitonin. This is in keeping with medullary thyroid carcinoma.

Please also correlate with the report for level 4 lymph node FNA (ND000944Q/22).

Conclusion:

Right thyroid nodule aspirate - malignant; medullary thyroid carcinoma,  
RCPATH Category Thy5.

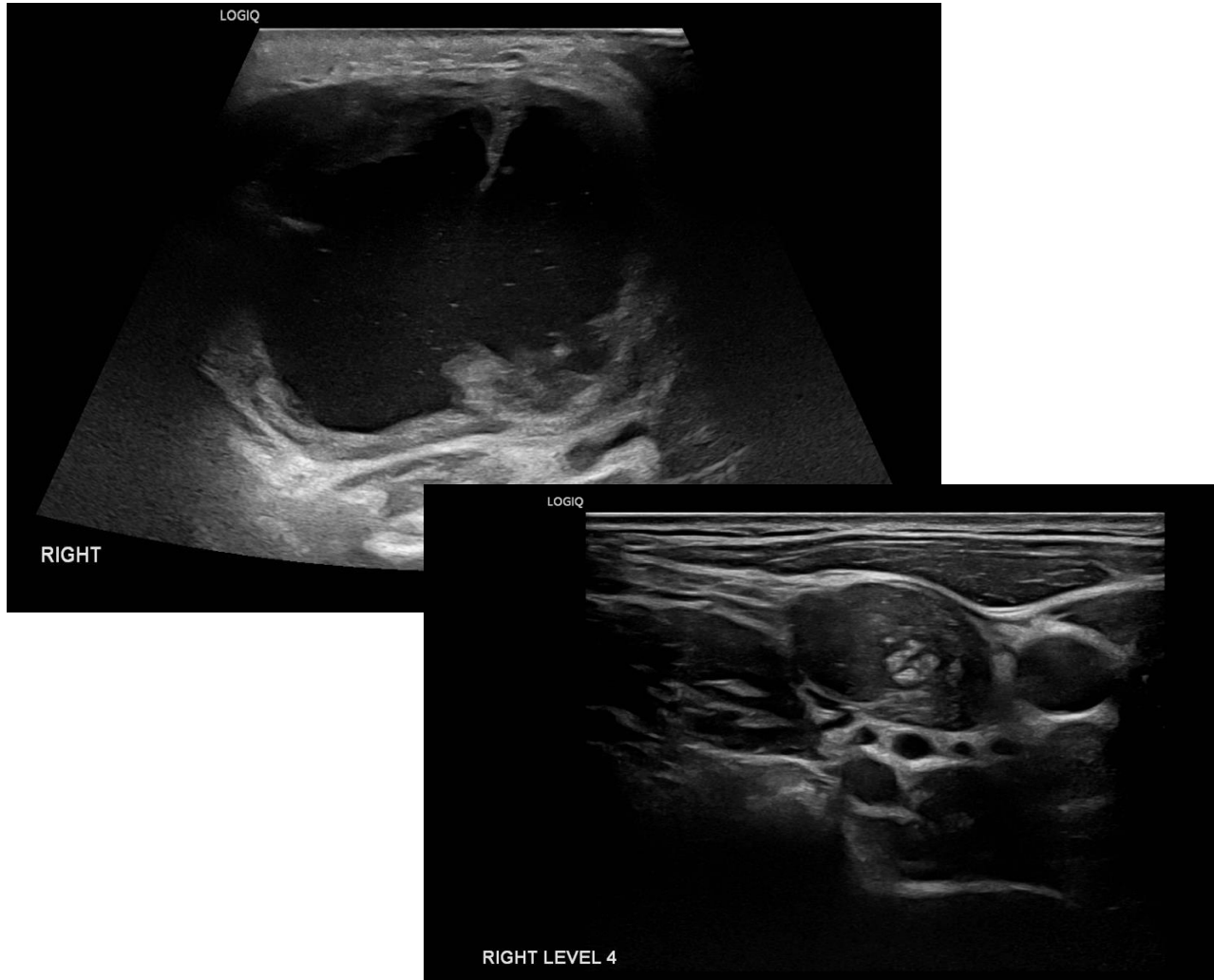
LOGIQ

Conclusion:

FNA right level 4 lymph node - metastatic medullary thyroid carcinoma.

# Echotexture

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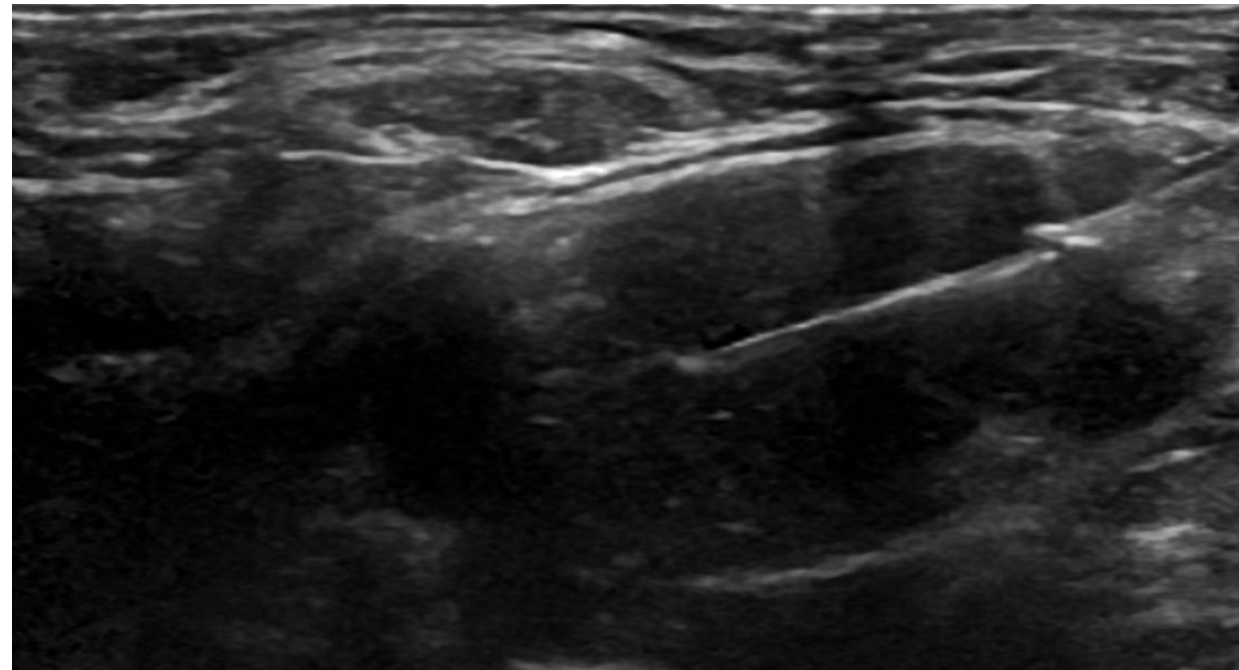


Generally, frequency of necrosis increases with size

Beware calcification



84F, left supraclavicular node



Conclusion  
Left supraclavicular lymph node, core biopsy - mantle cell lymphoma.

78M, previous acinic cell carcinoma,  
treated 2020, radiotherapy

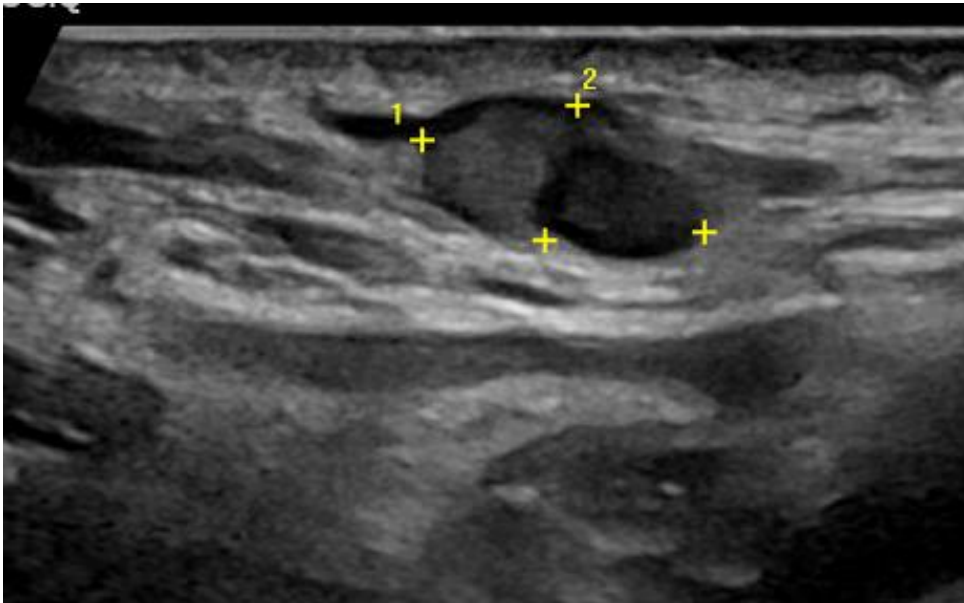


metastatic salivary duct carcinoma.

1 L 8.0 mm  
2 L 3.8 mm

# Size

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Conventionally: 10 mm cut off

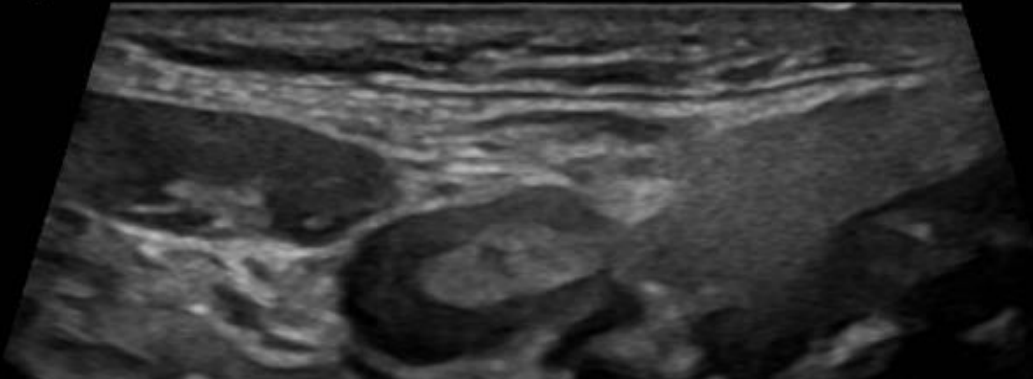
BUT:

-50% malignant cells <5 mm

-25% ECS <10mm

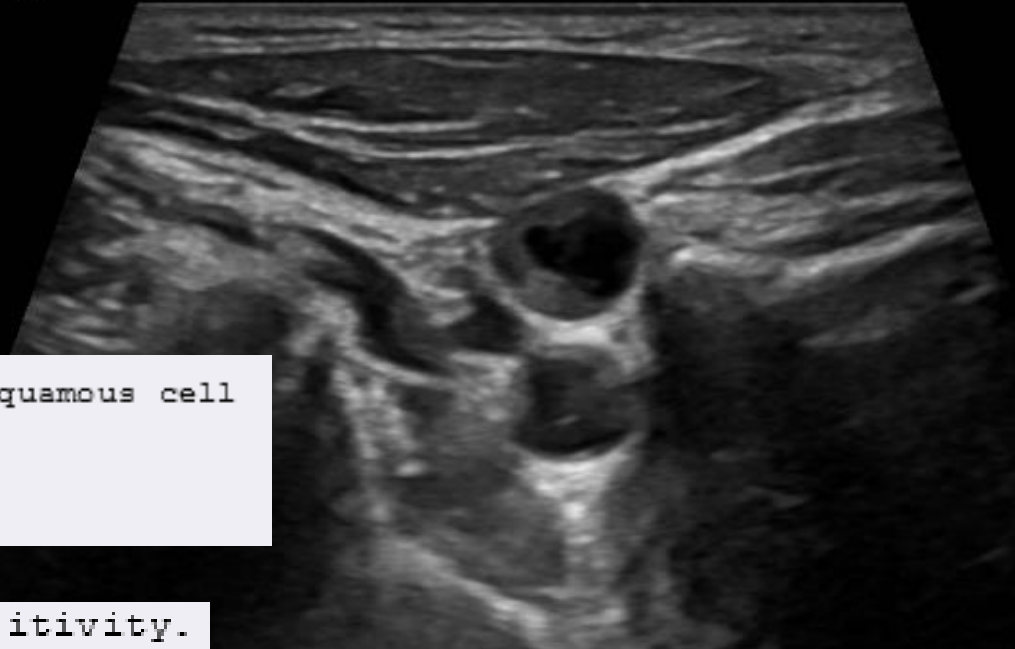
# 46M, asymmetric right tongue base

LOGIQ



FNA left level II node - Malignant, in keeping with metastatic squamous cell carcinoma. Clinical correlation required. Pending p16.

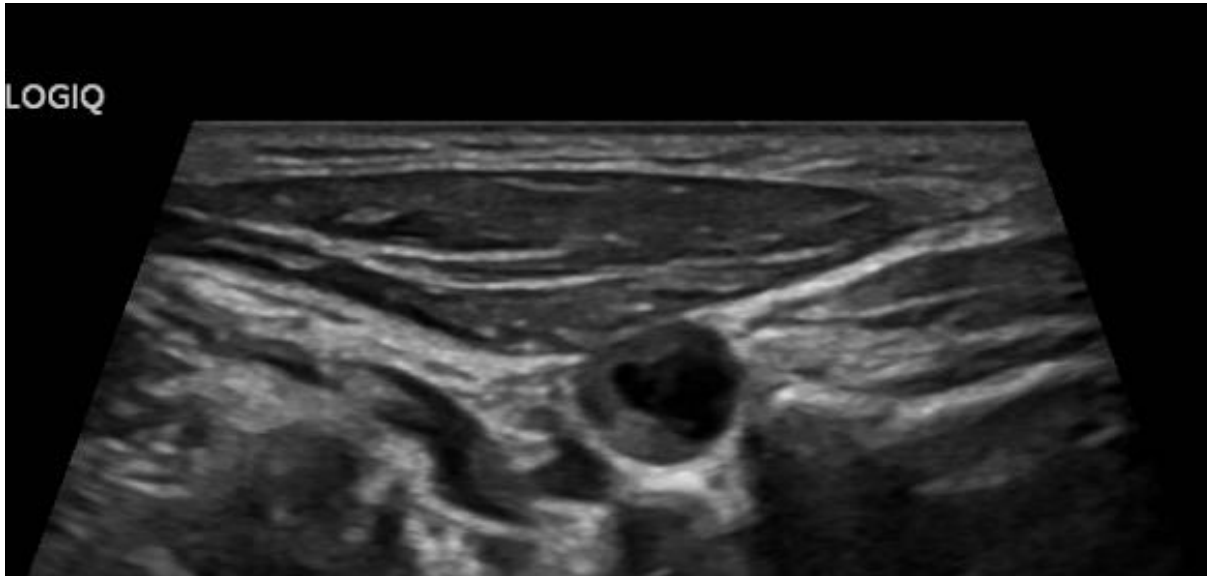
LOGIQ



Scattered, atypical squamous cells show p16 positivity.

# FNA/Biopsy

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FNA left level II node - Malignant, in keeping with metastatic squamous cell carcinoma. Clinical correlation required. Pending p16.



Scattered, atypical squamous cells show p16 positivity.

1. Is it amenable to FNA/Biopsy
2. Additional information for pathology colleagues:  
Lymphoma? P16?  
Melanoma?

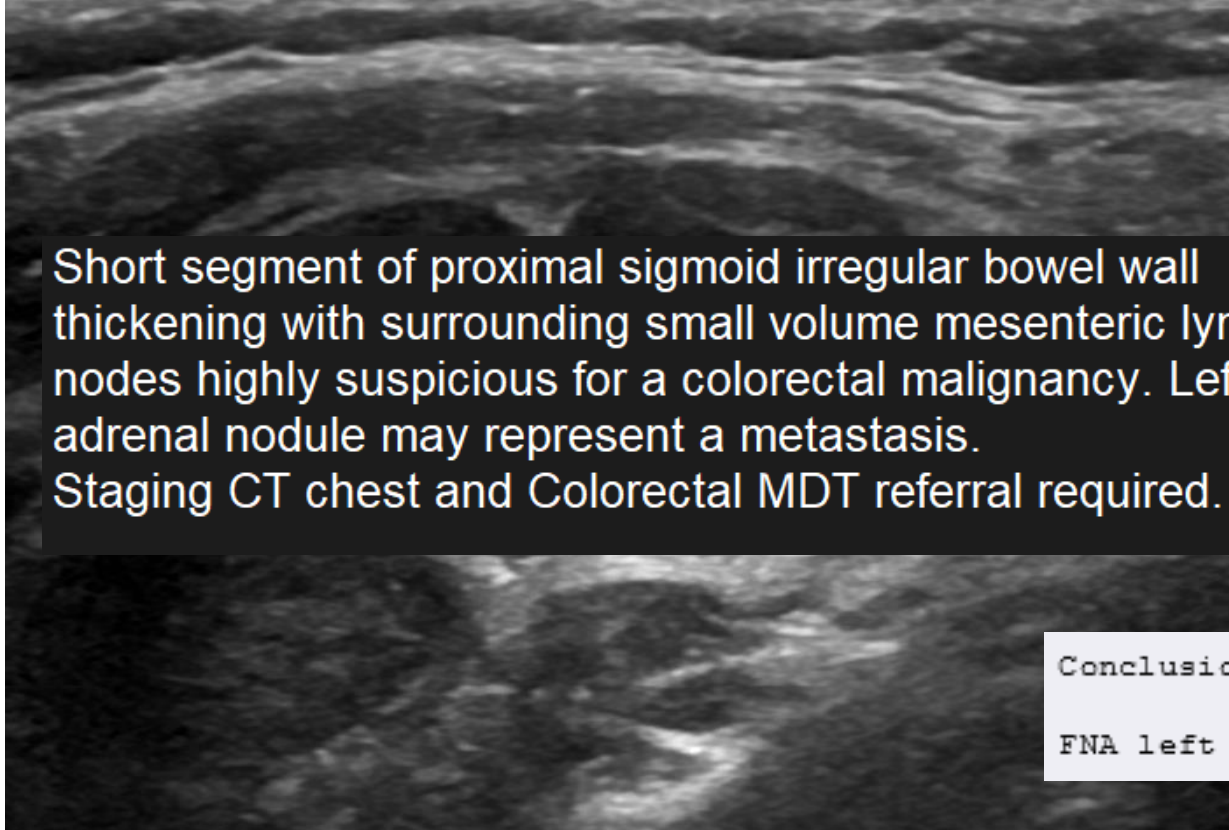


## What else?

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- Previous imaging
- Talk to the patient
- Examination
- Framing bias
- Satisfaction of search
- Drainage patterns

## 54F, supraclavicular node

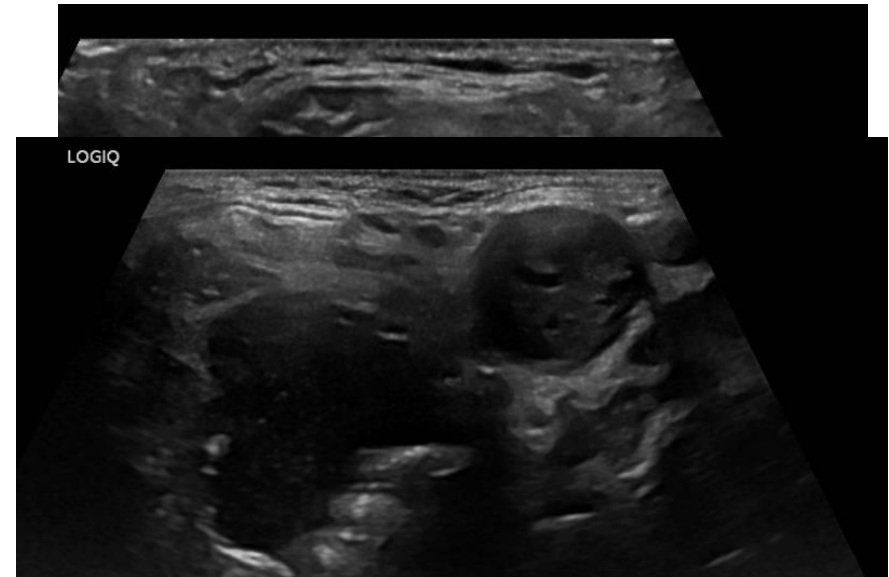


Short segment of proximal sigmoid irregular bowel wall thickening with surrounding small volume mesenteric lymph nodes highly suspicious for a colorectal malignancy. Left adrenal nodule may represent a metastasis. Staging CT chest and Colorectal MDT referral required.

### Conclusion:

Core biopsy left supraclavicular lymph node - malignant poorly differentiated carcinoma consistent with metastases from the known sigmoid primary.

## 56M, 3 cm, L level II neck lump for 5w, difficulty swallowing



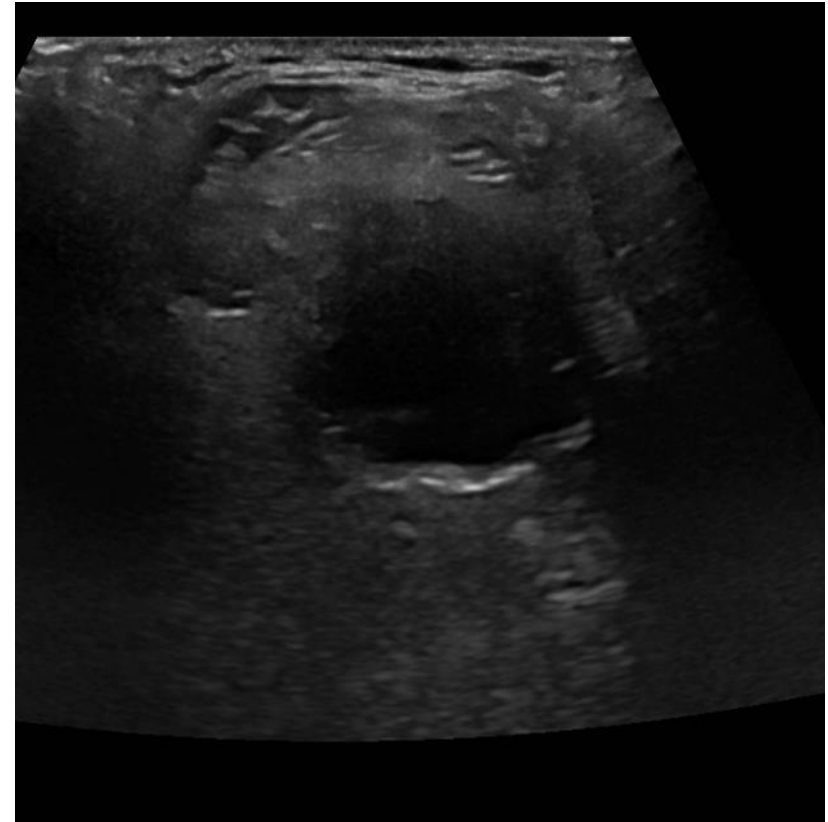
### Conclusion

FNA left level 2 lymph node - malignant metastatic squamous cell carcinoma

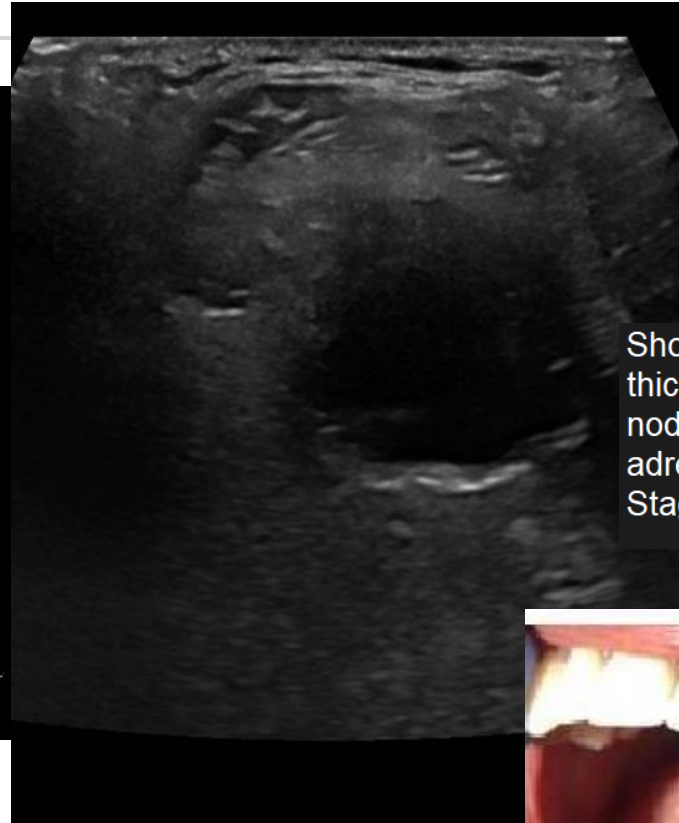
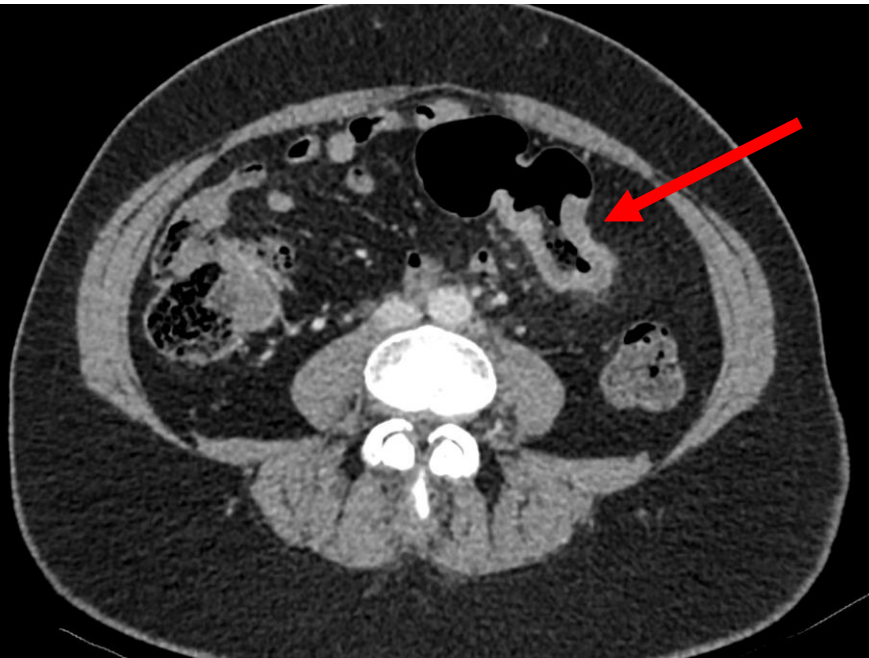
**84M, smoker, tongue lesion**



**56M, 3 cm, L level II neck lump for 5w, difficulty swallowing**



# Gather all available information



Short segment of proximal sigmoid irregular bowel wall thickening with surrounding small volume mesenteric lymph nodes highly suspicious for a colorectal malignancy. Left adrenal nodule may represent a metastasis. Staging CT chest and Colorectal MDT referral required.





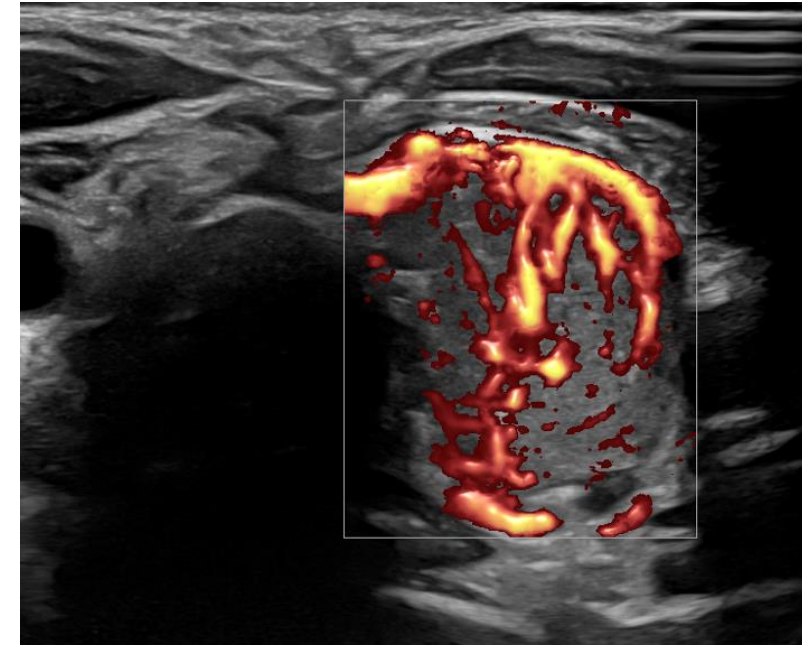
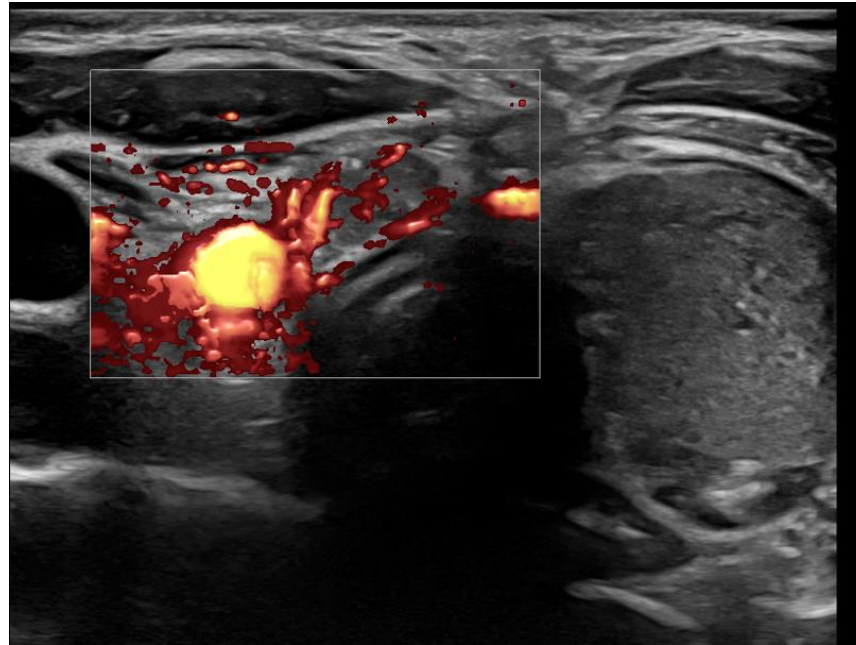
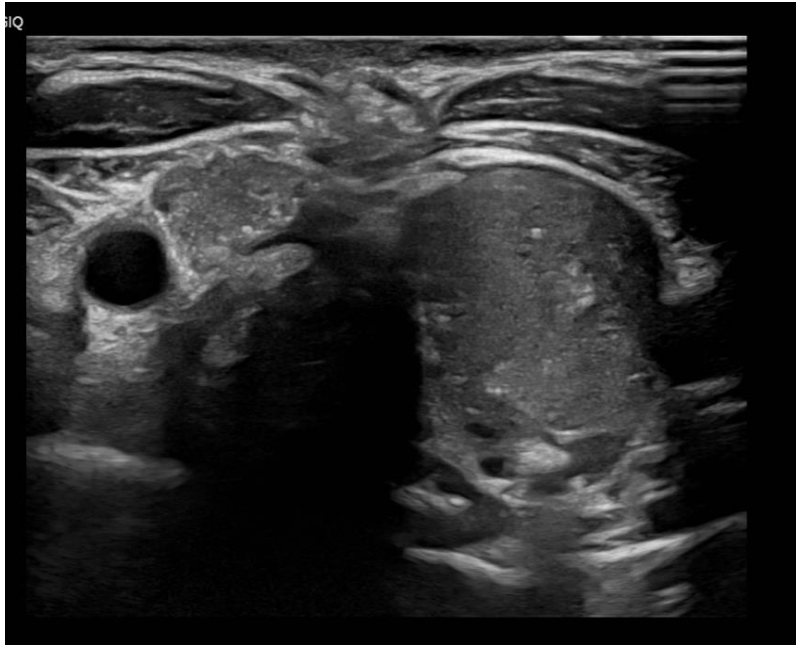
# 36F, papillary thyroid cancer - thyroidectomy



3 years later, presents with rising thyroglobulin

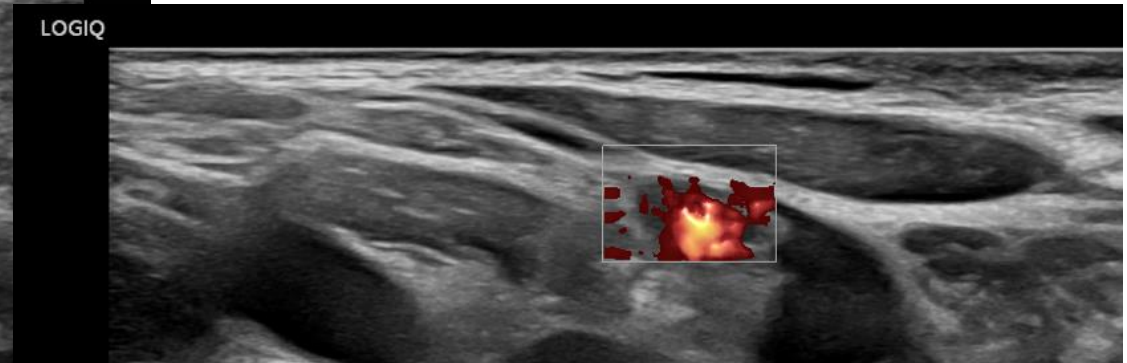
# 36F, papillary thyroid cancer - thyroidectomy

3 years later, presents with rising thyroglobulin



Thyroid bed recurrence...  
...but...

# 36F, papillary thyroid cancer - thyroidectomy



The overall features are in keeping with papillary thyroid carcinoma (Thy5).

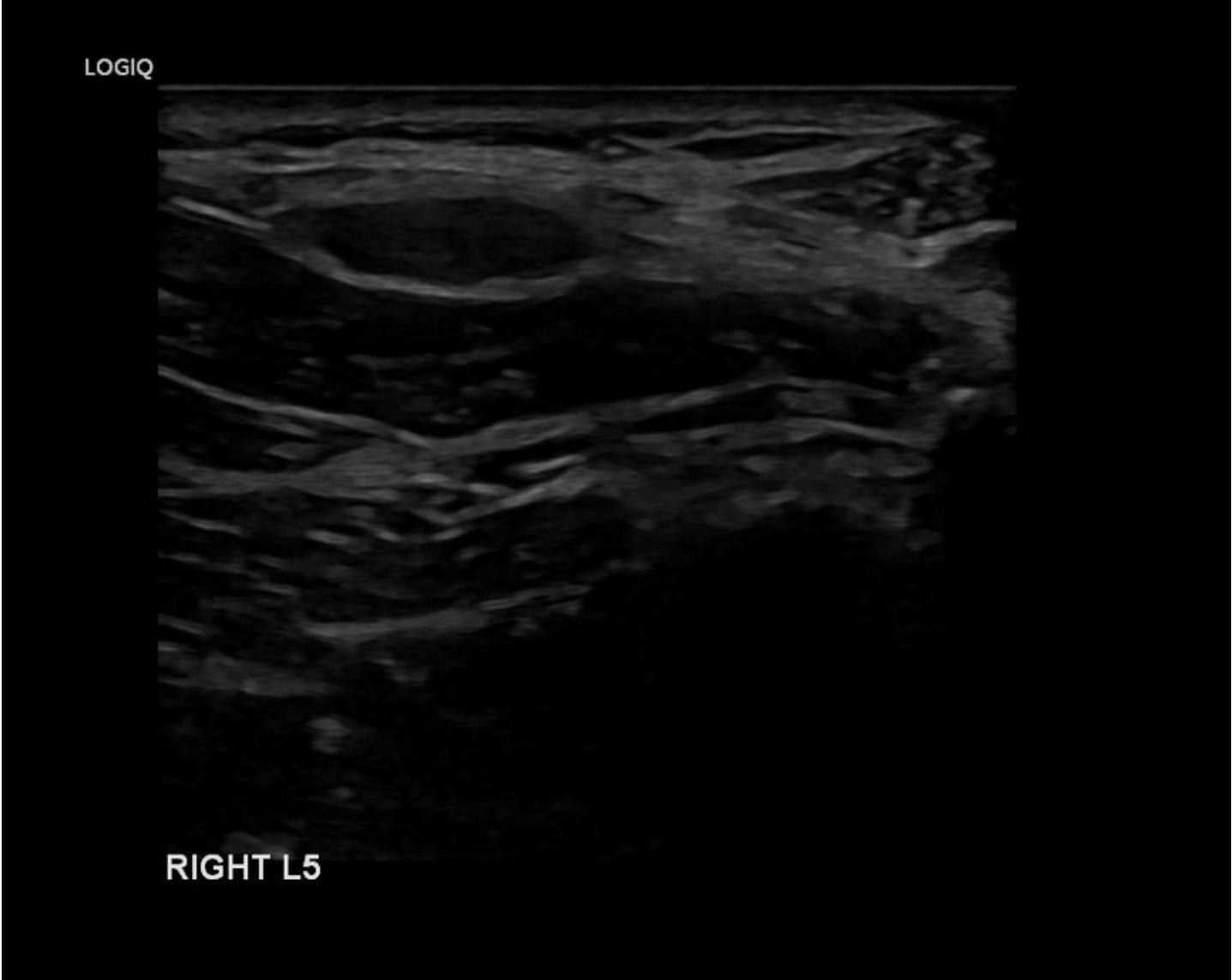
Right Level 4

# Recurrent disease – slam on the brakes!

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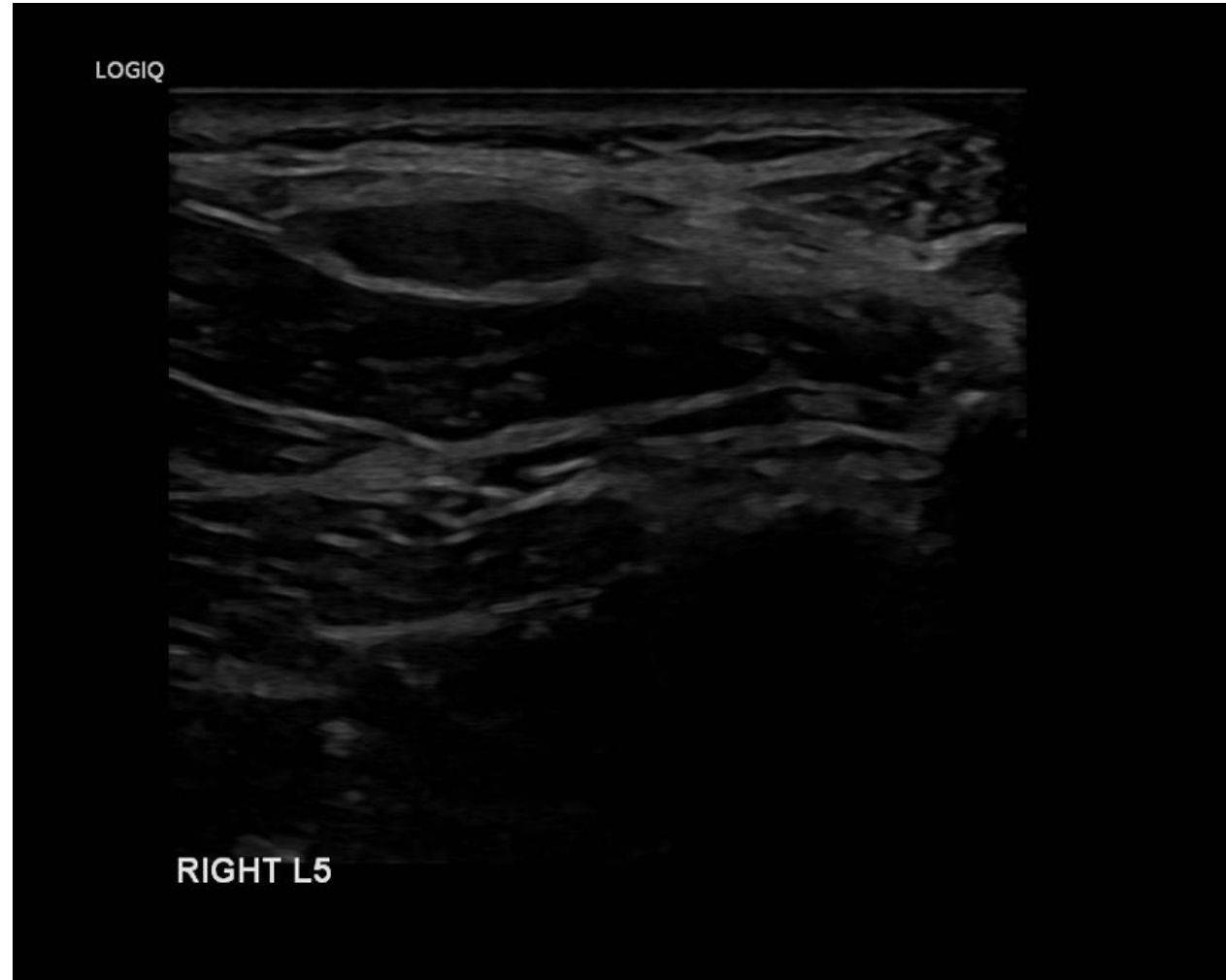


# Same patient, level 5, normal thyroglobulin

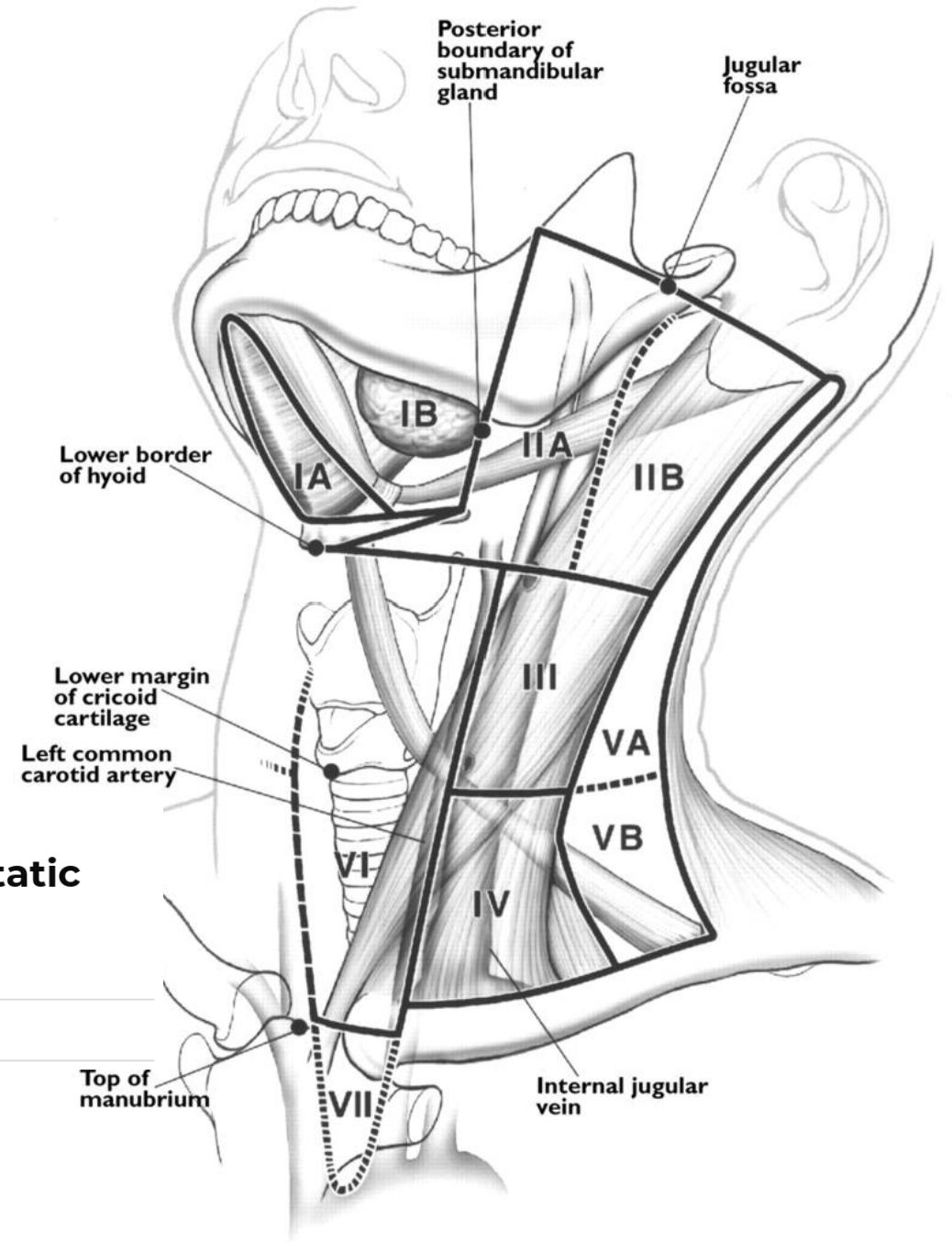
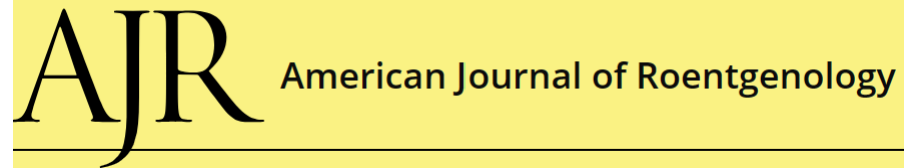


# Assess each on its own merits

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# Drainage site



Other | Head and Neck Imaging | March 2000

## Imaging-Based Nodal Classification for Evaluation of Neck Metastatic Adenopathy

Authors: Peter M. Som, Hugh D. Curtin, and Anthony A. Mancuso | [AUTHOR INFO & AFFILIATIONS](#)

Volume 174, Issue 3 | <https://doi.org/10.2214/ajr.174.3.1740837>



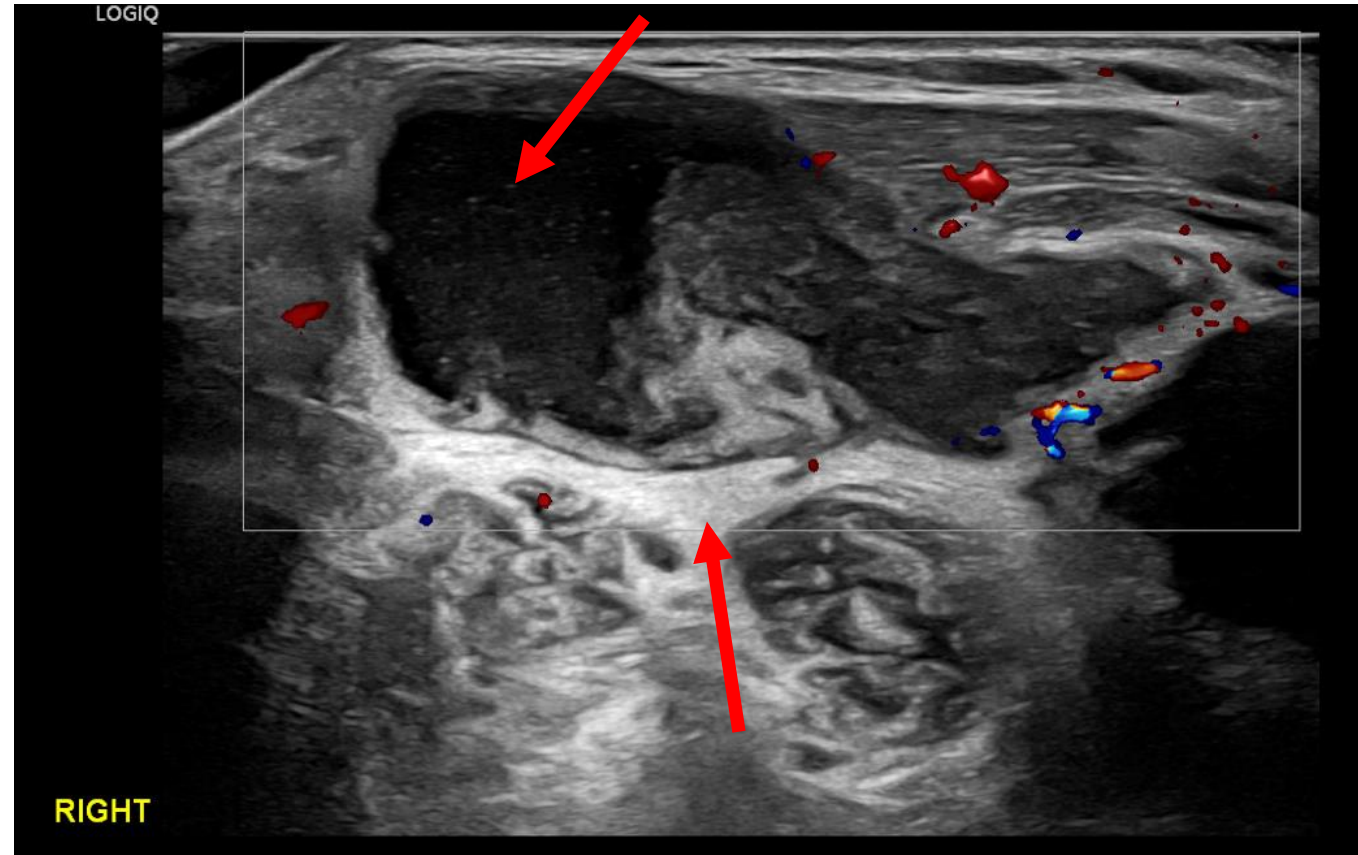
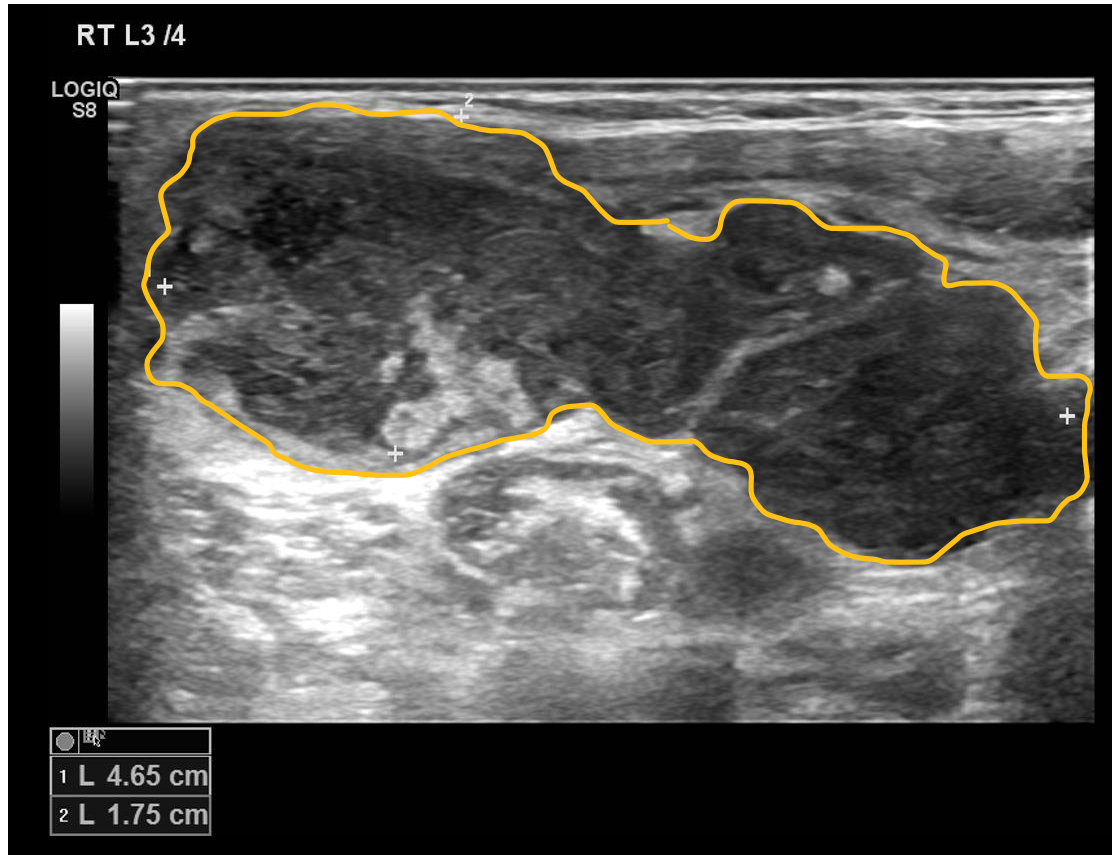
# Pitfalls

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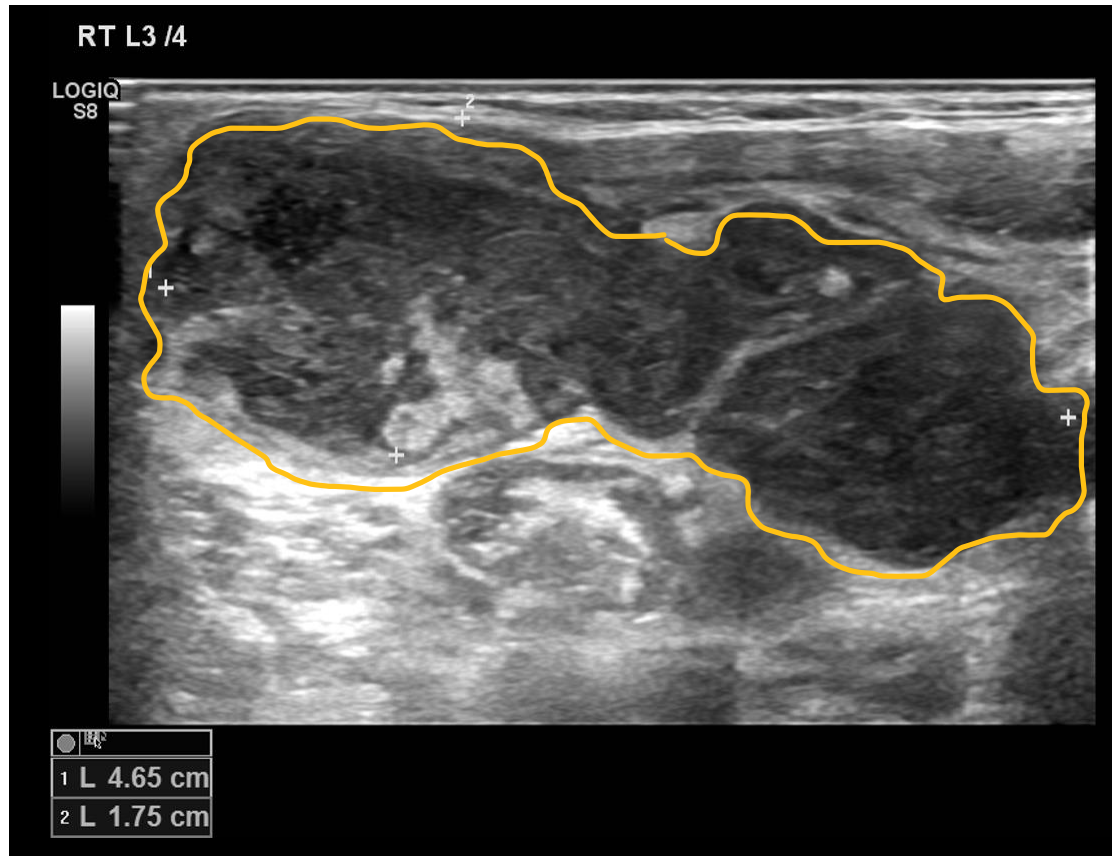
- Other pathologies
- Location is key



# 36F, right level IV adenopathy



# Not everything is cancer



Tuberculosis

Hypoechoic

Lack hilum

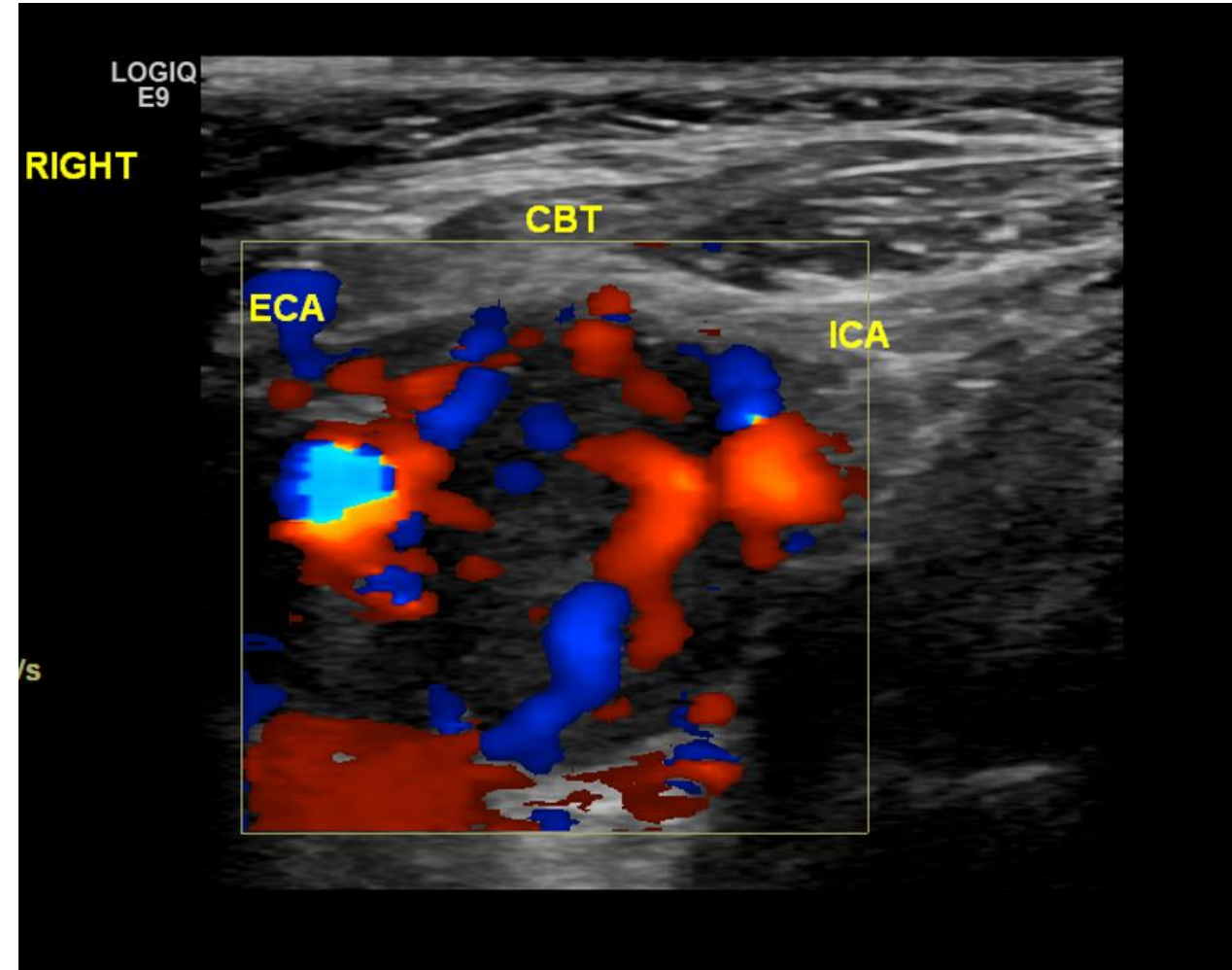
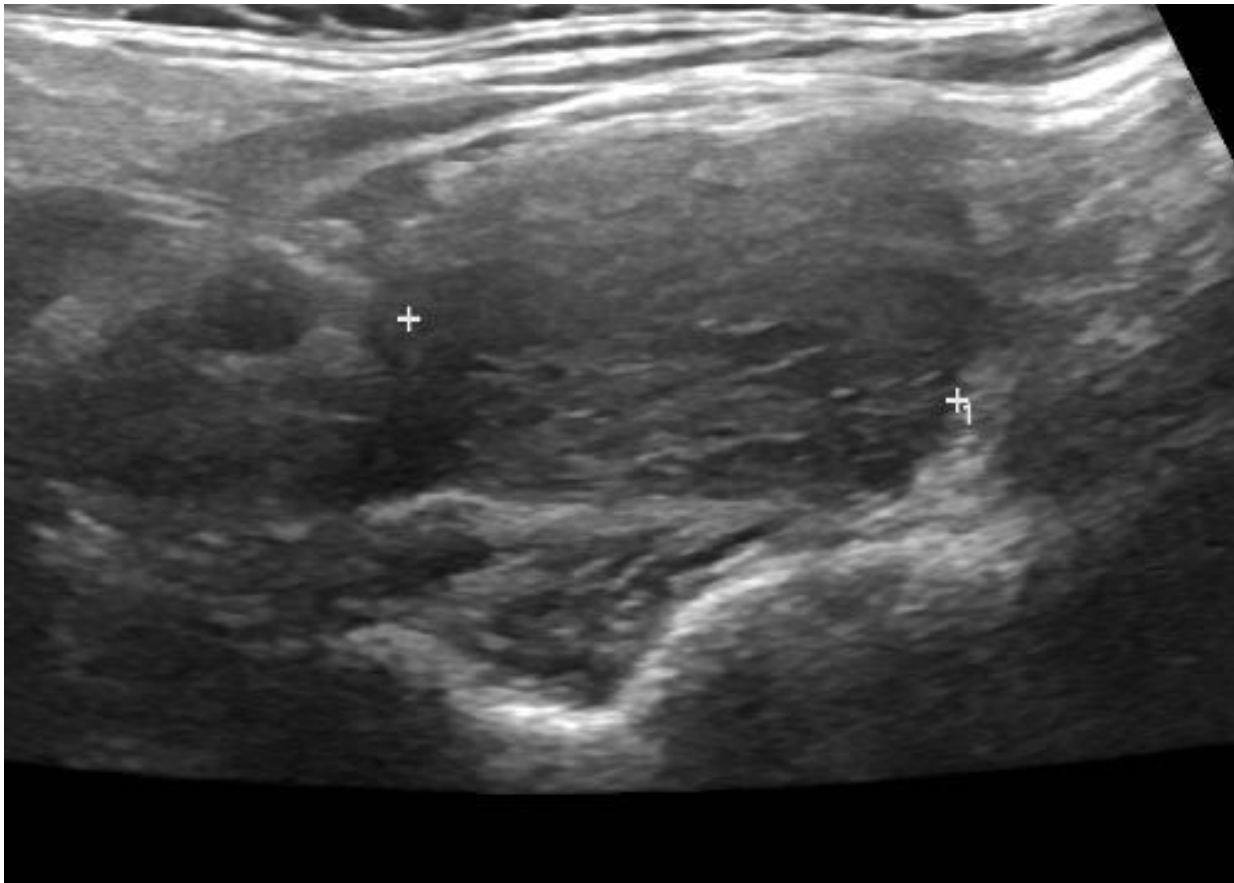
Cystic necrosis

Displaces vessels/hilum

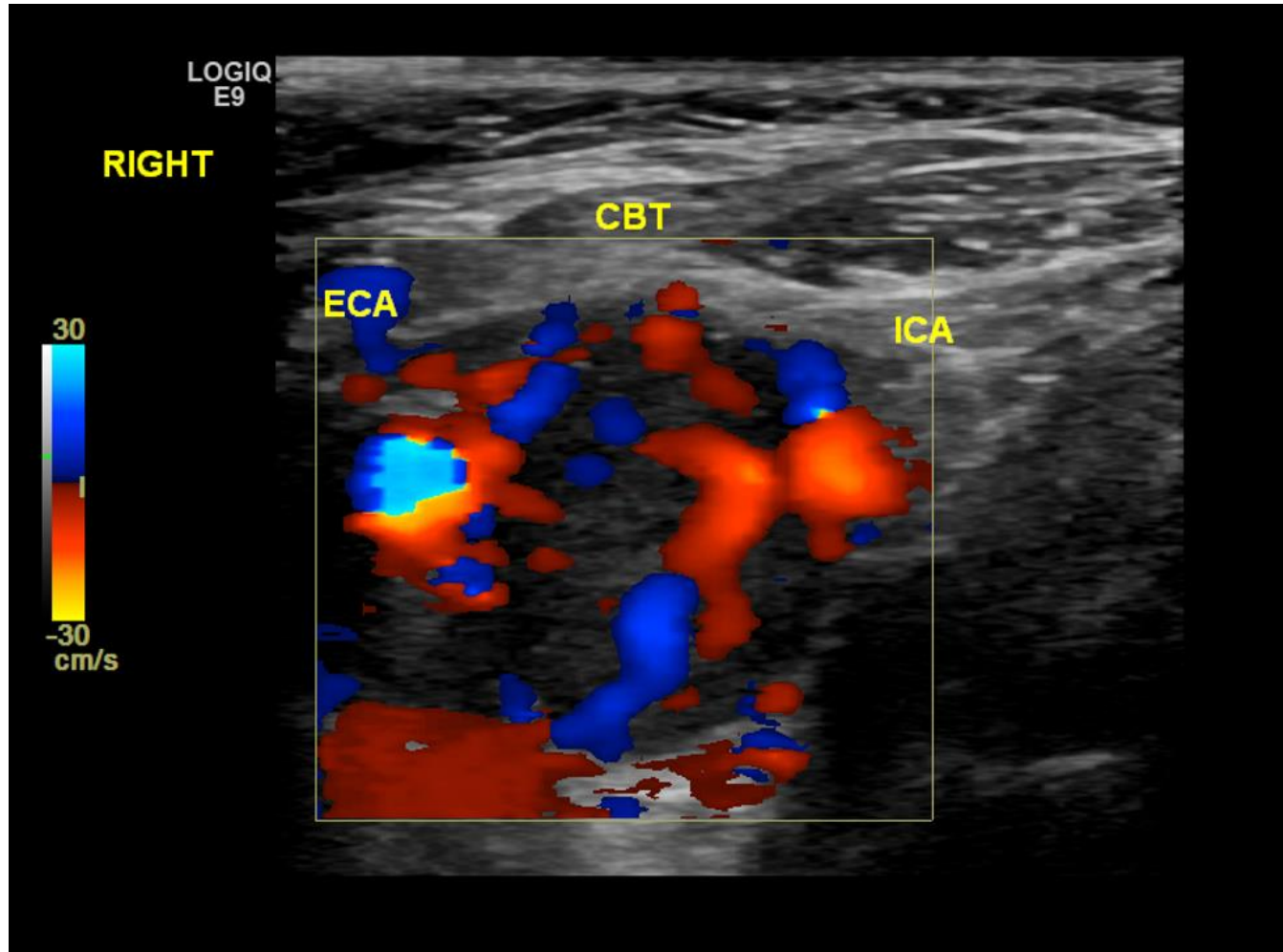
Nodal matting

Adjacent oedema

# 55F, 6m right anterior triangle lump, firm



# Location, location, location



Beware relationship  
and effects on adjacent  
structures: carotid  
body tumour

# Take home messages

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- Nodal disease really important
- US really effective if carefully used
- Recognise some key features
- Think about alternative diagnoses



# References

1. Ahuja AT, Ying M. Sonographic Evaluation of Cervical Lymph nodes. AJR. 2005; 184(5): 1691-1699.
2. Ahuja AT, Ying M, Ho SY, Antonio G, Lee YP, King AD, Wong KT. Ultrasound of malignant cervical lymph nodes. Cancer Imaging. 2008; 8(1): 48-56.
3. Chong V. Cervical lymphadenopathy: what radiologists need to know. Cancer Imaging. 2004; 4(2): 116-120.
4. Ying M, Ahuja A. Sonography of Neck Lymph Nodes. Part I: Normal lymph nodes. Clin Rad. 2003; 58:351-358.
5. Ahuja A, Ying M. Sonography of Neck Lymph Nodes. Part II: Abnormal Lymph Nodes. Clin Rad. 2003; 58(5): 359-366.
6. Som PM, Curtin HD, Mancuso AA. Imaging-Based Nodal Classification for Evaluation of Neck Metastatic Adenopathy. AJR. 2000; 174(3): 837-844.

**Thank you for  
listening!**

