Subtle. Seamless. Scar-Free.

Simple, non-surgical solutions
for thyroid nodules and goiters

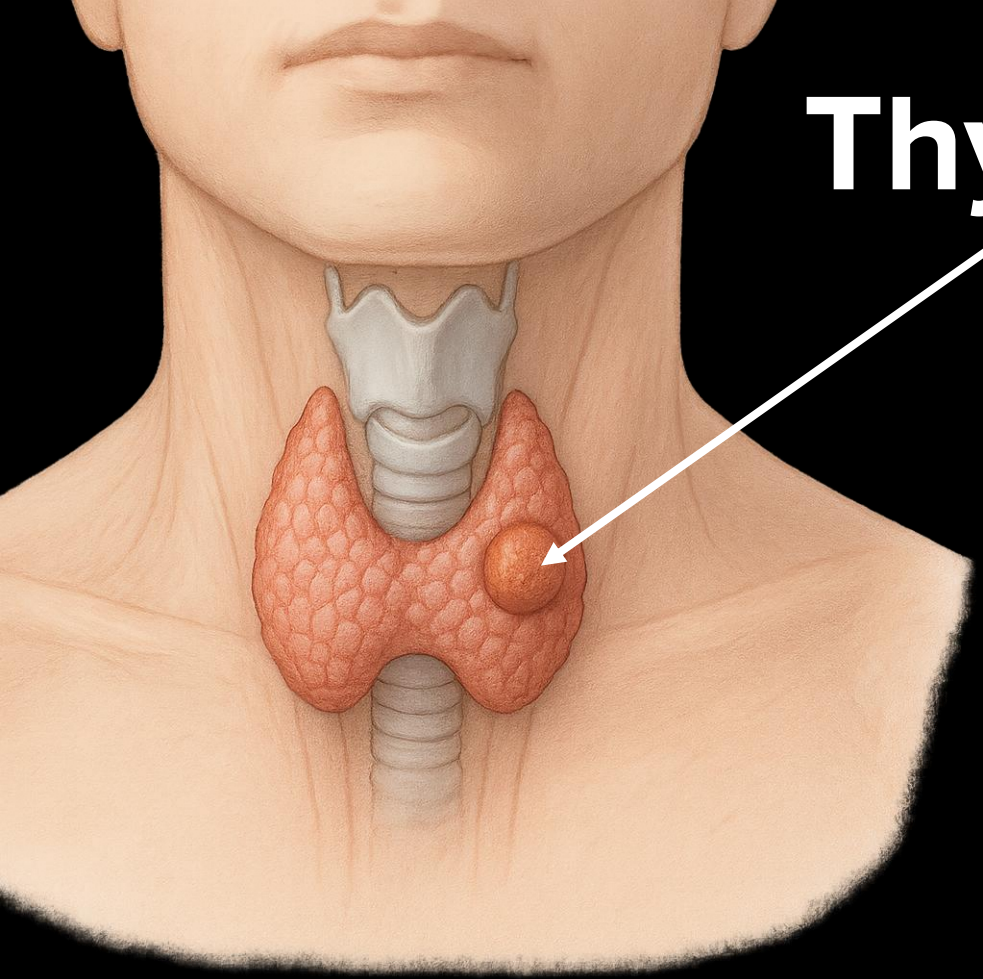
NORTH STAR
VASCULAR & INTERVENTIONAL

Axis Medical Center
10/21/2025
Andy Manos, PA-C

Thyroid Nodules

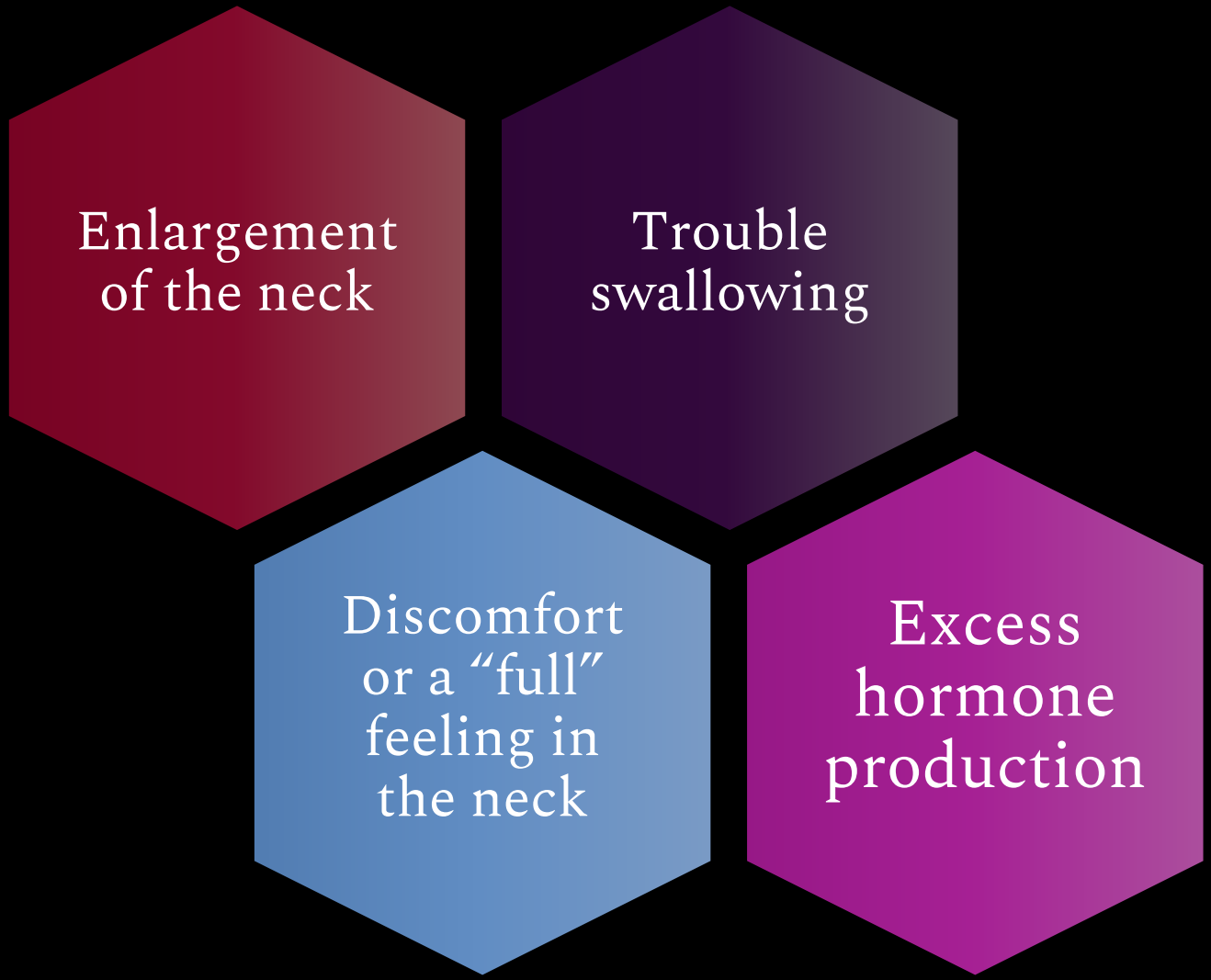
Common growths that can form in your thyroid gland

Seen in 90% of patients



99% are non-cancerous

Symptoms


Enlargement of the neck
Trouble swallowing
Discomfort or a “full” feeling in the neck
Excess hormone production

Who is good candidate? - RFA

Symptomatic - dysphagia, dyspnea, voice changes,

Cosmetic - obvious lump, scarves, turtlenecks

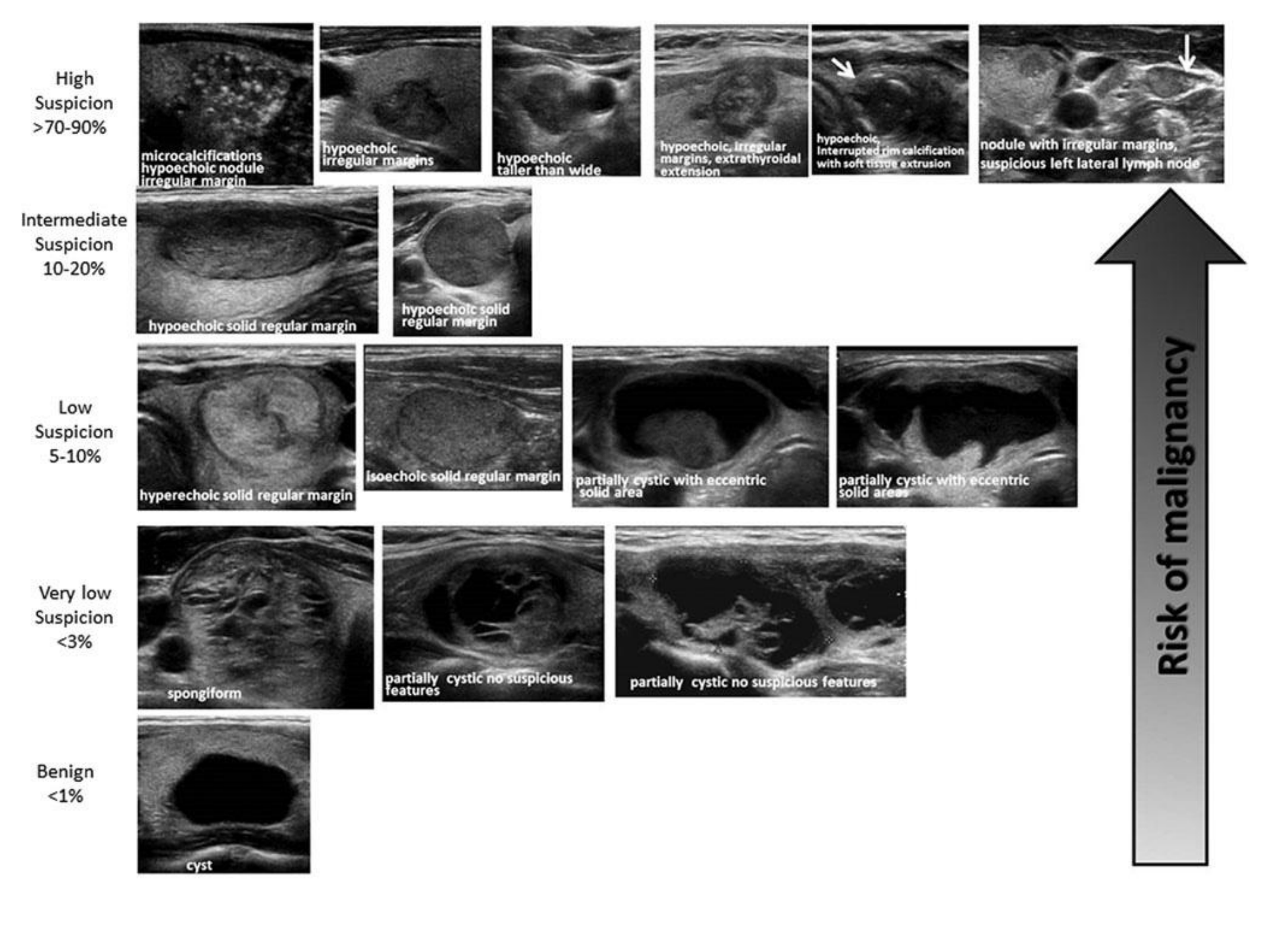
Ultrasound - measurement for volume and TIRAD score

Euthyriod - TSH, T4, T3, Thyroid antibodies, Calcitonin

Hyperthyroid? - NM Scan to determine

Benign

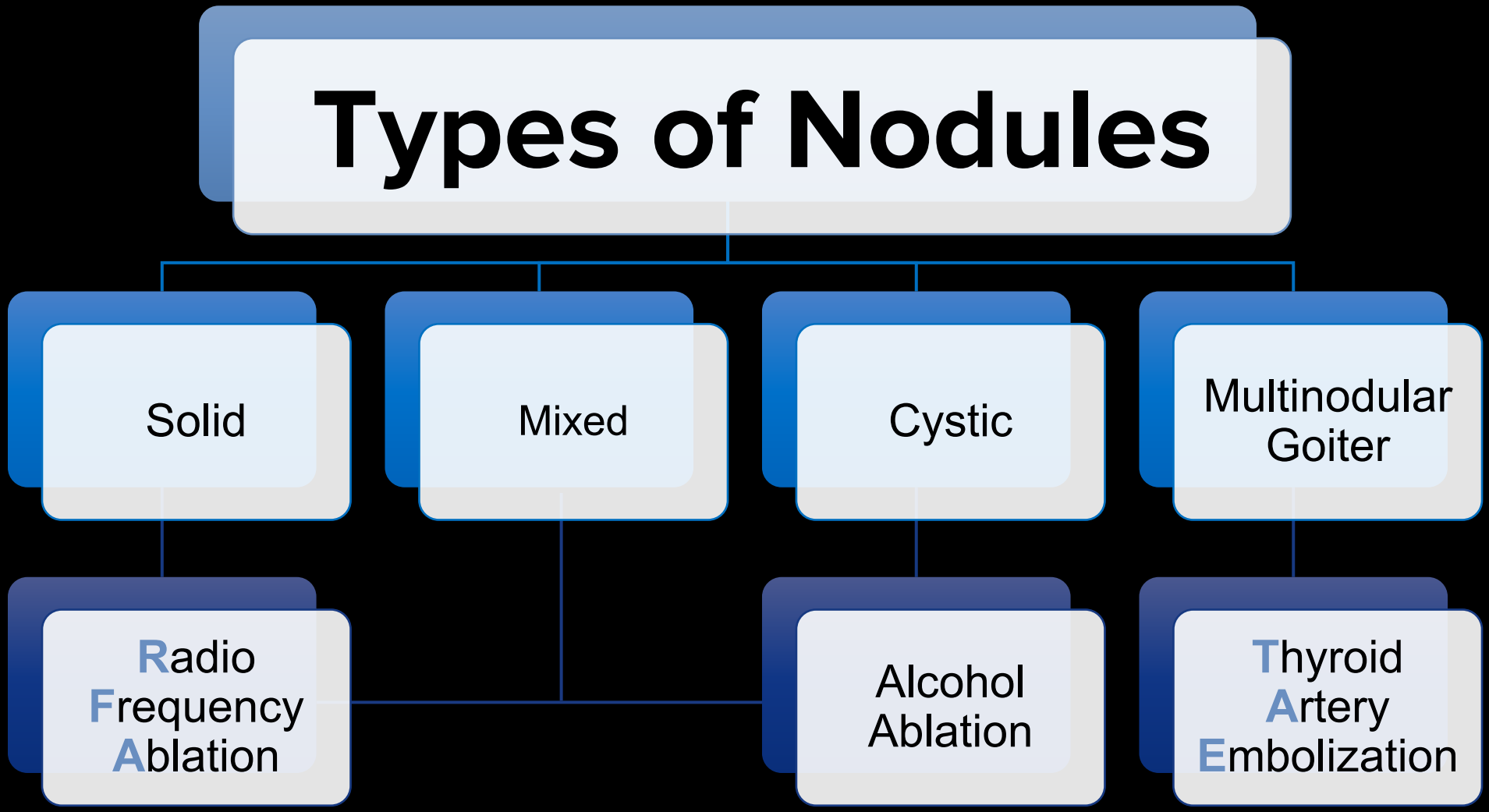
- 2 negative FNAs
- 1 negative FNA and low suspicion on US

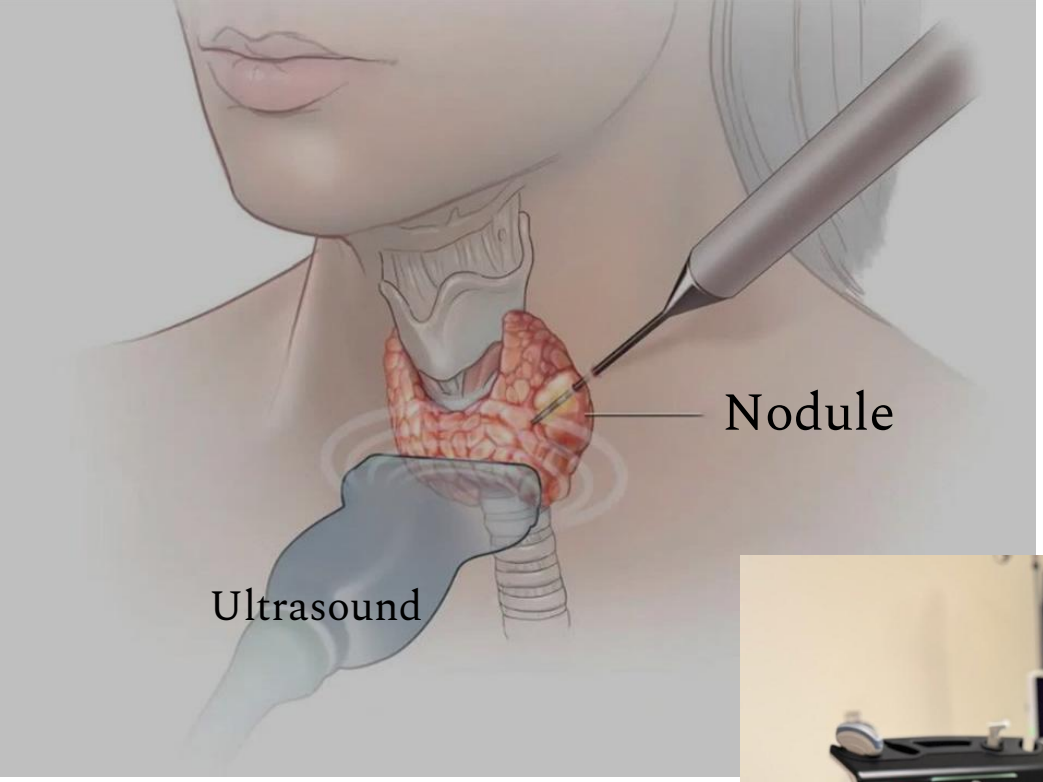

High Suspicion >70-90%
microcalcifications hypoechoic nodule irregular margin
hypoechoic irregular margins
hypoechoic taller than wide
hypoechoic, irregular margins, extrathyroidal extension
hypoechoic, Interrupted rim calcification with soft tissue extrusion
nodule with irregular margins, suspicious left lateral lymph node
Intermediate Suspicion 10-20%
hypoechoic solid regular margin
hypoechoic solid regular margin
Low Suspicion 5-10%
hyperechoic solid regular margin
isoechoic solid regular margin
partially cystic with eccentric solid area
partially cystic with eccentric solid areas
Very low Suspicion <3%
spongiform
partially cystic no suspicious features
partially cystic no suspicious features
Benign <1%
cyst
Risk of malignancy

Size

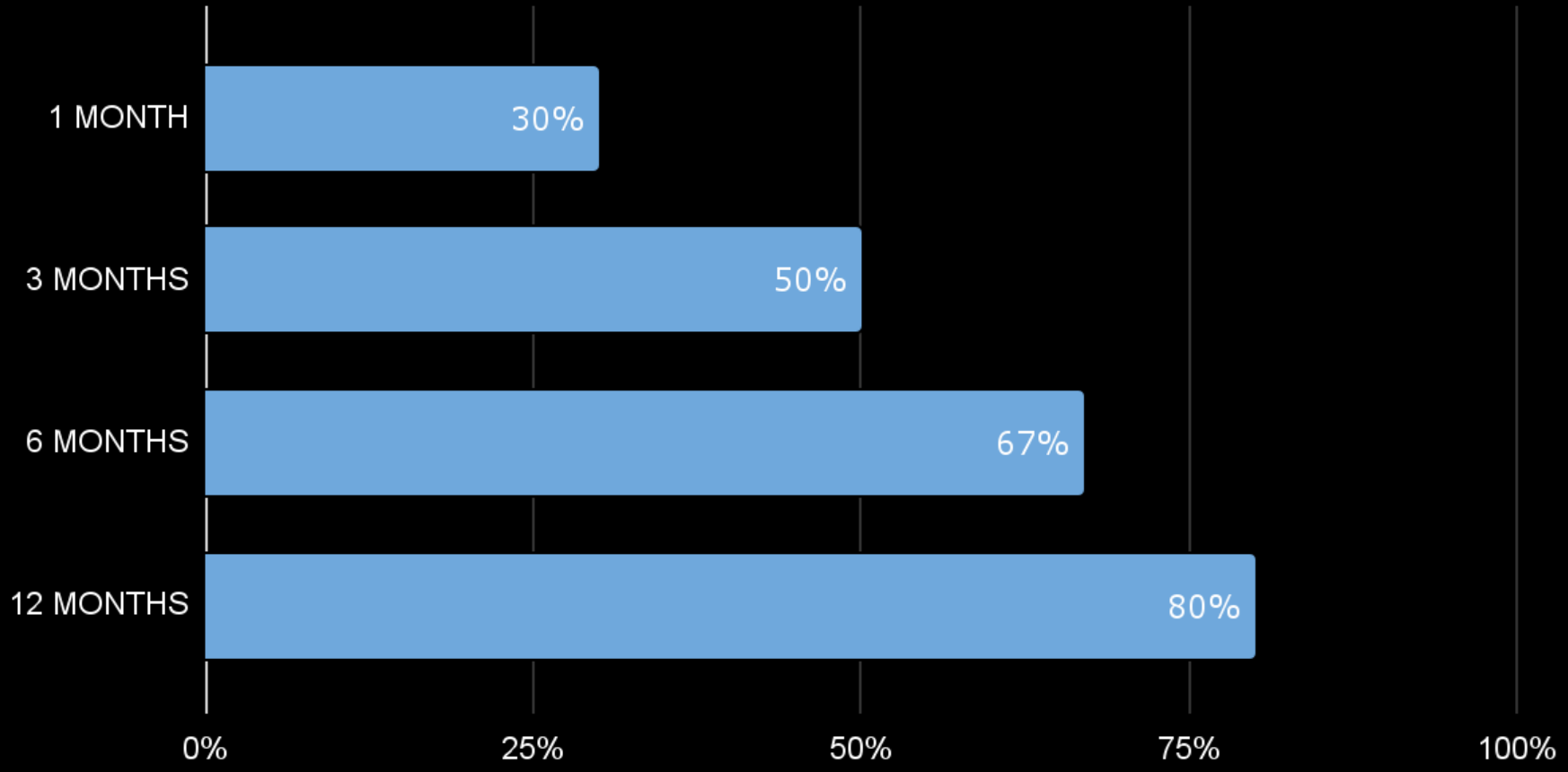
- <1 cm (0.38 mL) = probably not the cause
- >1 cm (<10 mL) = Small - best ablation
- 11-20 mL = Medium - takes longer, more risk
- >20 mL = Large - TAE if good candidate

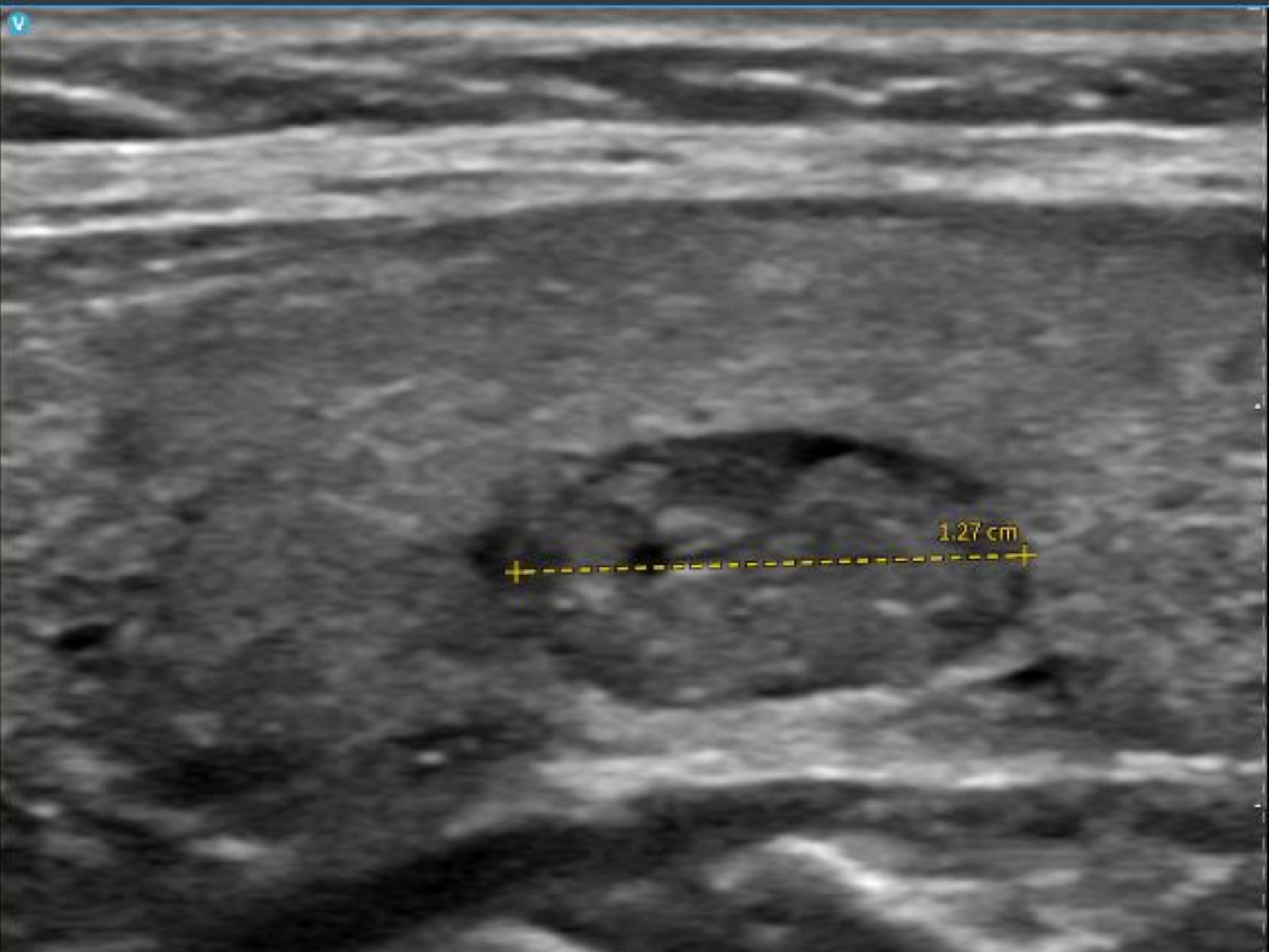
Types of Nodules

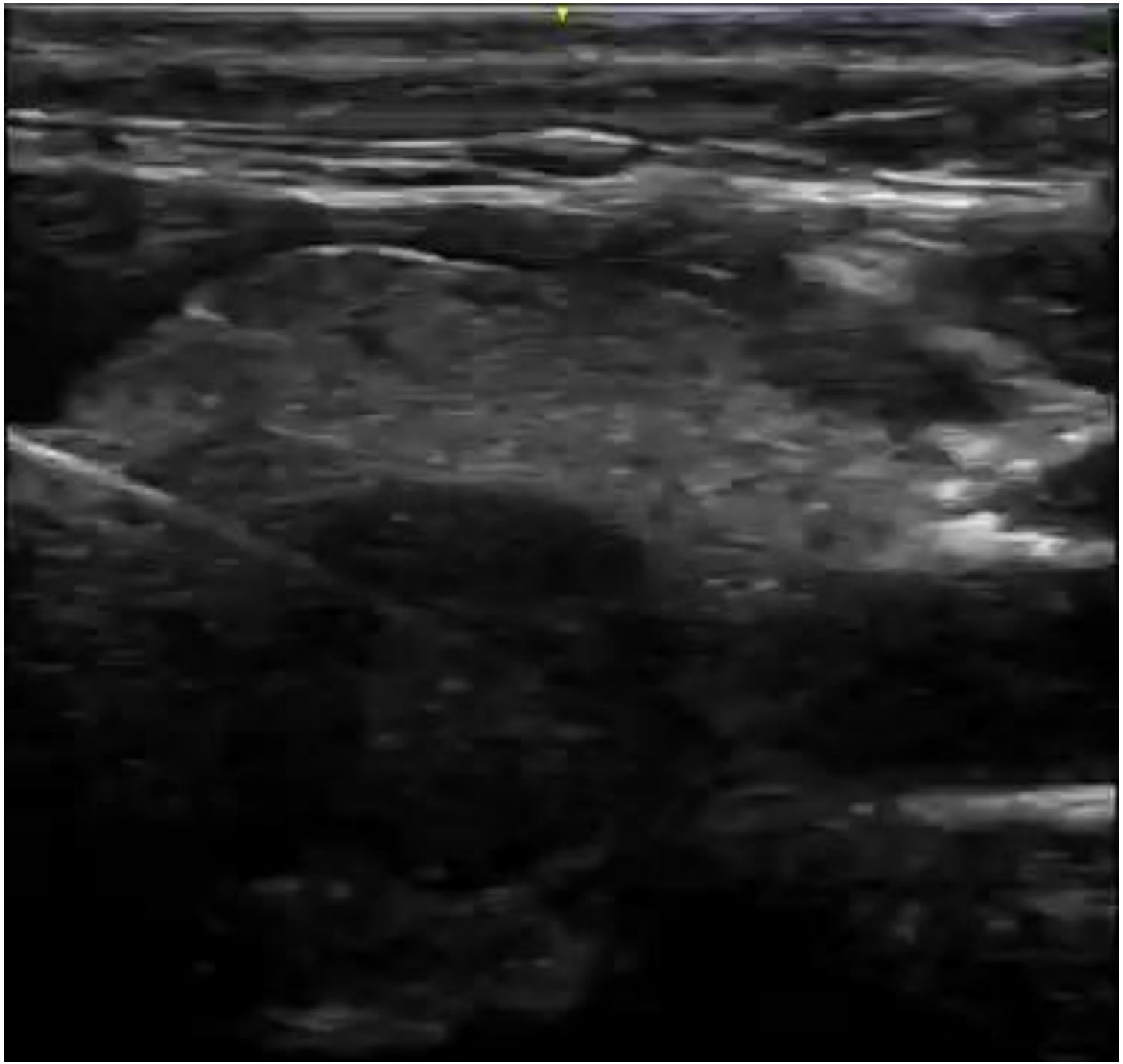


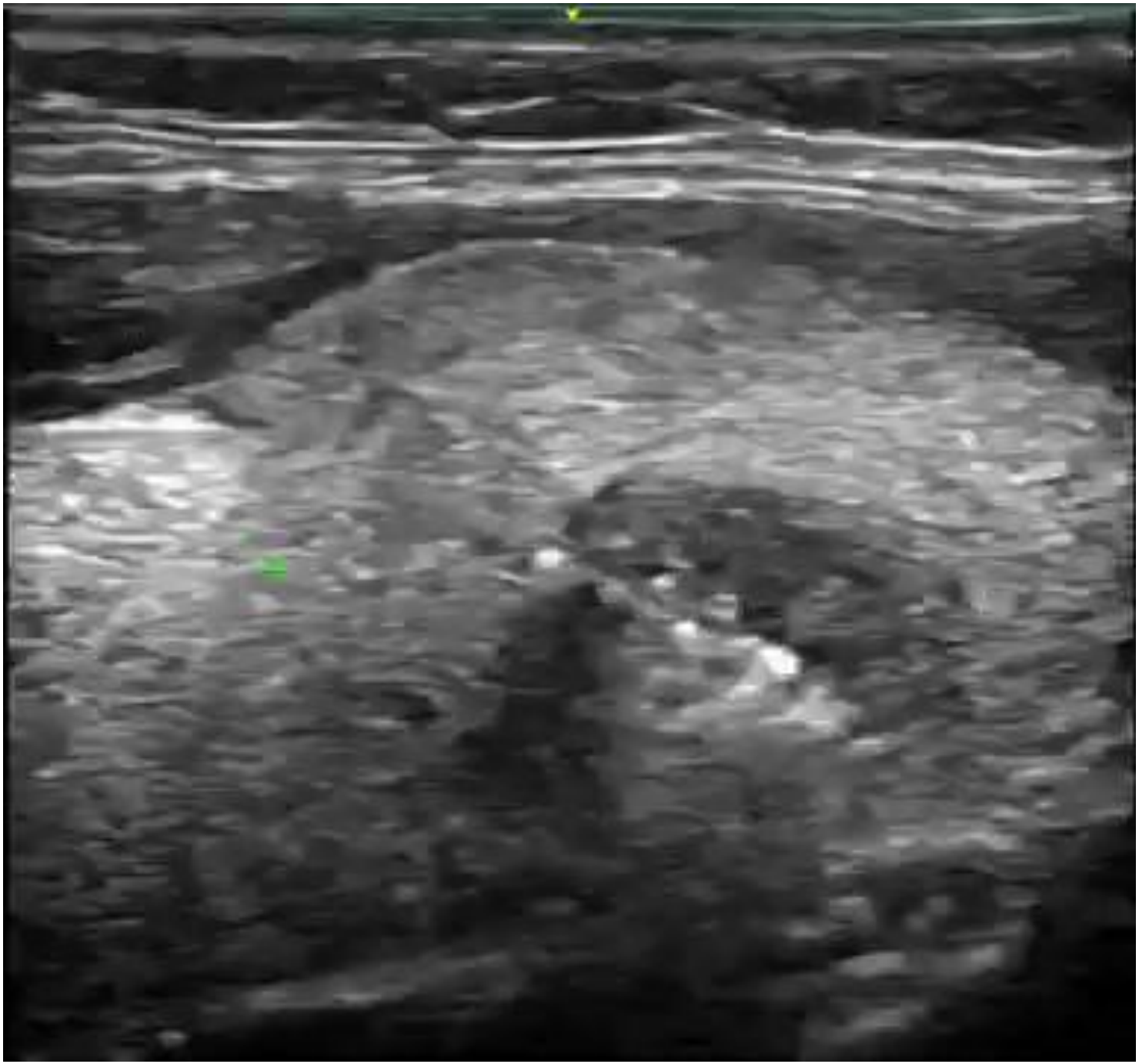

Nodule
Ultrasound

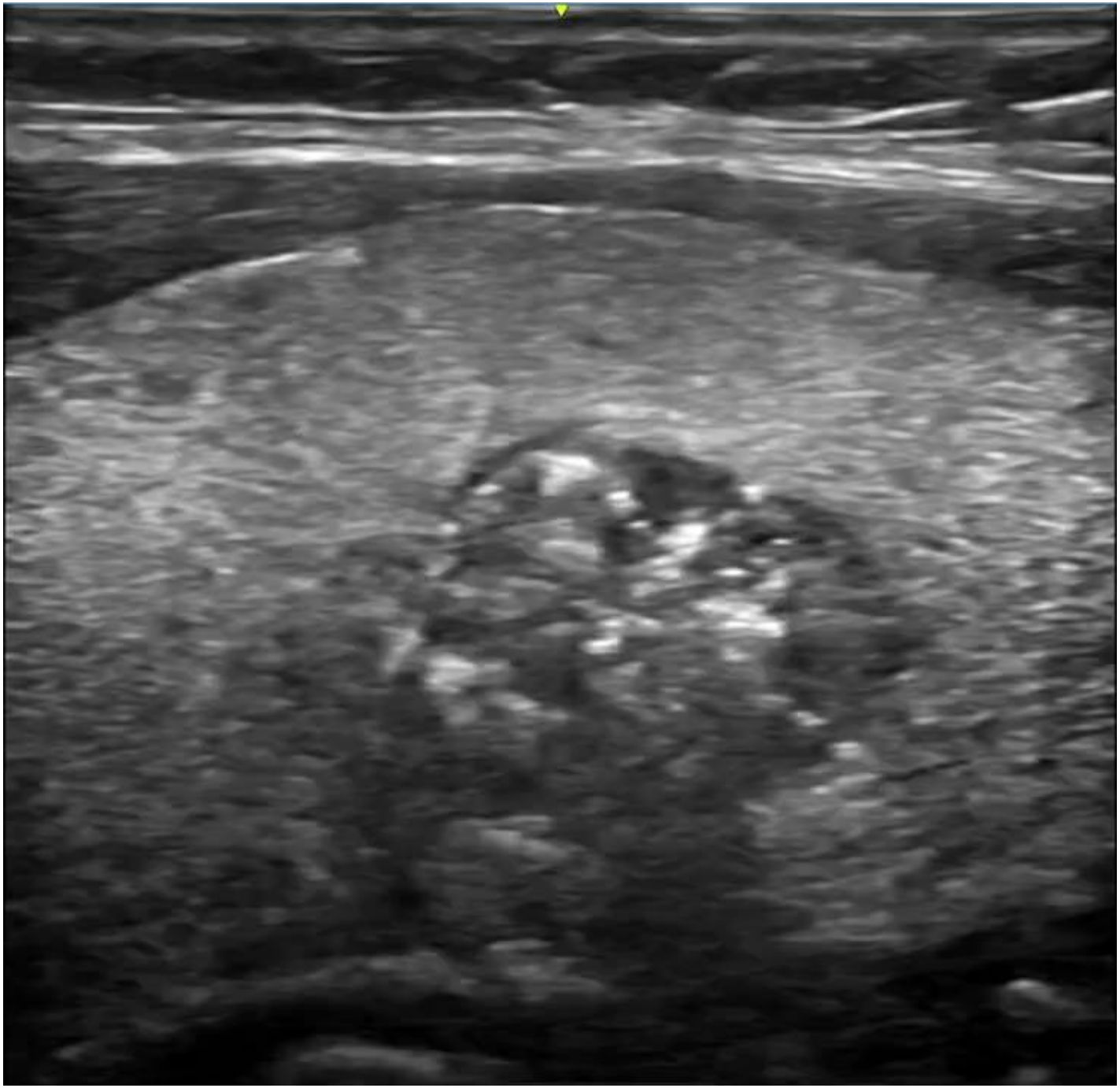
RFA Size Reduction



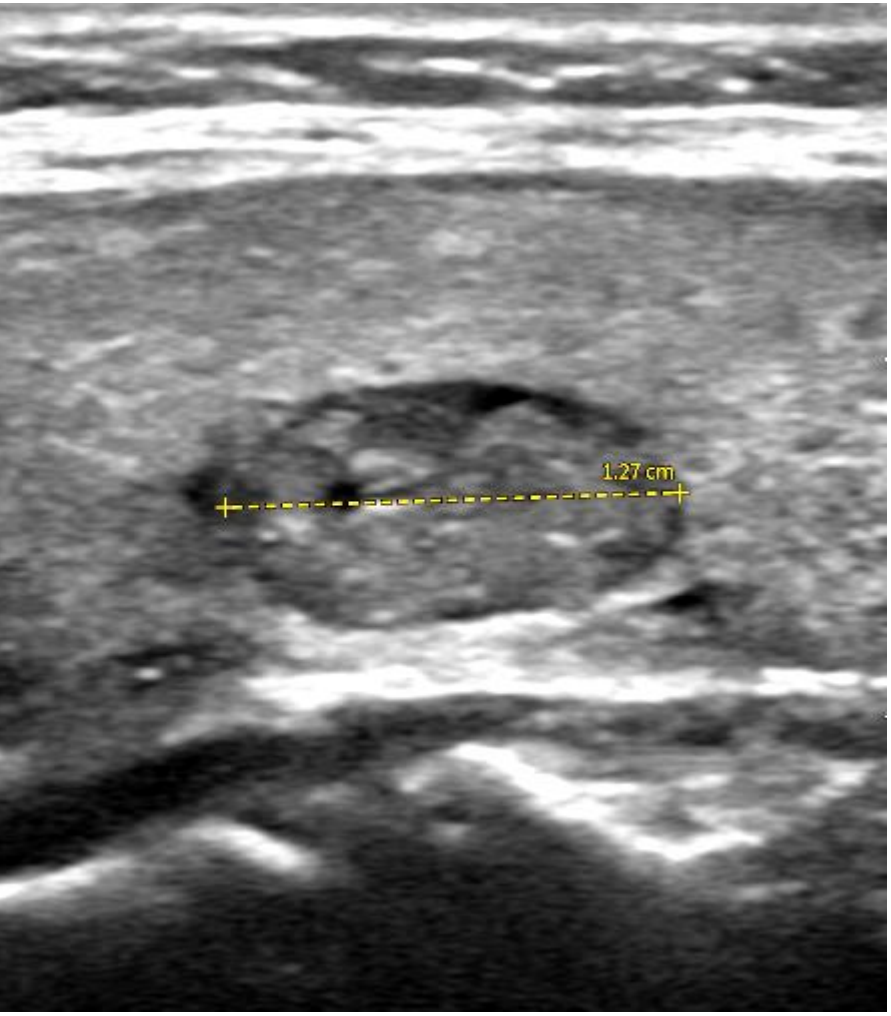

1.27 cm



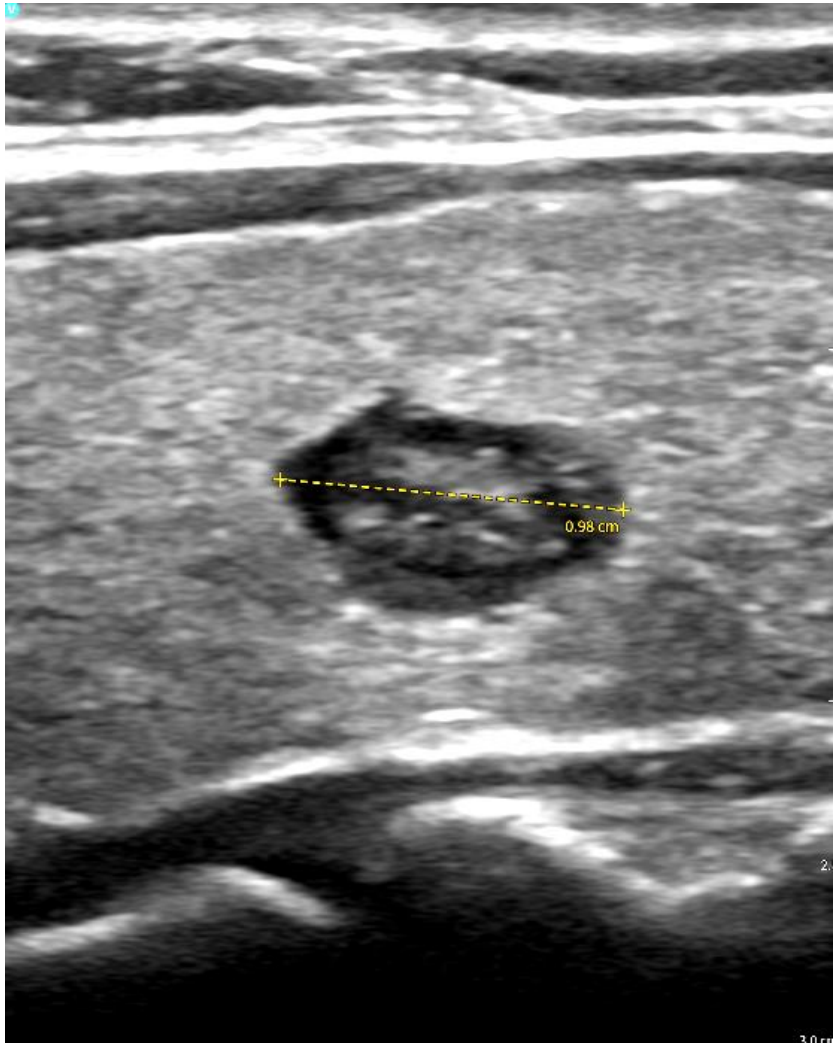


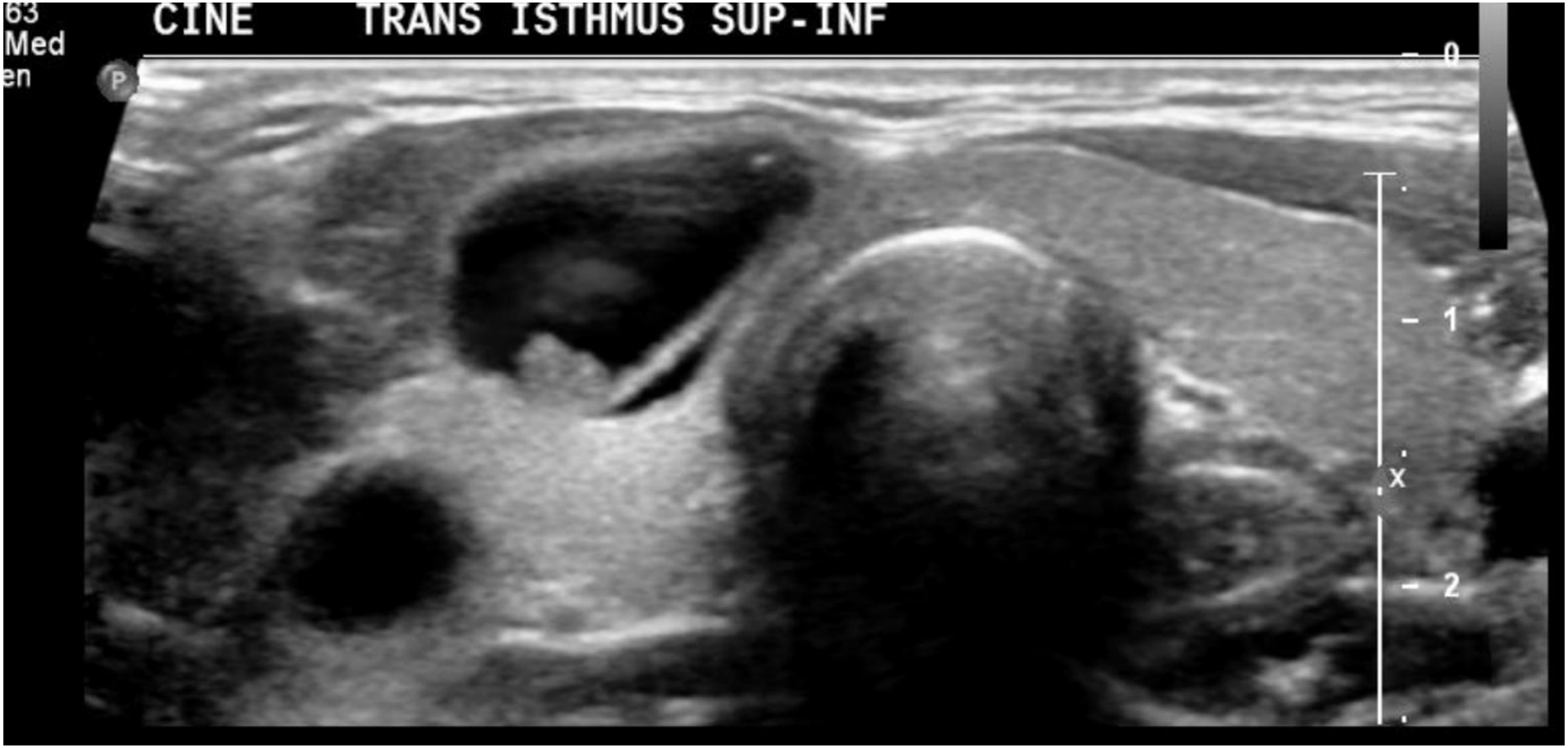


Pre Ablation

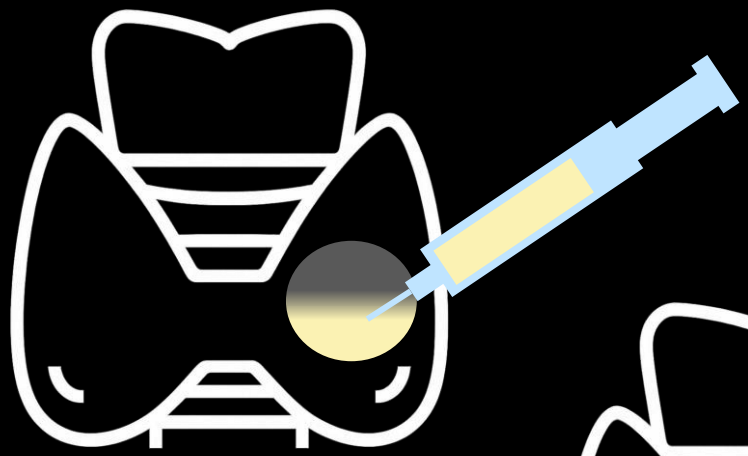


1 month post



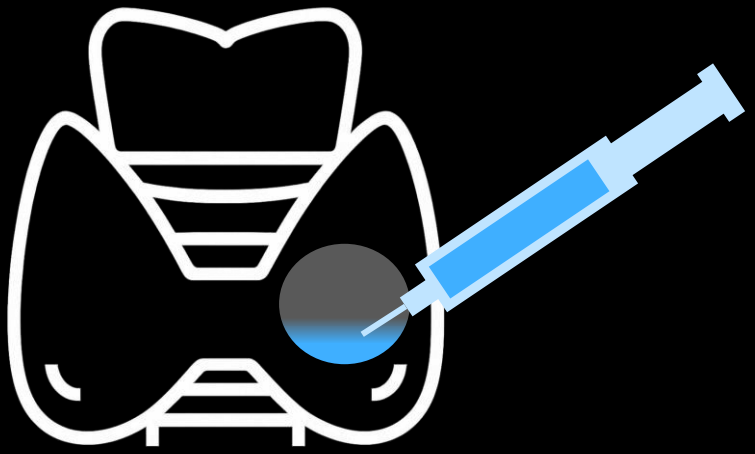

63
Med
en
CINE
TRANS ISTHMUS SUP-INF
0
1
X
2

Alcohol Ablation



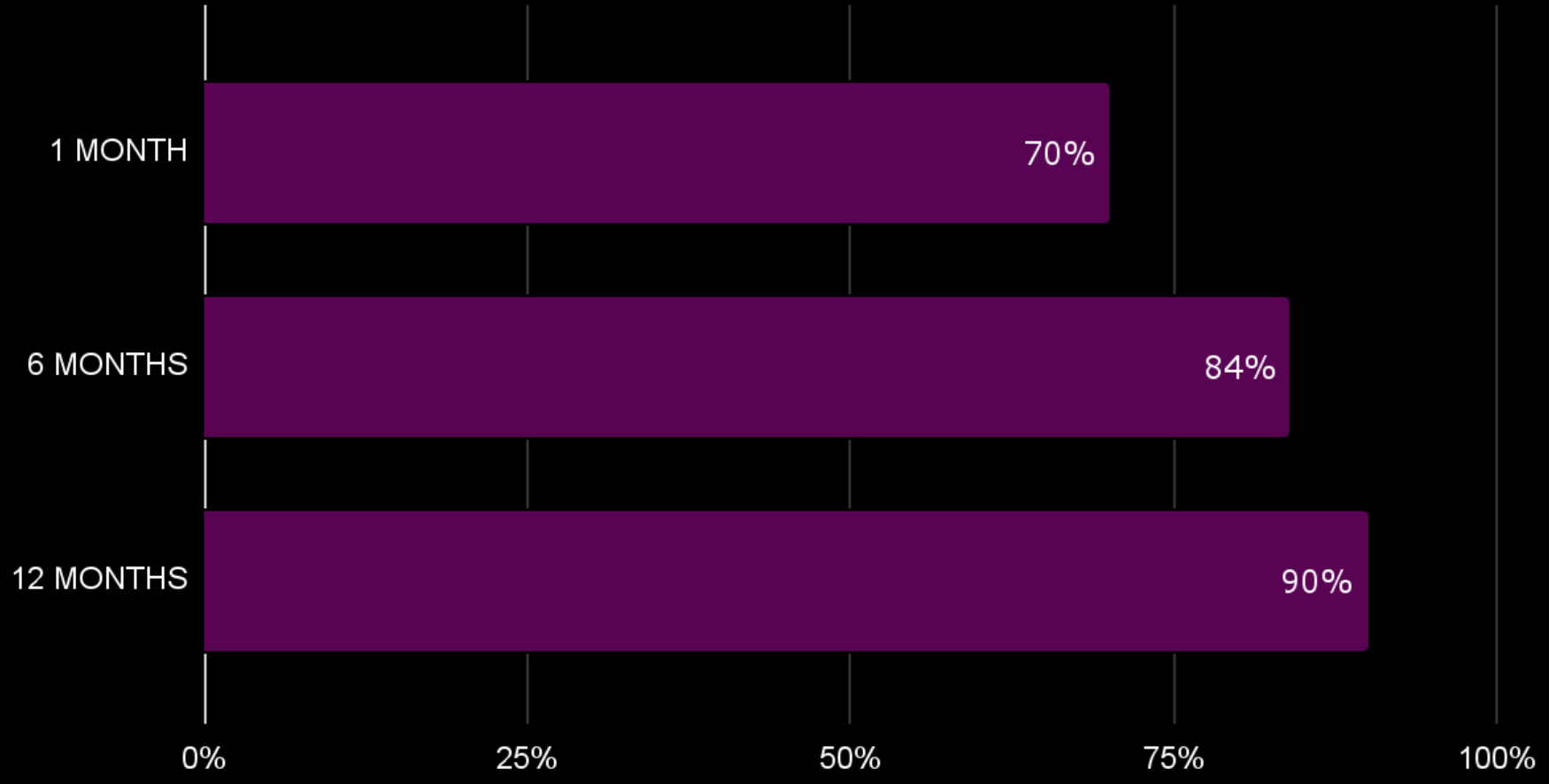
Aspirate internal fluid

Inject Ethanol



After 2 minutes, completely remove Ethanol

Alcohol Ablation Size Reduction



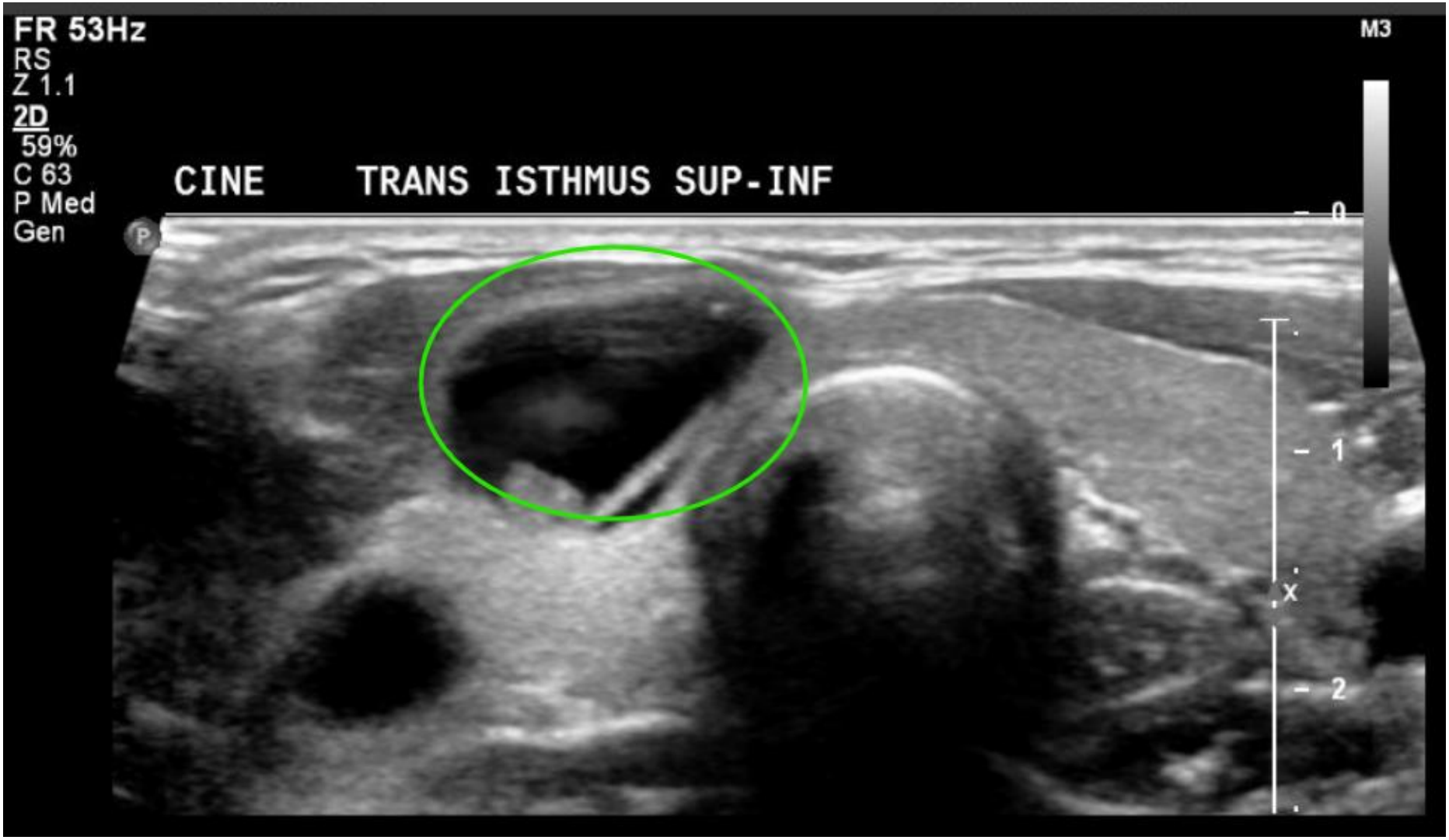

FR 53Hz
RS
Z 1.1
2D
59%
C 63
P Med
Gen
M3
CINE TRANS ISTHMUS SUP-INF
0
1
2
X

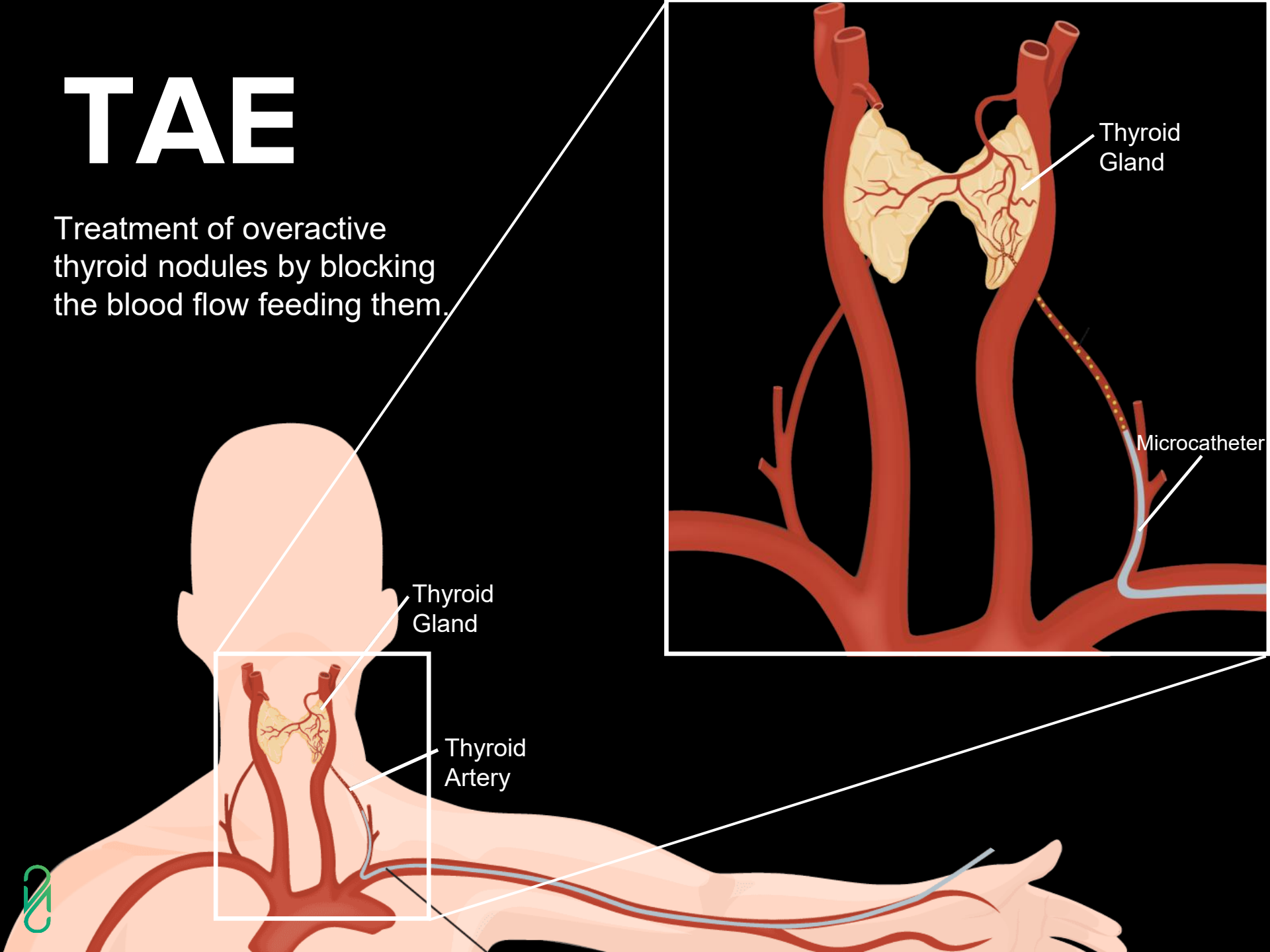
Table 6.1 Complications resulting from thyroid radiofrequency ablation

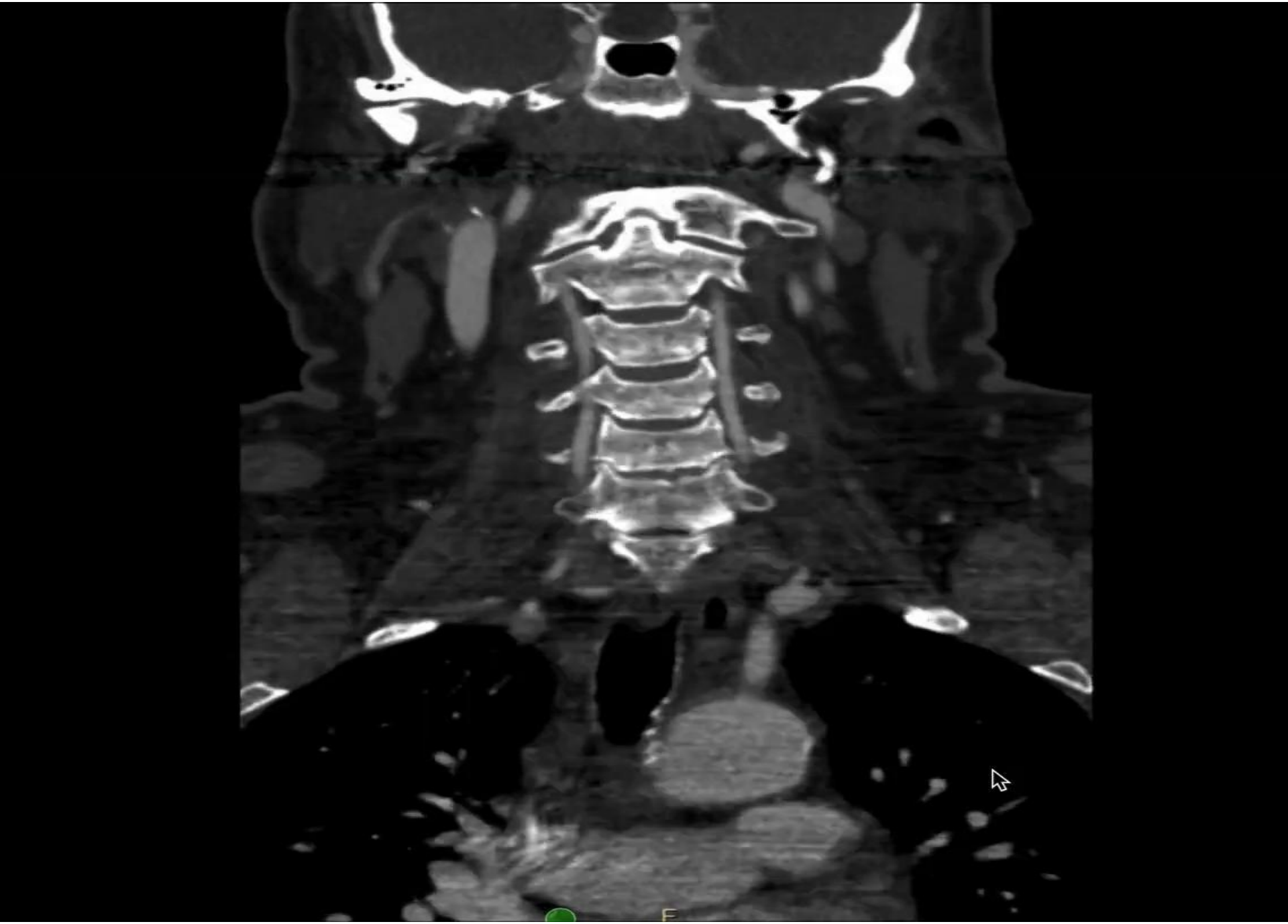
Complication or Side Effect	Number of Complications	Time of Detection (Days)	Time to Recovery (Days)
Major	**20(1.4%)**	**1-180**	**1-90**
Voice change	15(1.02%)	1-2	1-90
Nodule rupture	2(0.14%)	22-30	<30
Nodule rupture with abscess formation	1(0.07%)	50	None
Hypothyroidism	1(0.07%)	180	None
Brachial plexus injury	1(0.07%)	1	60
Minor	**28(1.92%)**	**1-2**	**1-30**
Hematoma	15(1.02%)	1	<30
Vomiting	9(0.62%)	1-2	1-2
Skin burn	4(0.27%)	1	<7
Side effect	**46(3.15%)**	**1**	**1-2**
Pain	38(2.6%)	1	1-2
Vasovagal reaction	5(0.34%)	1	1
Coughing	3(0.21%)	1	1

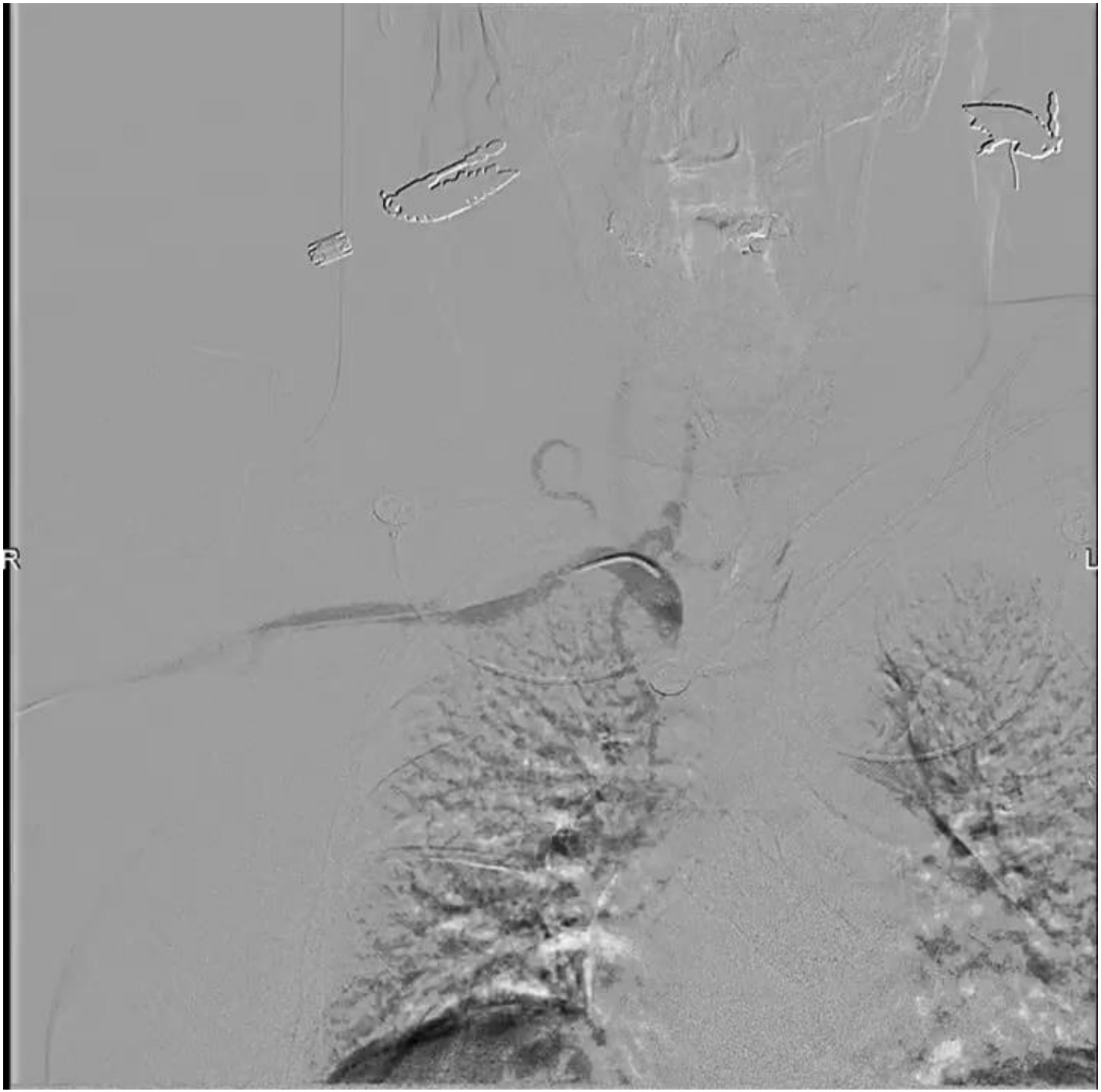
Note: As reported by Baek et al. (27).

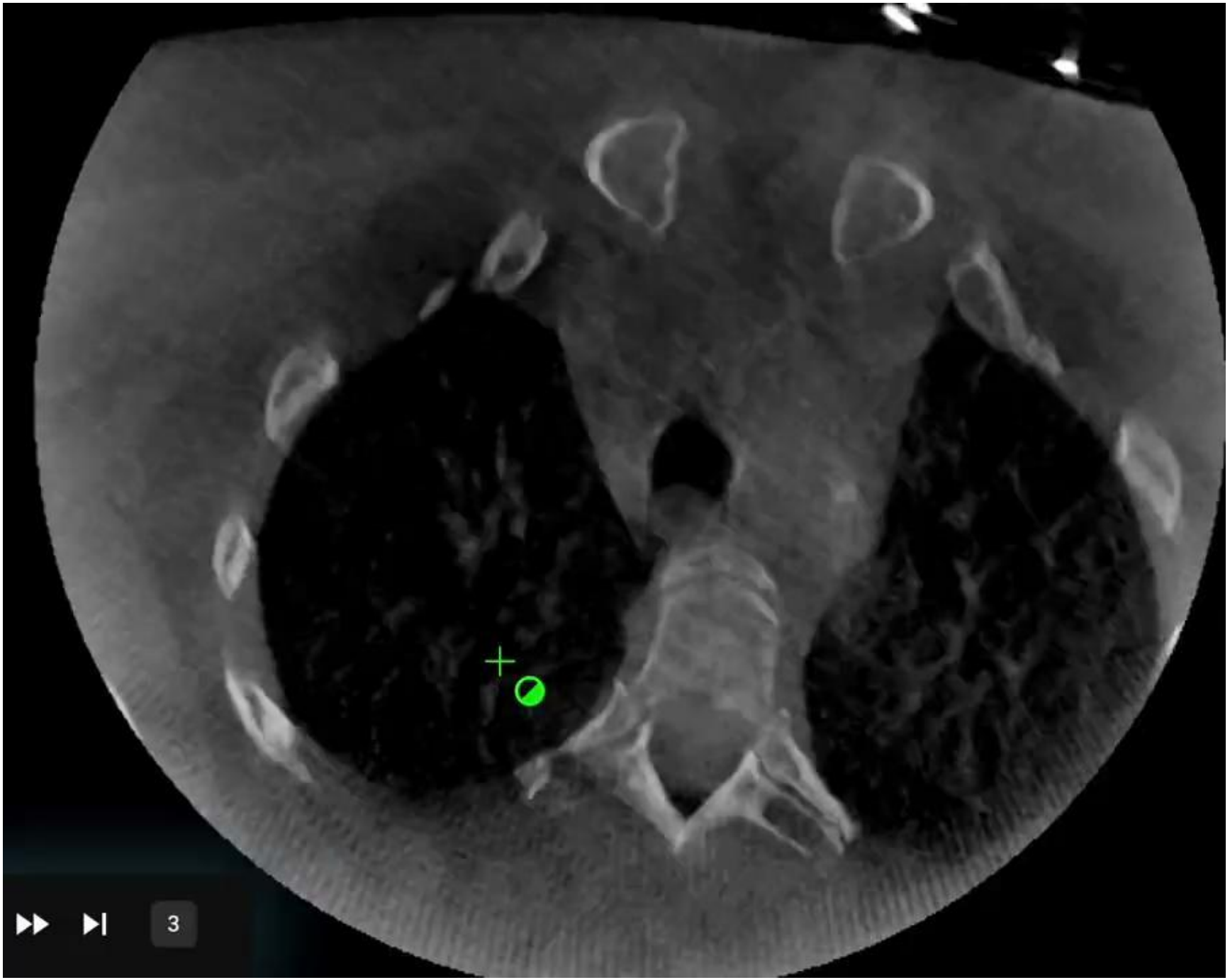
TAE

Treatment of overactive thyroid nodules by blocking the blood flow feeding them.

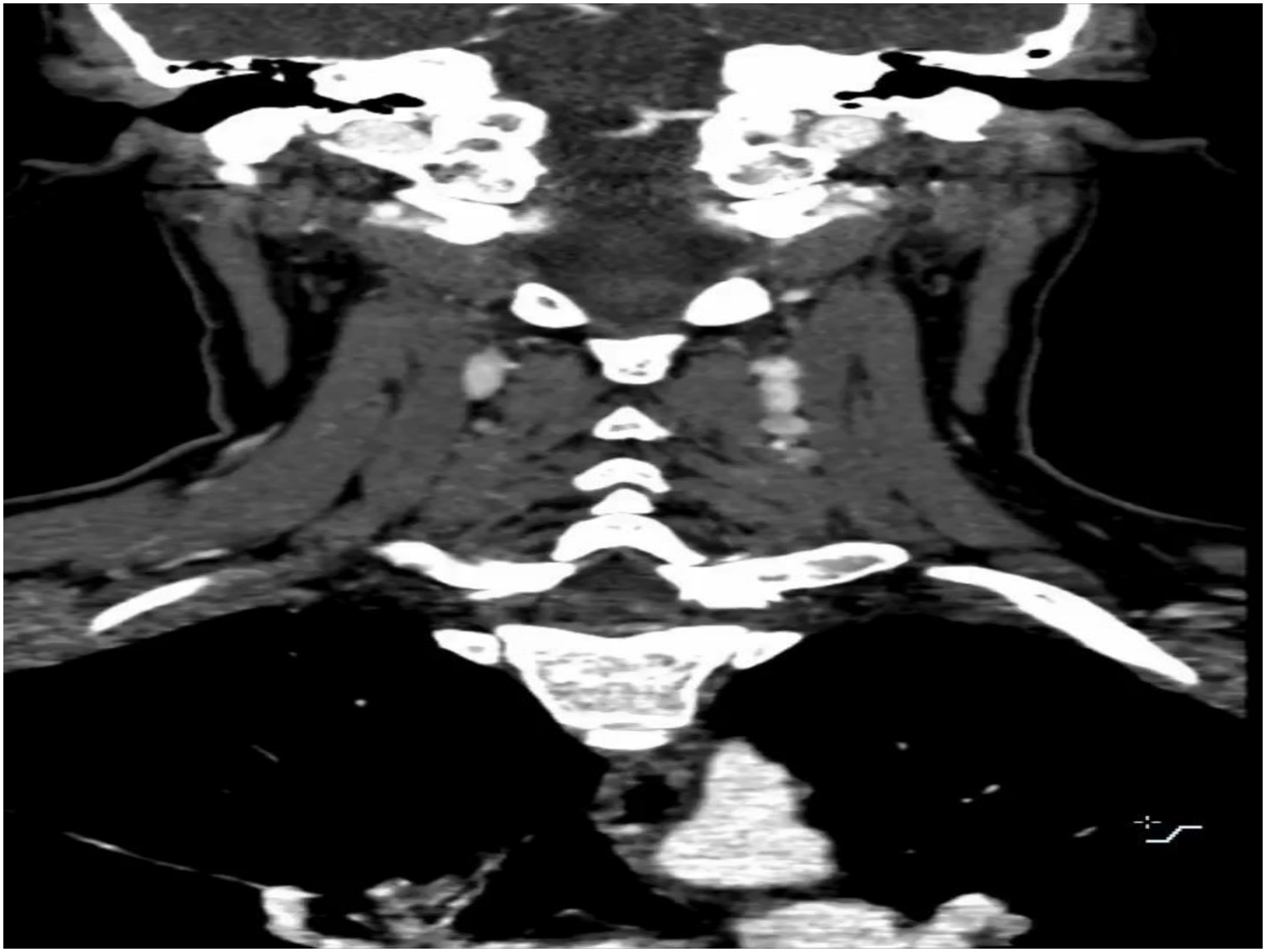




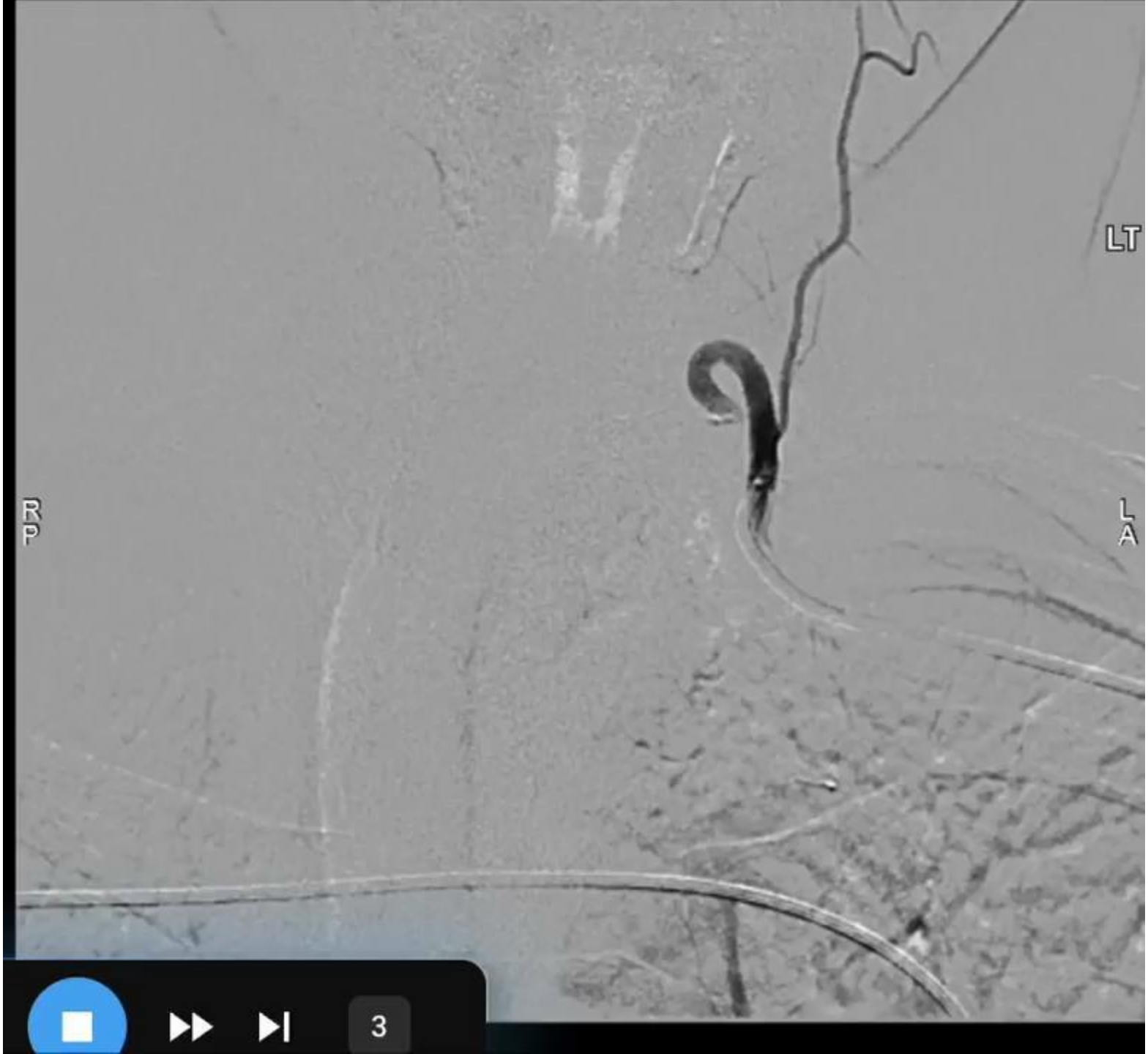

R
L


3

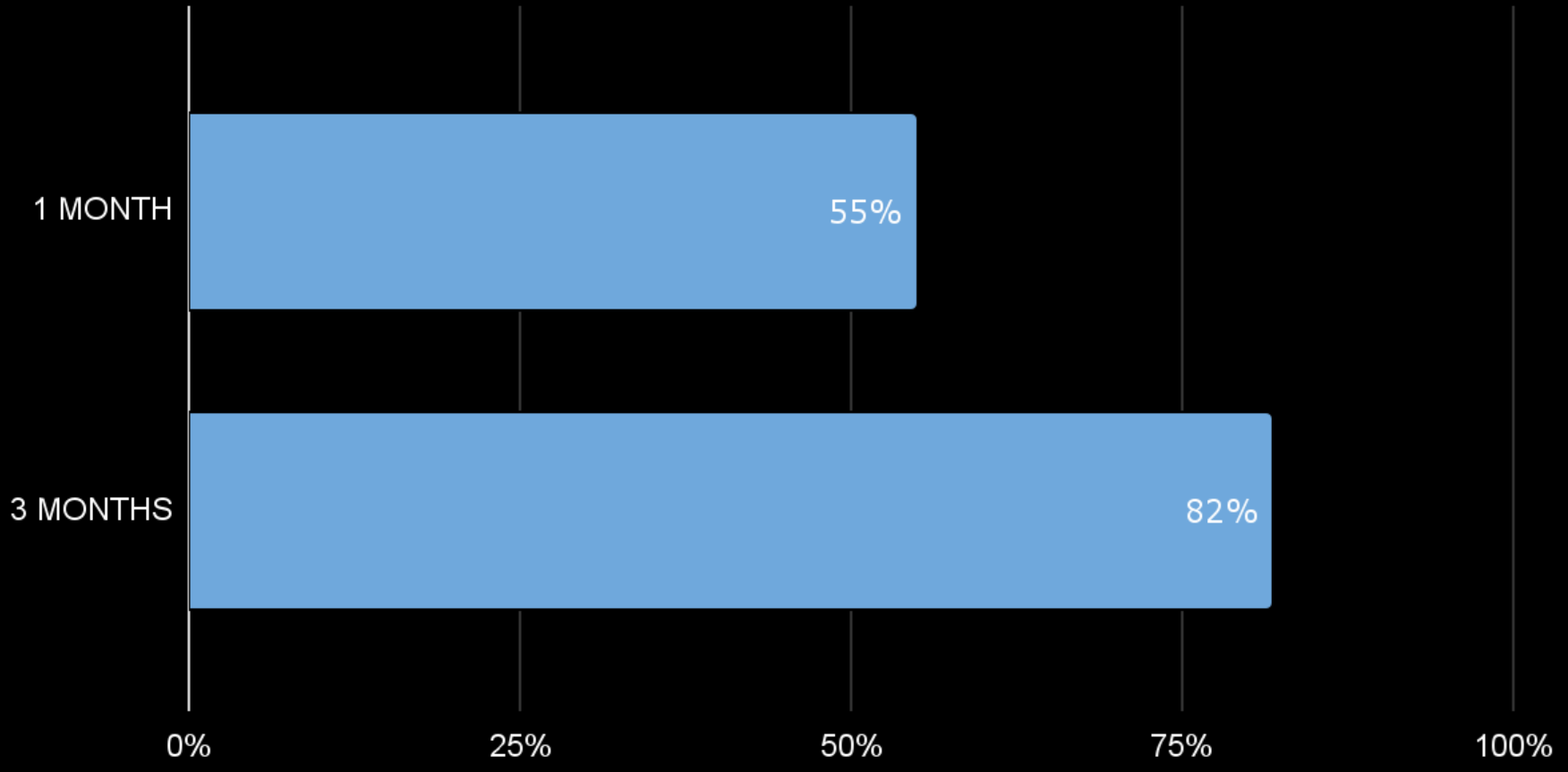
TAE for nodule >20 mL

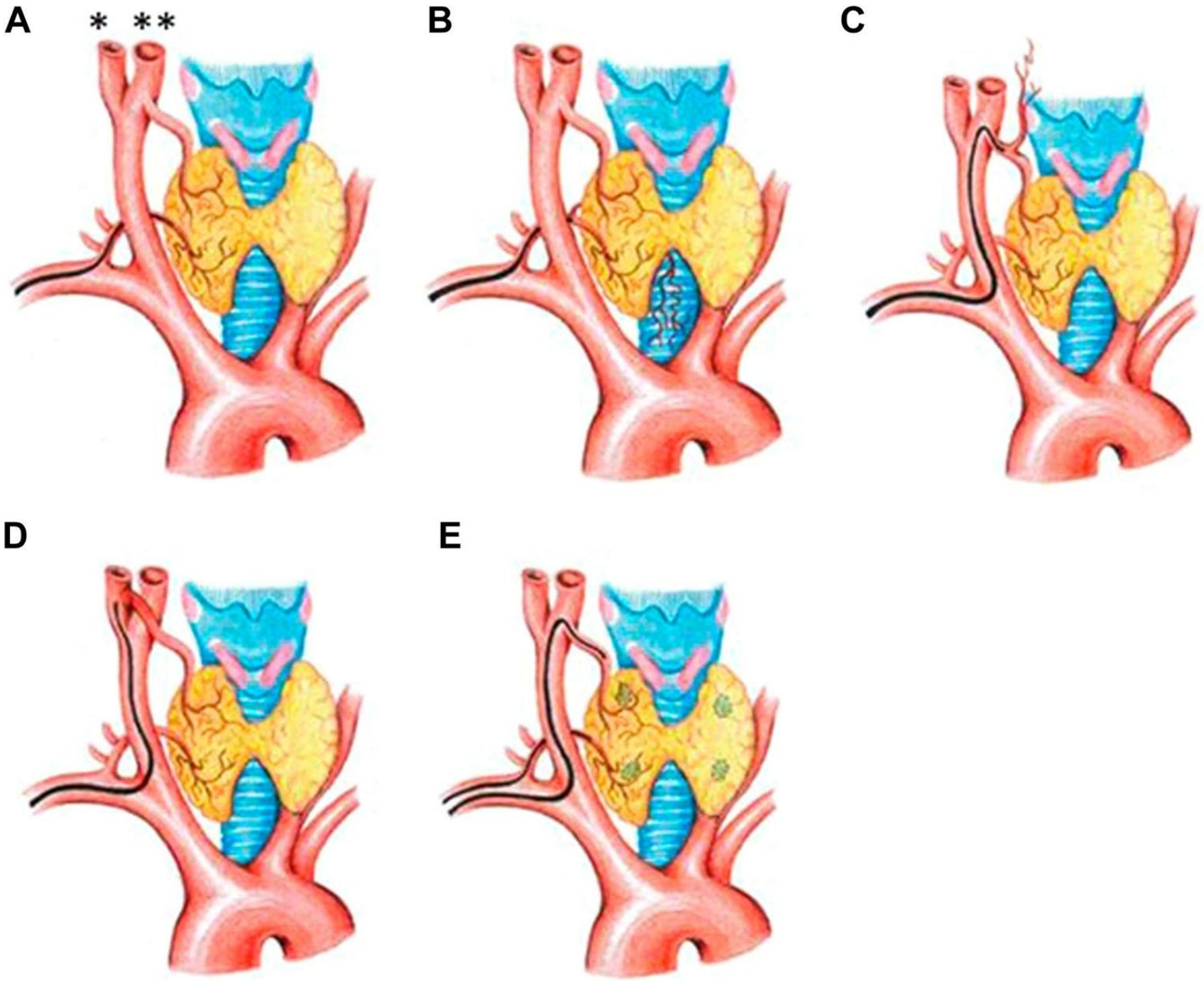



R
L


LT
RP
LA
3

TAE Size Reduction

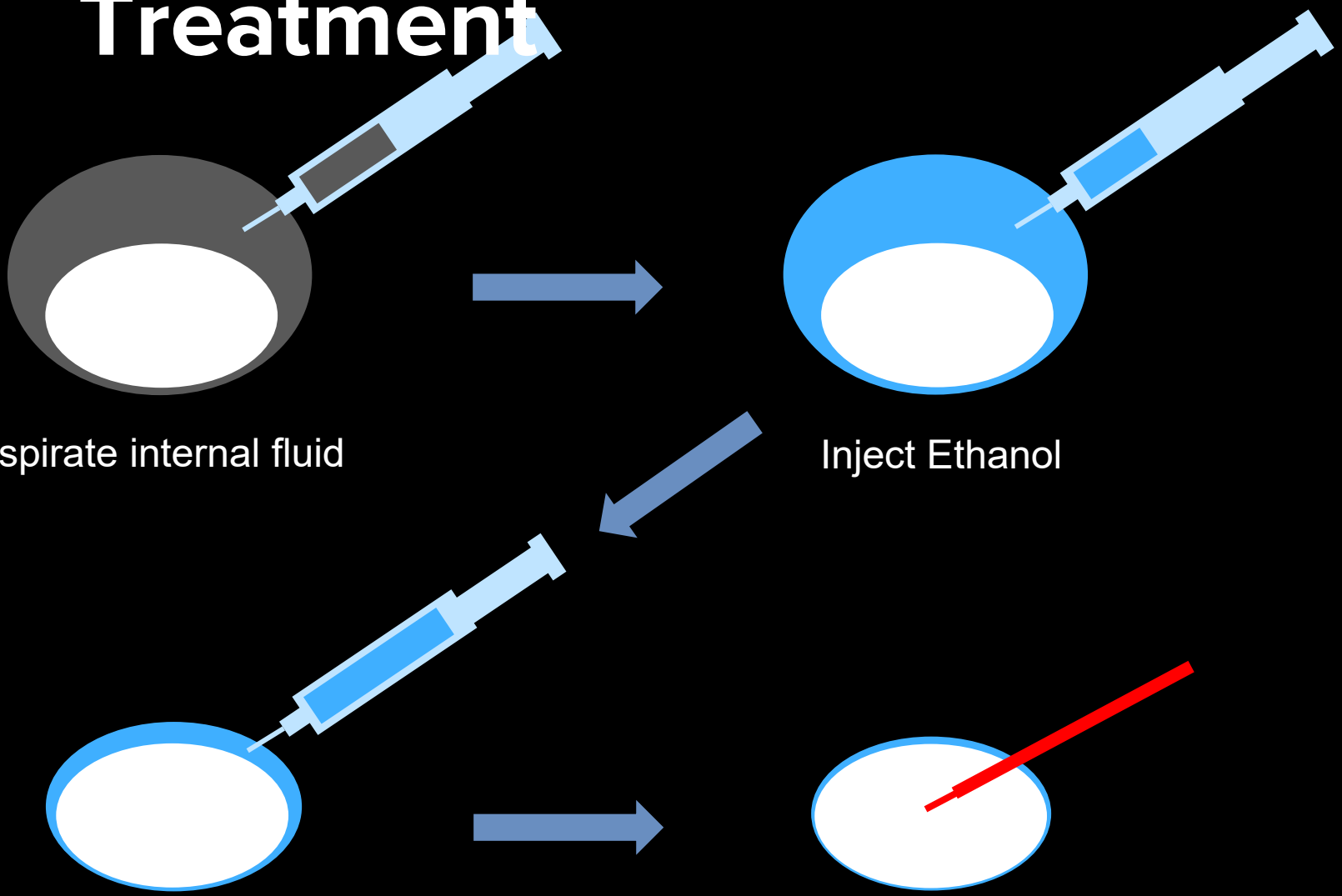



A
* **
B
C
D
E

Thyrotoxicosis

- Baseline labs
- Propranolol
- Iodinated Contrast
- Hold Synthroid
- Methimazole
- Prednisone

Mixed Nodule Treatment



Our treatments vs Surgery

No scar

Preserve thyroid

No lifelong meds

No downtime

What to Expect

Local anesthesia, no hospital admission

Mild soreness for 1–2 days

Most patients resume normal activity right away

“With RFA, I didn’t miss a single day of work.” — Karen, 58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Thank you!

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