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KOREAN SOCIETY OF ULTRASOUND IN MEDICINE

KSUM

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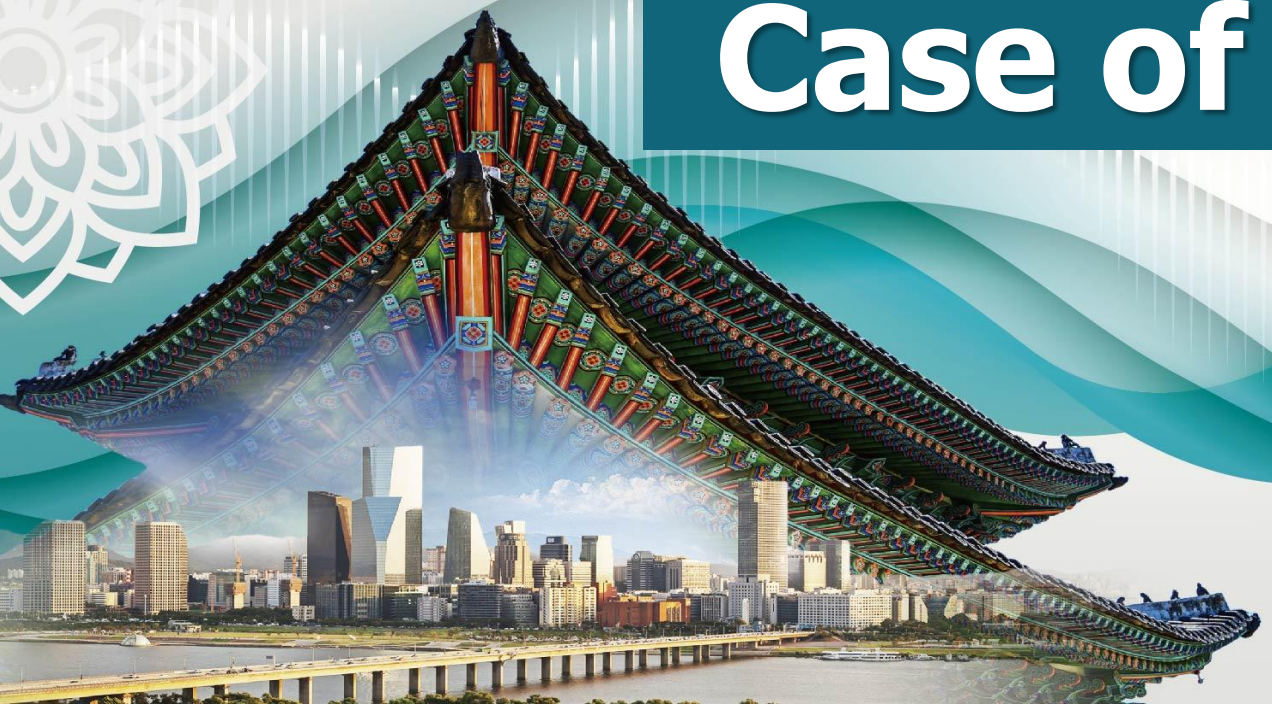
KSUM 2025

The 56th Annual Congress of Korean Society of Ultrasound in Medicine

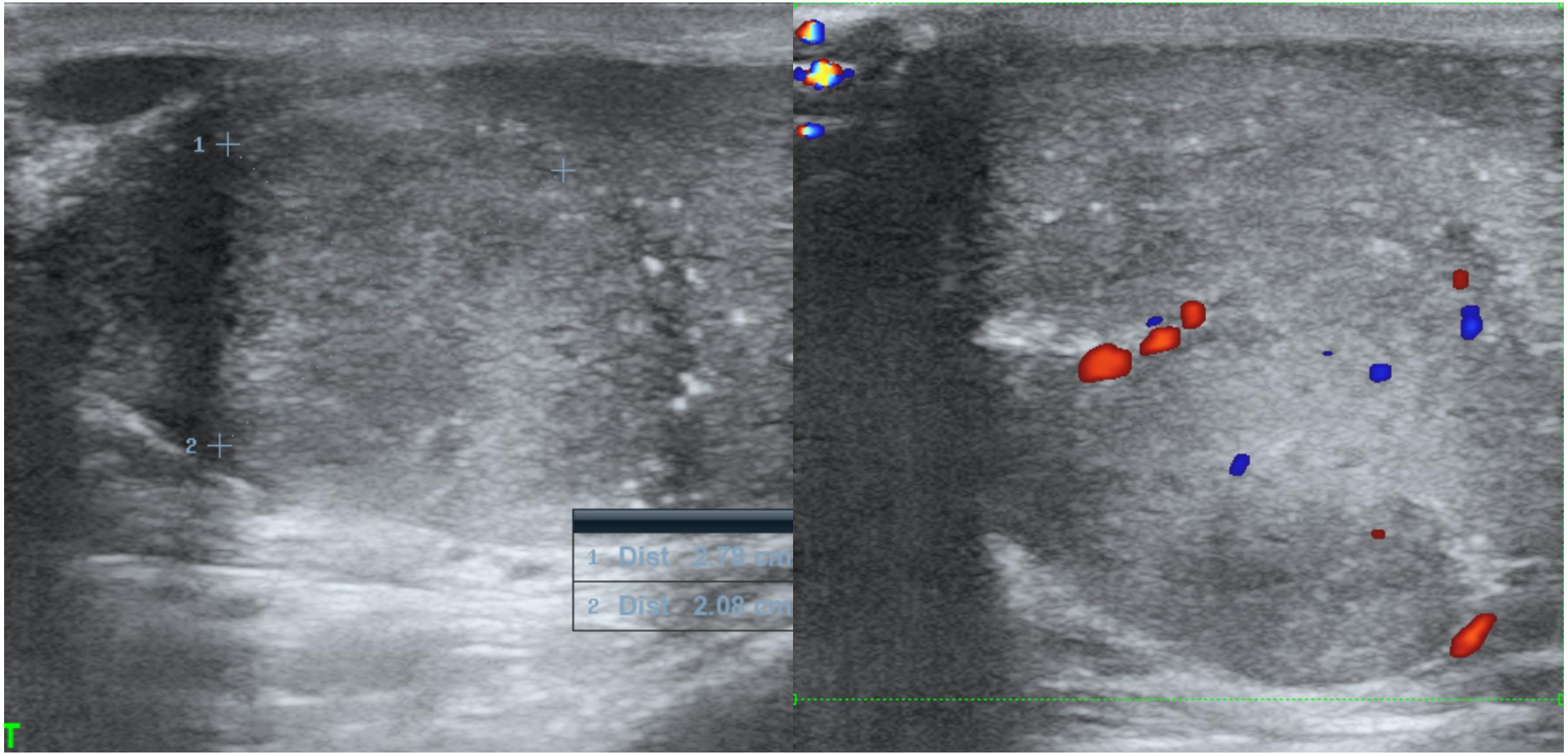
May 8 (Thu) – 9 (Fri), 2025 | Coex, Seoul, Korea

Case of the Day



Case 1

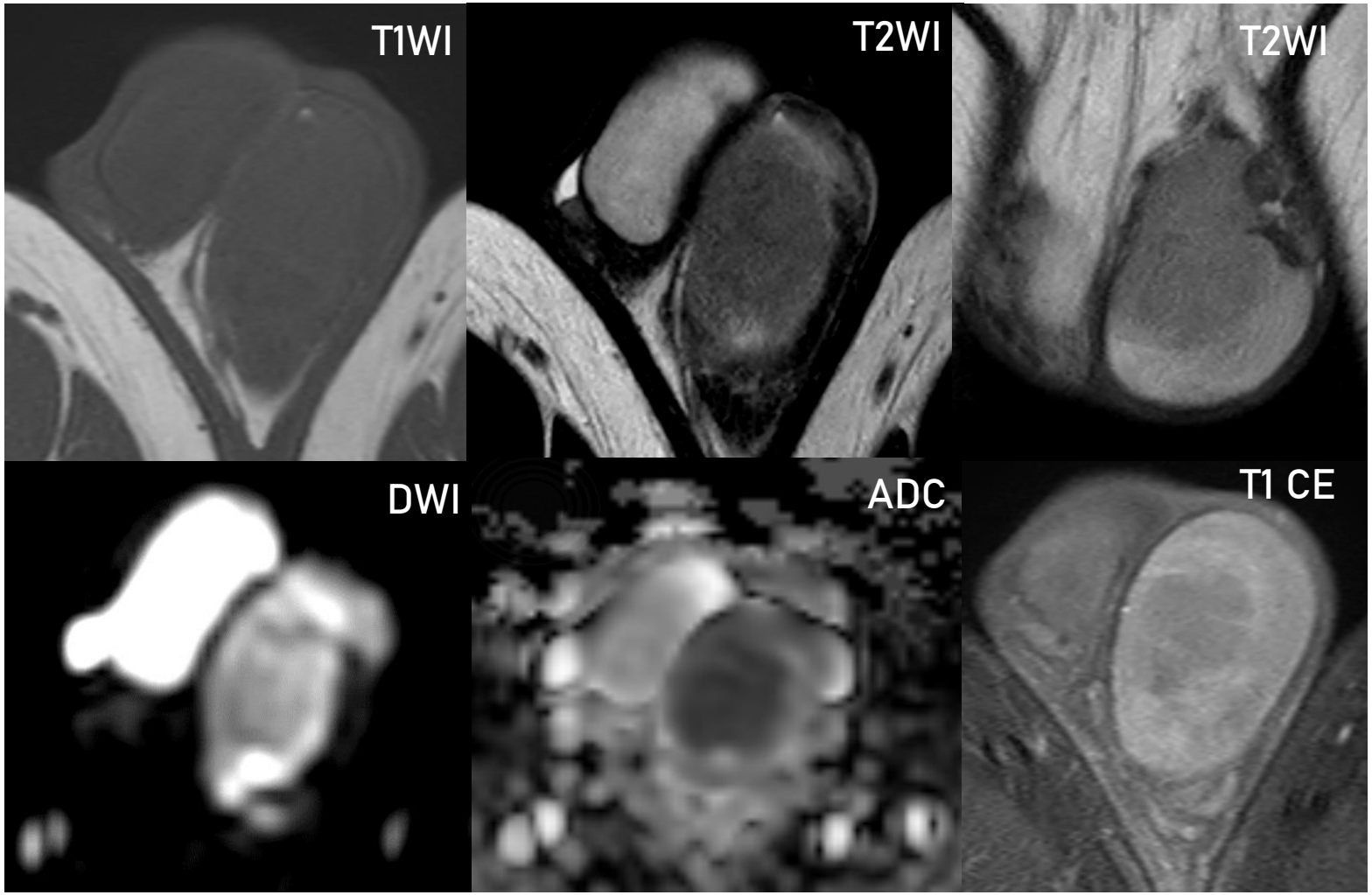
- M/33
- C.C : Palpable mass in left testis



Testis ultrasound

Case 1

- M/33
- C.C : Palpable mass in left testis



MRI with contrast enhancement

1. What is the most likely diagnosis?

① Testicular lymphoma

② Epididymo-orchitis

③ Testicular torsion

④ Testicular seminoma

⑤ Leydig cell tumor

Answer

1. What is the most likely diagnosis?

① Testicular lymphoma

② Epididymo-orchitis

③ Testicular torsion

④ Testicular seminoma Answer (3 Point)

⑤ Leydig cell tumor

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Testicular seminoma

- Most common malignant tumor of the testis and most common pure germ cell tumor of testis
- - Manifests as a painless, palpable, solid mass

Imaging features

US

Well defined, hypoechoic (compared with the background testis) and homogeneous and infrequently demonstrate calcifications (30%) or cystic spaces (10%)

At Doppler US, seminoma demonstrates increased vascularity (compared with adjacent normal testis)

MRI

Often homogeneous T2 low SI (in smaller lesion) and CE

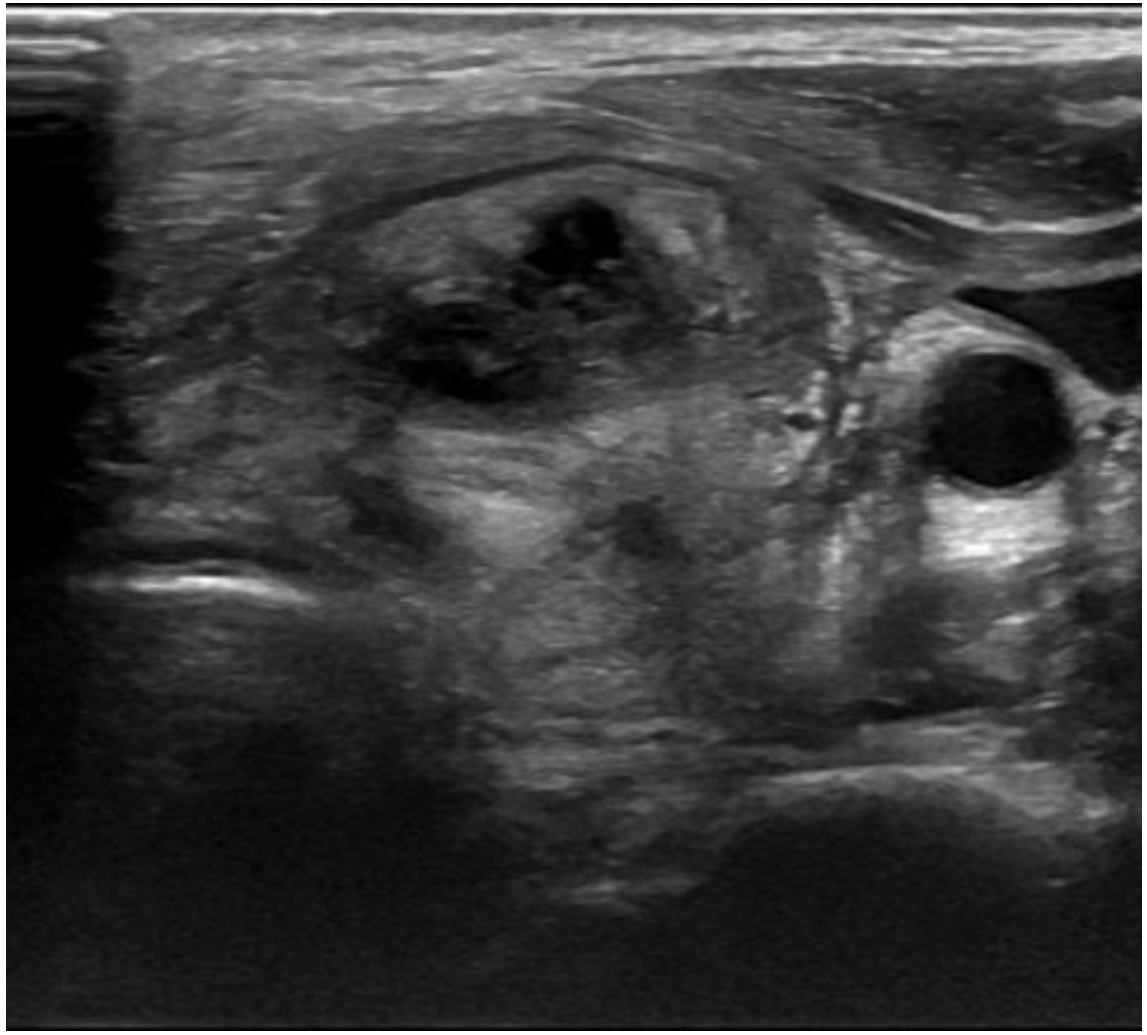
Rare, calcifications or cystic component

Fibrovascular septa: Low SI on T2WI, enhancement on T1 CE

Bilateral tumors -rare, occurring in 2%

Case 2

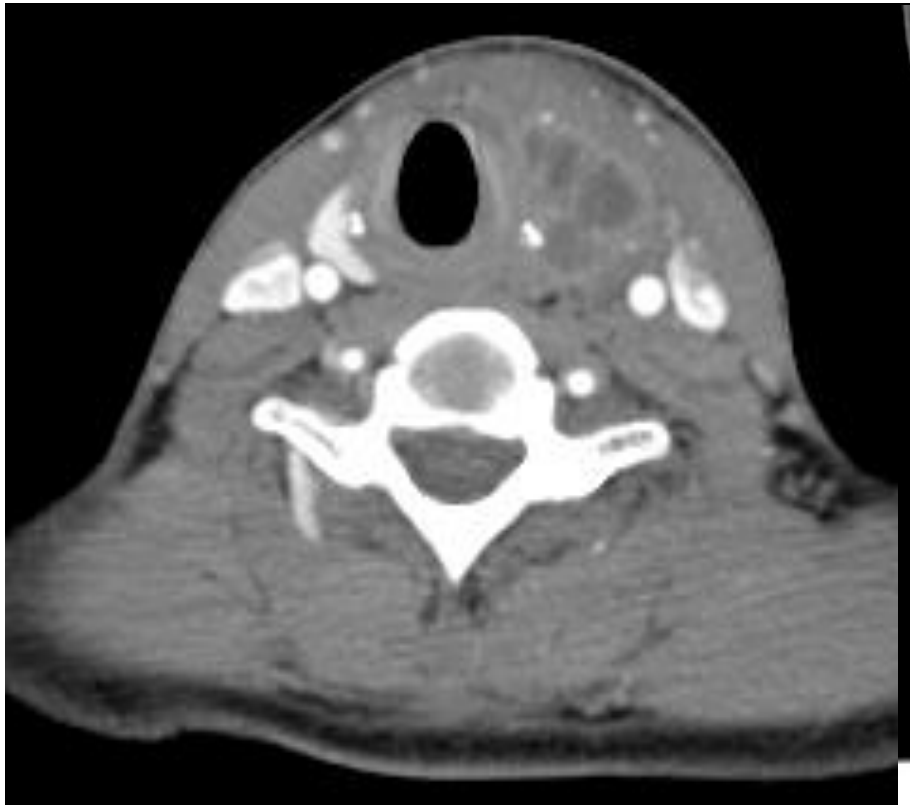
- F/35
- C.C : Neck swelling



Neck ultrasound

Case 2

- F/35
- C.C : Neck swelling



Neck CT with contrast

Esophagography

2. What is the most likely diagnosis?

① Pyriform sinus fistula

② 3rd Branchial cleft cyst

③ Thyroglossal duct cyst

④ Lymphangioma

⑤ Lipoma

2. What is the most likely diagnosis?

① Pyriform sinus fistula Answer (2 Point)

② 3rd Branchial cleft cyst

③ Thyroglossal duct cyst

④ Lymphangioma

⑤ Lipoma

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Pyriform Sinus Fistula

- Failure of obliteration of 4th branchial pouch or distal cervical sinus
- Course from apex of pyriform sinus to upper aspect of thyroid lobe
- Most branchial sinuses & fistulae present in childhood
- Most cases arise on left

Image findings

Barium swallow study or NECT after barium swallow

Barium-filled sinus tract extending from apex of pyriform sinus to anterior lower neck

False-negative during acute phase of infection

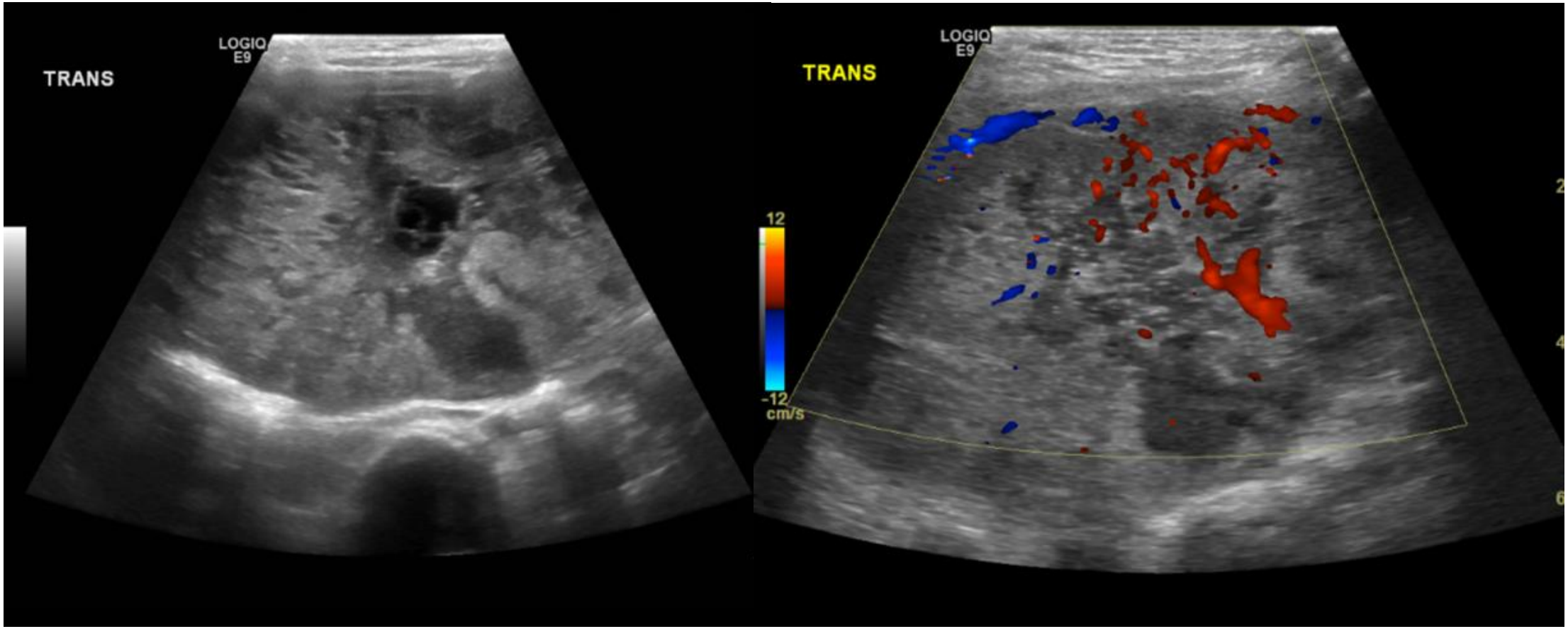
Detection rate: 50-70%

Contrast enhanced CT

Phlegmonous mass or frank abscess in or adjacent to left thyroid lobe with cellulitis extending around and collapsing ipsilateral pyriform sinus

Case 3

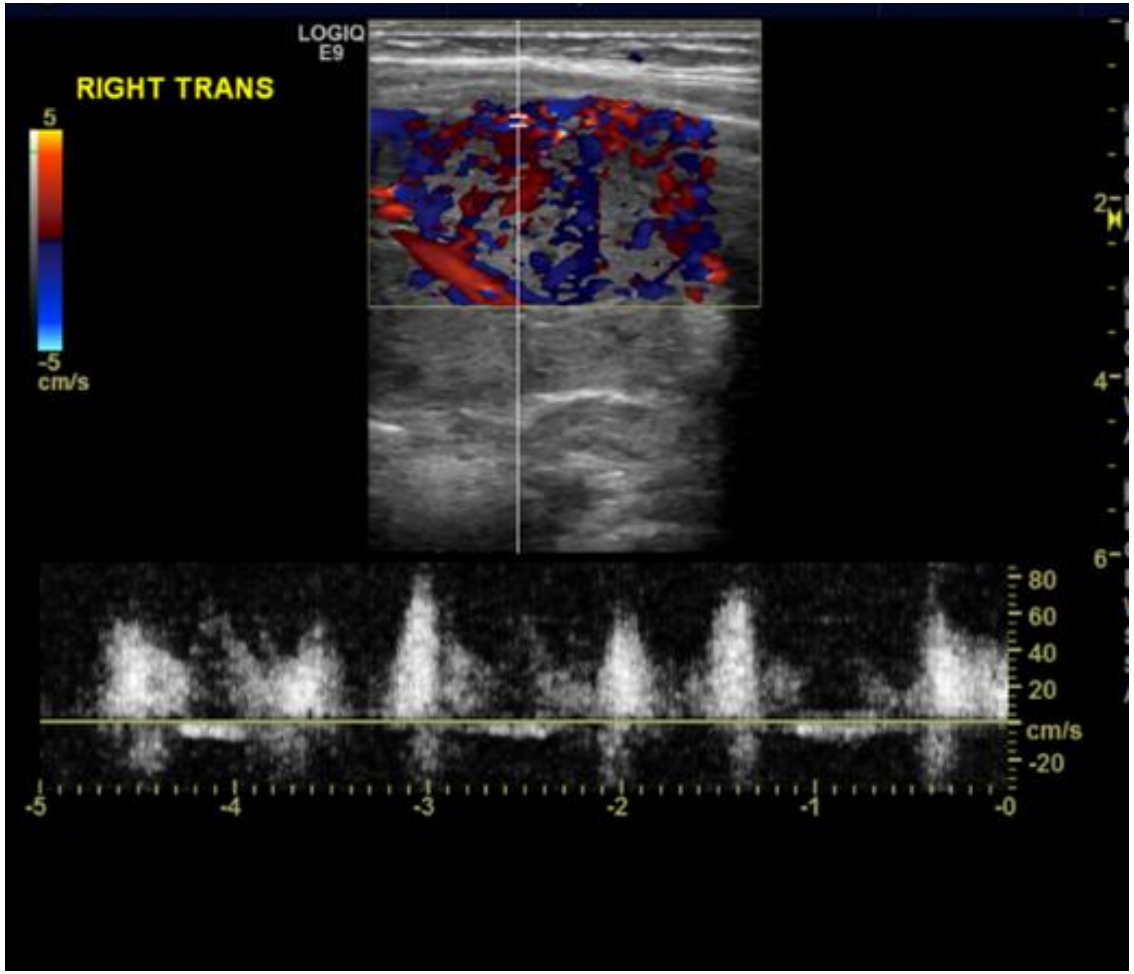
- F/ 6 months
- C.C : Protruding abdominal mass
- AFP 1.1 (ng/ml)



Abdominal Ultrasound

Case 3

- F/ 6 months
- C.C : Protruding abdominal mass
- AFP 1.1 (ng/ml)



Abdominal Ultrasound

Case 3

- F/ 6 months
- C.C : Protruding abdominal mass
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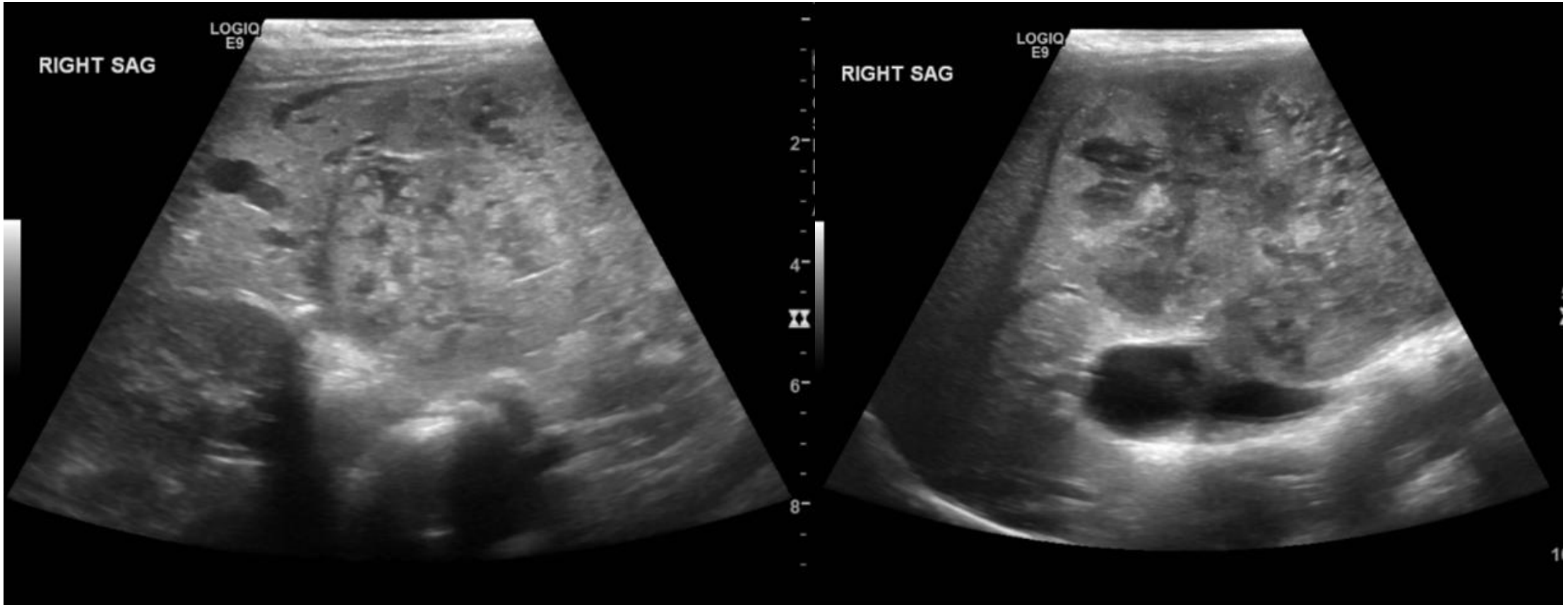

Abdominal Ultrasound

Case 3

- F/ 6 months
- C.C : Protruding abdominal mass
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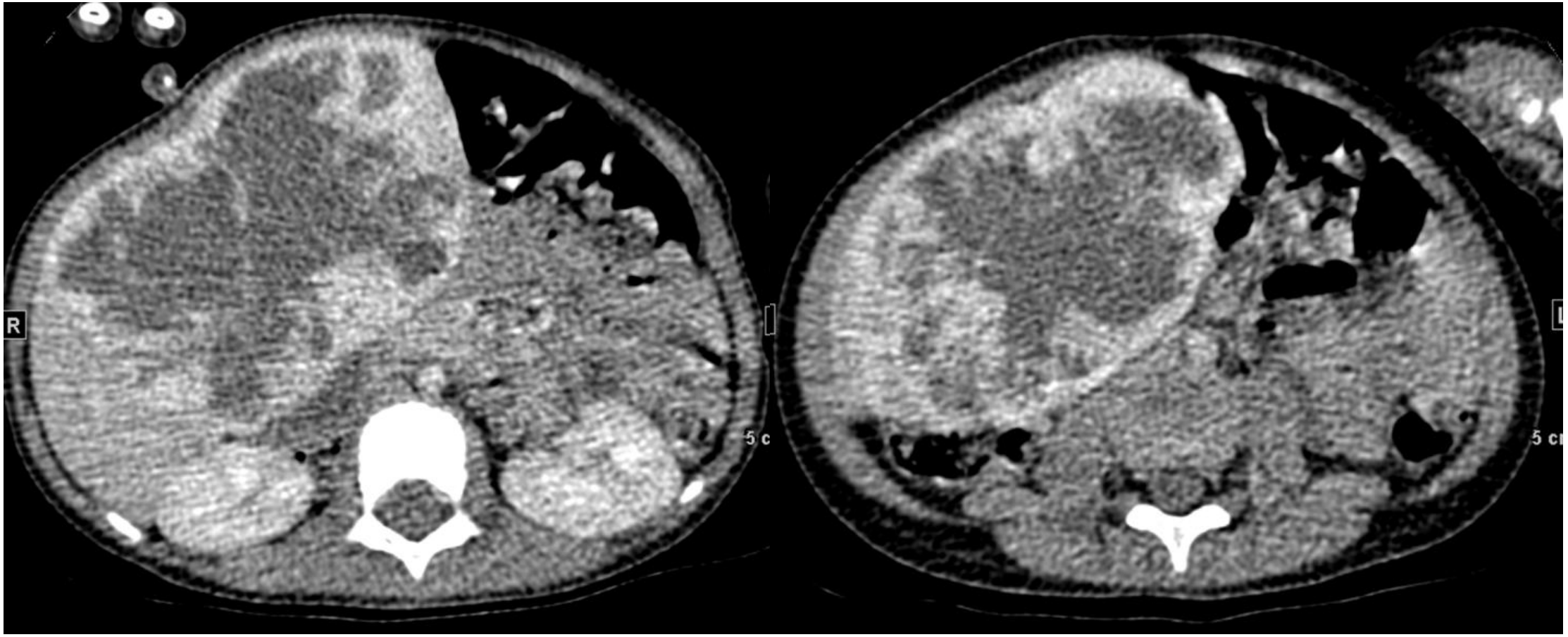


Abdominal CT with contrast

3. What is the most likely diagnosis?

① Hepatoblastoma

② Metastasis

③ Infantile hepatic hemangioma

④ Mesenchymal hamartoma

⑤ Undifferentiated embryonal sarcoma

3. What is the most likely diagnosis?

① Hepatoblastoma

② Metastasis

③ Infantile hepatic hemangioma Answer (3 Point)

④ Mesenchymal hamartoma

⑤ Undifferentiated embryonal sarcoma

Infantile hepatic hemangioma

- proliferative endothelial cell neoplasm
- Prolieration period: After birth from newborn period until 6-12 mo of age
- Involuation: Gradual involution until 3-9 y of age
- GLUT-1 positive
- First-line treatment for symptomatic infantile hemangioma is propranolol

Image findings

Ultrasound

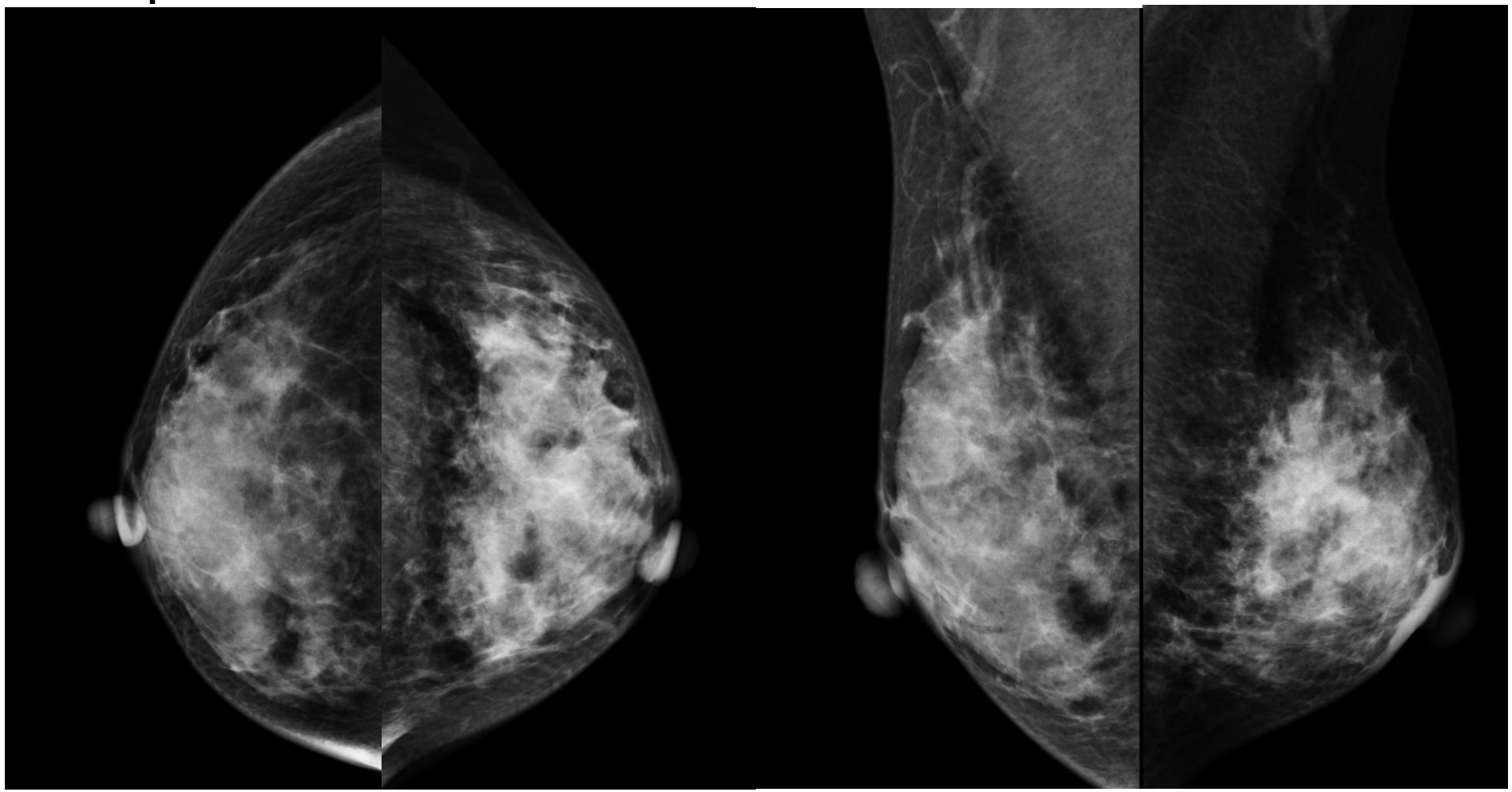
- either hypoechoic or hyperechoic or may display mixed echogenicity with prominent vascular channels.
- Color Doppler sonographic evaluation will show increased flow.

CT

- typical peripheral enhancement with gradual filling-in.
- reduction in the aortic caliber (mid-aortic syndrome) distal to the level of the celiac axis because of the important vascular distribution toward the liver.
- celiac trunk and hepatic artery hypertrophy.

Case 4

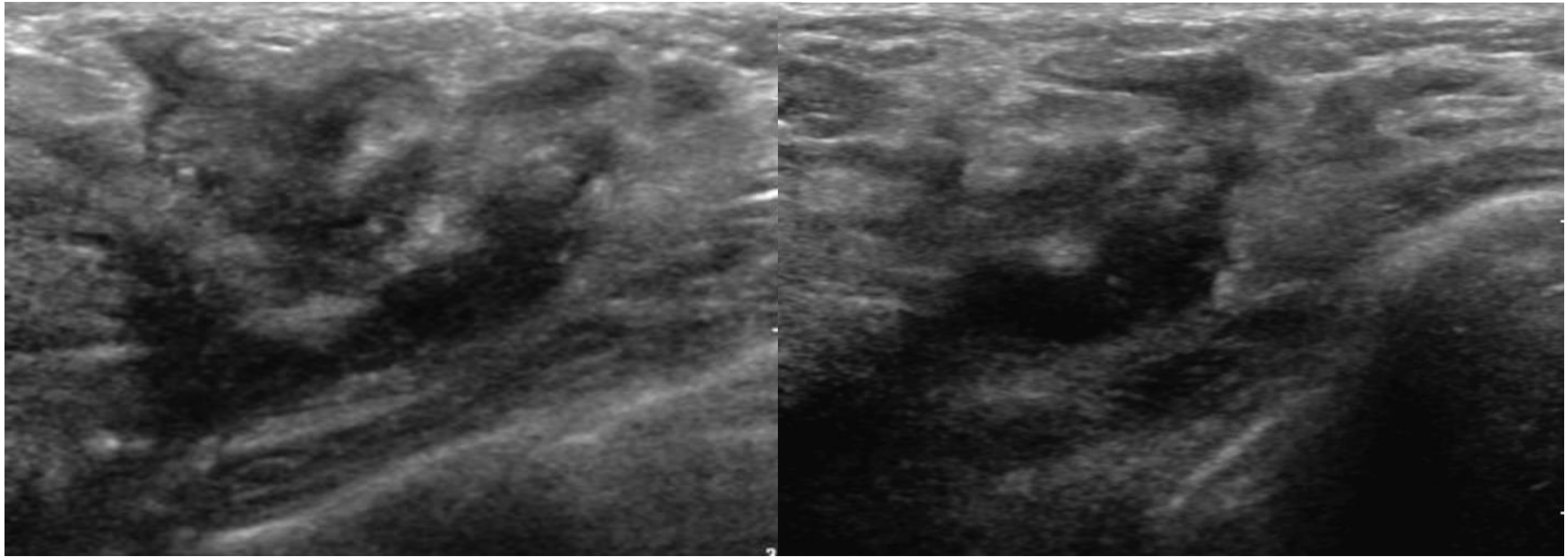
- F/33
- C.C : Palpable breast mass



Mammography

Case 4

- F/33
- C.C : Palpable breast mass



Breast Ultrasound

4. What is the most likely diagnosis?

① Inflammatory breast carcinoma

② Sparganosis

③ Idiopathic granulomatous mastitis

④ Diabetic mastopathy

⑤ Phyllodes tumor

4. What is the most likely diagnosis?

① Inflammatory breast carcinoma

② Sparganosis

③ Idiopathic granulomatous mastitis Answer (2 Point)

④ Diabetic mastopathy

⑤ Phyllodes tumor

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Idiopathic granulomatous mastitis (IGM)

- Rare benign inflammatory breast disease that has a persistent or recurrent clinical course
- Tender palpable unilateral breast mass of variable size (1-20cm)
- Parous premenopausal women with history of lactation
- Clinical and radiologic findings are noted to frequently
- An effective first-line therapy is corticosteriod.

Image findings

Mammography

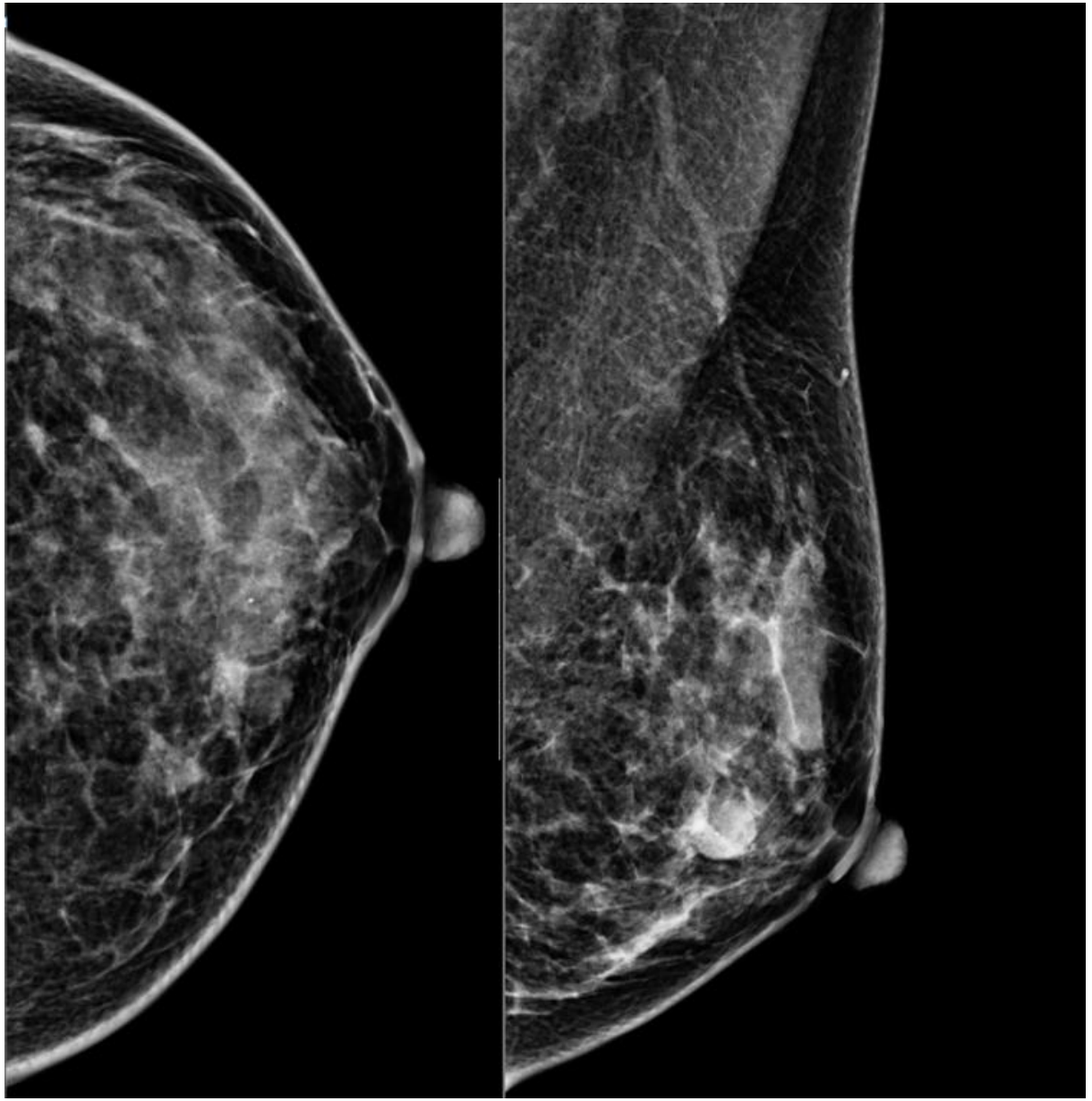
- asymmetrically increased density, which is not characteristic for this entity.

Breast ultrasound

- a mass-like appearance, tubular/nodular hypoechoic structures and focal decreased parenchymal echogenicity with acoustic shadowing.

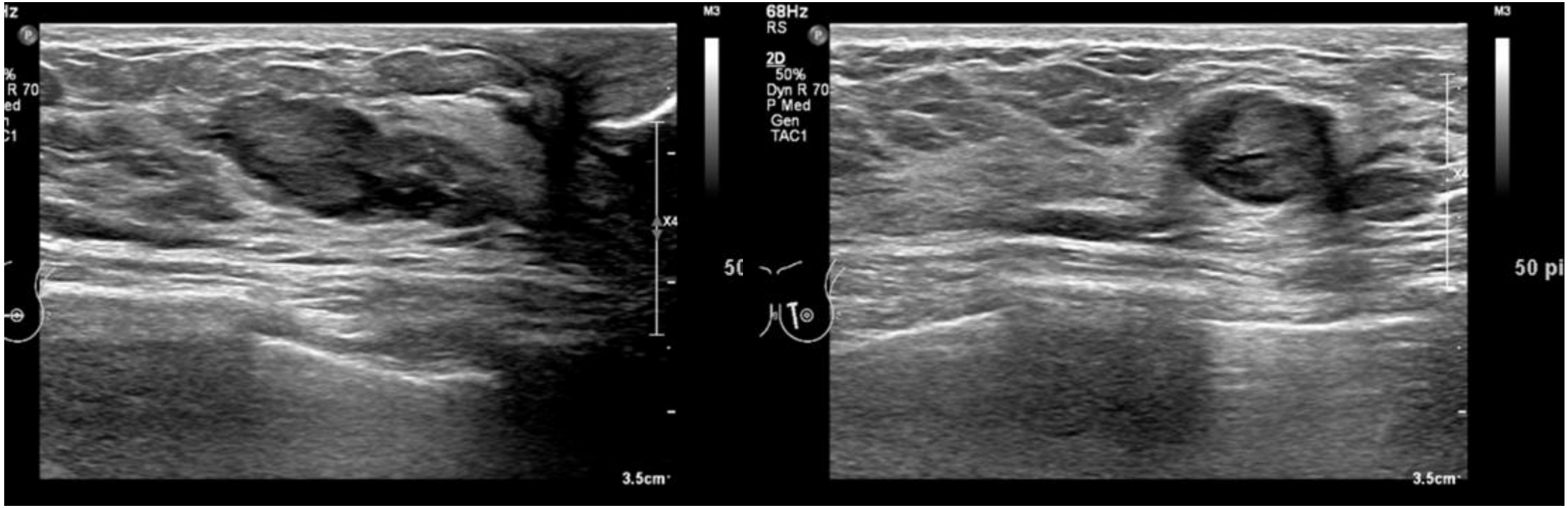
Case 5

- F/52
- C.C : Abnormality in screening mammography



Case 5

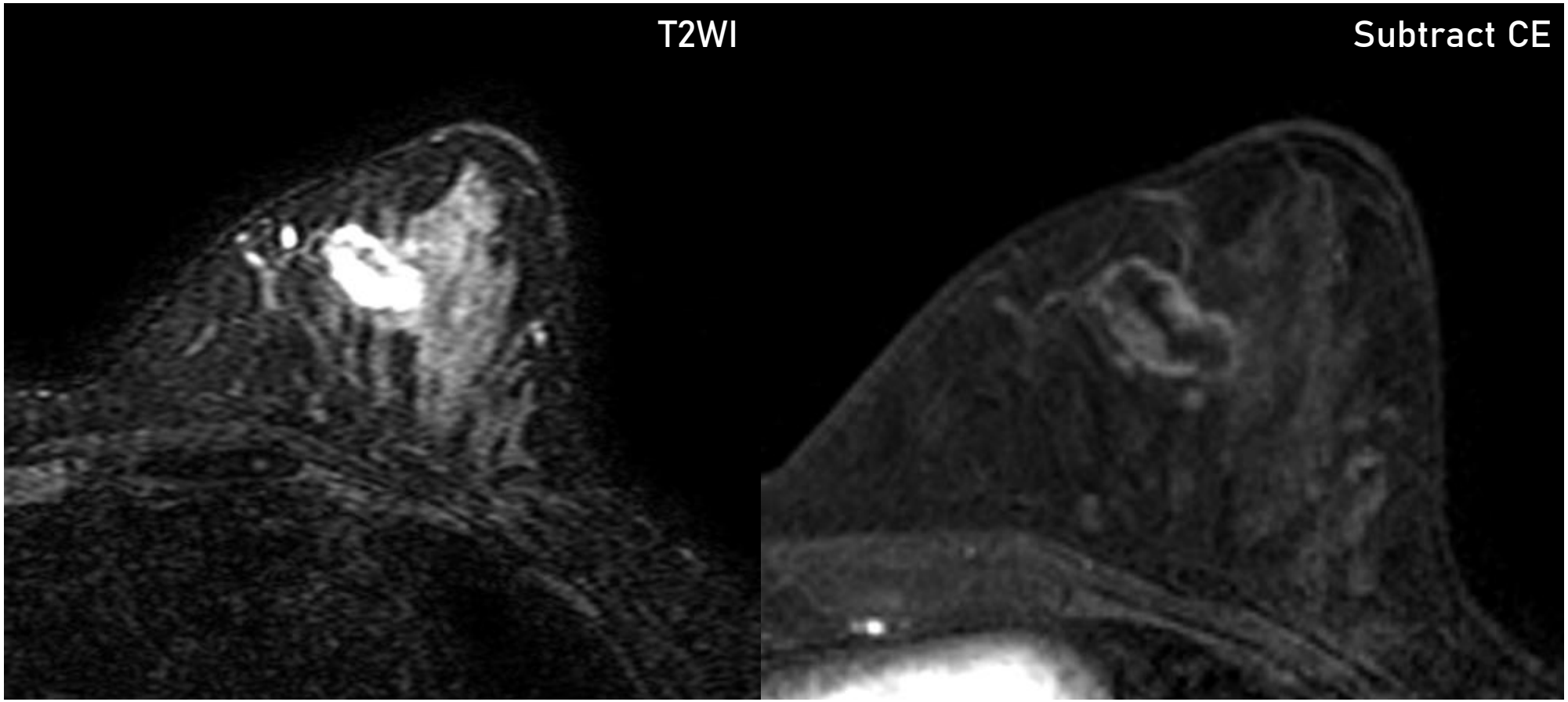
- F/52
- C.C : Abnormality in screening mammography



Breast Ultrasound

Case 5

- F/52
- C.C : Abnormality in screening mammography



Breast MRI

5. What is the most likely diagnosis?

① Mucinous carcinoma

② Tubular carcinoma

③ Medullary carcinoma

④ Metaplastic carcinoma

⑤ Phyllodes tumor

5. What is the most likely diagnosis?

① Mucinous carcinoma Answer (2 Point)

② Tubular carcinoma

③ Medullary carcinoma

④ Metaplastic carcinoma

⑤ Phyllodes tumor

Mucinous carcinoma

- Uncommon special type of IDC (1-4% of breast cancers)
- Pure type: mucin production
- Mixed type: IDC with mucinous carcioma
- A pure mucinous subtype carries a relatively good prognosis compared to other adenocarcinomas

Image findings

Mammography

- Round, oval, or irregular, dense mass with indistinct margin

Breast ultrasound

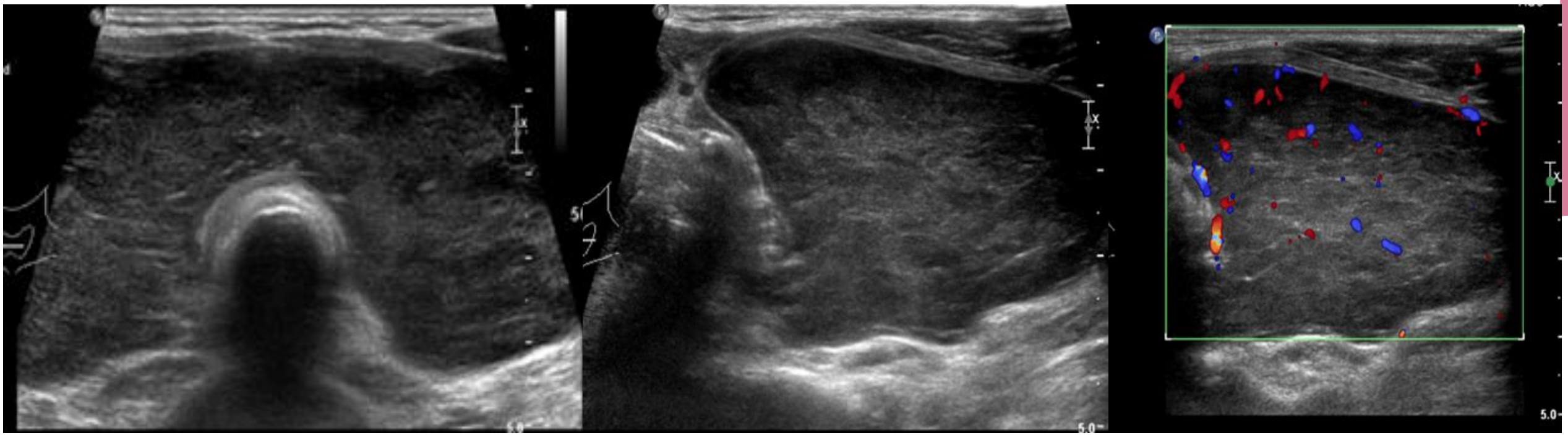
- Isoechoic, microlobulated mass with posterior enhancement

Breast MRI

- High T2 SI due to large mucin component, gradual rim-like enhancement

Case 6

- F/81
- C.C : Progressive neck bulging



Thyroid Ultrasound

Case 6

- F/81
- C.C : Progressive neck bulging

Thyroid CT

PET-CT

6. What is the most likely diagnosis?

① Metastasis

② Medullary carcinoma

③ Papillary thyroid carcinoma

④ Lymphoma

⑤ Follicular thyroid carcinoma

6. What is the most likely diagnosis?

① Metastasis

② Medullary carcinoma

③ Papillary thyroid carcinoma

④ Lymphoma Answer (2 Point)

⑤ Follicular thyroid carcinoma

Thyroid lymphoma

- enlarging goiter with compressive symptoms
- Hashimoto thyroiditis is a major risk factor
- diffuse large B cell lymphoma being the most common

Image findings

Ultrasound

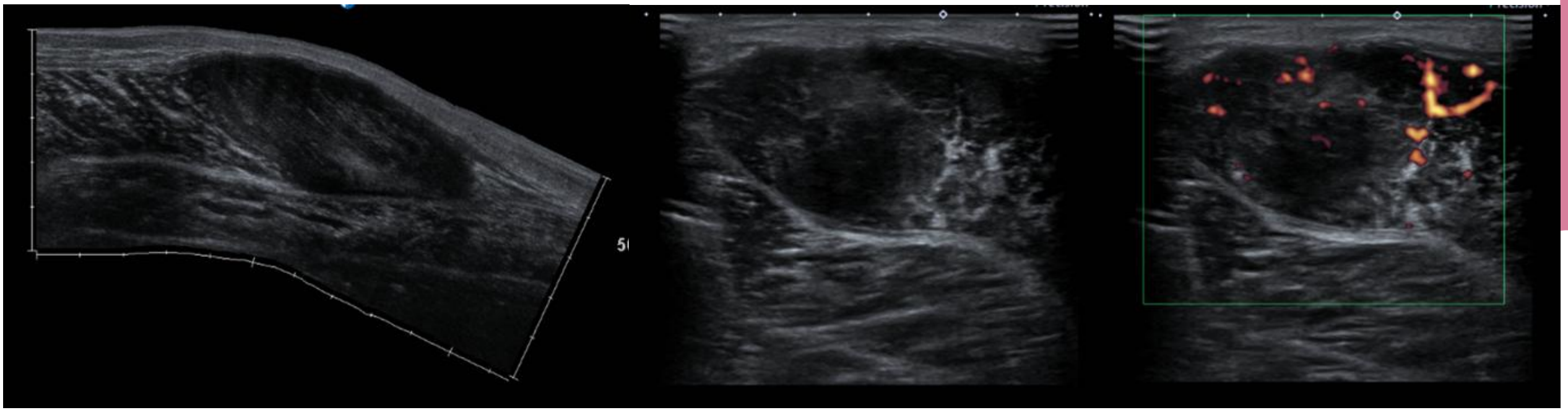
- Three patterns have been described: nodular (hypoechoic mass), diffuse (mixed echotexture), or mixed

CT

- goiter, which is hypodense to adjacent muscle
- heterogeneous enhancement but still less than adjacent muscle

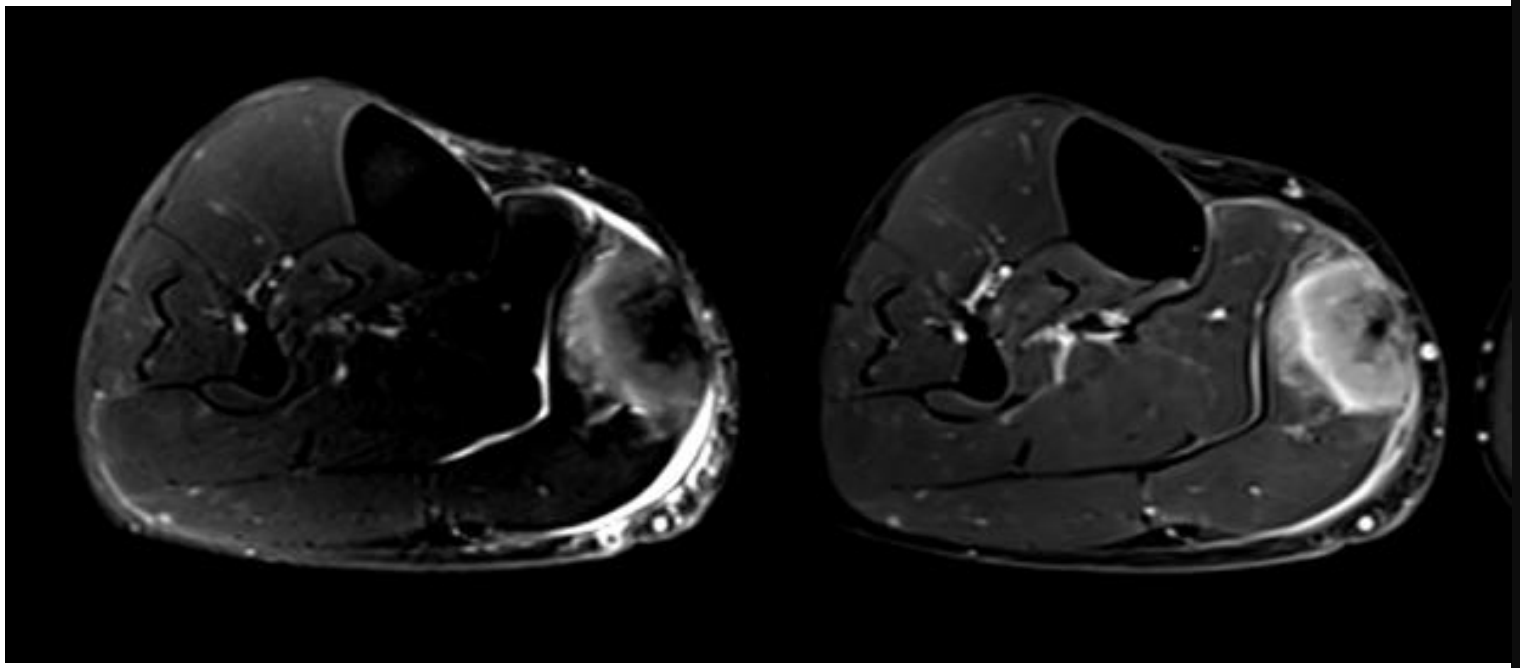
Case 7

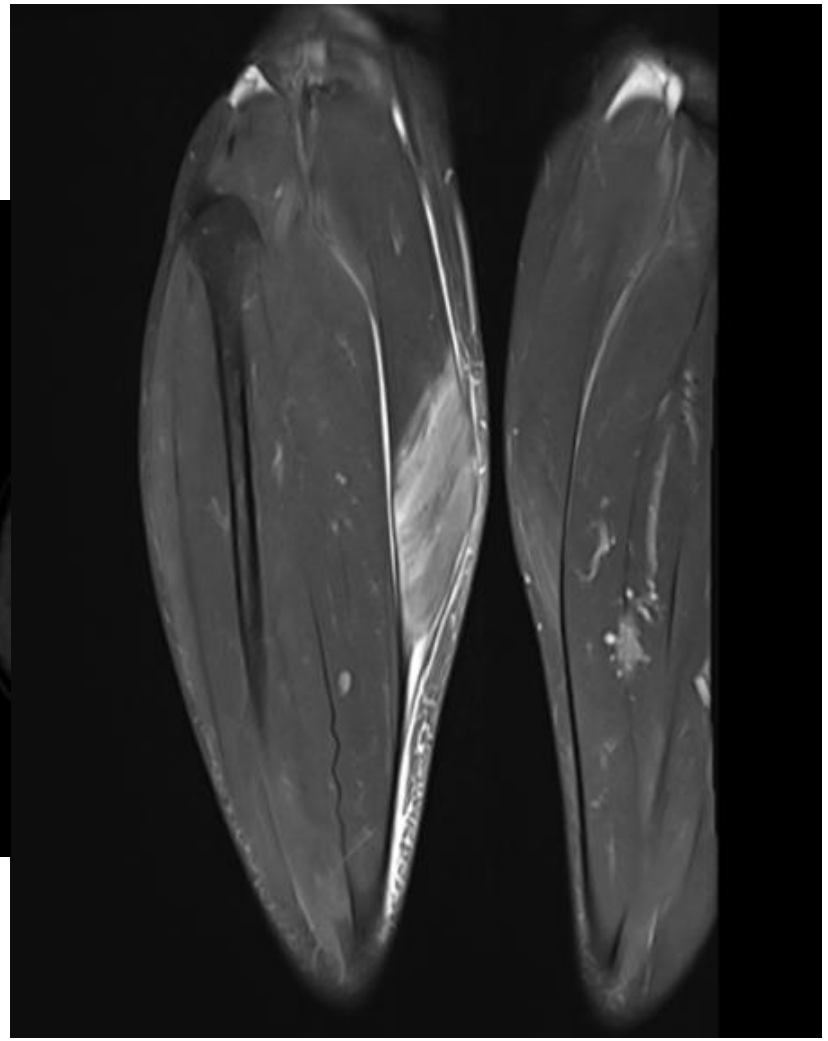
- F/60
- C.C : Palpable calf mass



Case 7

- F/60
- C.C : Palpable calf mass





7. What is the most likely diagnosis?

① Polymyositis

② Muscle nodular sarcoidosis

③ Lymphoma

④ Lipoma

⑤ Granulomatous myositis hematoma

7. What is the most likely diagnosis?

① Polymyositis

② Muscle nodular sarcoidosis Answer (3 Point)

③ Lymphoma

④ Lipoma

⑤ Granulomatous myositis hematoma

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Muscle nodular sarcoidosis

- occurs in 20–75% of patients with sarcoidosis
- nodular form which manifest as single or multiple nodules within the skeletal muscle, and a myopathic form which shows diffuse muscle signal changes resembling polymyositis.

Image findings
US: elongated intramuscular mass with the central hyperechoic and peripheral hyperechoic stripes in the gastrocnemius.

MR: elongated intramuscular mass with central low and peripheral high signal intense stripes with enhancement, representing three stripes sign.+

Case 8

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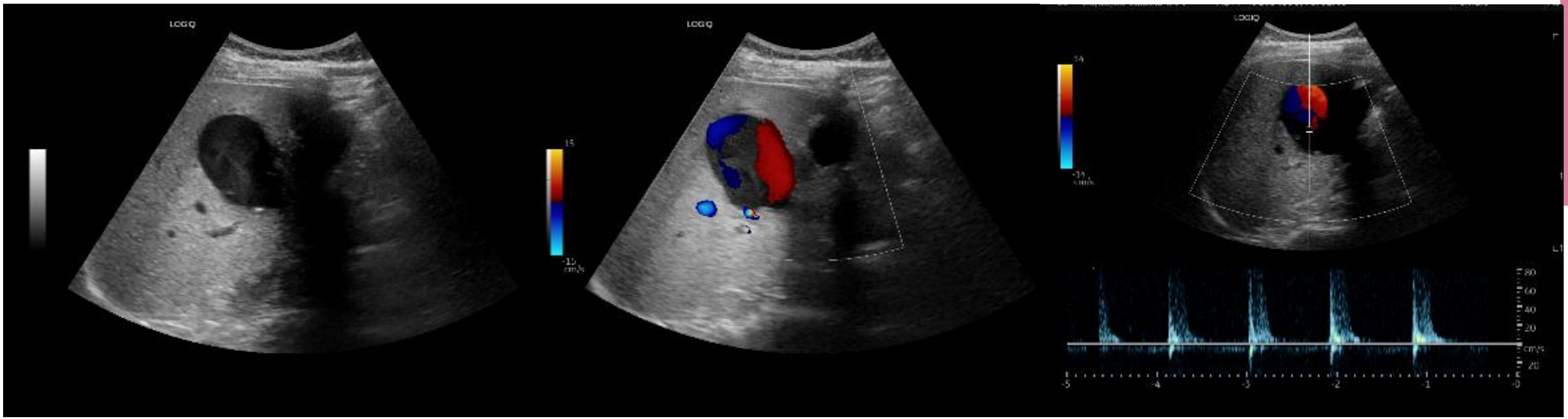
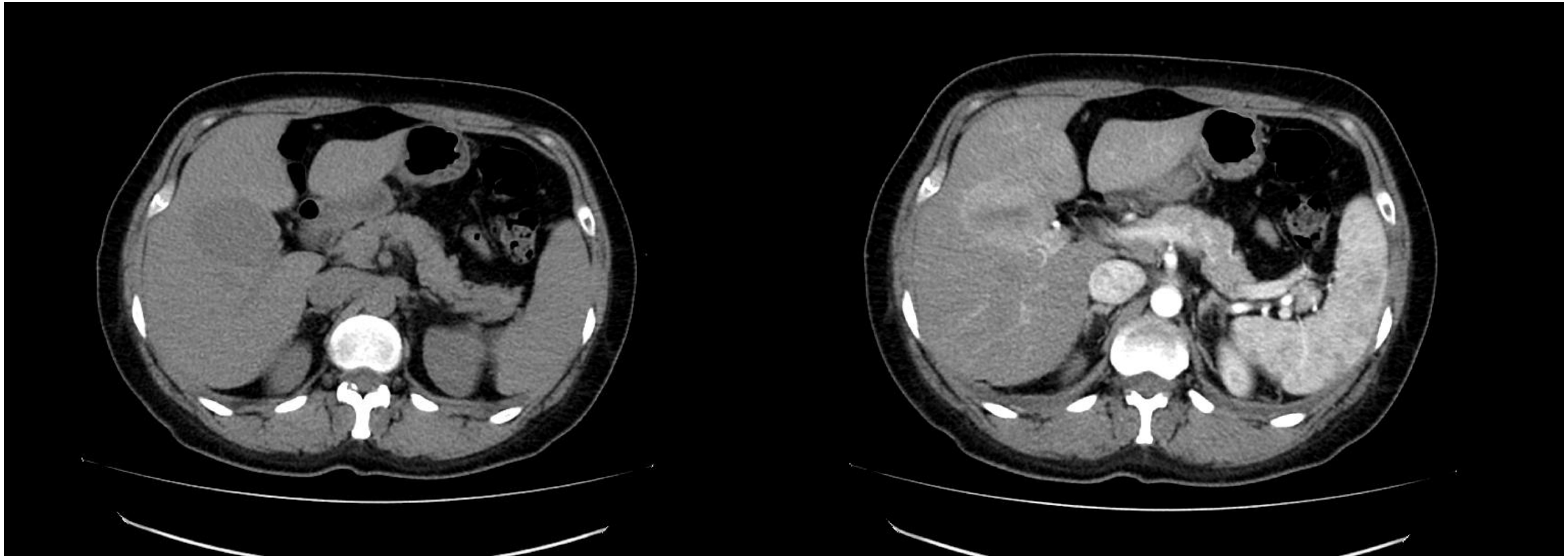
- F/53
- C.C : Incidental detected hepatic mass



Case 8

- F/53
- C.C : Incidental detected hepatic mass



Case 8

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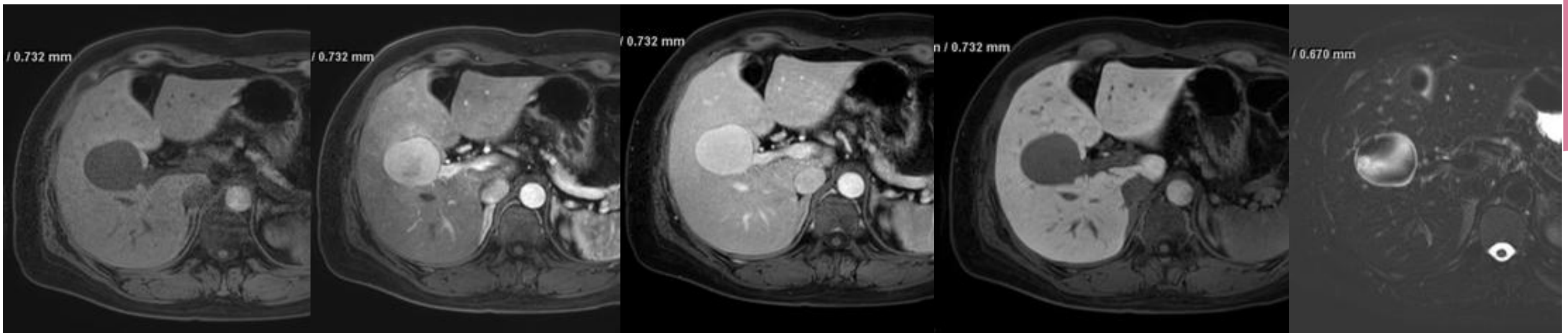
- F/53
- C.C : Incidental detected hepatic mass



8. What is the most likely diagnosis?

① Hepatocellular carcinoma

② Hepatic artery aneurysm

③ Liver abscess

④ Hepatic hemangioma

⑤ Metastatic liver cancer

8. What is the most likely diagnosis?

① Hepatocellular carcinoma

② Hepatic artery aneurysm Answer (2 Point)

③ Liver abscess

④ Hepatic hemangioma

⑤ Metastatic liver cancer

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Hepatic artery aneurysm

- Often asymptomatic, incidentally detected.
- Rupture → life-threatening intra-abdominal hemorrhage.
- Thrombosis → hepatic ischemia or infarction.
- Biliary fistula formation.
- Management:Asymptomatic & Small (<2 cm): Close monitoring.
- Symptomatic or Large (>2 cm): Endovascular embolization, stenting, or surgical resection.

Image findings
CT Angiography (CTA): Well-defined, round, or fusiform vascular lesion.
Strong arterial phase enhancement with rapid washout in portal/delayed phases.
Presence of thrombosis may alter enhancement pattern.

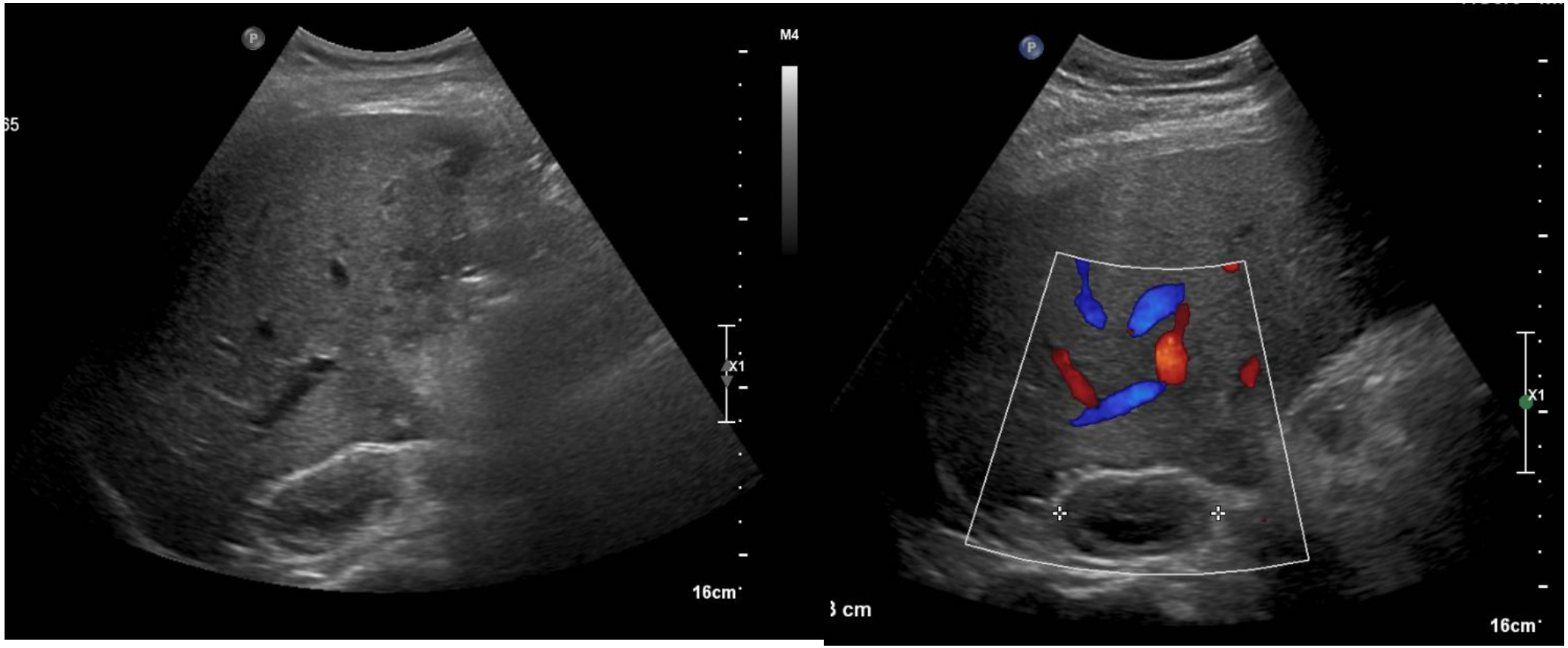
Ultrasound (US):Anechoic or hypoechoic mass-like lesion.
Doppler US: Turbulent flow or yin-yang sign indicating vascular nature.

MRI:Hyperintense on T2-weighted images.
Intense enhancement in the arterial phase, with washout in later phases.

Case 9

- F/53
- C.C : LDLT POD 1 check up

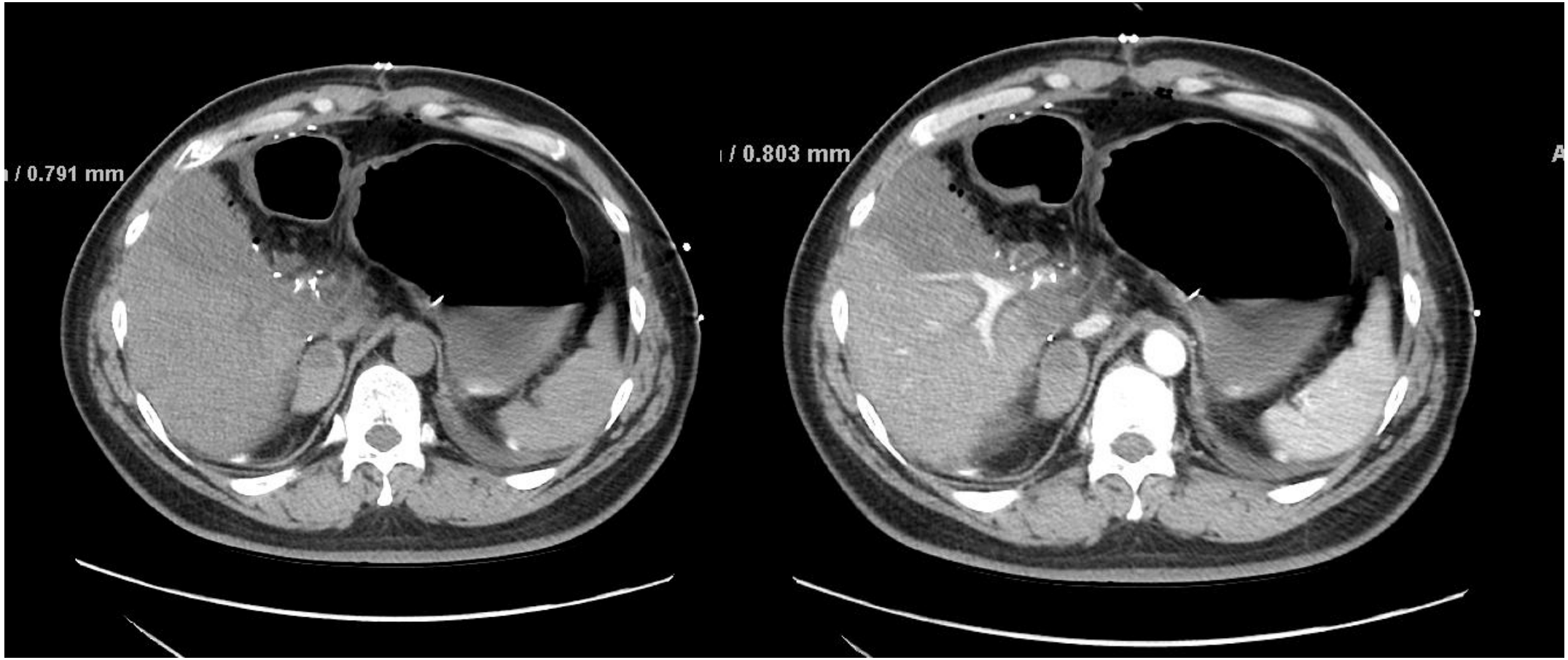
  * LDLT: Living Donor Liver Transplantation



Case 9

- F/53
- C.C : LDLT POD 1 check up

  * LDLT: Living Donor Liver Transplantation



9. What is the most likely diagnosis?

① Renal artery thrombosis

② Hepatic artery thrombosis

③ Hepatic abscess

④ Renal abscess

⑤ Adrenal hemorrhage

9. What is the most likely diagnosis?

① Renal artery thrombosis

② Hepatic artery thrombosis

③ Hepatic abscess

④ Renal abscess

⑤ Adrenal hemorrhage Answer (2 Point)

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Adrenal hemorrhage after LDLT (Living Donor Liver Transplantation)

- Often asymptomatic in early stages.
- If significant, can present with hypotension, abdominal or flank pain, or unexplained anemia.
- Mild cases: Conservative management with supportive care and serial imaging.
- Severe cases: If adrenal insufficiency is suspected, corticosteroid replacement therapy is necessary.

Image findings

Ultrasound (US):

Hypoechoic or heterogeneous mass in the adrenal region.
May show variable echogenicity depending on the phase of hemorrhage.

CT Findings:

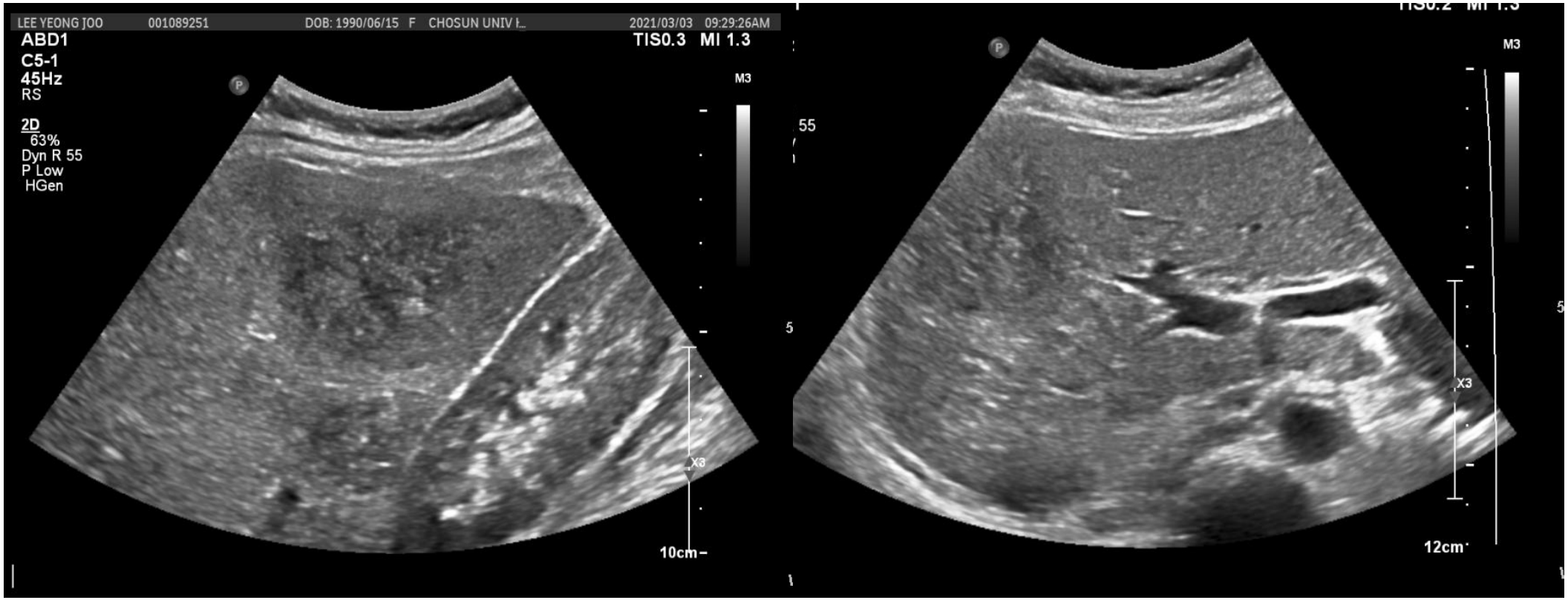
Acute phase: High-density (50-90 HU) adrenal mass due to fresh blood.
Subacute phase: Gradual decrease in attenuation as blood resorbs.
Chronic phase: Hypodense, well-defined lesion with possible calcification.
May show mass effect compressing adjacent structures.

MRI Findings:

T1-weighted: Hyperintense in the acute phase (due to methemoglobin).
T2-weighted: Variable signal intensity depending on the stage of hemorrhage.

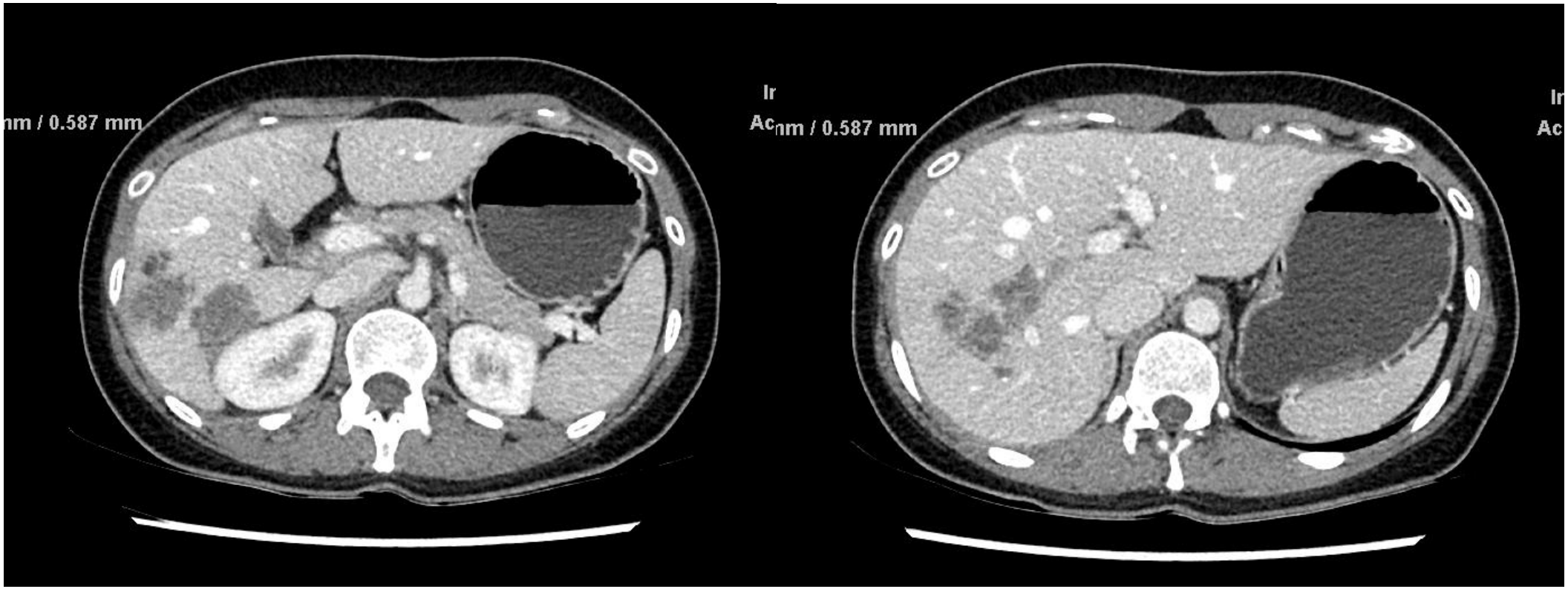
Case 10

- F/53
- C.C : Incidentally detected hepatic mass



Case 10

- F/53
- C.C : Incidentally detected hepatic mass



10. What is the most likely diagnosis?

① Cholangiocarcinoma

② Hepatic artery thrombosis

③ Hepatocelluclar carcinoma

④ Fascioliasis

⑤ Metastatic liver cancer

10. What is the most likely diagnosis?

① Cholangiocarcinoma

② Hepatic artery thrombosis

③ Hepatocelluclar carcinoma

④ Fascioliasis Answer (2 Point)

⑤ Metastatic liver cancer

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Fascioliasis

Cause: Infection by *Fasciola hepatica* or *Fasciola gigantica*, typically from ingestion of contaminated water plants (e.g., watercress).

Symptoms: Fever, right upper quadrant (RUQ) pain, nausea, malaise.

Eosinophilia is a hallmark finding./ Serologic tests (ELISA, Western blot) and stool examination for eggs.

Image findings

Ultrasound (US):Hypoechoic or mixed echogenic lesions in the liver.

"Tunnel-like" or serpiginous tracts due to migrating larvae.

Mobile echogenic structures (adult flukes) in bile ducts in the chronic phase.

CT Findings:

Acute phase:

Hypodense, irregular, subcapsular hepatic lesions.

Migratory tracts or tunnel-like lesions with peripheral enhancement.

Chronic phase:

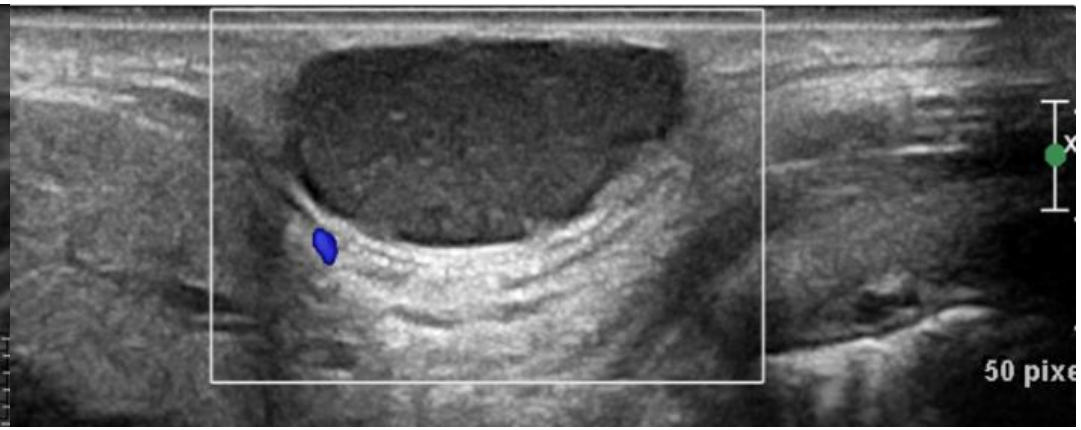
Biliary dilatation due to adult worms in the bile ducts.

Diffuse intrahepatic biliary thickening and sludge.

MRI Findings:T2 hyperintense tracts in the liver parenchyma./ Biliary ductal dilatation and wall thickening.

Case 11

- F/33
- C.C : Palpable mass in the back skin



11. What are the main components of this lesion?

① Keratin

② Blood clot

③ Foreign body

④ Fat

⑤ Fibrous tissue

11. What are the main components of this lesion?

① Keratin Answer (1 Point)

② Blood clot

③ Foreign body

④ Fat

⑤ Fibrous tissue

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Epidermoid cyst

- benign, slow-growing lesions that commonly arise from the inclusion of epidermal elements within the dermis or subcutaneous tissue.
- face, scalp, neck, and trunk but can also occur in deeper locations, such as the brain or internal organs.
- Rupture or infection may cause inflammation, pain, and drainage of keratinous material.

Image findings

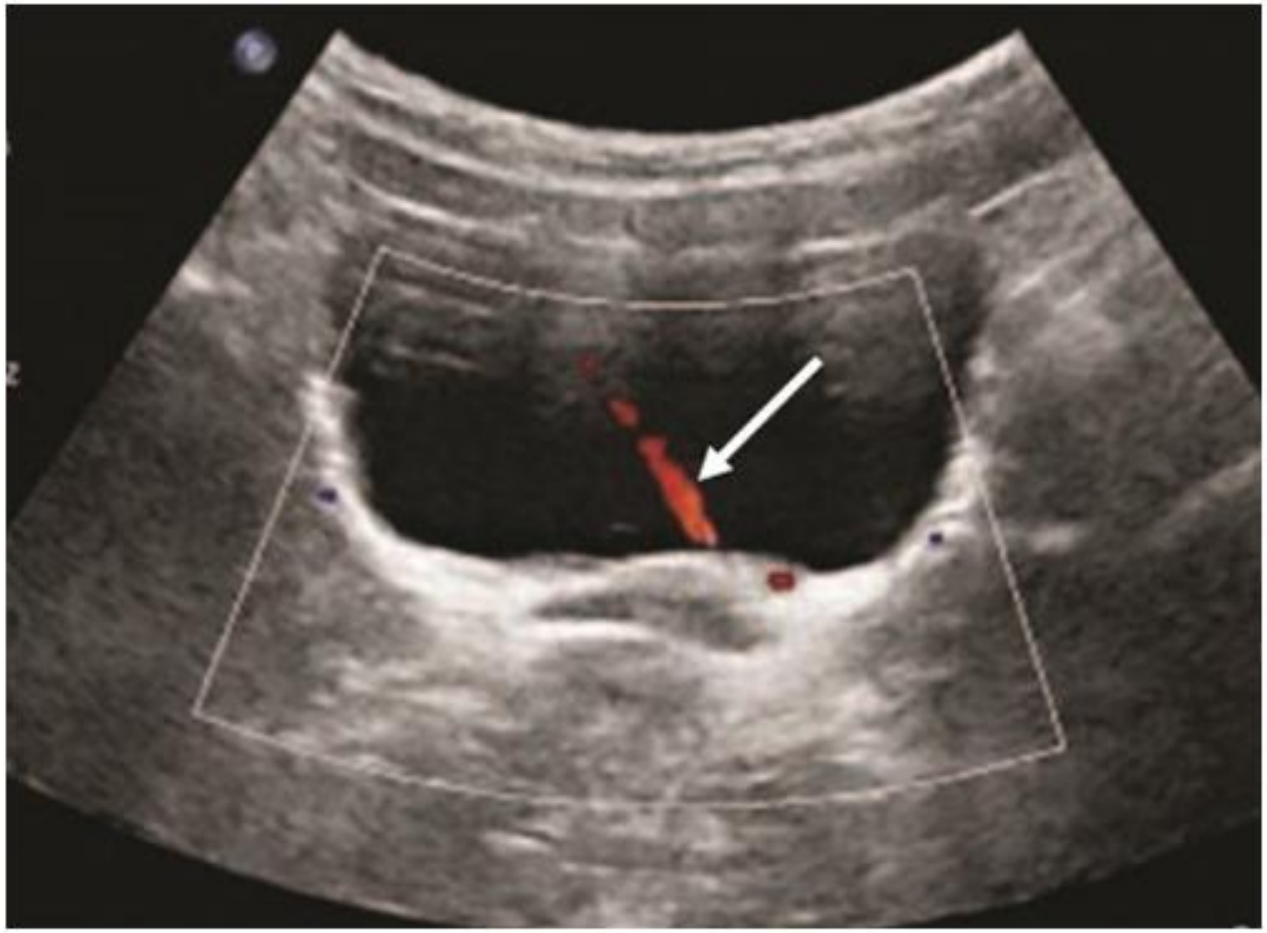
US: a well-defined, hypoechoic or anechoic lesion with posterior acoustic enhancement. Internal echoes may be present due to keratin debris.

CT: Shows a low-density lesion with thin peripheral enhancement. Calcifications are rare but may be seen in long-standing cases.

MRI: T1- hypointense or isointense to muscle. T2- hyperintense signals with restricted diffusion on diffusion-weighted imaging (DWI)

Case 12

- F/8
- C.C : Incidentally detected lesion



12. The arrow is pointing to which artifact?

① Pseudoflow artifact

② Mirror image artifact

③ Twinkling artifact

④ Posterior enhancement

⑤ Aliasing artifact

12. The arrow is pointing to which artifact?

① Pseudoflow artifact Answer (1 Point)

② Mirror image artifact

③ Twinkling artifact

④ Posterior enhancement

⑤ Aliasing artifact

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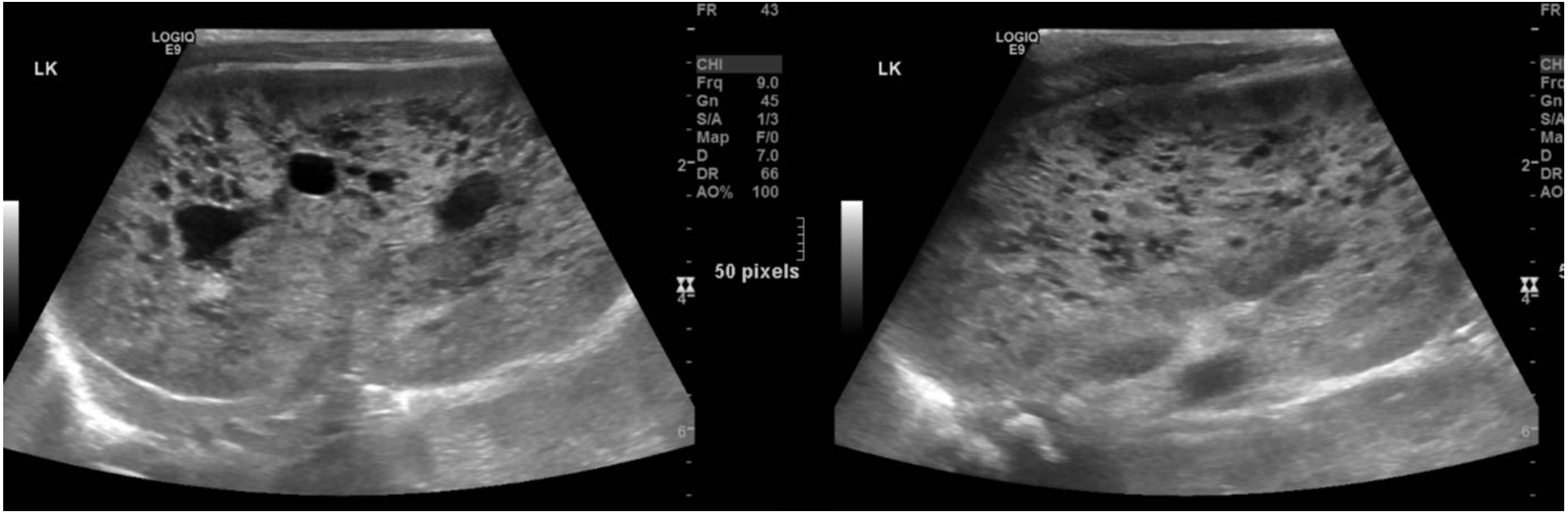
Pseudoflow artifact

Pseudoflow artifact is an ultrasound Doppler phenomenon where motion from non-blood sources, such as urine, ascitic fluid, or cyst contents, mimics real blood flow. This can occur due to movement-induced Doppler shifts in fluid within the imaging field.

Causes:
Movement of urine in the bladder
Respiratory or cardiac motion affecting fluid-containing structures
Probe movement leading to artificial flow appearance

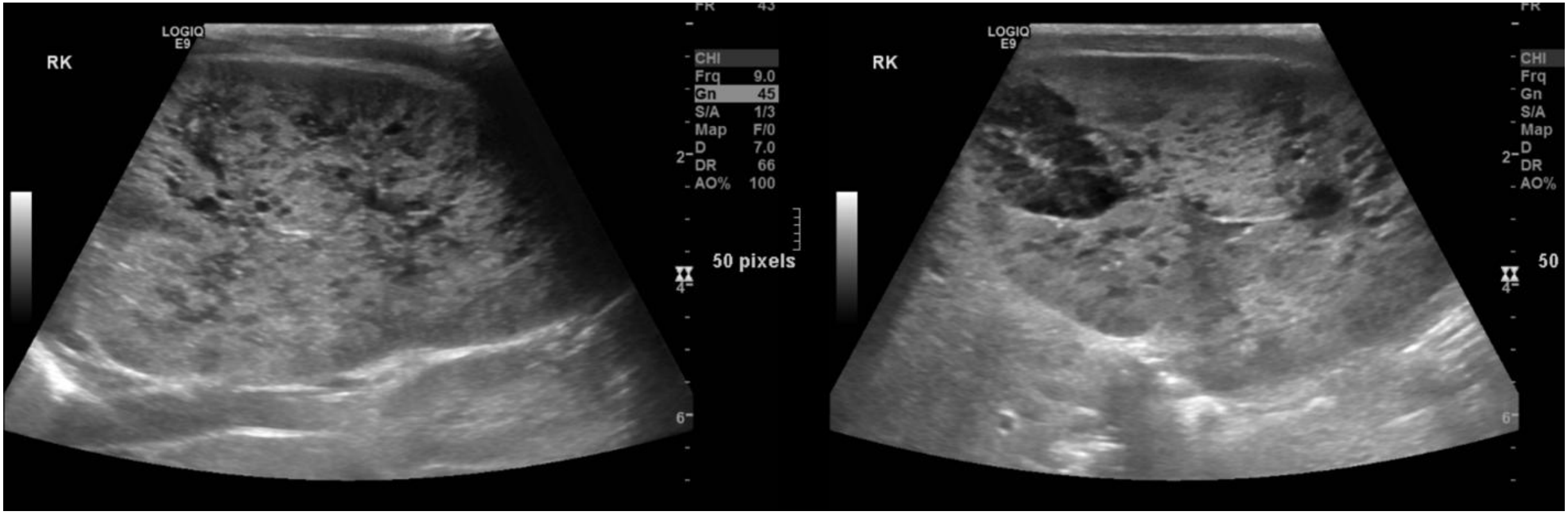
Case 13

- M/2 month
- C.C : Tachypnea



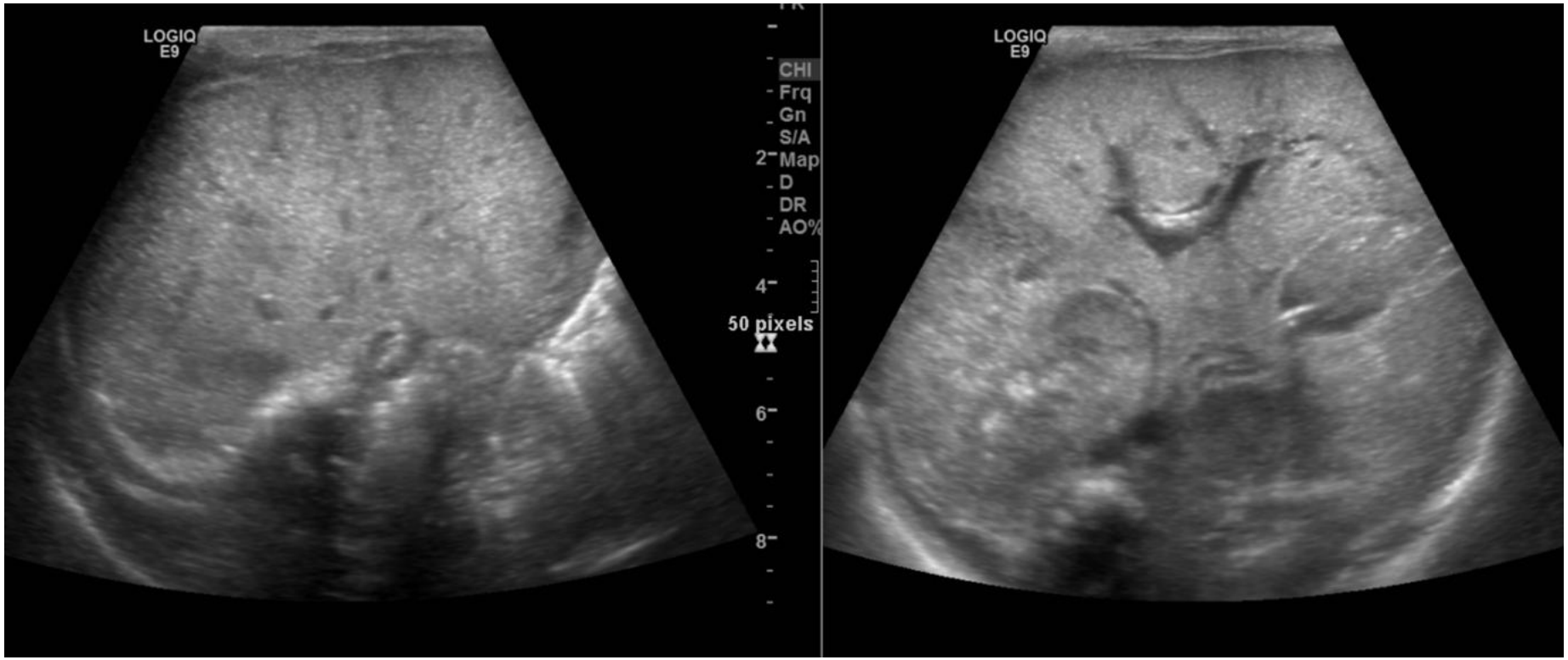
Case 13

- M/2 month
- C.C : Tachypnea



Case 13

- M/2 month
- C.C : Tachypnea



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① Renal lymphoma

② Tuberous sclerosis

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④ Von Hippel-Lindau syndrome

⑤ Autosomal recessive polycystic kidney disease

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ARPKD

- rare genetic disorder caused by mutations in the PKHD1 gene, leading to abnormal development of the kidneys and hepatobiliary system.
- Prenatal and Neonatal Period: Presents with bilateral enlarged echogenic kidneys, oligohydramnios, and Potter sequence (pulmonary hypoplasia, limb deformities, characteristic facies).
- Progressive renal insufficiency, hypertension, and hepatobiliary manifestations such as hepatic fibrosis and portal hypertension.

Image findings
US: Bilaterally enlarged, hyperechoic kidneys with poor corticomedullary differentiation.+Multiple tiny cysts (dilated collecting ducts)

CT: Enlarged kidneys with diffuse increased attenuation

MRI: hepatic fibrosis, with hepatobiliary abnormalities appearing as periportal thickening and biliary dilatation.