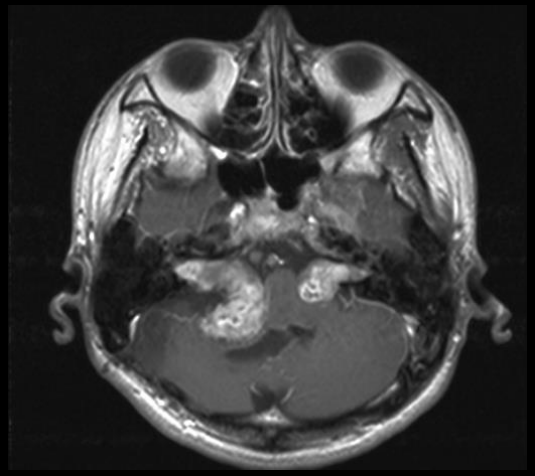
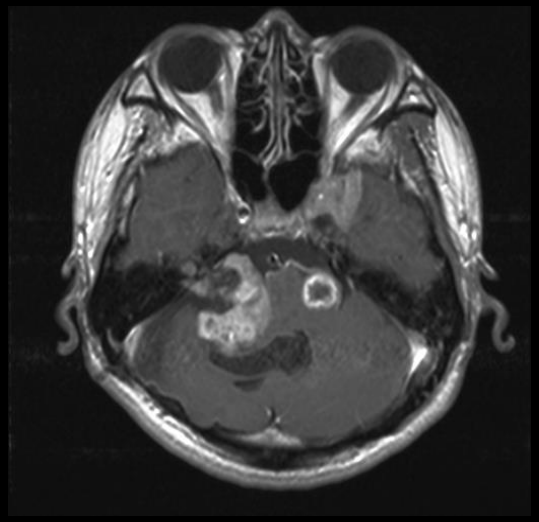
中華民國放射線醫學會
100年度第二次放射線(診斷)專科
住院醫師閱片測驗
2011/05/20

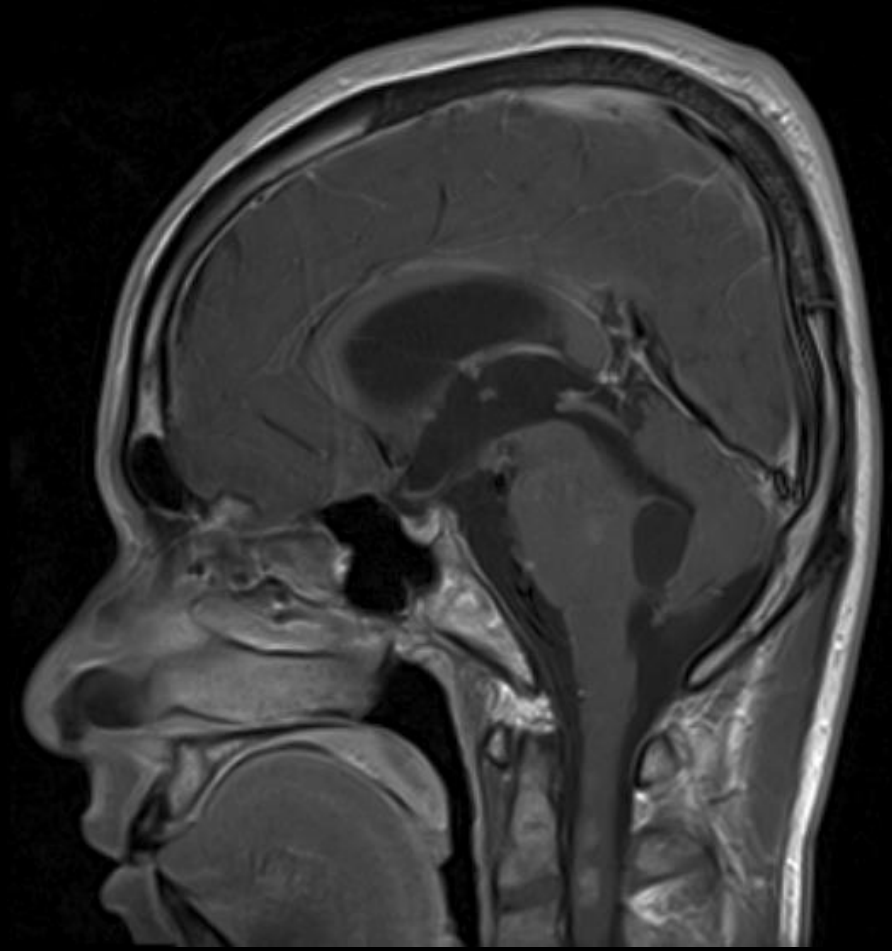
出題醫院:台北市立萬芳醫院影像醫學部

Q1

22 y/o male
Hearing loss
What is your diagnosis?



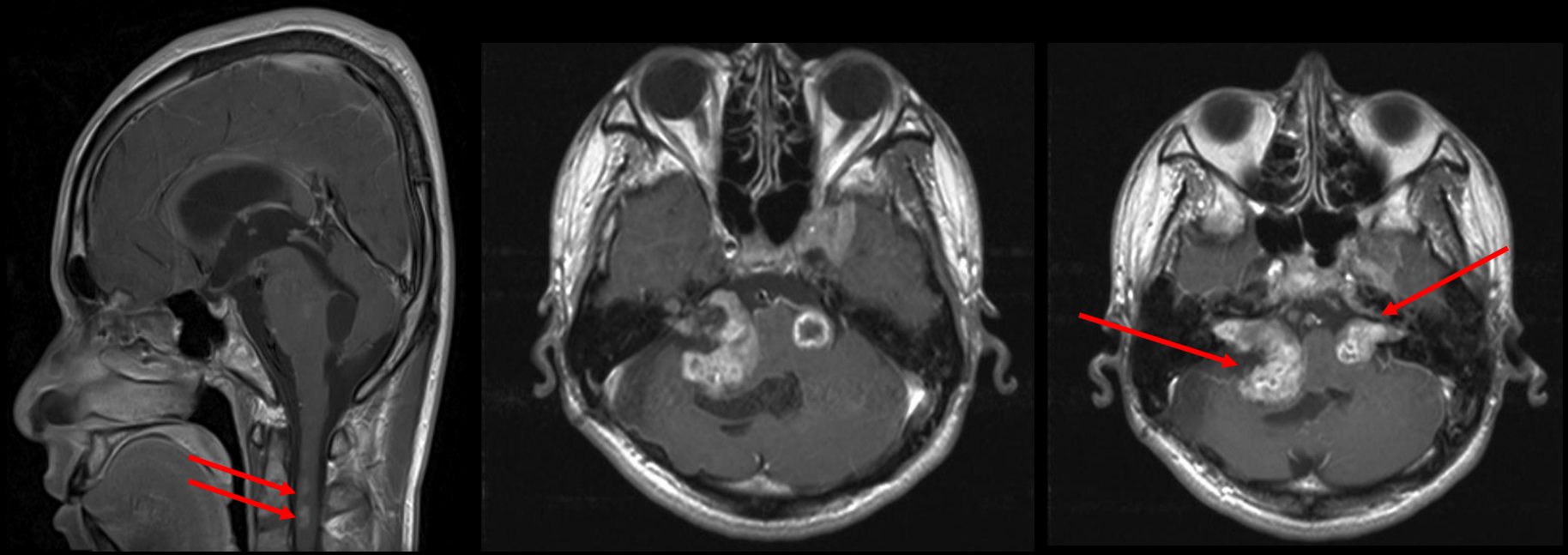




A1

Diagnosis: Neurofibromatosis II

Discussion：
Bilateral acoustic neuroma with internal auditory canal invasion
Meningioma at **left parasellar region**
Ependymona at spinal cord



Discussion

Autosomal dominant age:2-3 decade

MISME- Multiple Inherited Schwannoma, Meningioma, Ependymona

NF2-> chromosome 22 deletion

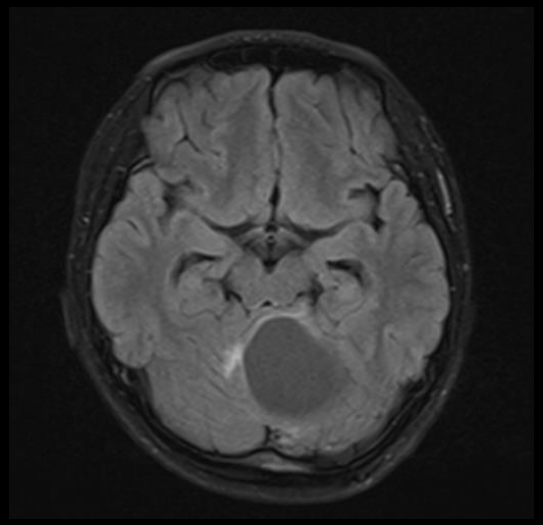
Diagnostic criteria(>= 1 CRITERIA)

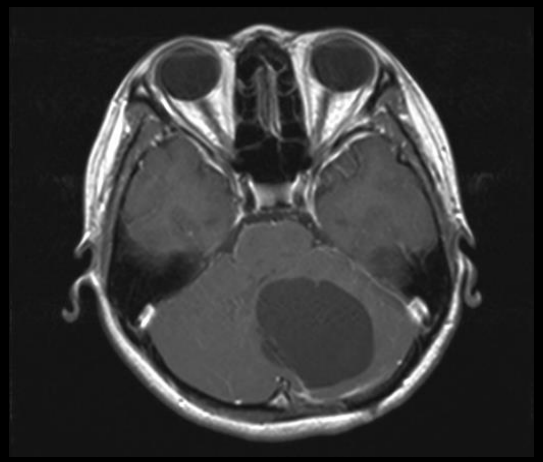
- bilateral 8th cranial n mass

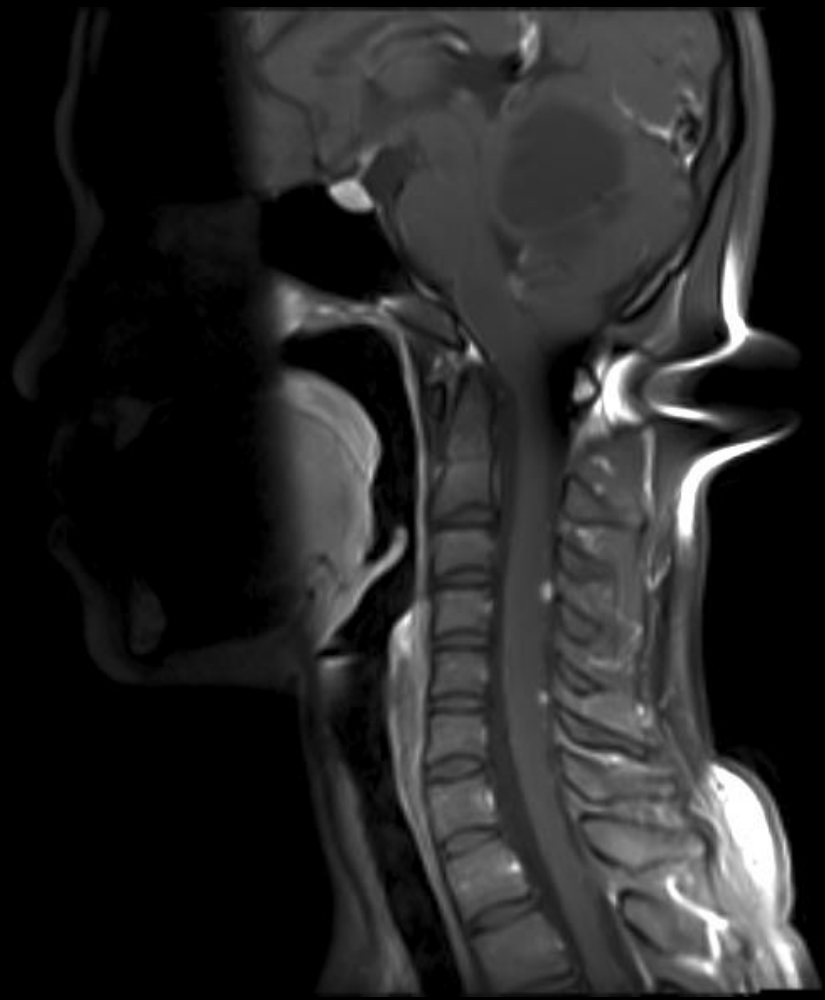
- 1st relative with NFII and unilateral acoustic neuroma or meningioma, glioma, schwannoma, neurofibroma(any 2)

Q2

23y/o female
Dizziness
What is your diagnosis?

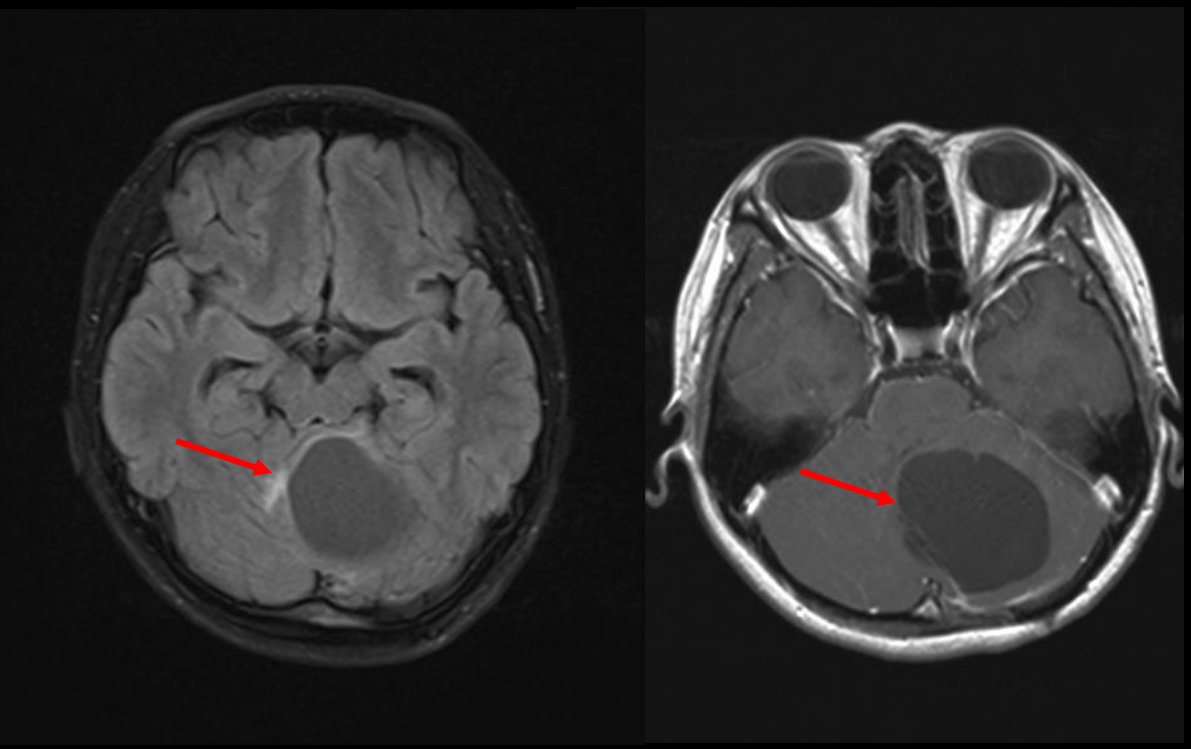


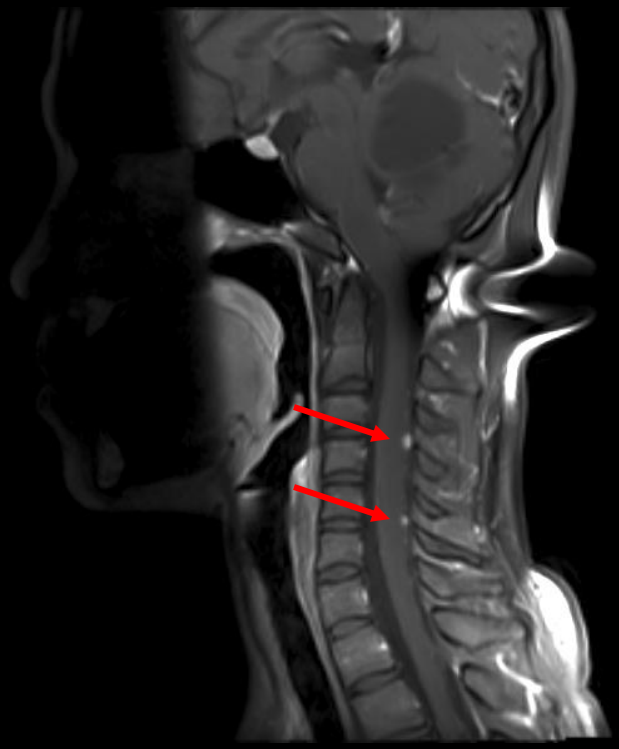




A2

Diagnosis: Von hippel lindau syndrome





left cerebellar hemangioblastoma
Two small hemangioblastoma at spinal cord

Discussion

Autosomal dominant, 2-3 decade, M:F=1:1

Presence of hemangiomblastoma and renal RCC and cyst, adrenal, pancreatic and scrotal abnormality.

Associated with chromosome 3

Hemangioblastoma 50%: Cerebellum, brainstem, sinal cord, retinal

Renal: RCC(bilateral 65%, multiple 85%), benign renal cyst 60%

Adrenal gland: pheochromocytoma 15%, bilateral 40%

Pancreas: multiple cyst 70%. Cystadenocarcinoma, islet cell tumor

Scrotum: epididymal cyst

Other: hepatic cyst and splenic cyst.

Diagnostic criteria

- >1 hemangioblastoma of CNS
- 1 hemangioblastoma + visceral manisfestation
- 1 manifestation + known family history

Q3-1

80 y/o female

Dizziness

What is your diagnosis?

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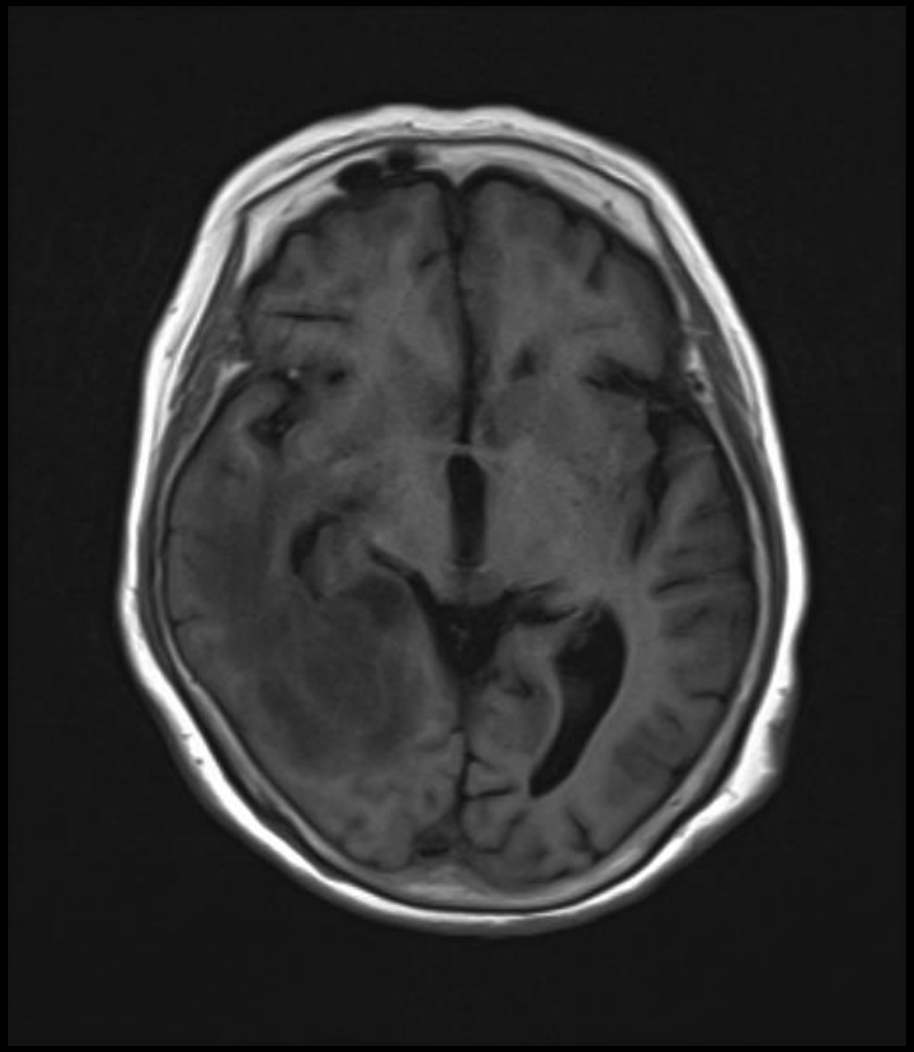
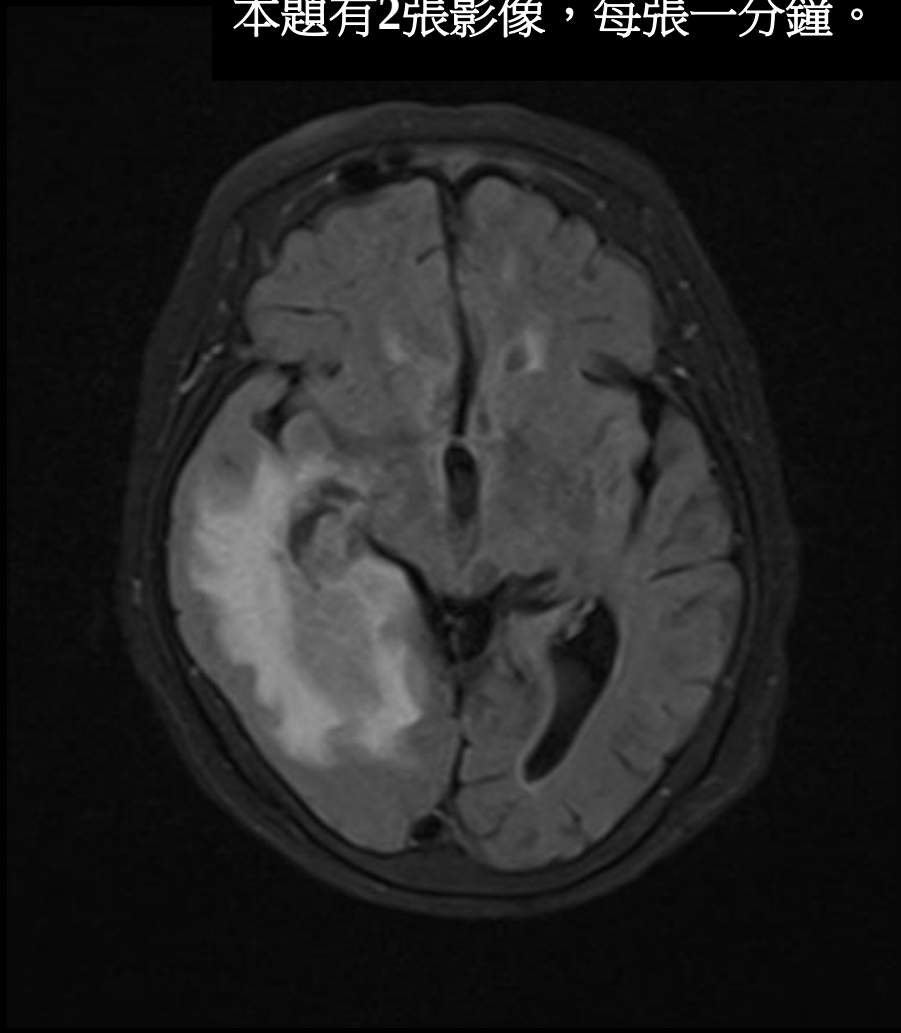


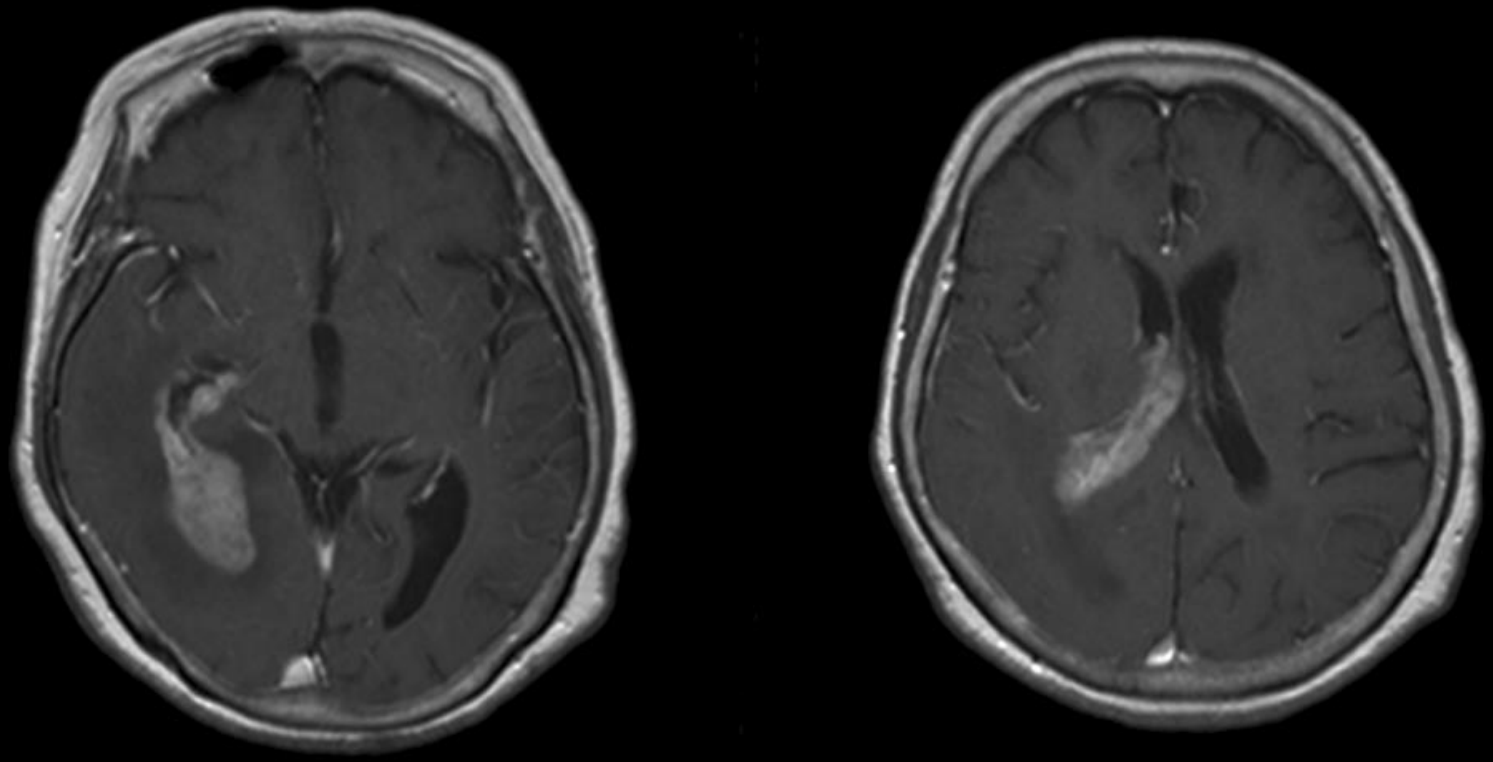


Q3-2

80 y/o female

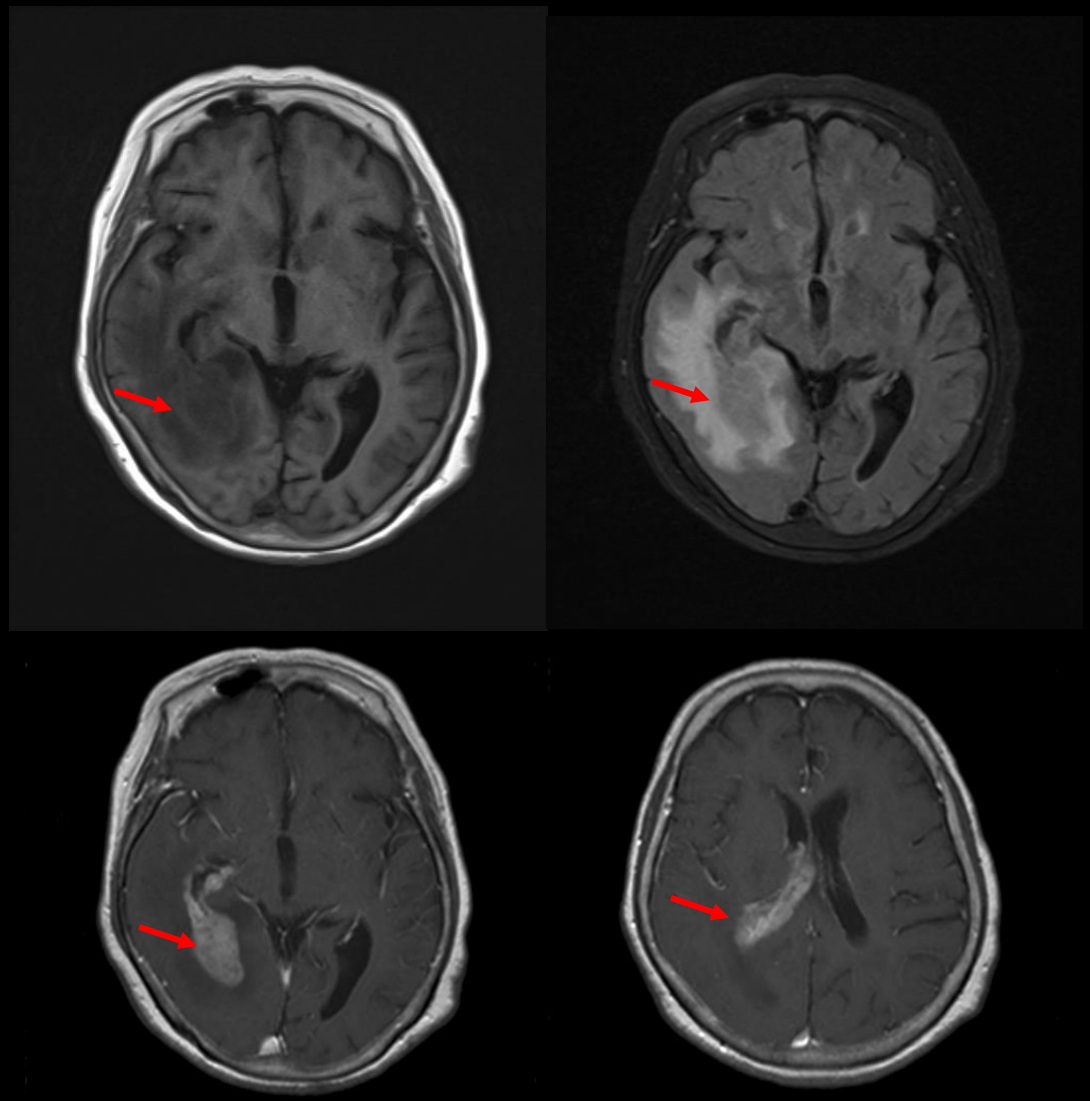
Dizziness

What is your diagnosis?



A3

Diagnosis: Malignant lymphoma



deep seated periventricular tumor with hypervascularity noted at right cerebral and left frontal regions

Discussion

- Multicentric involvement of deep hemispheres
- Association with immunosuppression
- Rapid regression with steroid/radiation therapy = ghost tumor

7-15% of all primary tumor, M>F, 30-50y/o

Location

- Supratentorial:posterior fossa=3.9:1

Typically infiltrating, Cross midline, diffuse leptomeningeal spread, subependymal spread with ventricular encasement.

Solitary or multiple mass in deep GM and WM, periventricular

Diffuse meningeal or paraventricular ependymal involvement.

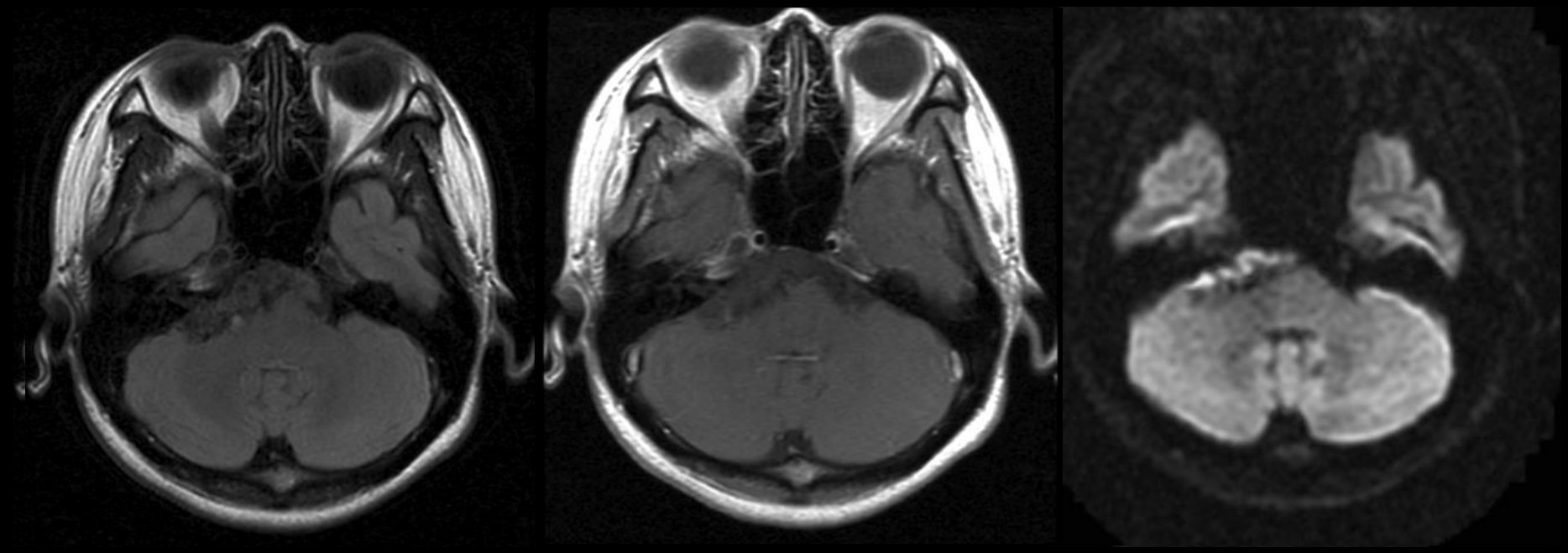
Diffusely infiltrative (mimic WM disease or gliomatosis cerebri)

Q4

47 y/o female

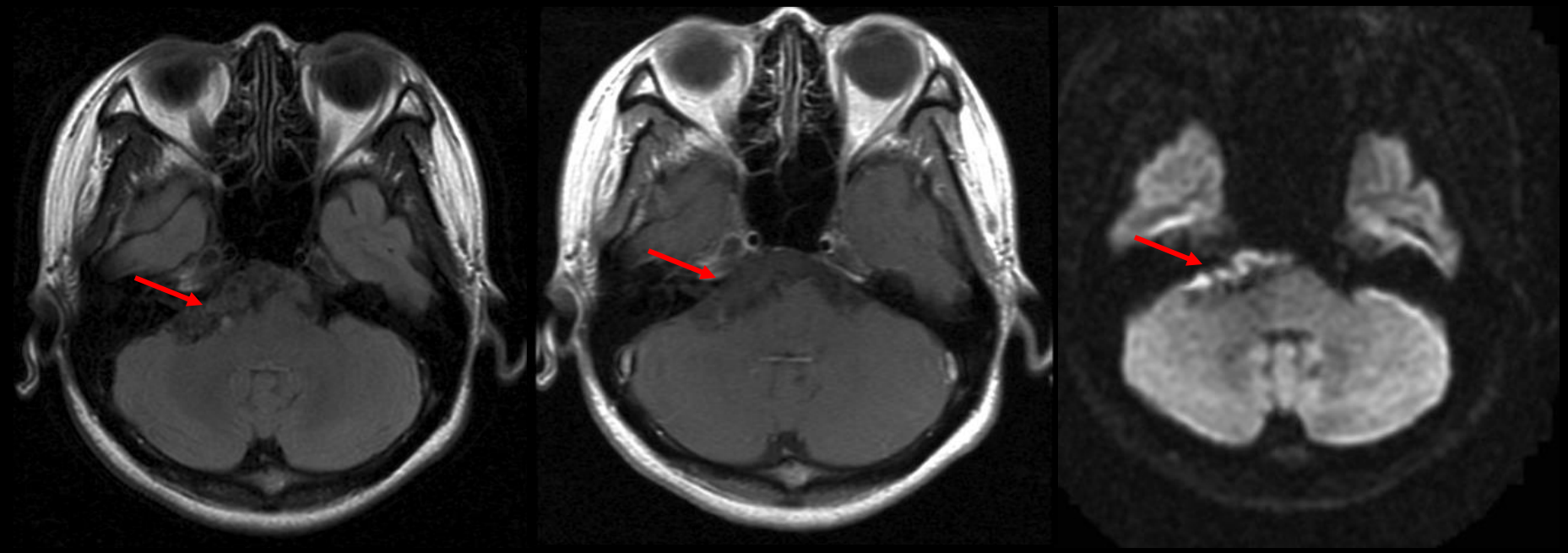
Blurred vision

What is your diagnosis?



A4

Diagnosis: Epidemoid cyst



Discussion

Benign, slow linear growth resulting from desquamation of epithelial cell from tumor wall

0.2-1.8% primary intracranial tumor

Most common congenital intracranial tumor

Ectodermal epithelial tissue from pharyngeal pouch of rathke/pluripotential cell during closure of neural tube in 5^{th} wks

10-60yrs, peak age 4-5th decade, M:F=1:1

Facial pain, cranial n palsy (CP angle tumor)

Hydrocephalus in suprasellar region

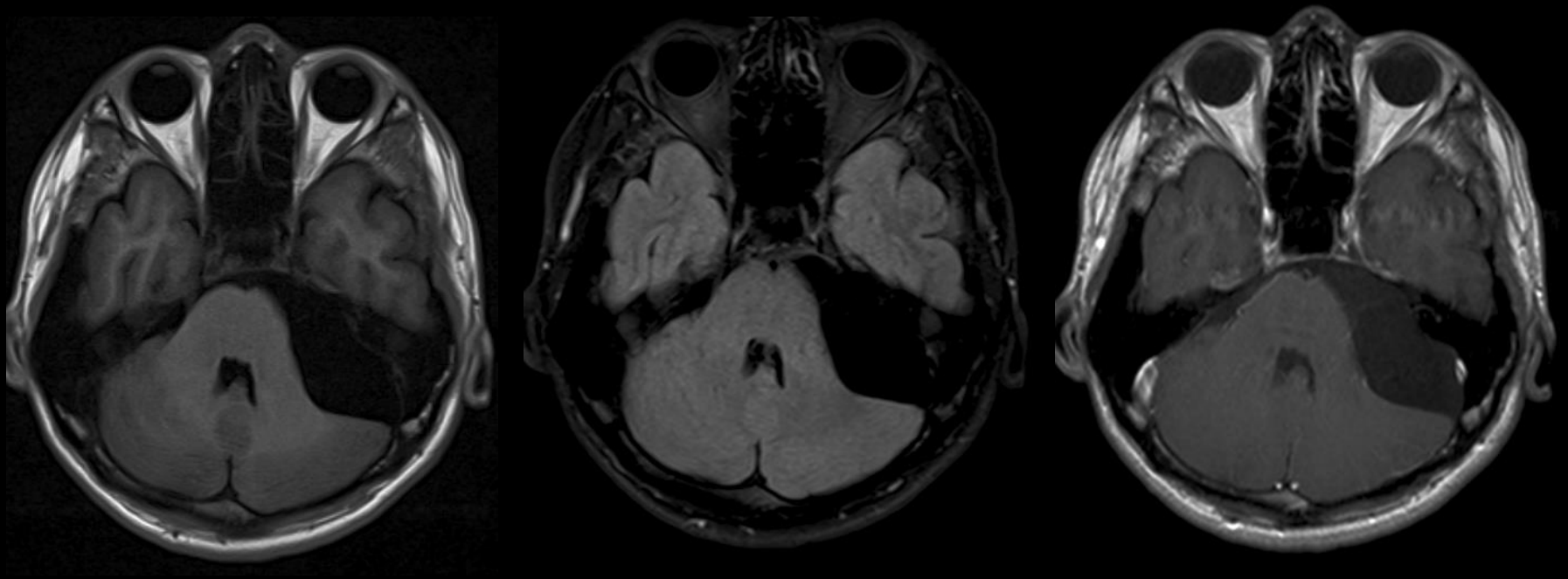
Chemical meningitis(leakage of tumor content)

Location: CP angle 40%,

MRI TI: low T2F: low, but higher than CSF, DWI: high, T1+C: no enhancement.

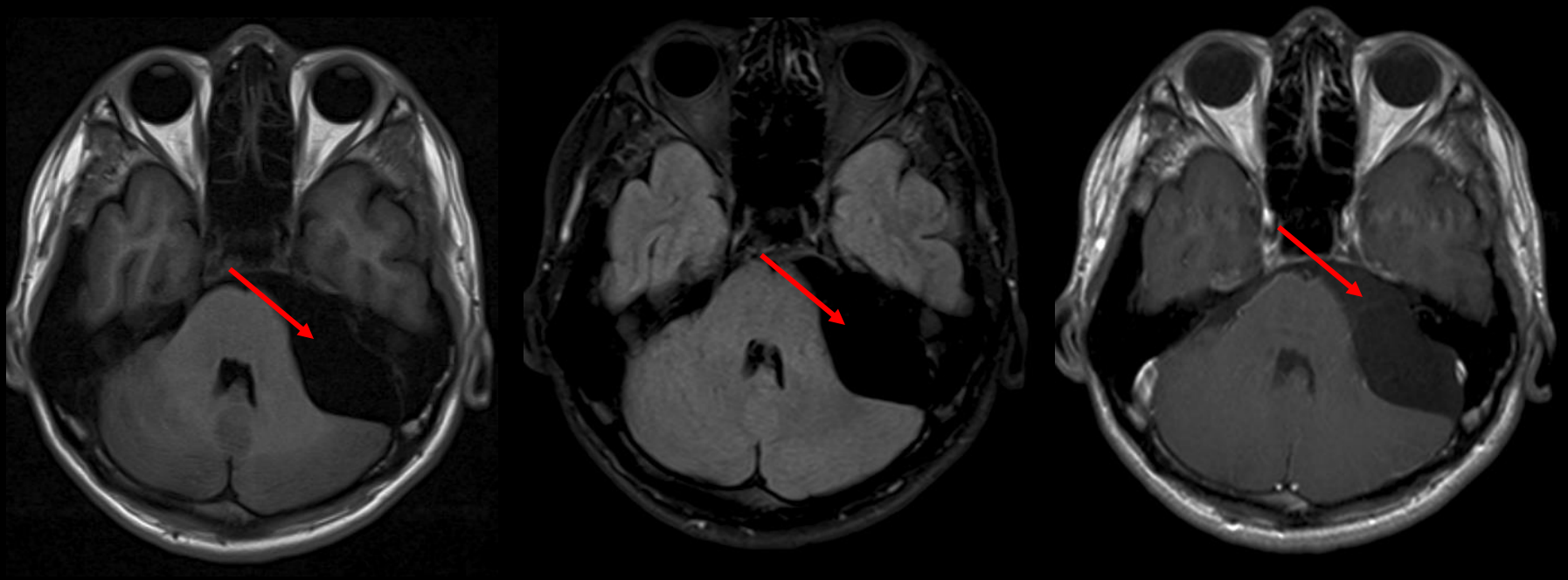
Q5

20 y/o male
Severe headache
What is your diagnosis?



A5

Diagnosis: Arachnoid cyst



Discussion

Not a true neoplasm, CSF containing cyst

Congenital: arise from duplication or splitting of the arachnoid membrane

Acquired: surgery/trauma/subarachnoid hemorrhage/infection in neonatal period.

Age: any time

Often asymptomatic

Location: Near sylvian fissure in 50%, Suprasellar cistern 10%,

Posterior fossa(1/3)

NO enhancement, No calcification

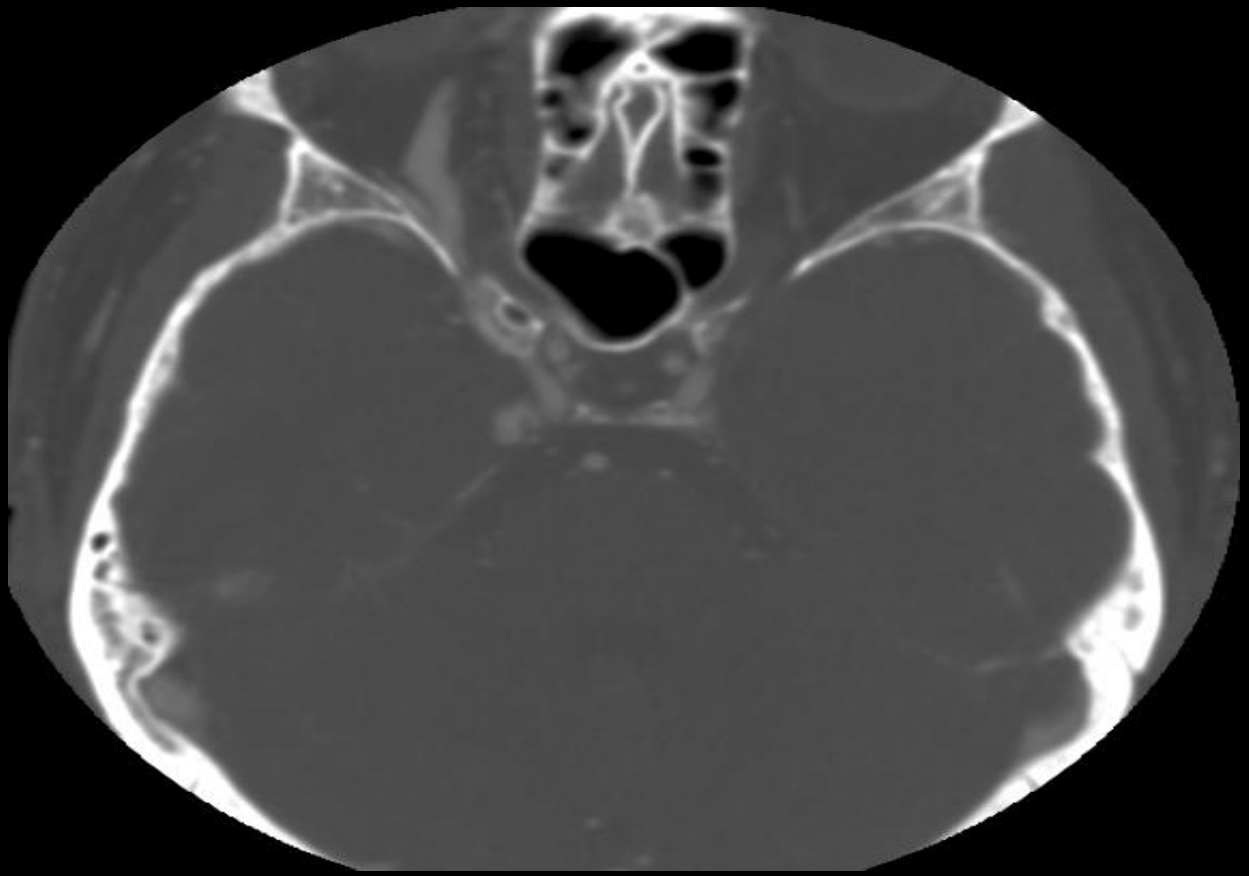
MRI: well defined lesion with same uniform signal as CSF

Q6

57 y/o male

Right eye protrusion

What is your diagnosis?



A6

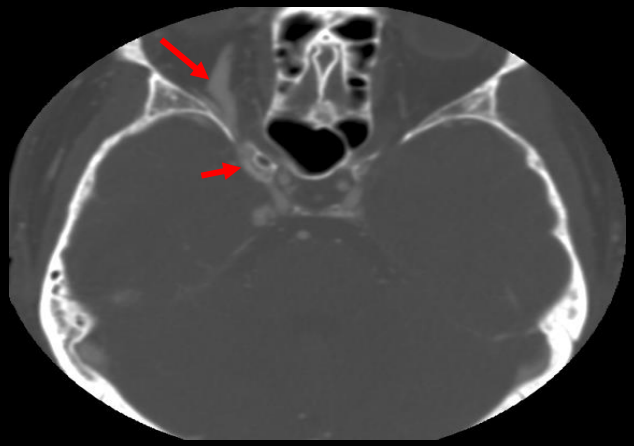
Diagnosis:
Carotid cavernous sinus fistula

- Clinical: Ocular bruit
- Traumatic CCF (high flow)
- Spontaneous CCF (high flow)

  rupture of aneurysm in cavernous segment

  dural fistula of the cavenous sinus (low flow), usually with venous thrombosis.
- enlargement of cavernous sinus

  enlargement of superior ophthalmic vein



Q7-1

83 y/o male
Conscious change
What is your diagnosis?

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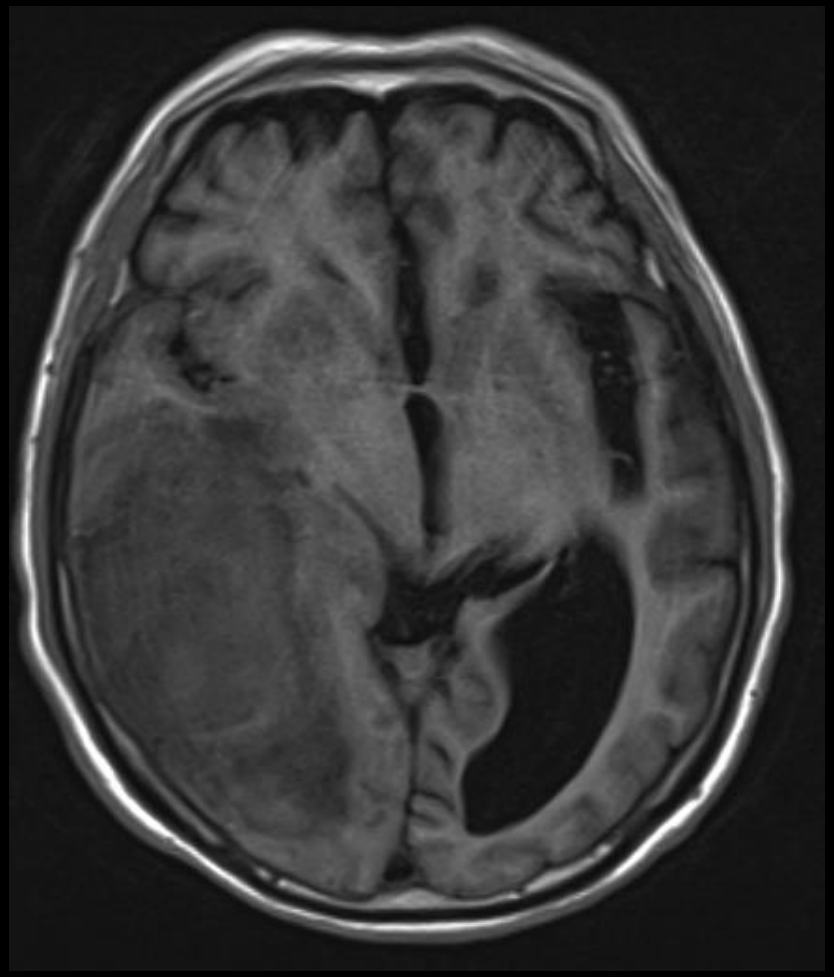
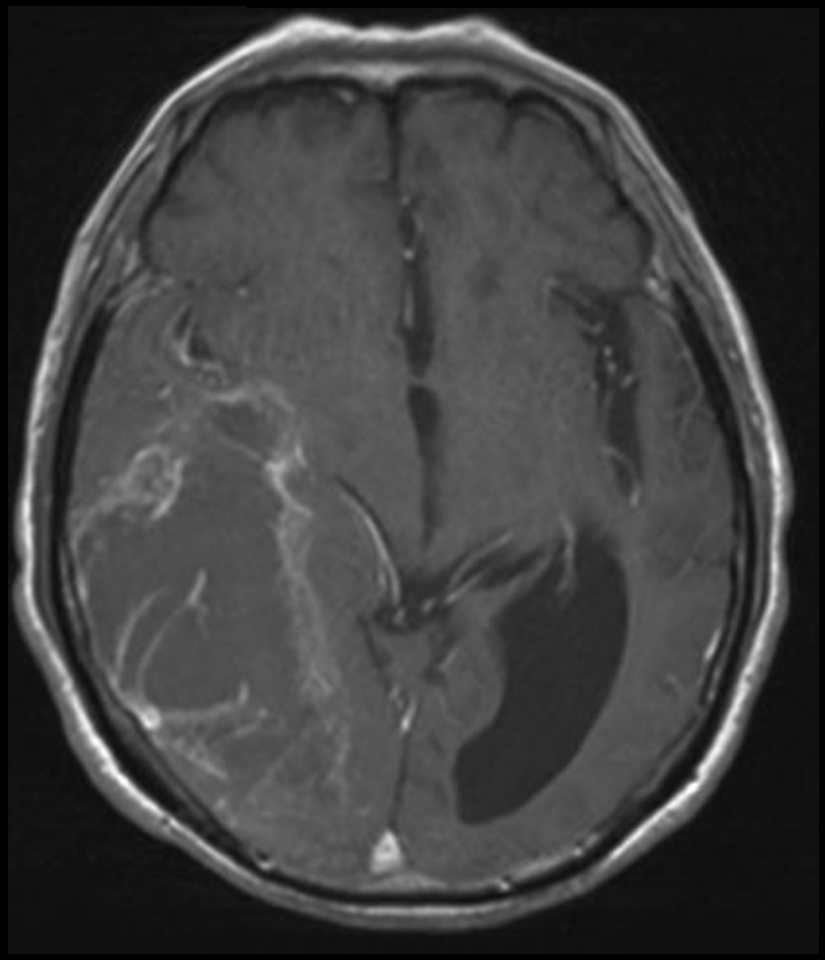
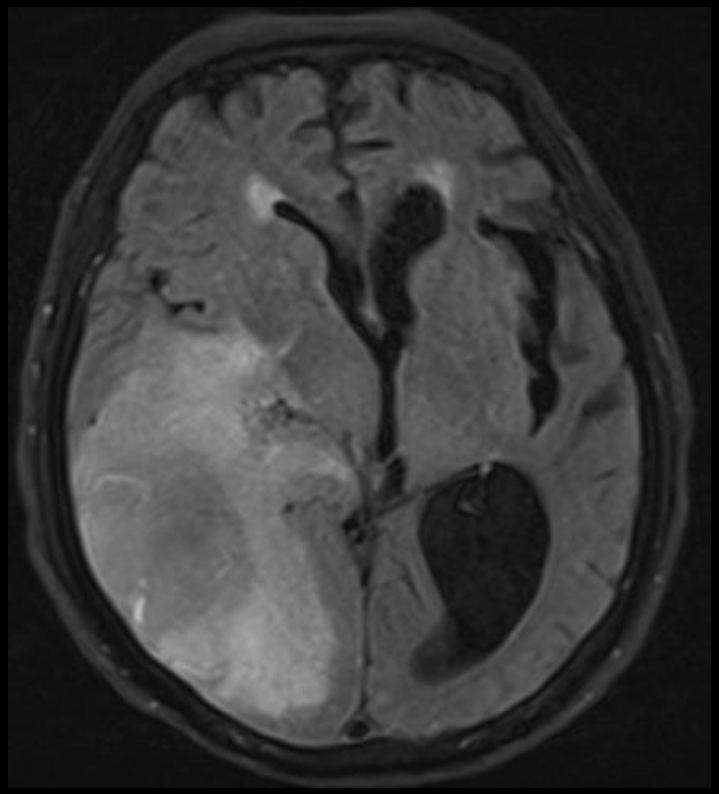
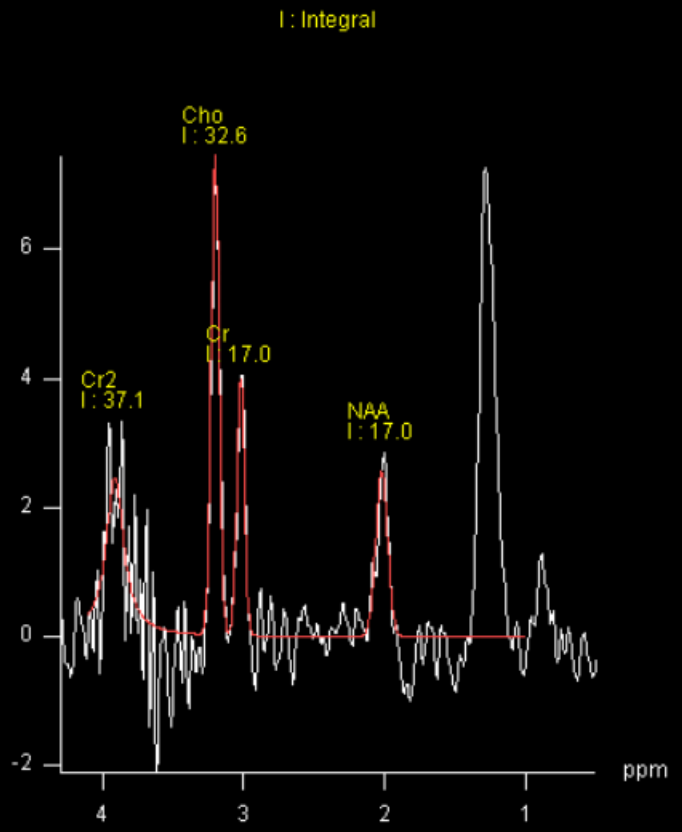


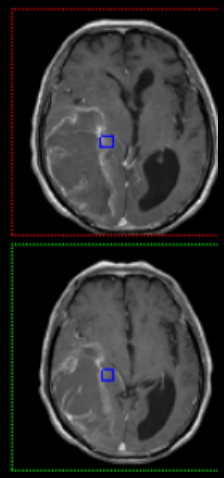


Q7-2

83 y/o male
Conscious change
What is your diagnosis?

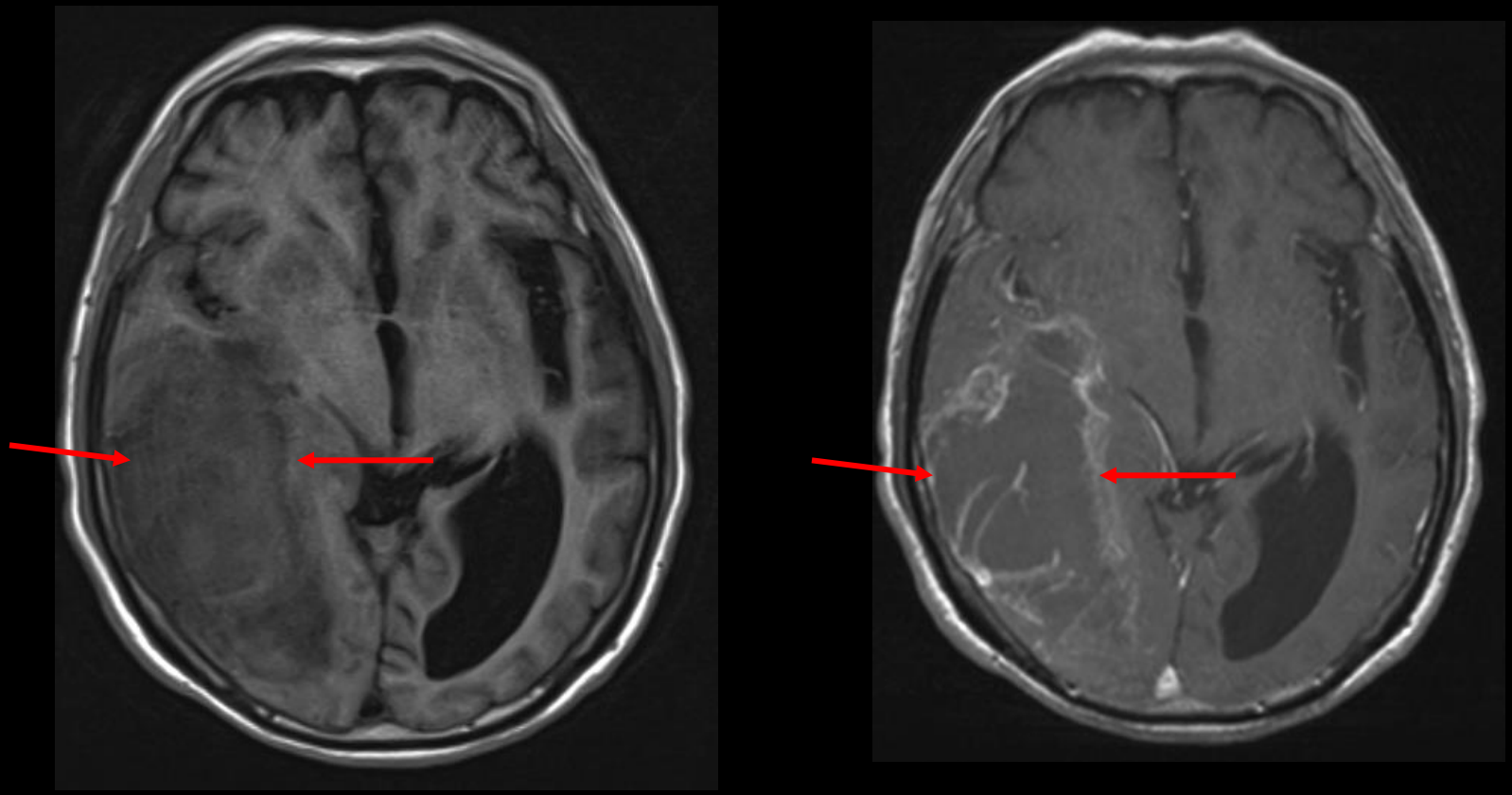






A7

Diagnosis: Glioblastoma multiforme



Discussion

Most common primary brain tumor; 50% of all intracranial tumor,

All age peak 65-75y/o, M>F

Most malignant of all glioma, progression of grade I/II astrocystoma

Across midline via commissure(corpus callosum) Bihemispheric spread (butterfly lesion)

Subependymal seeding of ventricle

CSF seeding of subarachnoid space

CT:heterogeneous low density mass, strong enhancement

Hemorrhage and necrosis, rare calcification

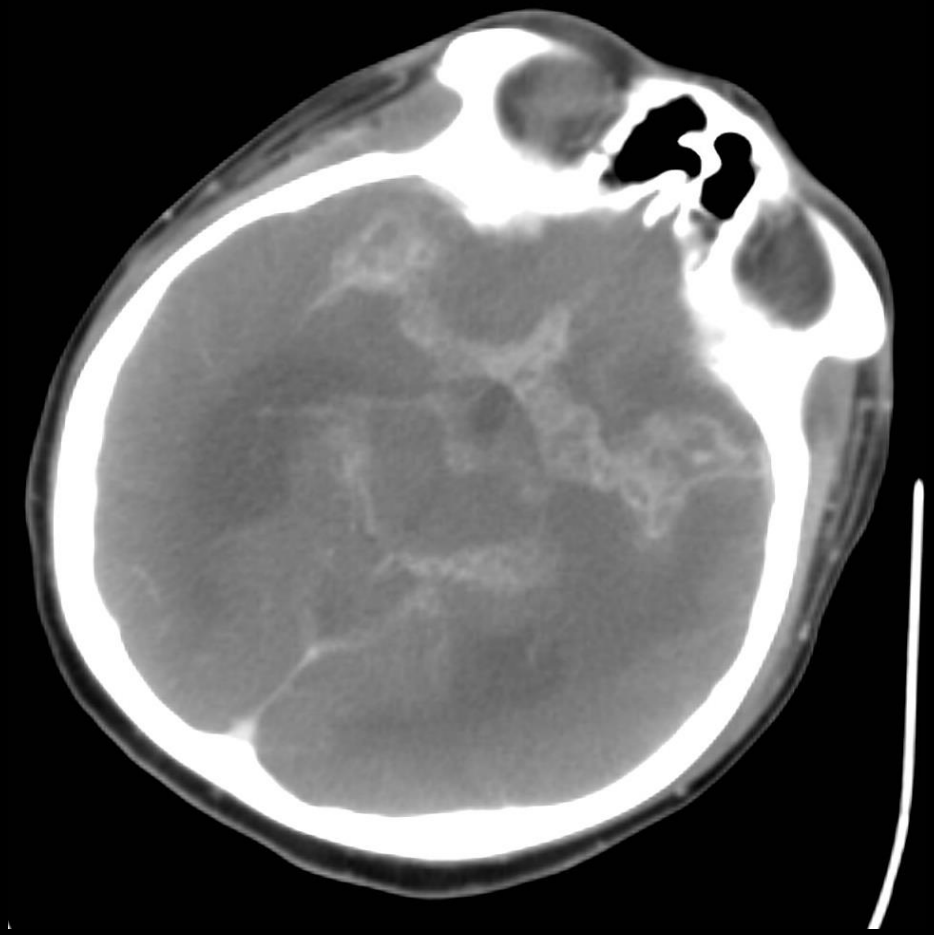
Vasogenic edema and mass effect.

Q8

29 y/o man

Fever and drowsiness, then brain CT with contrast enhancement is arranged.

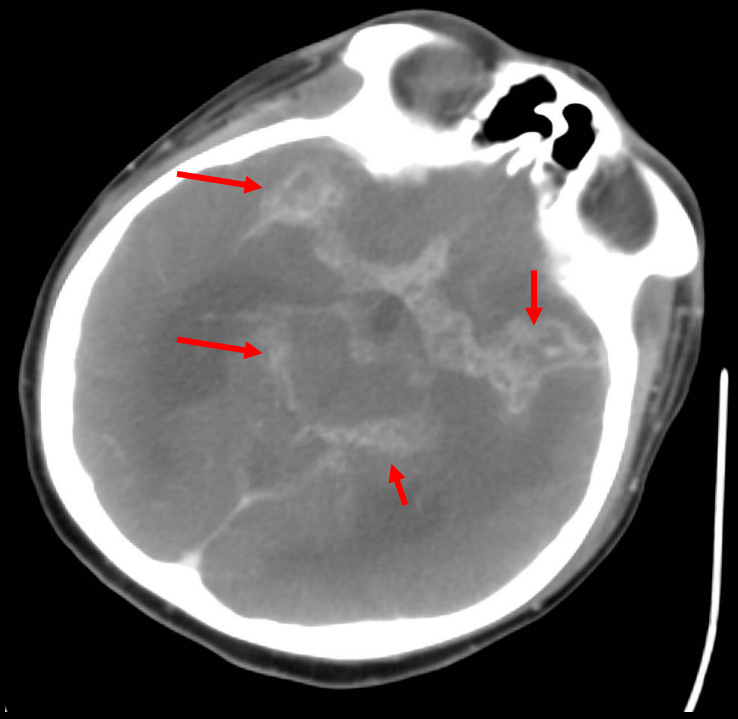
What is your diagnosis?



A8

Diagnosis: TB meningitis

- Cause: rupture of initial subependymal /subpial focus of tuberculosis from earlier hematogenous dissemination into CSF space.
- CT: iso/hyperattenuating meninges relative to basal cistern
- Often homogeneous contrast enhancement. Extending into interhemispheric fissures + cortical surfaces.
- Communicating hydrocephalus/obstructive hydrocephalus
- Ischemic infarcts of basal ganglia + internal capsule; MCA distribution most frequent.

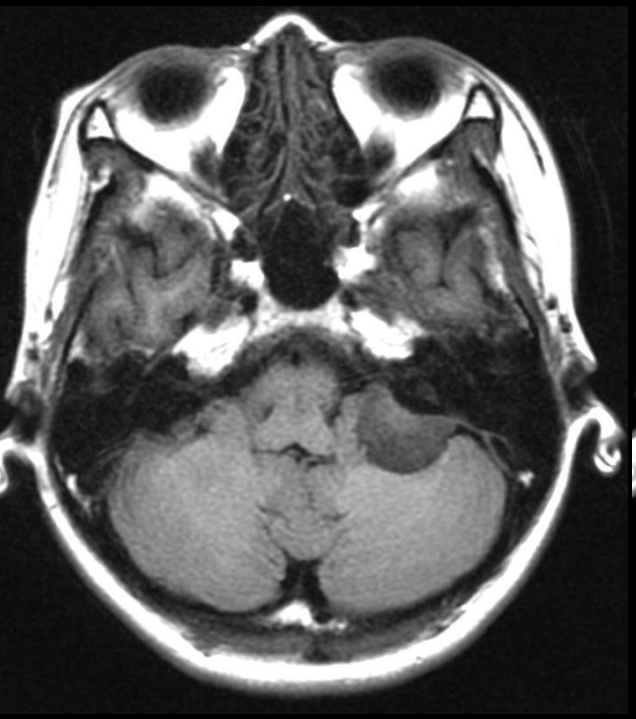


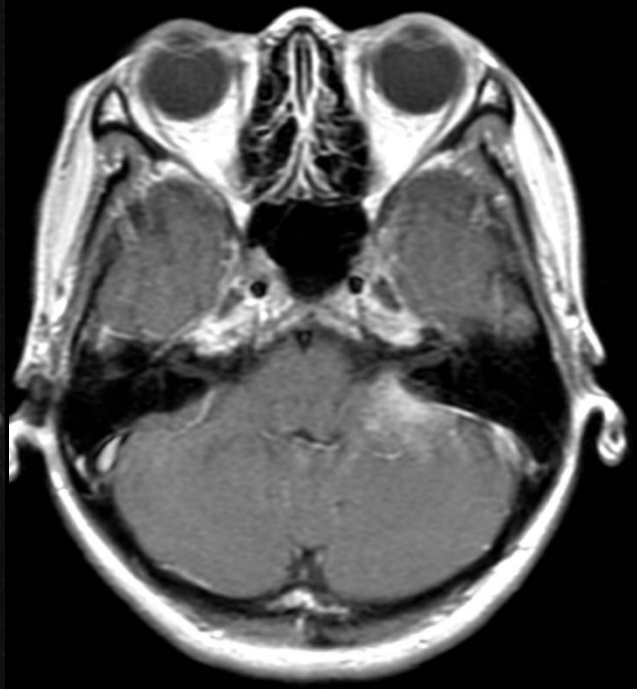
Q9

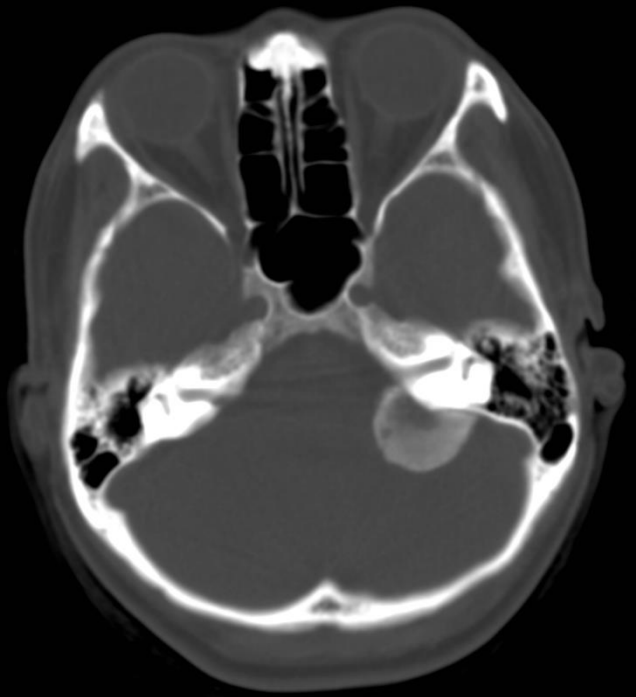
40 y/o female

Headache

What is your diagnosis?

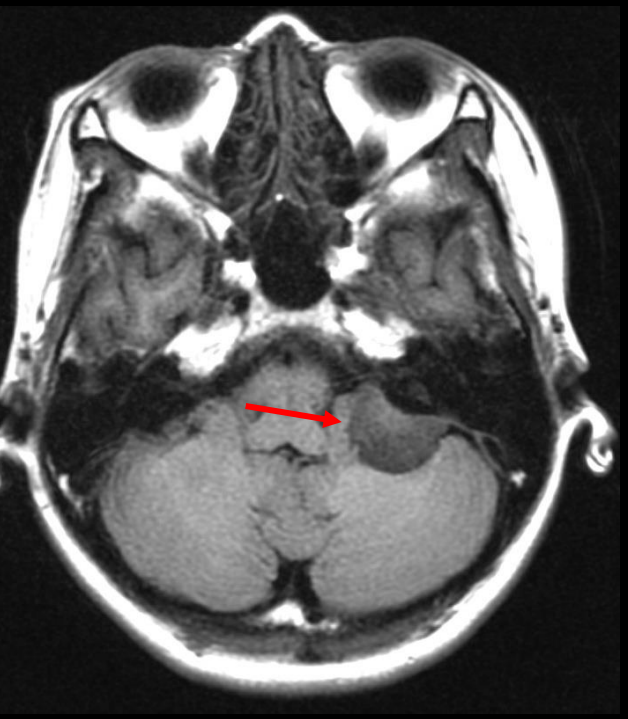


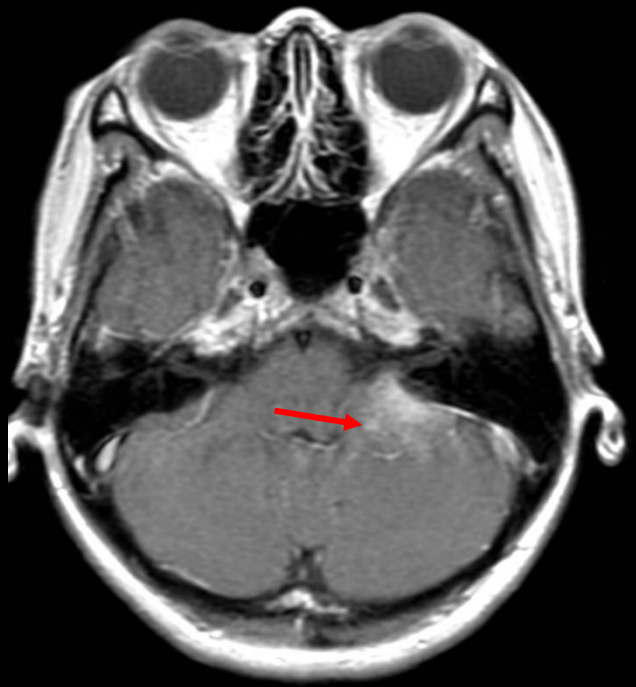


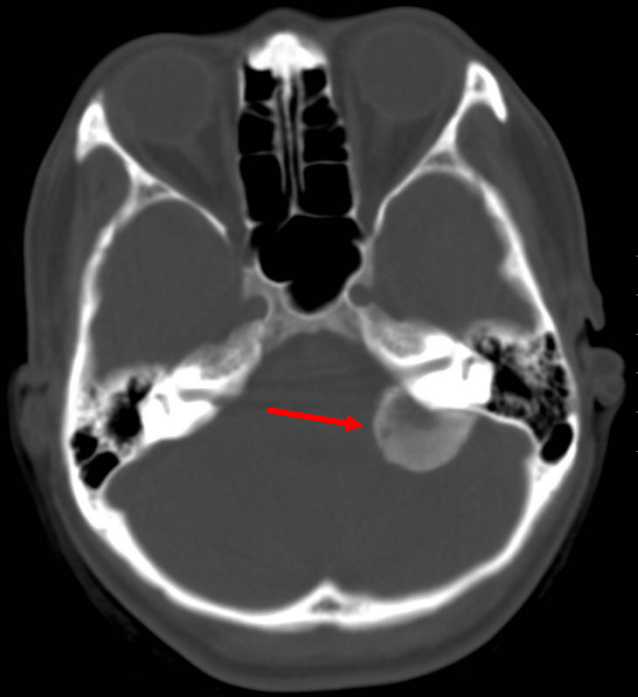


A9

Diagnosis:
Calcified meningioma at left CP angle (dural tail)







Discussion

Arachnoid cap cells

Age- 40-60y/o. M:F= 1:3

20% of brain tumor

In children -> Neurofibromatosis II

90% supratentorial

Benign meningioma(93%), atypical meningioma(5%), anaplastic(1-2%)

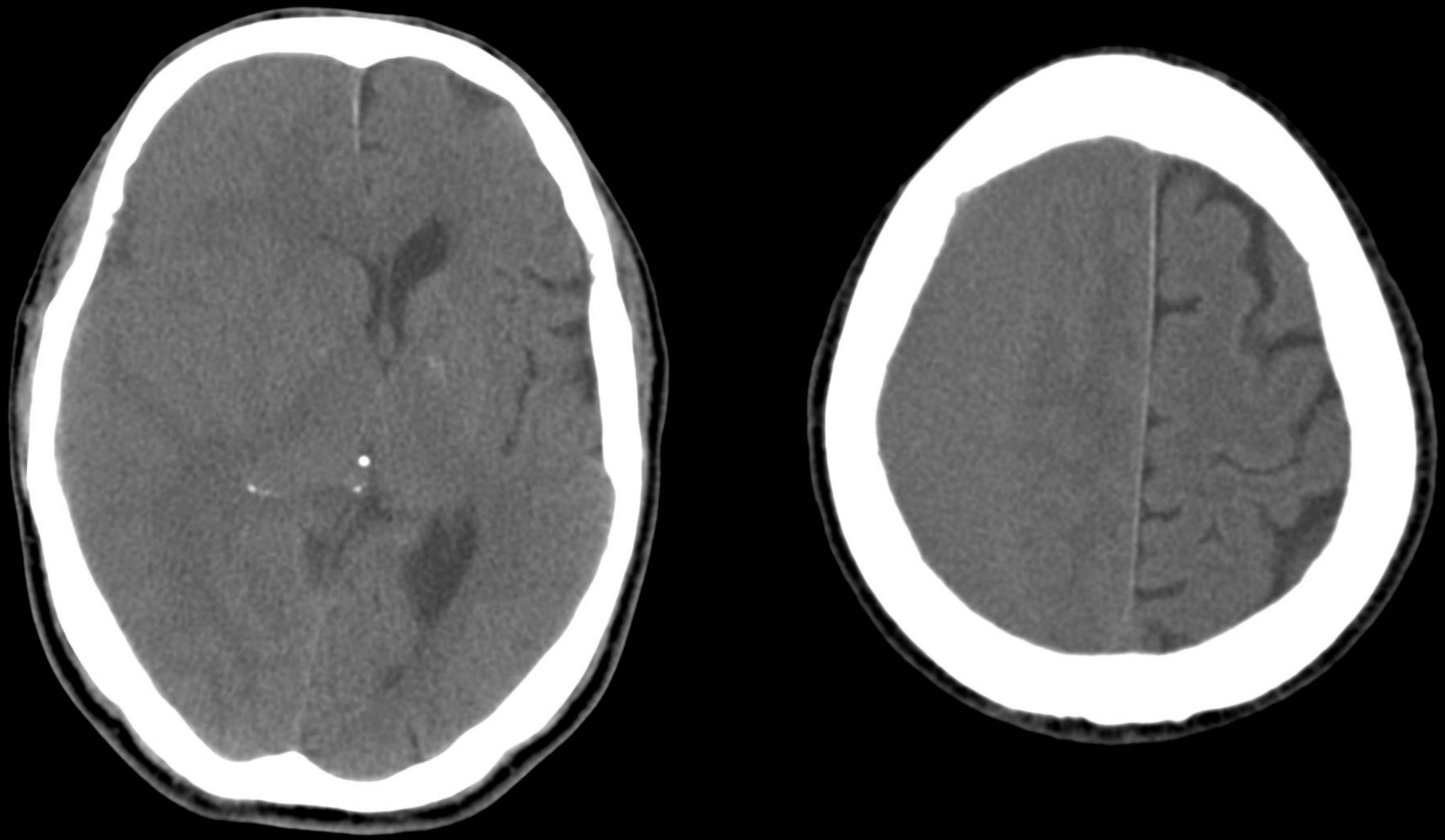
Cerebral falx(45%), sphenoid ridge(20%), juxtasellar(10%), olfactory groove(10%), posterior fossa clivus(10%), tentorum, rare: lateral ventricle(pediatric), optic nerve sheath(adult female)

CT: hyperdense 75%, iso25%, strong homogenous enhancement. **Calcification:20%,** cystic 15%, dural tail (60%) , edema(60%)

MRI:T1: low or iso T2: high T1+C: strong enhance.

Q10

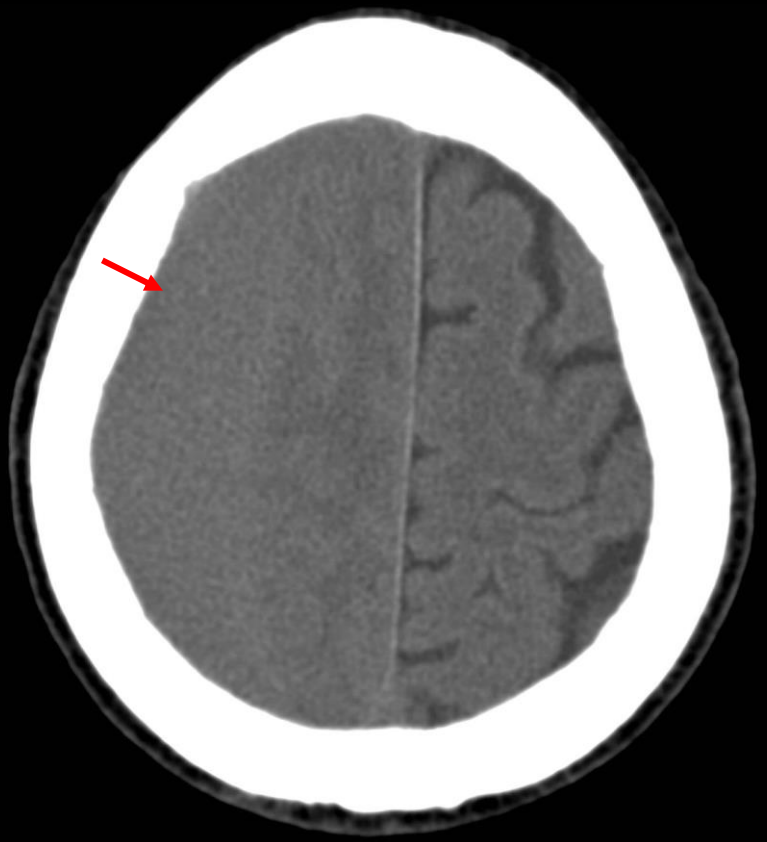
A 77 y/o man
Admitted due to head trauma
What is your diagnosis?



A10

Diagnosis: Subdural hematoma

- Subdural hematoma (SDH) most commonly results from traumatic stretching or tearing of bridging cortical veins as they cross subdural into dural sinus
- Chronic SDH
  - Develops over 2-3 weeks
  - May enlarge or resolve spontaneously
- Variety of symptoms, aysmptomatic to loss of consciousness
- Occur at any age, more common in elderly



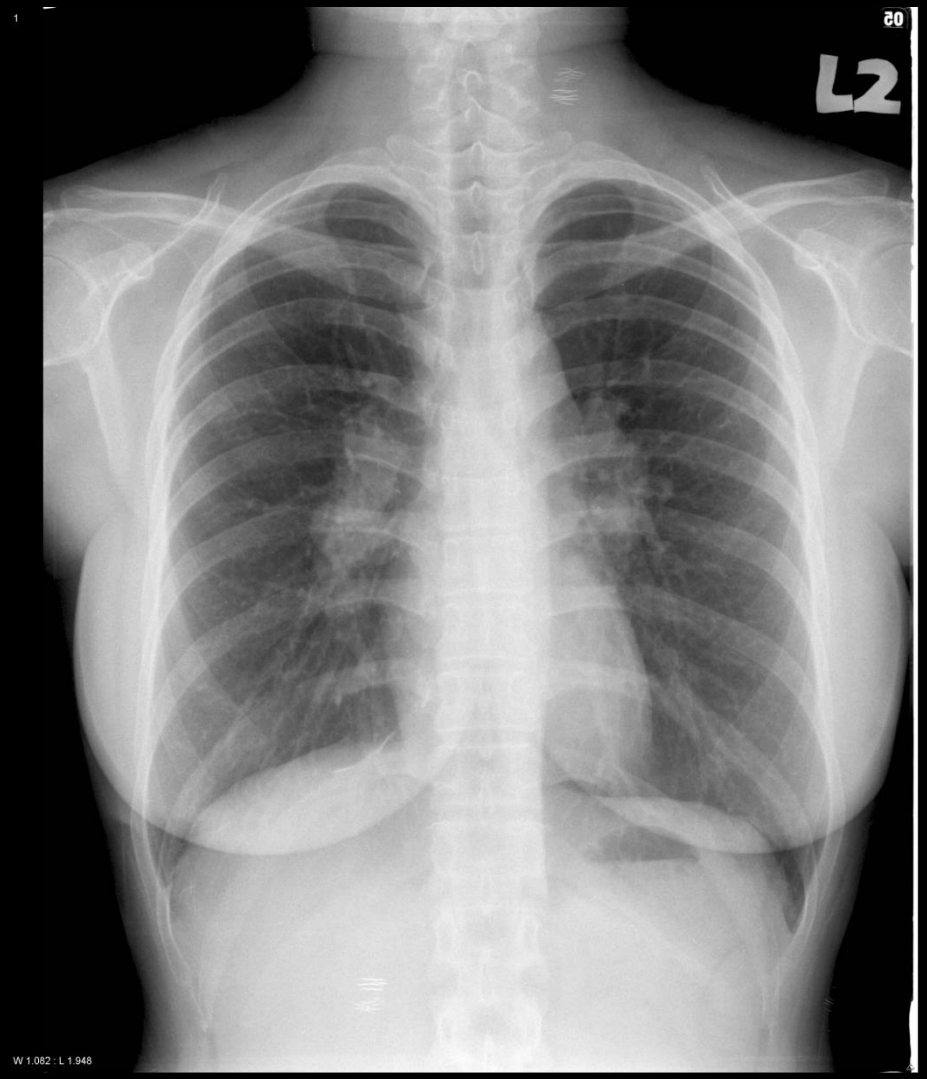
Diagnostic imaging Brain 2nd edition

Q11

27 y/o woman

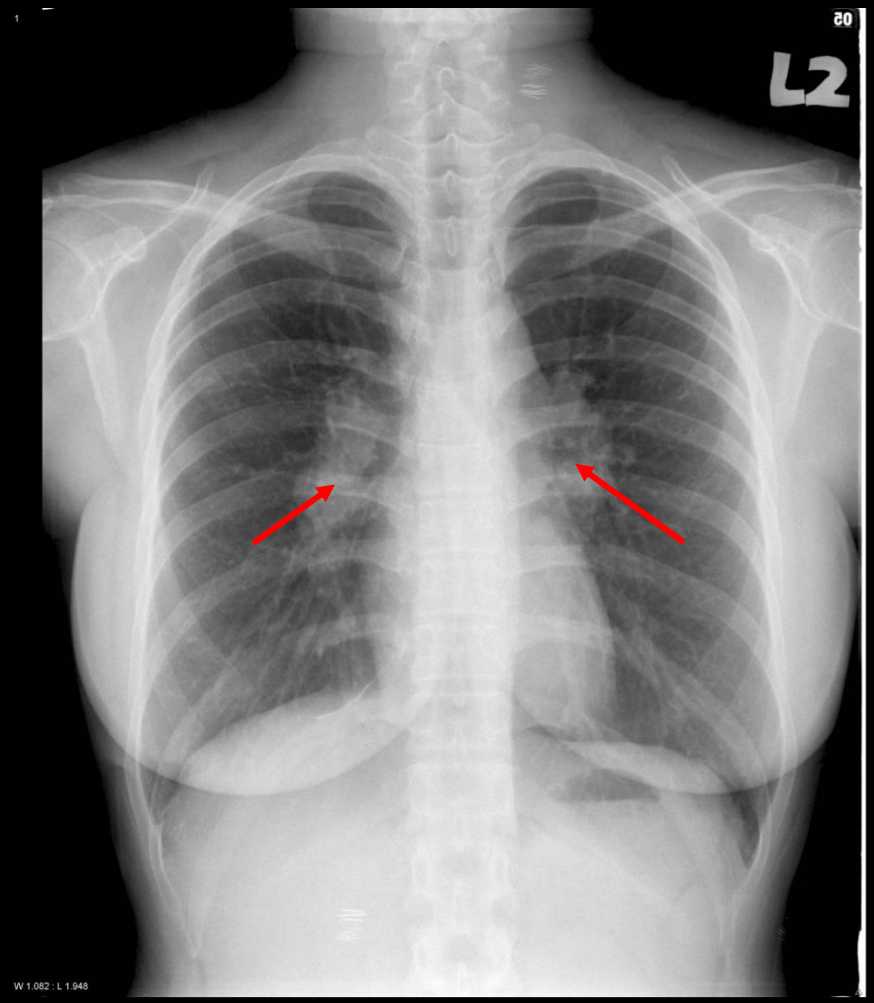
Shortness of breath

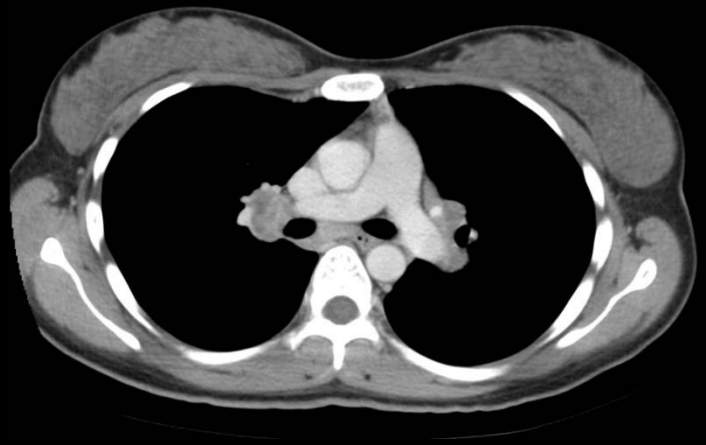
What is your diagnosis?

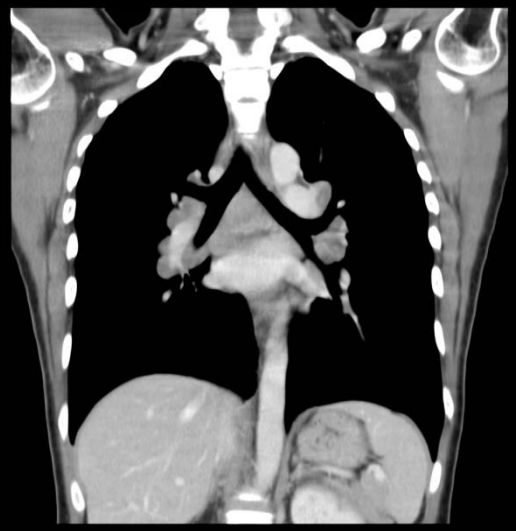


A11

Diagnosis: Sarcoidosis







Discussion

Common systemic granulomatous disease of unknown etiology; multiorgan disorder

Best diagnostic clue: symmetric hilar and mediastinal LAP; with or without pulmonary opacity

Centrilobular, perivascular, perilymphatic, bronchovascular bundles, subpleural, septal. Micronodules (1-5mm)

- Lung involvement: Reticulonodular opacity (90%) at upper lung
- Pulmonary fibrosis
  - Upper lobe, cyst formation, traction bronchiectasis in severe disease

Progressive massive fibrosis, architectural distortion, honeycombing, cysts, bullae

Clinical issue

- Fatigue, malaise, weight loss, nigh sweats, dyspnea, dry cough, asymptomatic in 50%
- Wax and wane
- Diagnosis: lung, lymph nodes, liver biopsy
- Major complications include respiratory failure, mycetomas, hemorrhage, cor pulmonale

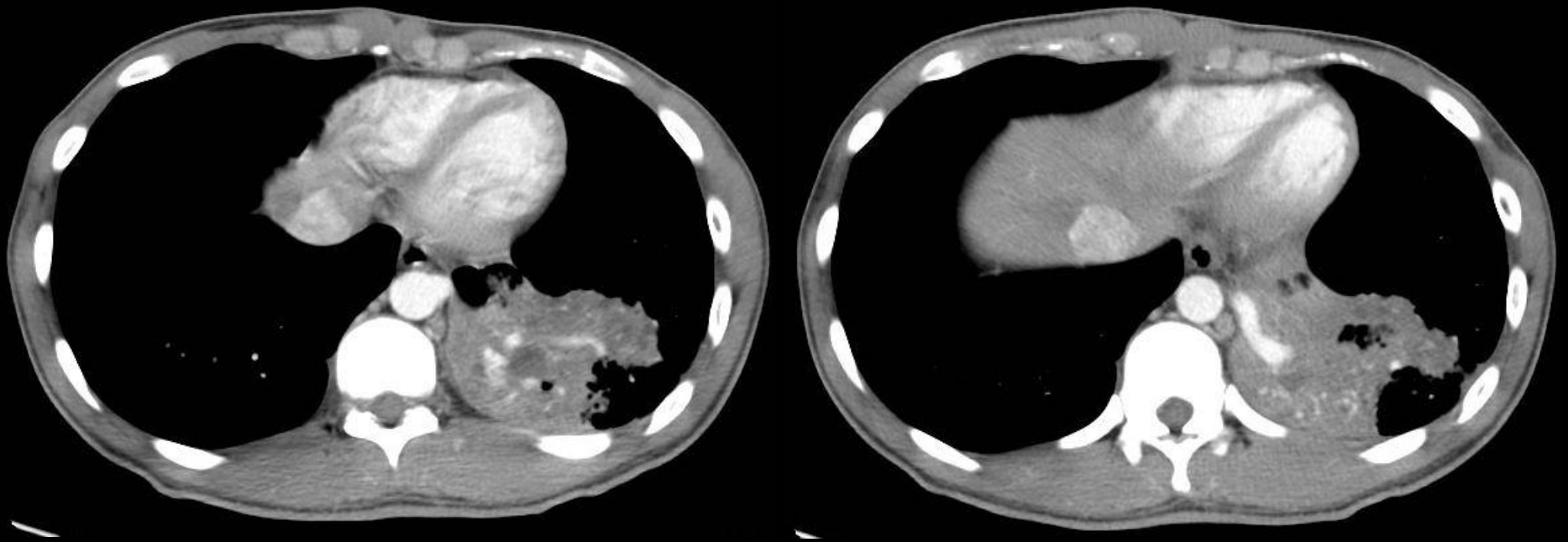
Diagnostic imaging CHEST 1st edition

Q12

19 y/o man

Dry cough, intermittent fever with chillness for 10 days.

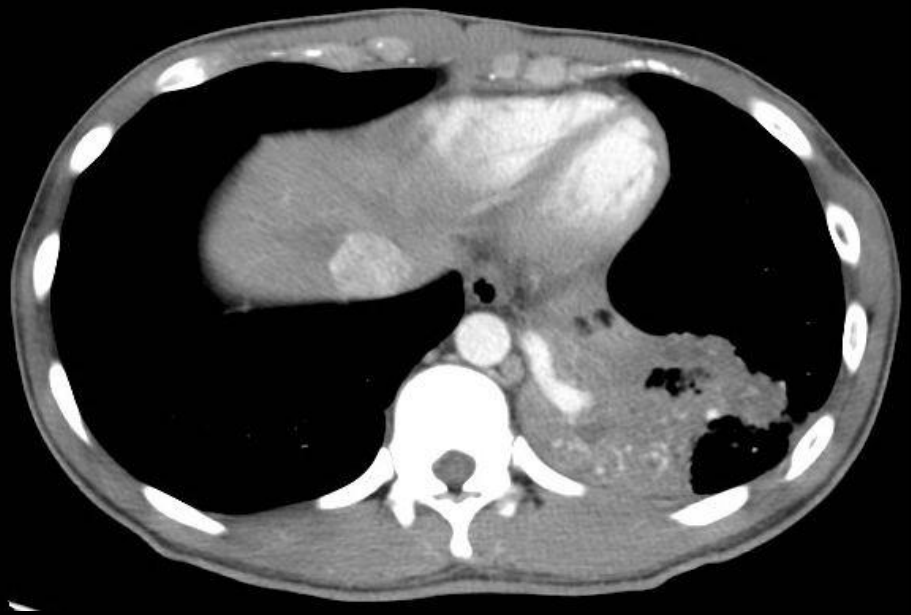
What is your diagnosis?

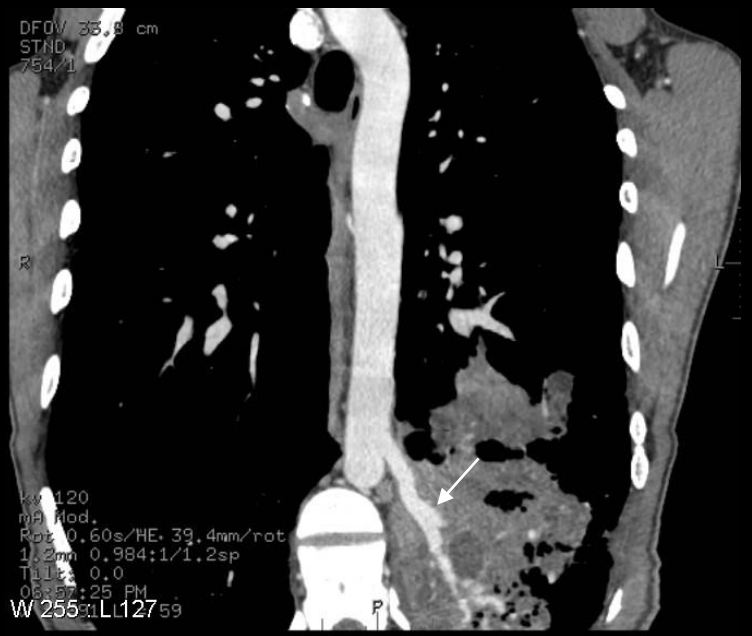


A12

Diagnosis

Pulmonary sequestration, Intralobar type





Discussion

Pulmonary sequestration is the presence of an abnormal mass of pulmonary tissue that does not communicate with the tracheobronchial tree through normal bronchial connection and that receives its blood supply via an anomalous systemic artery

Intralobar and extralobar sequestration

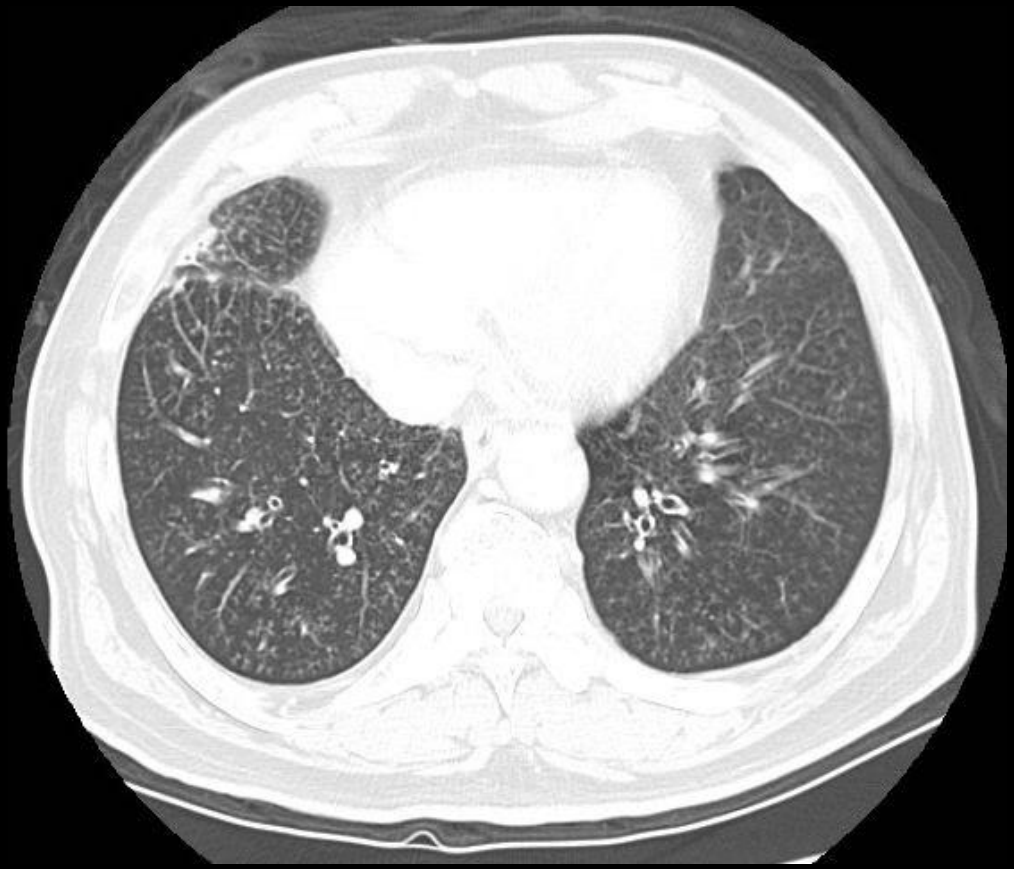
Peter Armstrong et al. *Imaging of Diseases of the Chest 3rd ed*.

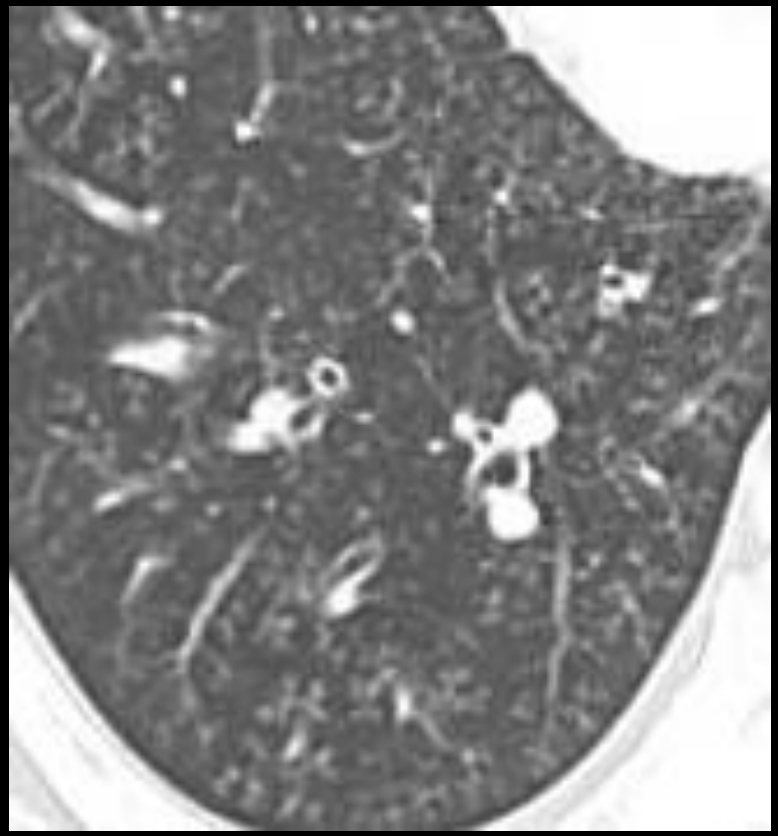
	Intralobar	Extralobar
Relation to normal lung	Within normal lung and its pleural cover	Separate with own pleural covering
Venous drainage	Pulmonary	Systemic
Associated congenital abnormalies	Uncommon	Common
Age at diagnosis	50% at 20 years	60% at 1 years
Sex ratio	M=F	M/F=4/1
Infection or communication with normal lung	Common	rare

Q13

73 y/o man
With progressive shortness of breath for about 1 week

What is your diagnosis?

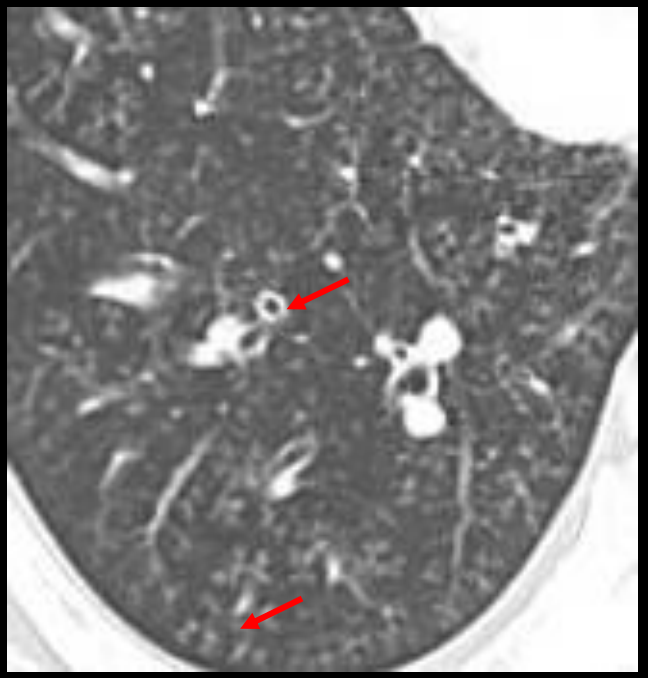




A13

Diagnosis: Diffuse panbronchiolitis

- Diffuse panbronchiolitis, a disorder characterized by chronic sinusitis and bronchial inflammation and found common in Japanese, Chinese and Koreans.
- X-Ray
  - Multiple, small(1-5mm,) ill-defined nodules with symmetric distribution and initially most prominent basally.
- HRCT
  - Small, ill-defined, rounded nodules in centrilobular fashion
  - Thin, branching, linear opacities that contact the nodules
  - Bronchioectasis pattern



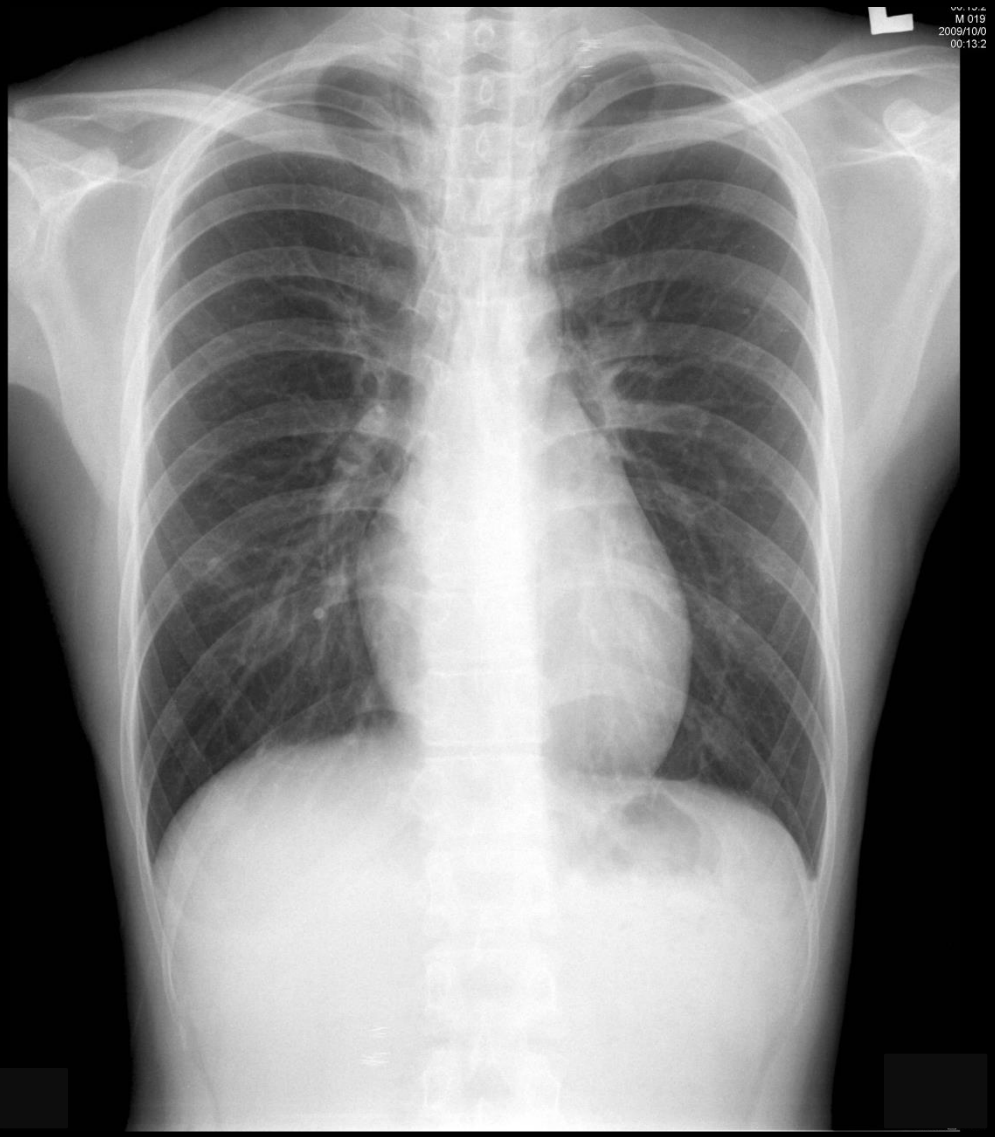
Peter Armstrong et. Al. Imaging of the disease of the CHEST 3rd ed.

Q14

19 y/o man

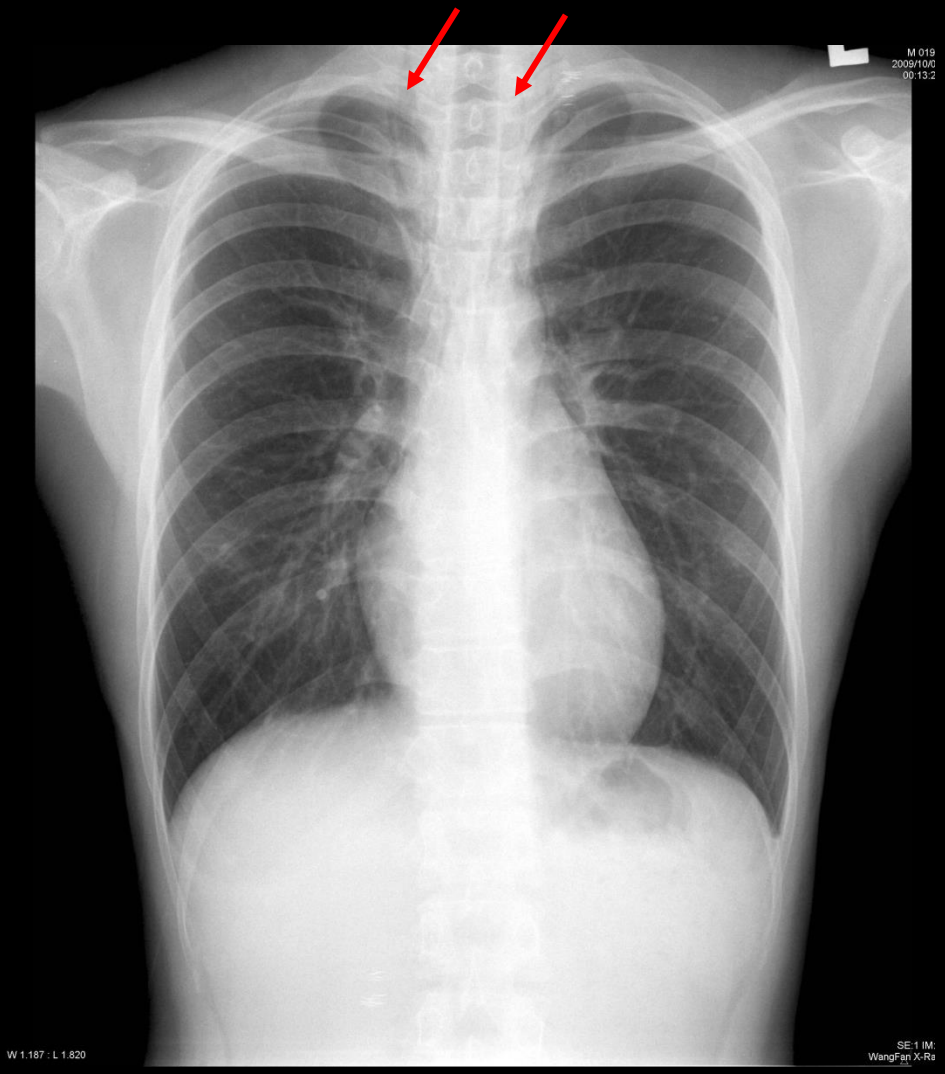
Choking and sorethroat

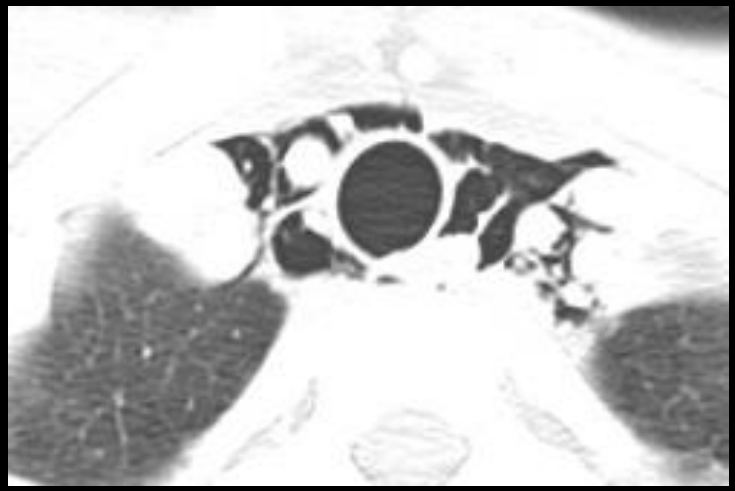
What is your diagnosis?

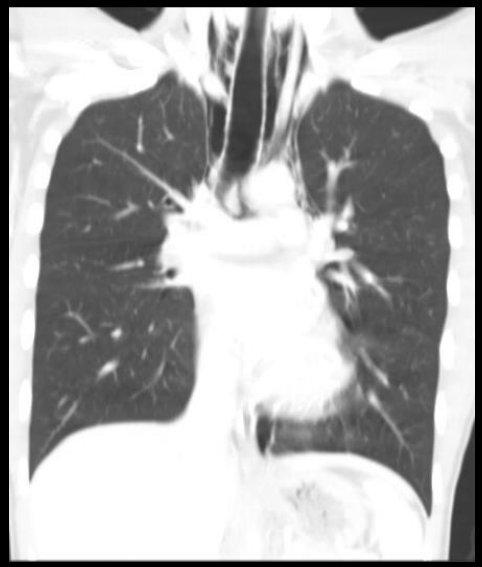


A14

Diagnosis: Pneumomediastinum







Discussion

Pneumomediastinum indicate perforation of respiratory or alimentary tracts

“continous diaphragm sign”: air between the heart and diaphragm.

Causes:

- Alveolar rupture
  - Spontaneous
  - In mechanical ventilation patient
  - Following compressive trauma
  - Following rupture of lung by rib fracture with tracking of air into mediastinum by way of the chest wall and neck
- Traumatic laceration of trachea or a central bronchus
- Perforation of pharynx, esophagus, duodenum, colon, or rectum with tracking of air into mediastinum
- Following placement of an intercostal chest tube or mediastinoscopy or similar invasive procedure

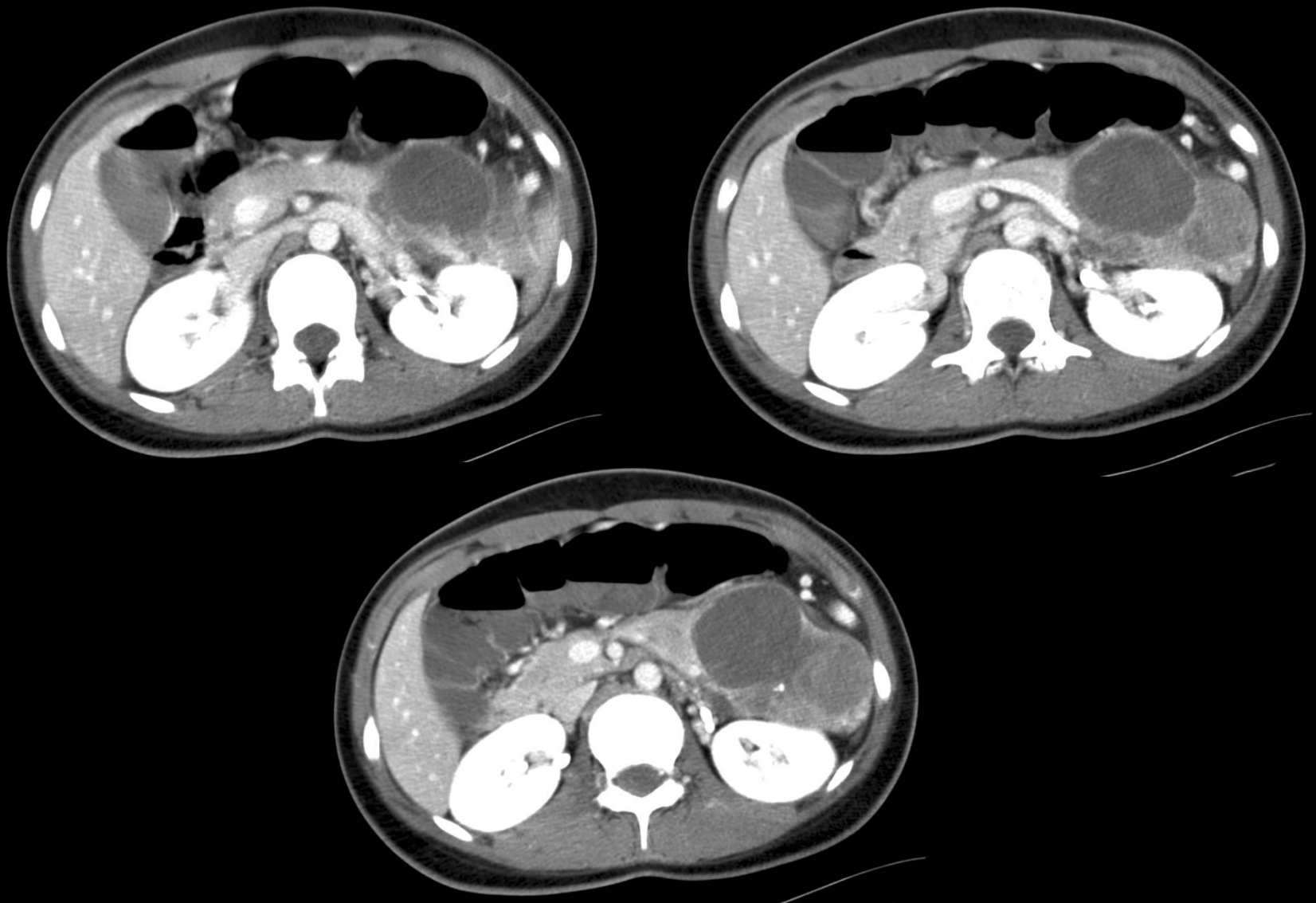
Peter Armstrong et. al. Imaging of the disease of the CHEST 3rd ed.

Q15

15 y/o woman

Abdominal discomfort and pain

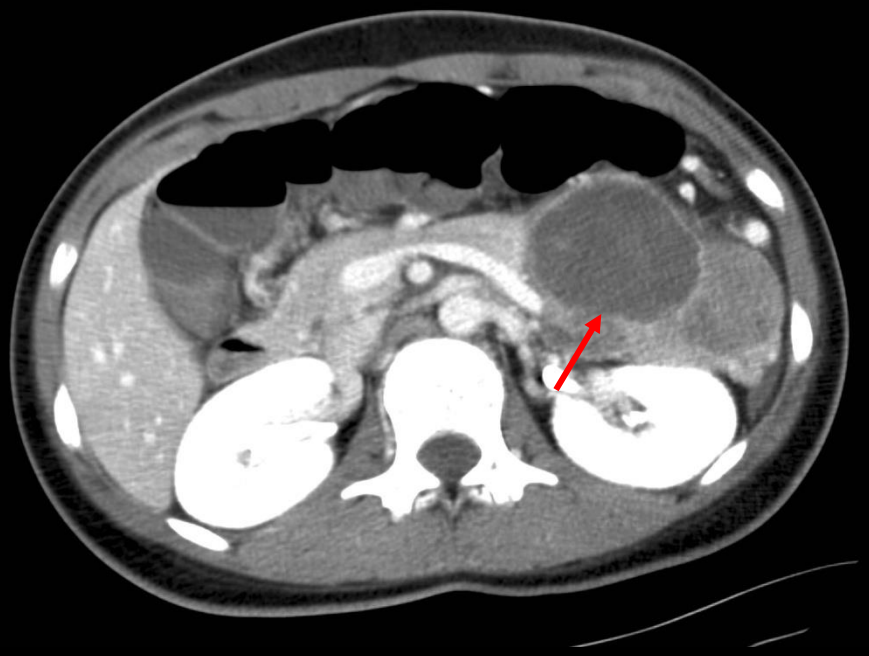
What is your diagnosis?



A15

Diagnosis:

Pancreatic solid-pseudopapillary neoplasm

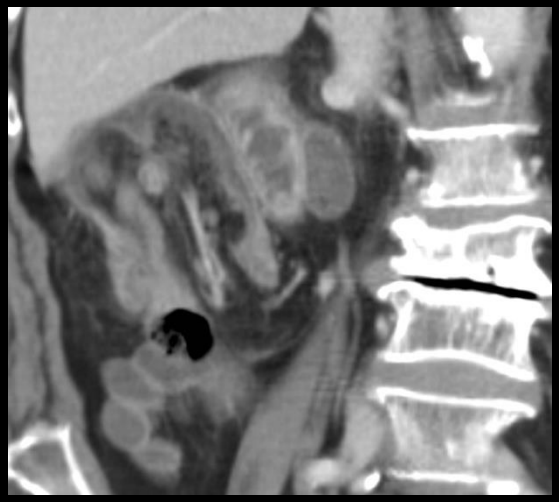


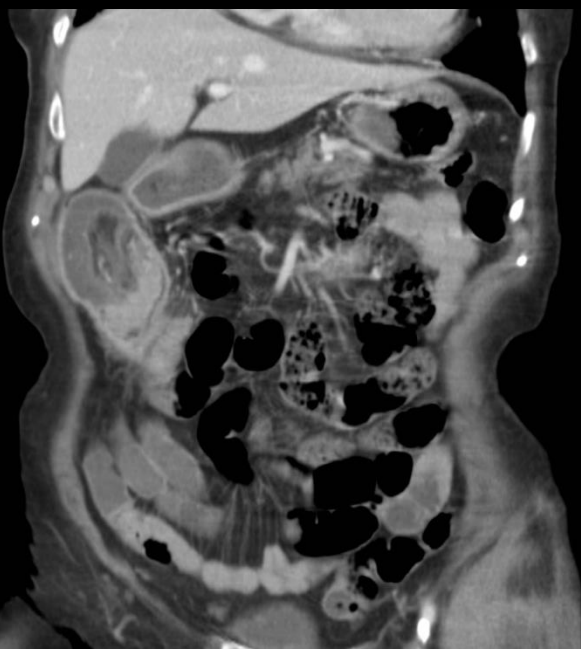
Q16

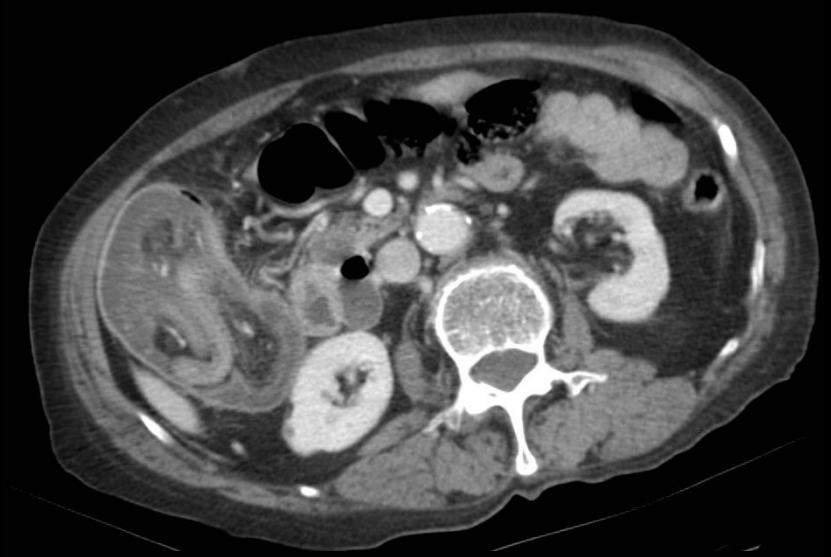
88 y/o woman

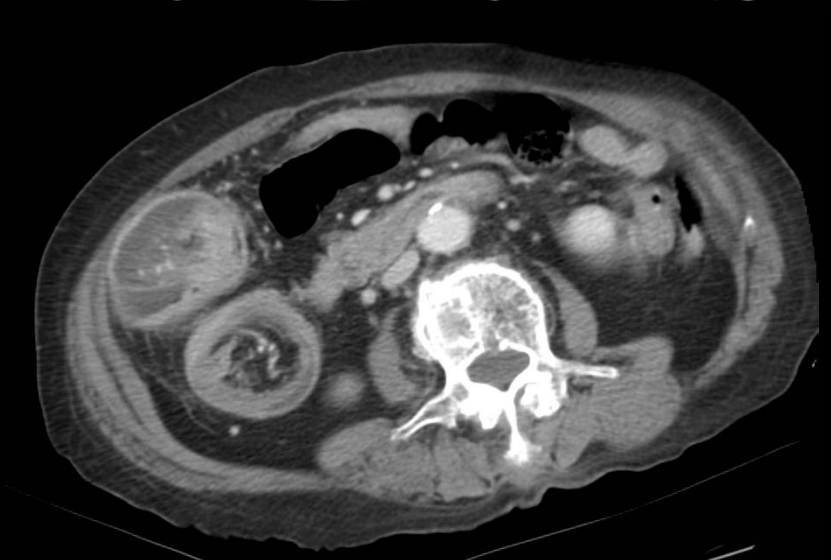
Chronic right upper quadrant pain and passage black stool

What is your diagnosis?



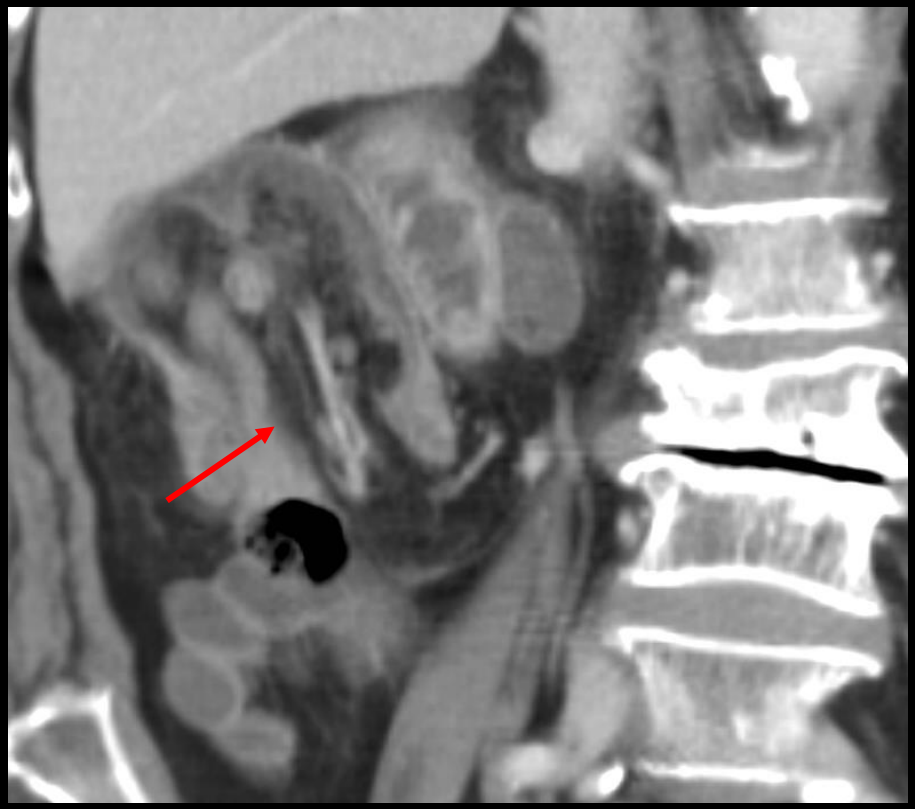


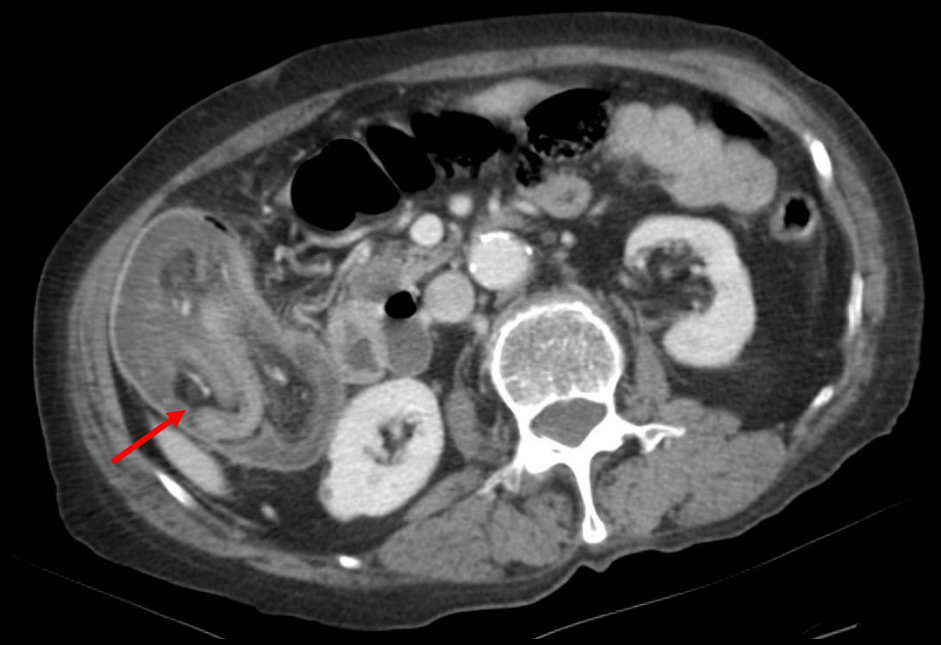




A16

- **Diagnosis:**
  - **Ileocolic intussusception**
  - **Cecum adenocarcinoma**



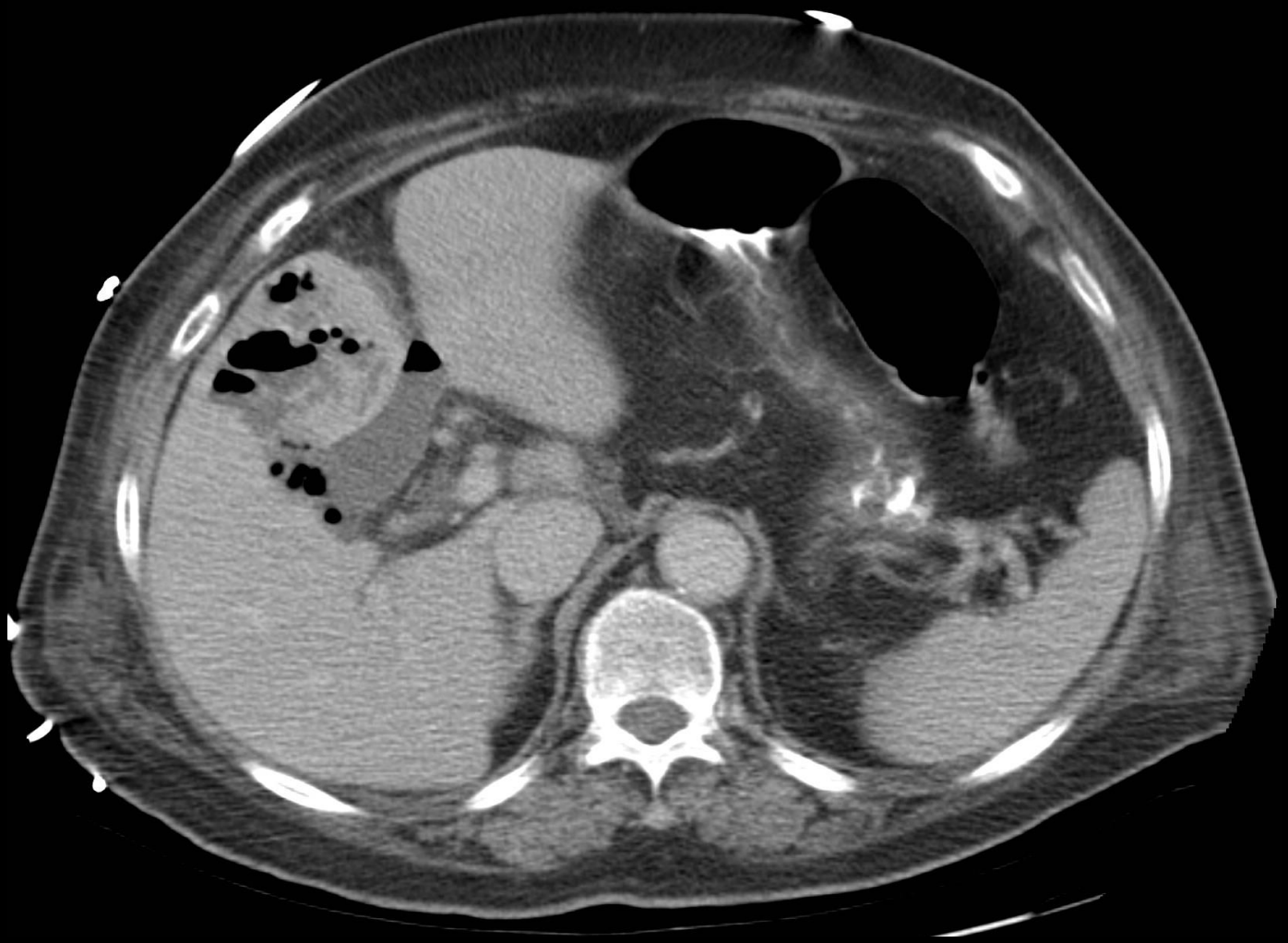


Q17

77 y/o woman

With fever and RUQ pain

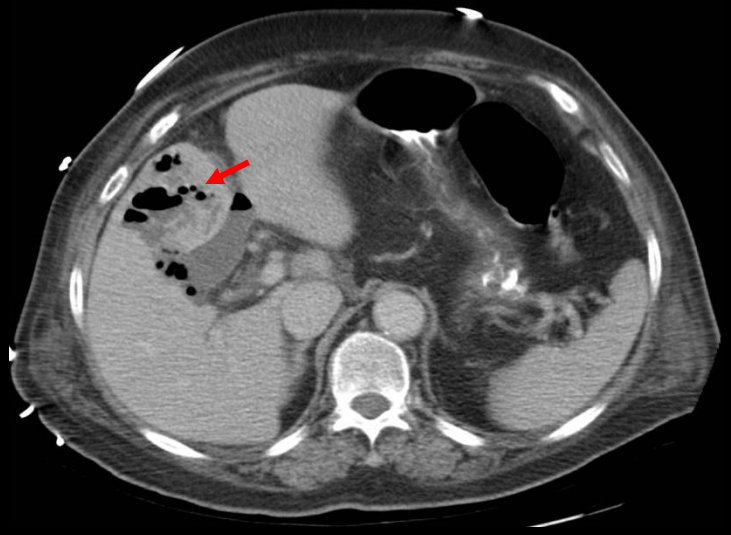
What is your diagnosis?



A17

Diagnosis:
Emphysematous cholecystitis

- Ischemia of gallbladder wall + infection with gas-producing organisms
- *Etiology:* small-vessel disease with cystic artery occlusion, complication of acute cholecystitis
- *Organism:* Clostridium perfringens, Clostridium welchii, E. coli, staphylococcus, streptococcus
- *Age:* >50 years; M:F = 5:1
- *Predisposed:* diabetics (20–50%), debilitating diseases; calculous (70–80%)/acalculous cystic duct obstruction
- Plain film:
  - gas appears 24–48 hours after onset of symptoms
  - air-fluid level in GB lumen, air in GB wall within 24–48 hours after acute episode
  - pneumobilia (rare)



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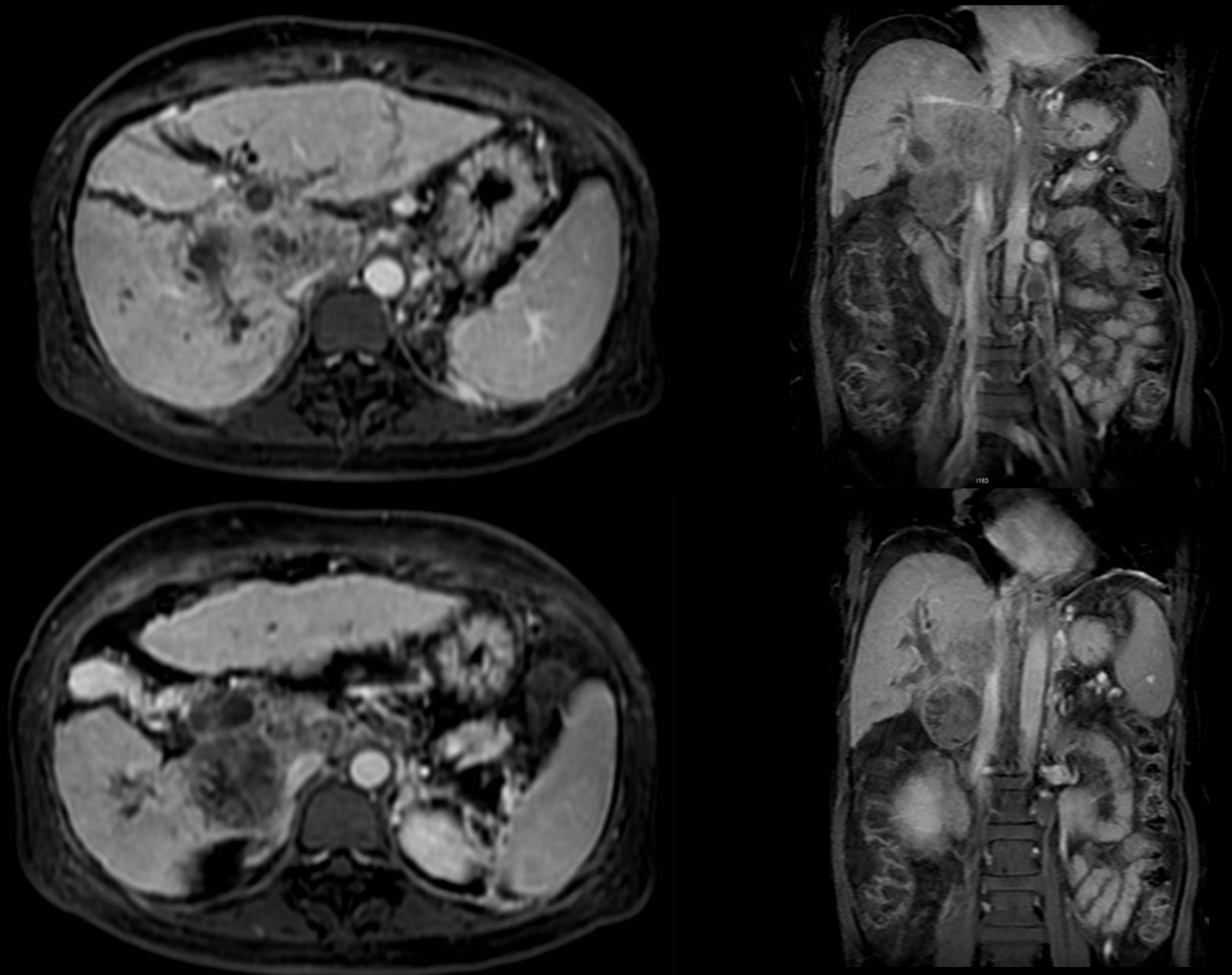
Q18

57 y/o woman

Yellowish skin for 2 weeks

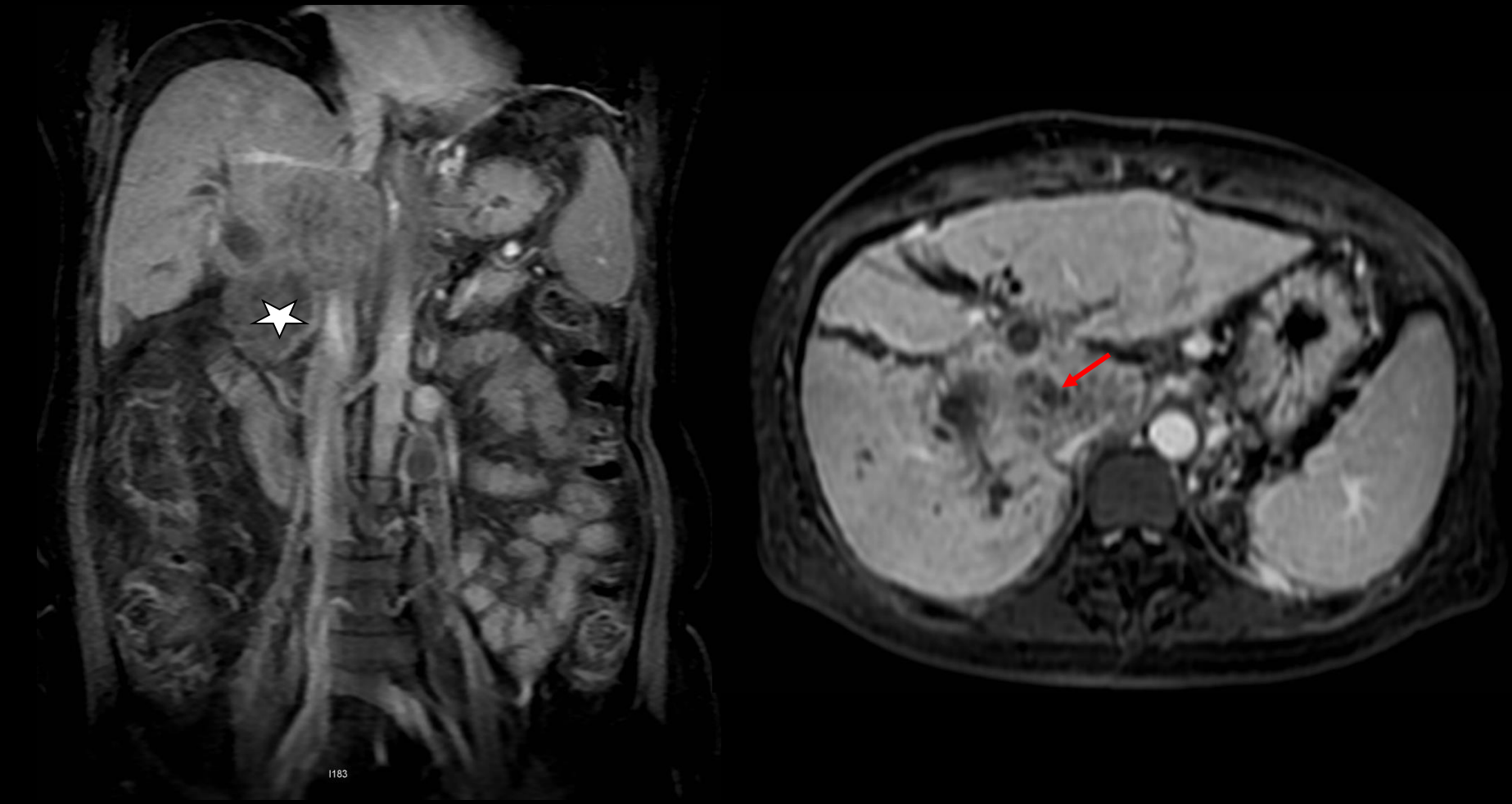
What is your diagnosis?



A18

Diagnosis:

Gallbladder cancer with hepatic and biliary invasion



Discussion

- 6th most common gastrointestinal malignancy (after colon, pancreas, stomach, liver, esophagus); 3% of all intestinal neoplasms;
- Associated with
  - Disorder of gallbladder:
    - Cholelithiasis in 74–92%
    - Gallbladder carcinoma occurs in only 1% of all patients with gallstones!
    - Porcelain gallbladder (in 4–60%): prevalence of gallbladder carcinoma in 10–25% of autopsies
    - Chronic cholecystitis
    - Gallbladder polyp: >2cm
  - Disorder of bile ducts:
    - Primary sclerosing cholangitis
    - Congenital biliary anomalies: cystic dilatation of biliary tree, choledochal cyst, anomalous junction of pancreaticobiliary ducts, low insertion of cystic duct
  - Inflammatory bowel disease (predominantly ulcerative colitis, less common in Crohn disease)
  - Familial polyposis coli
- Direct extension (most common mode): invasion of liver (34–65–89%), duodenum (12–15%), colon (9–15%), pancreas (6%), stomach, bile duct, right kidney, abdominal wall

  Cause: thin GB wall with only a single muscle layer + no substantial lamina propria + perimuscular connective

  tissue continuous with interlobular connective tissue of liver

Radiology Review Manual 6th ed.

- MR
  - hypointense mass on T1WI + ill-defined early contrast enhancement
- CT
  - hypo-/isoattenuating mass in gallbladder fossa:
    - low-attenuation areas of necrosis
    - areas of enhancement (= viable tumor)
  - subtle extension beyond wall of GB
  - invasion of liver with protrusion of anterior surface of medial segment of left lobe
- US:
  - gallbladder replaced by mass with irregular margins + heterogeneous echotexture (tumor necrosis)
  - immobile intraluminal well-defined round/oval mass
  - echogenic foci = coexisting gallstones/wall calcifications/tumoral calcification
  - tumor inseparable from liver

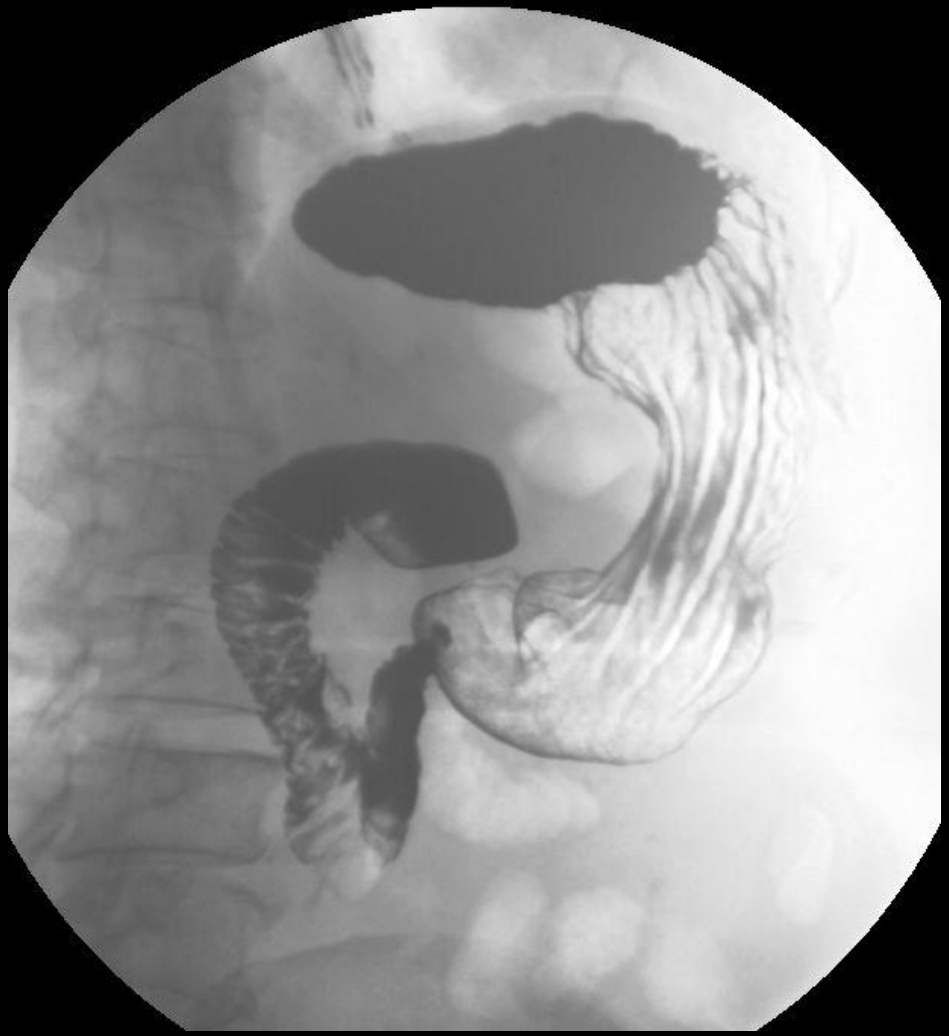
Radiology Review Manual 6th ed.

Q19

72 y/o woman

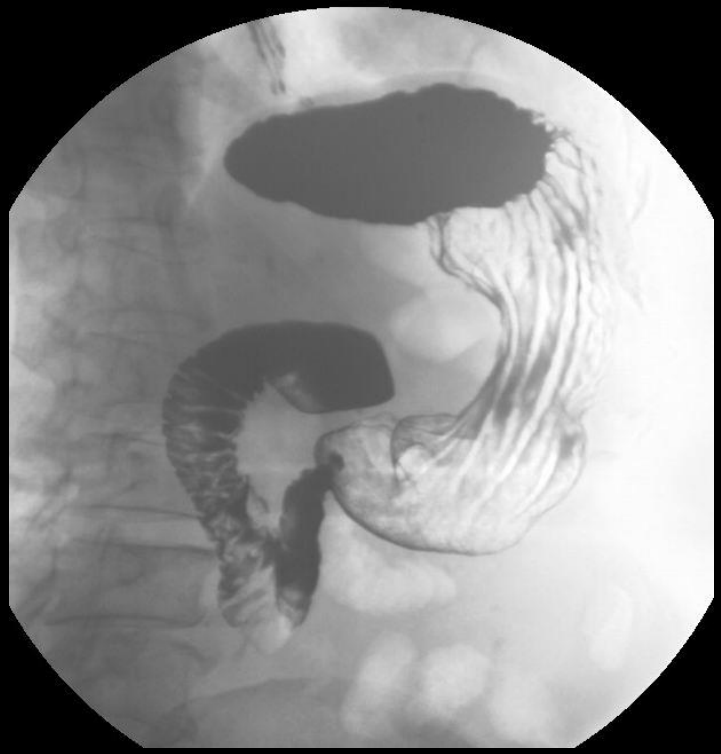
Intermittent dull abdominal pain for days

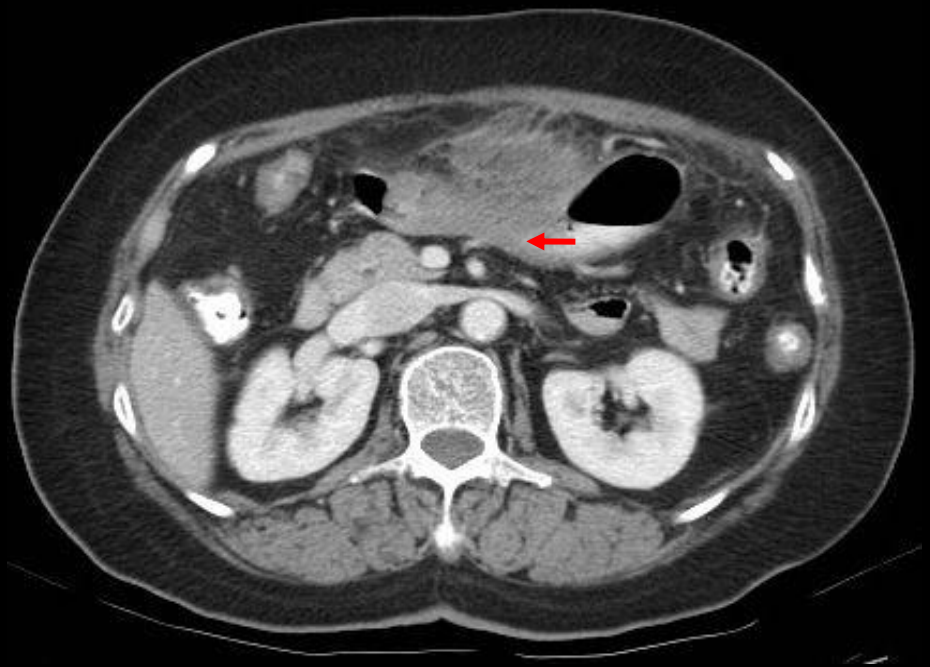
How to describe the lesion?



A19

Diagnosis:
Submucosal lesion (GIST)





Discussion

- Gastrointestinal stromal tumors (GIST) are the most common nonepithelial tumors of the gastrointestinal tracts;
- It is thought to derive from a precursor of the interstitial cells of Cajal, normally present in the myenteric plexus, and are clearly distinct from other mesenchymal tumors, such as leiomyomas or leiomyosarcomas
- Less than 2 cm is considered benign with low risk of recurrence

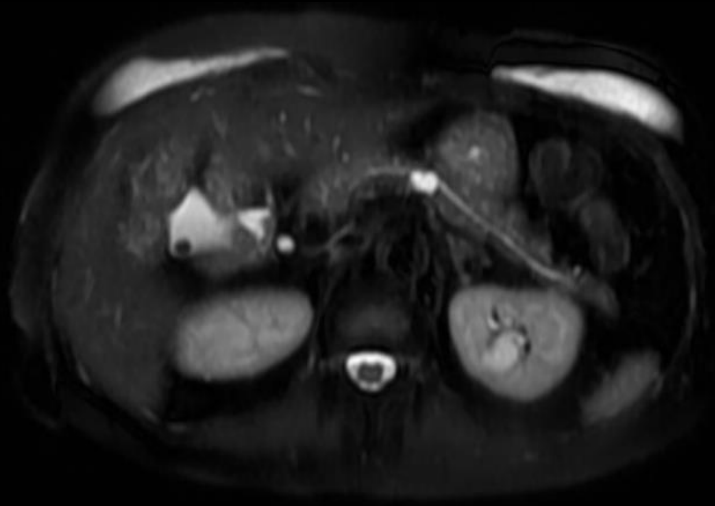
Radiographics 2006;26(2):481-95. Review

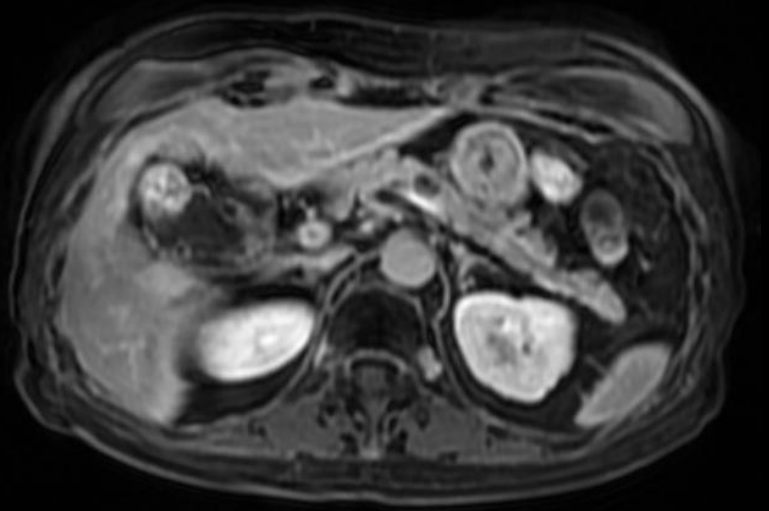
- UGI
  - Intact mucosa, obtuse or right angles with wall
  - Discrete mass with smooth surface
- CT
  - Large with central necrosis and ulceration
  - Hypo or hyper vascular, well-circumscribed submucosal mass with peripheral enhancement

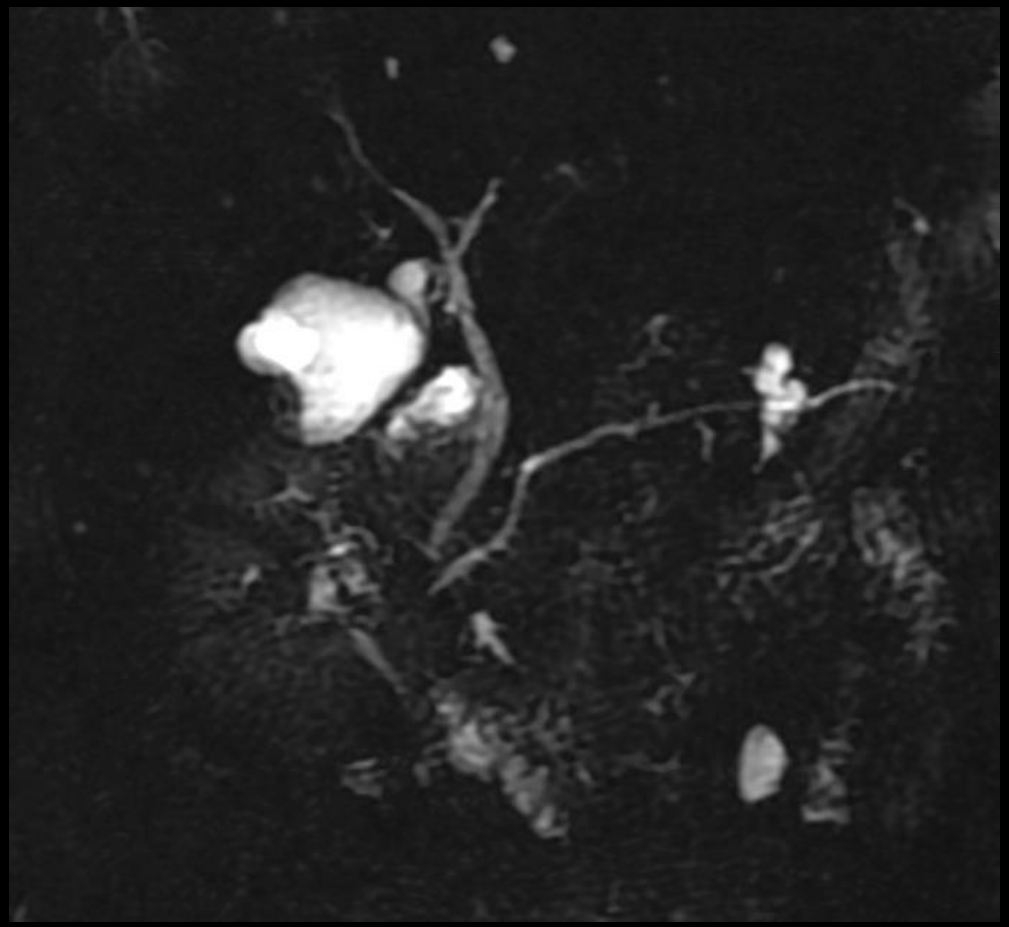
Mike Federle, FACR Diagnostic Imaging: Abdomen 2nd edition

Q20

63y/o Female.
Body weight loss
What is your diagnosis?







A20

Diagnosis:

IPMN (Intraductal Papillary Mucinous Neoplasm) of the pancrease

- Main Duct IPMT
  - 34-75 y/o, M:F=1:1
  - Cyst in pancreatic body/tail + normal remaining pancreatic parenchyma
  - T1-hypointense and T2-hyperintense
  - T2-hypointense filling defect within dilated duct (papillary mural nodule)

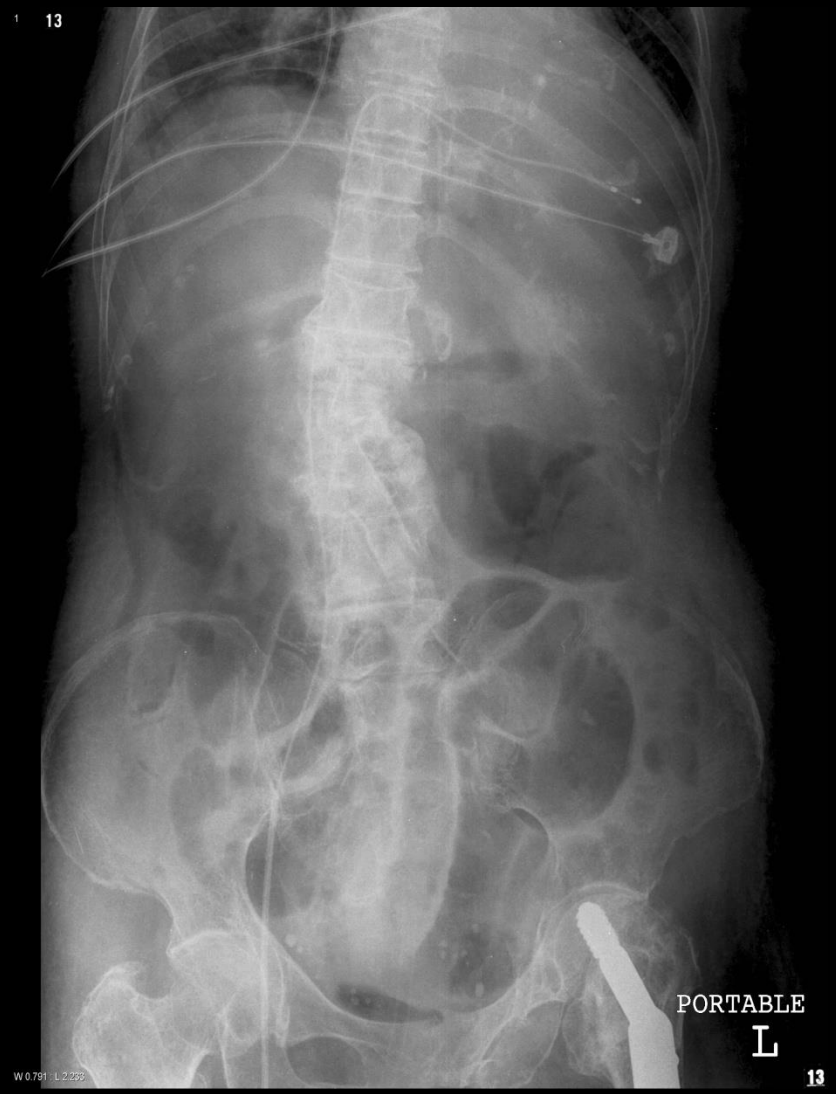
Radiology Review Manual, 5th edition, Lippincott Williams & Wilkins

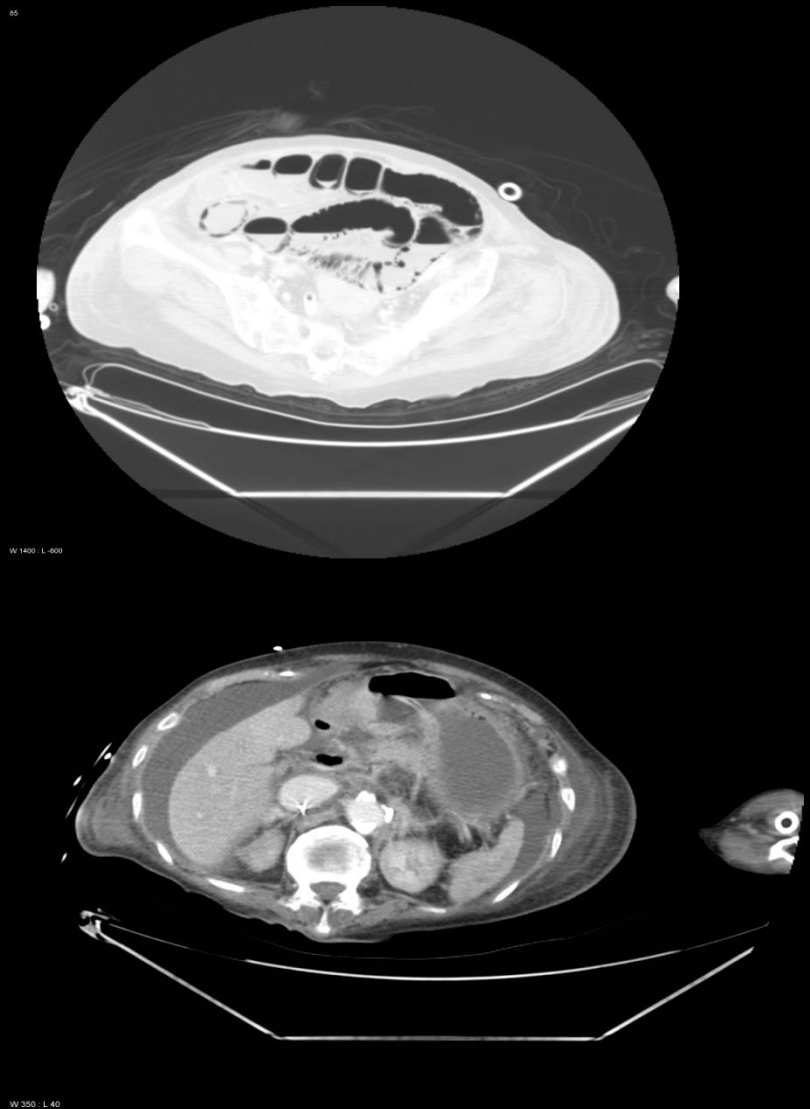
Q21

84 y/o women

Abdominal pain

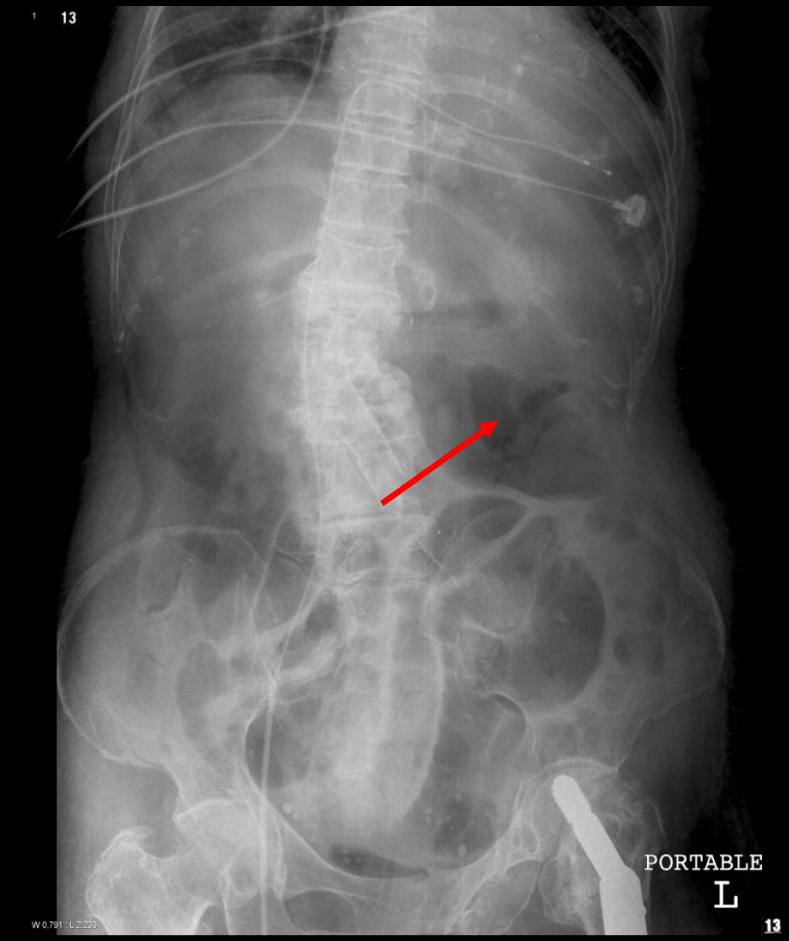
What is your diagnosis?

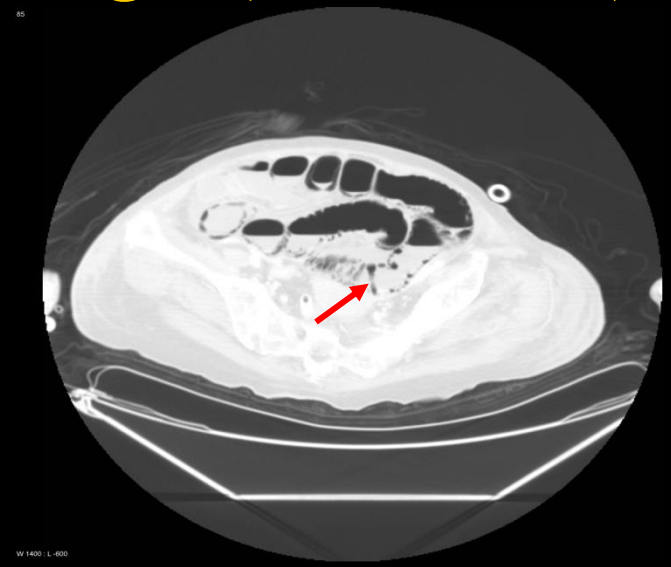


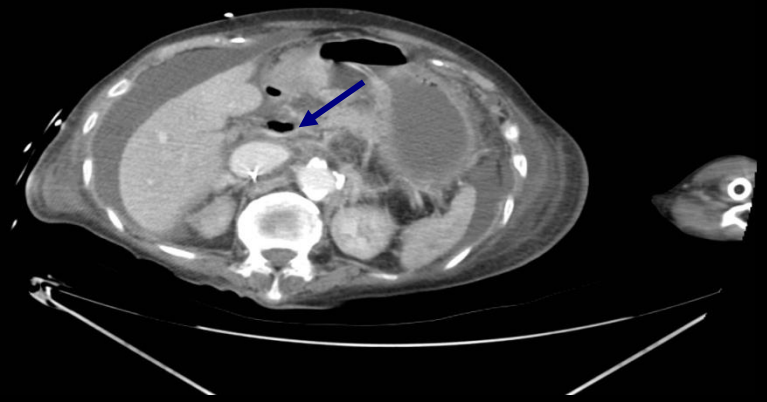


A21

- **Diagnosis:**
  - **Ischemic bowel**
  - **Pneumatosis intestinalis (Red arrow)**
  - **Portal venous gas (Blue arrow)**



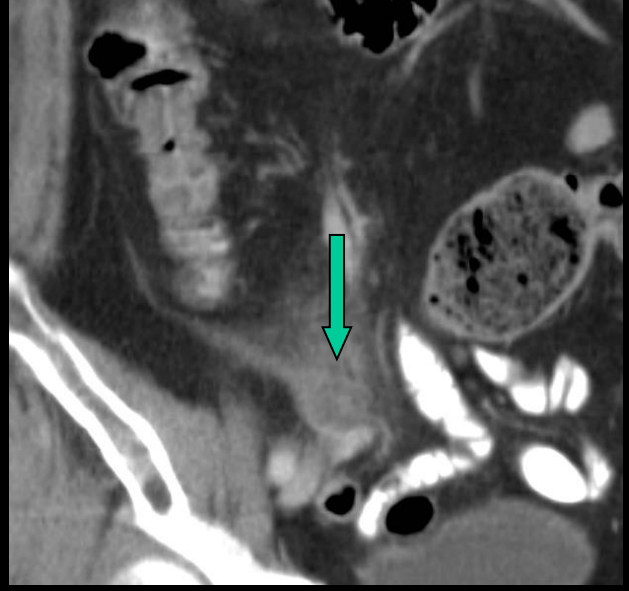


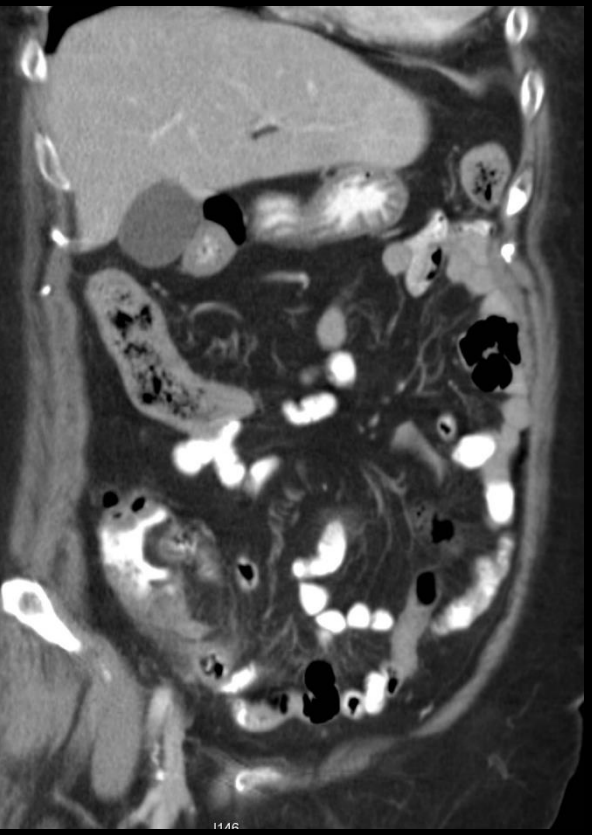


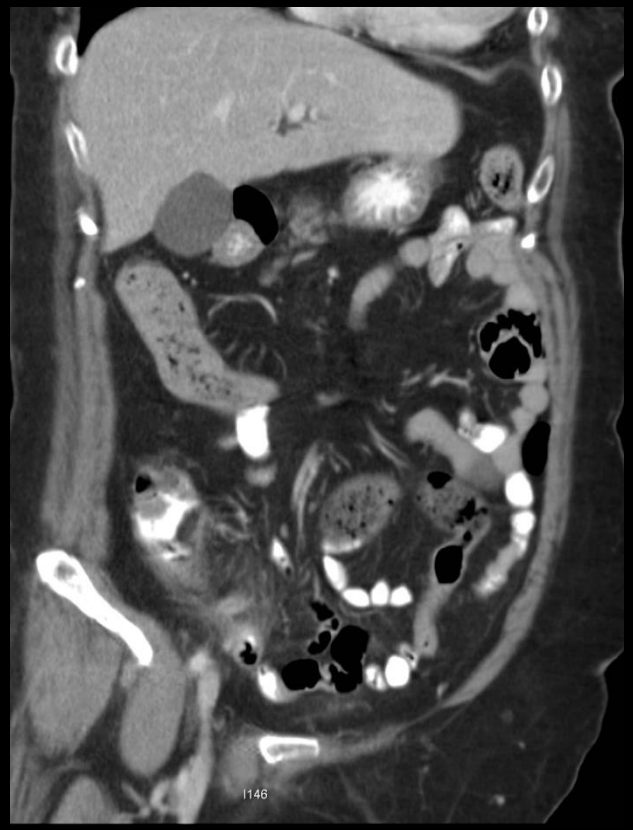
Q22

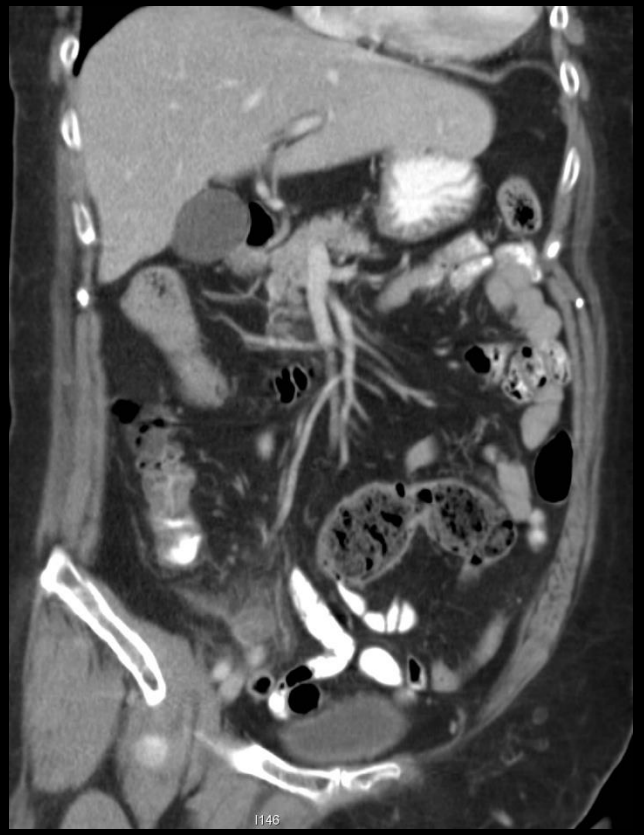
69 y/o Female. RLQ pain

What is your diagnosis?









A22

Diagnosis:
Mucinous adenocarcinoma of appendix

- Unlike mucinous adenomas, the majority of mucinous adenocarcinomas produce symptoms that lead to their eventual diagnosis.
- The imaging diagnosis of mucinous neoplasms hinges primarily on detection of the resulting mucocele.
- The anatomic relationship between the elongated cystic mass and the cecum is usually more apparent at CT than at US, and CT is more sensitive than radiography in detecting mural calcification.

RadioGraphics 2003; 23: 645-662.

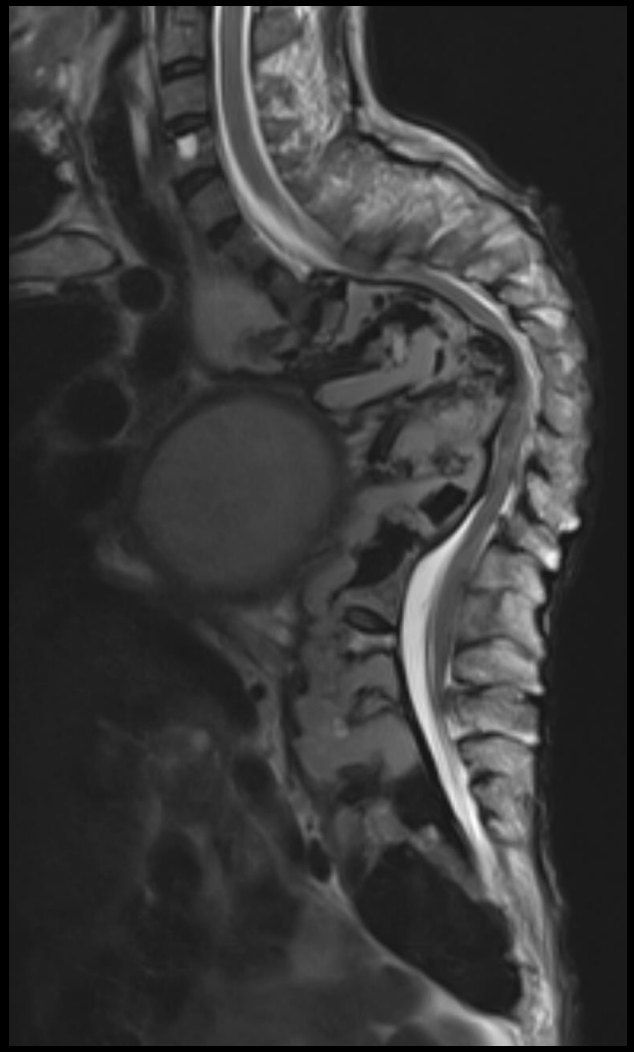
Q23-1

57 y/o female

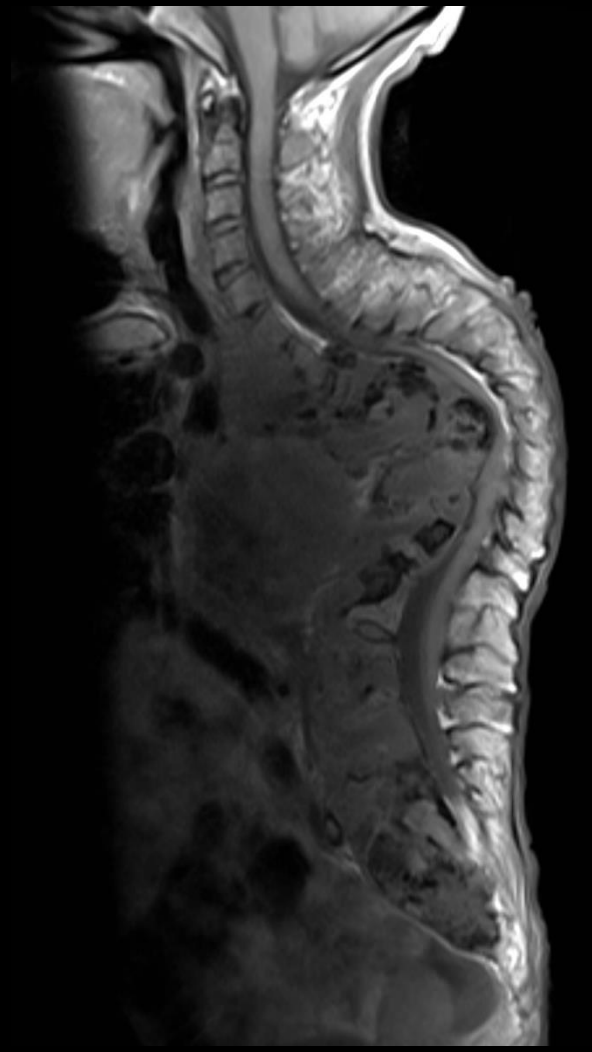
1.What is your diagnosis?

2.What kind of deformity of the spine?

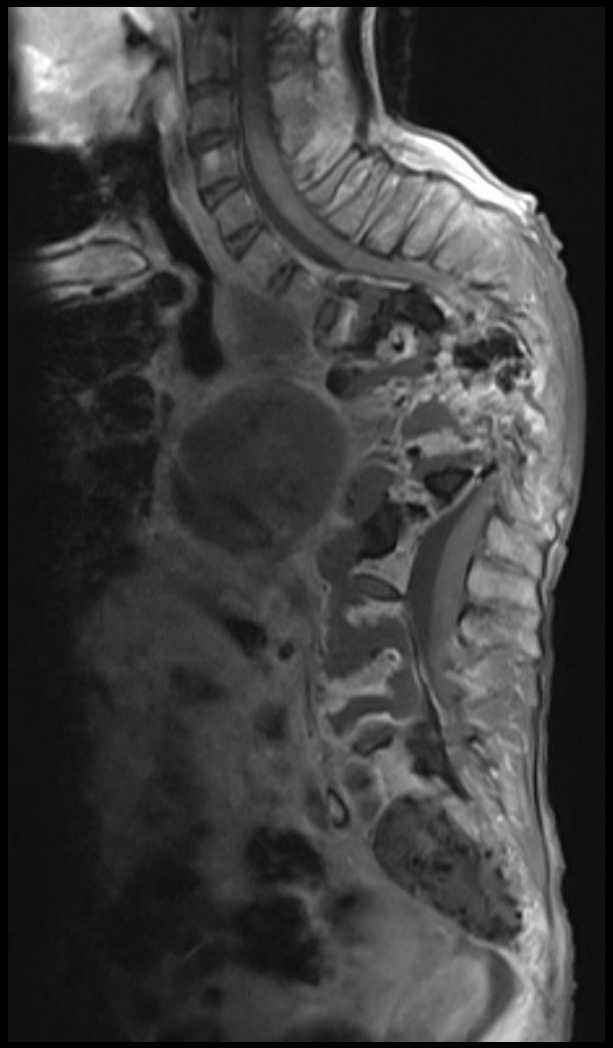
本題有2張影像，每張一分鐘。



T2



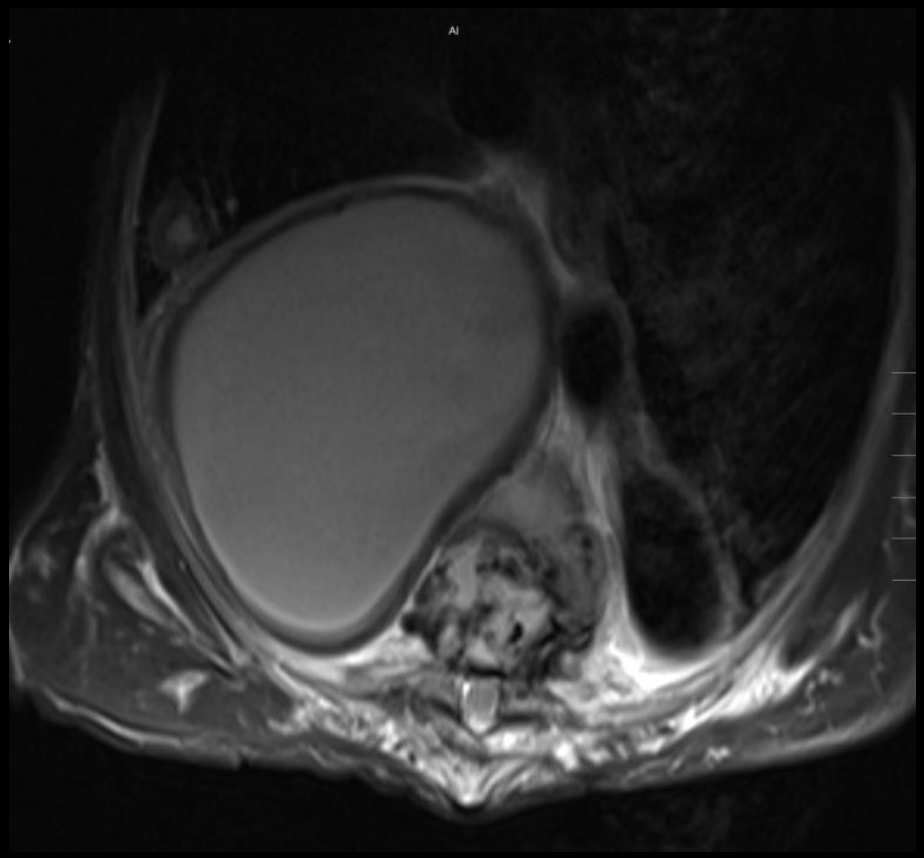
T1



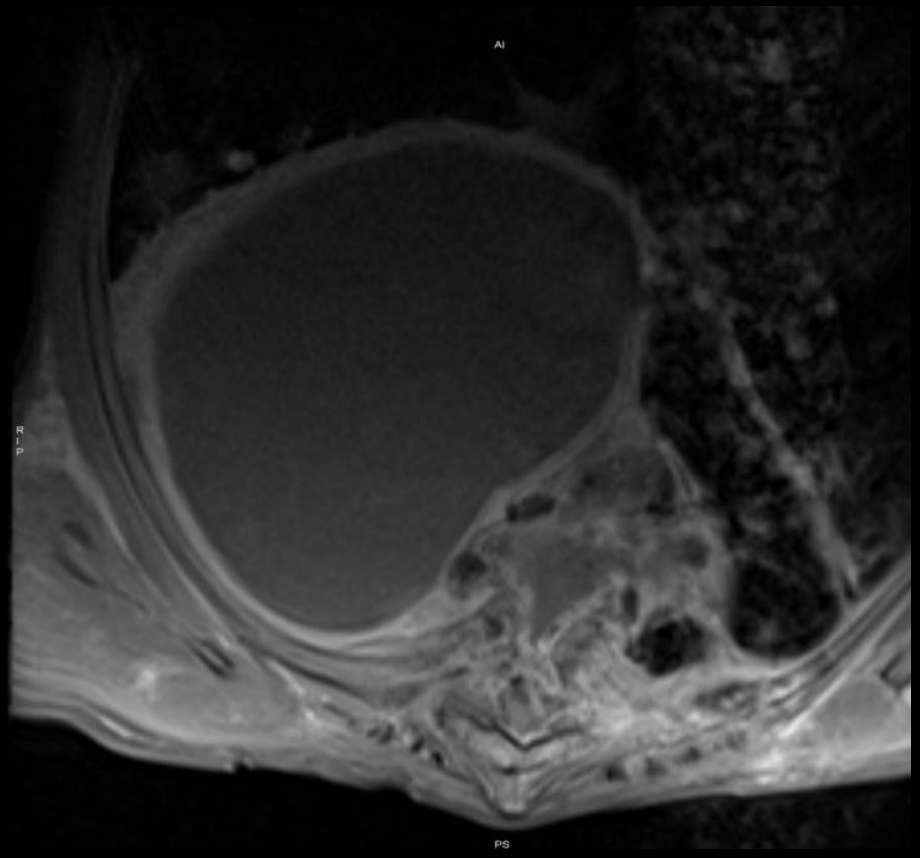
T1+ C fs

Q23-2

1.What is your diagnosis?
2.What kind of deformity of the spine?



T2



T1+C

A23

1. TB spine

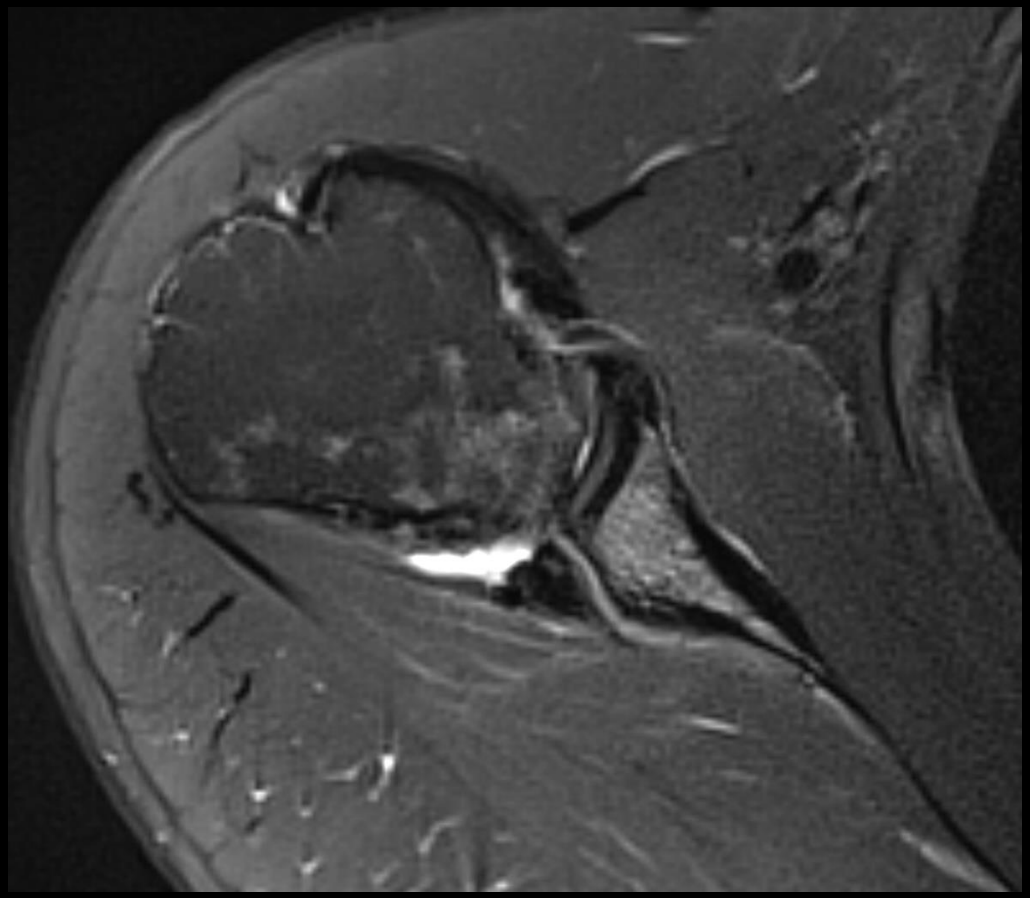
2. Gibbus deformity

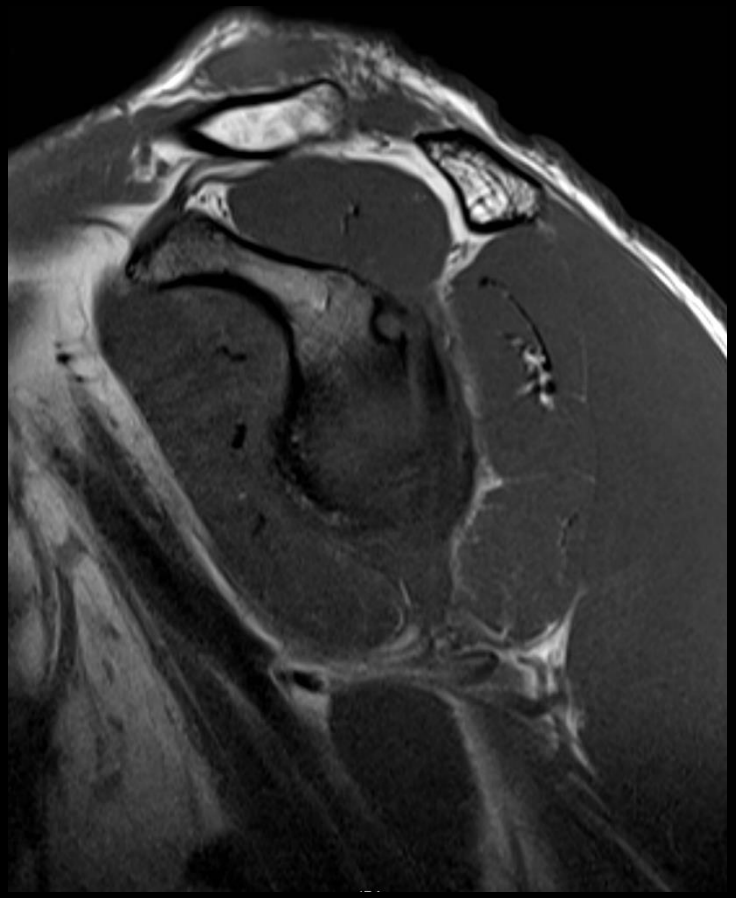
TB spine

- The spine is most frequent site of osseous involvement in patients with TB spine.
- Begins in the **anterior part of the vertebral body** adjacent to either the superior or inferior end plates.
- Spreads to involve the adjoining disk spaces by extension beneath ALL and PLL, or penetration of the subchondral bone plate.
- With progression of disease, there is development of progressive vertebral collapse with anterior wedging leading to the characteristic **angulation and gibbus formation**.

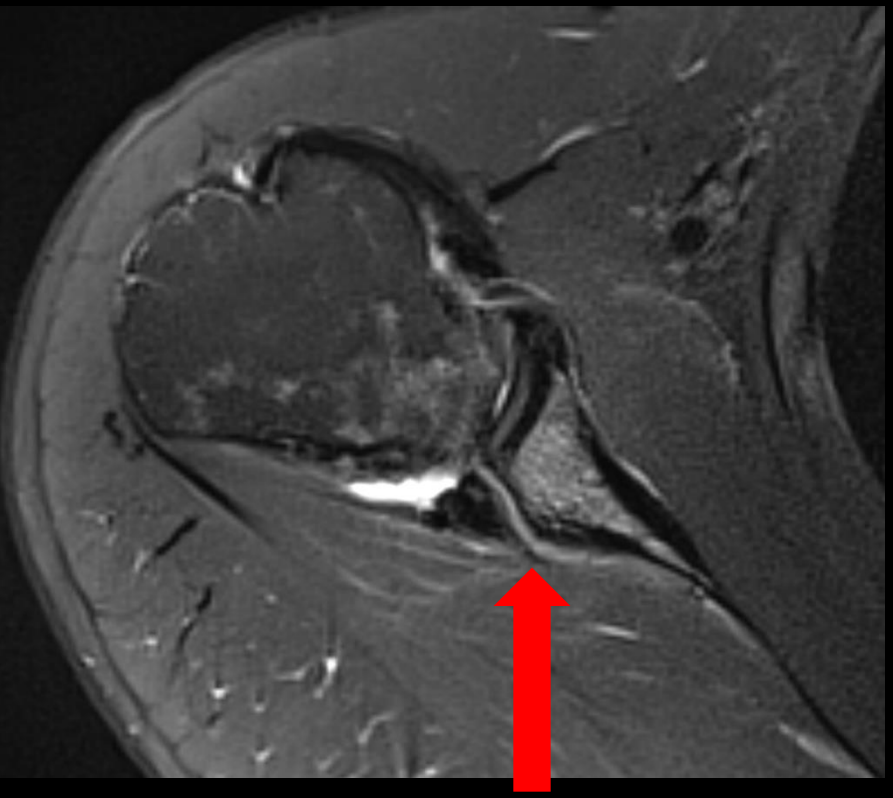
Q24

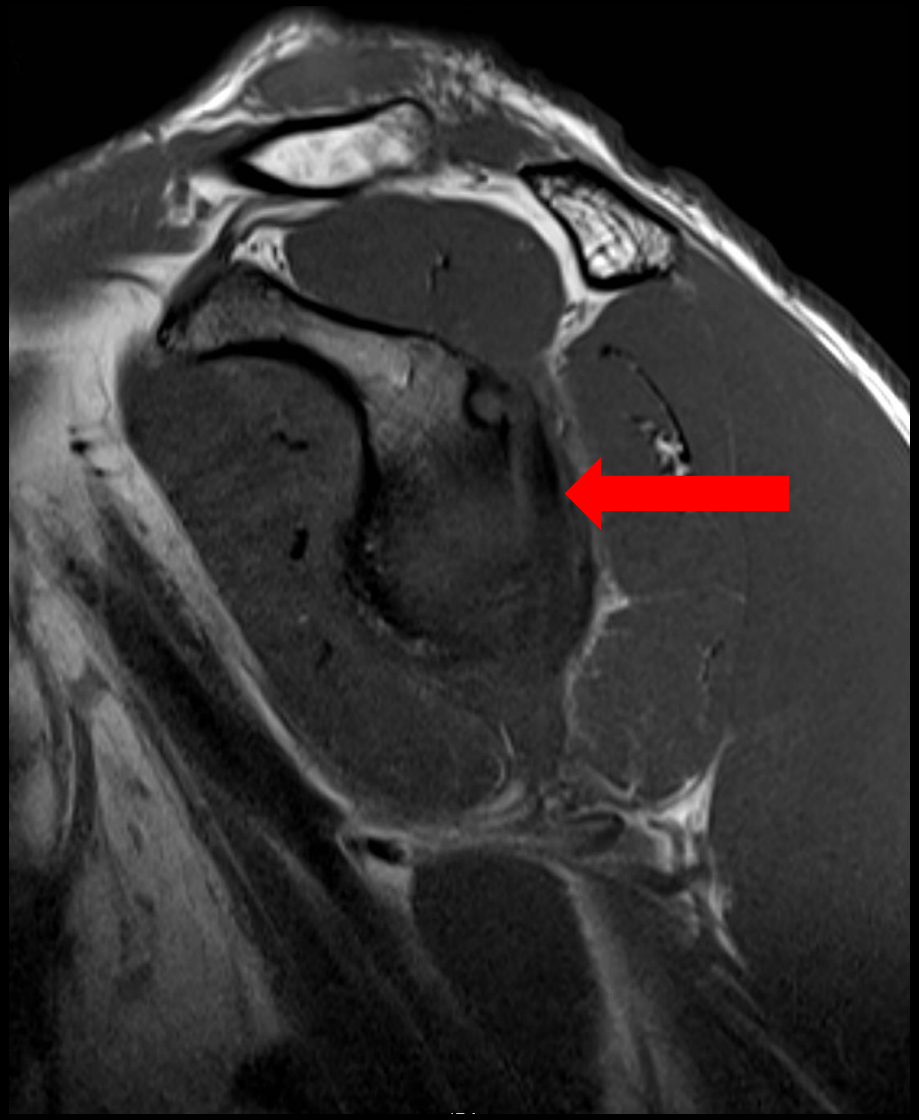
38 y/o Male
Limited range of motion
What is your diagnosis?





A24





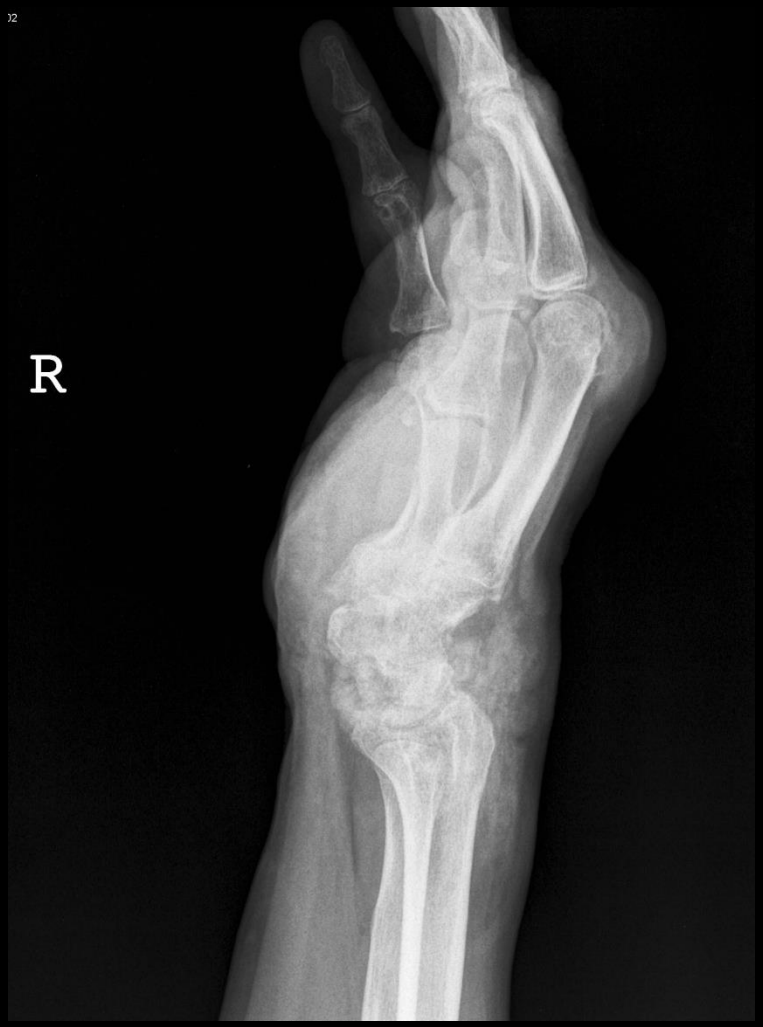
Diagnosis:
Reverse Bankart lesion

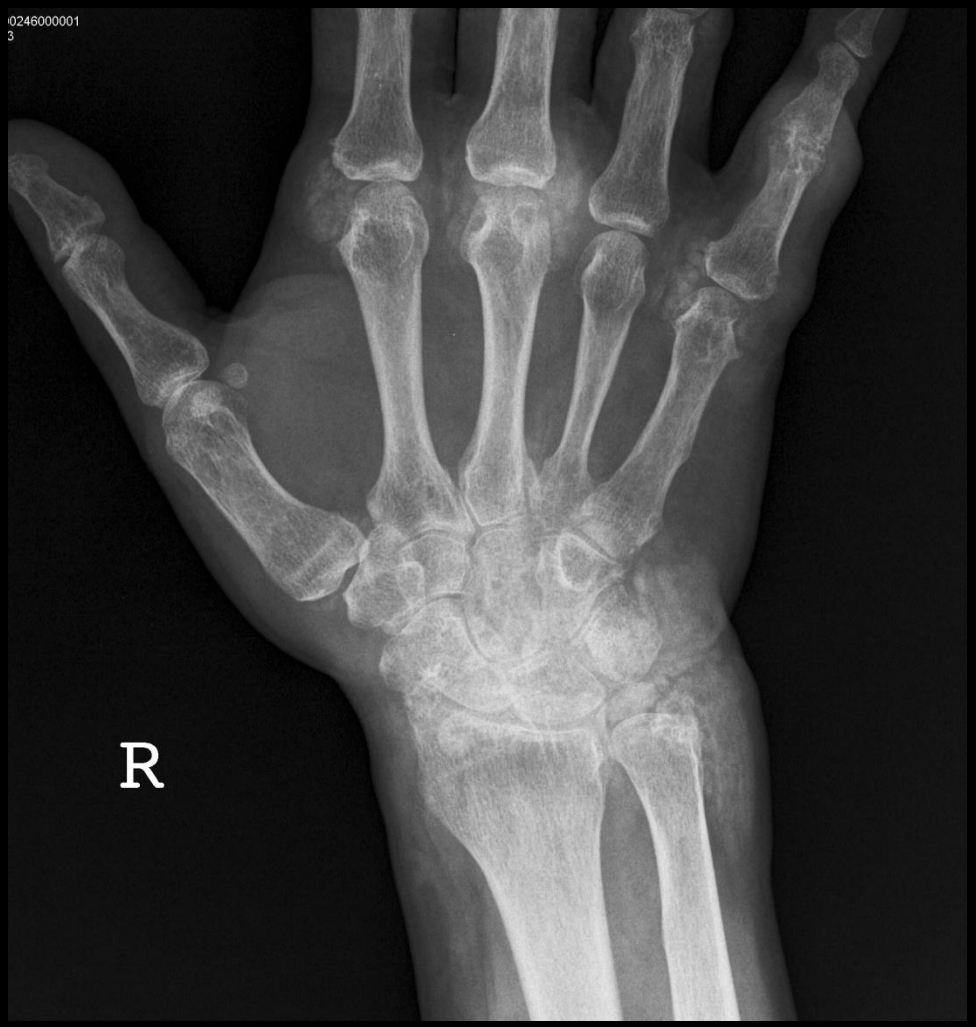
- Posterior labral/capsular/glenoid rim injury secondary to posterior dislocation/subluxation.
- Best diagnostic clue: Tornldetached posterior posterior and result in posterior labral tear glenohumeral ligamentllabrum from underlying glenoid, +/- fracture of glenoid.
- Posterior force on flexed, adducted internally rotated shoulder.

Q25

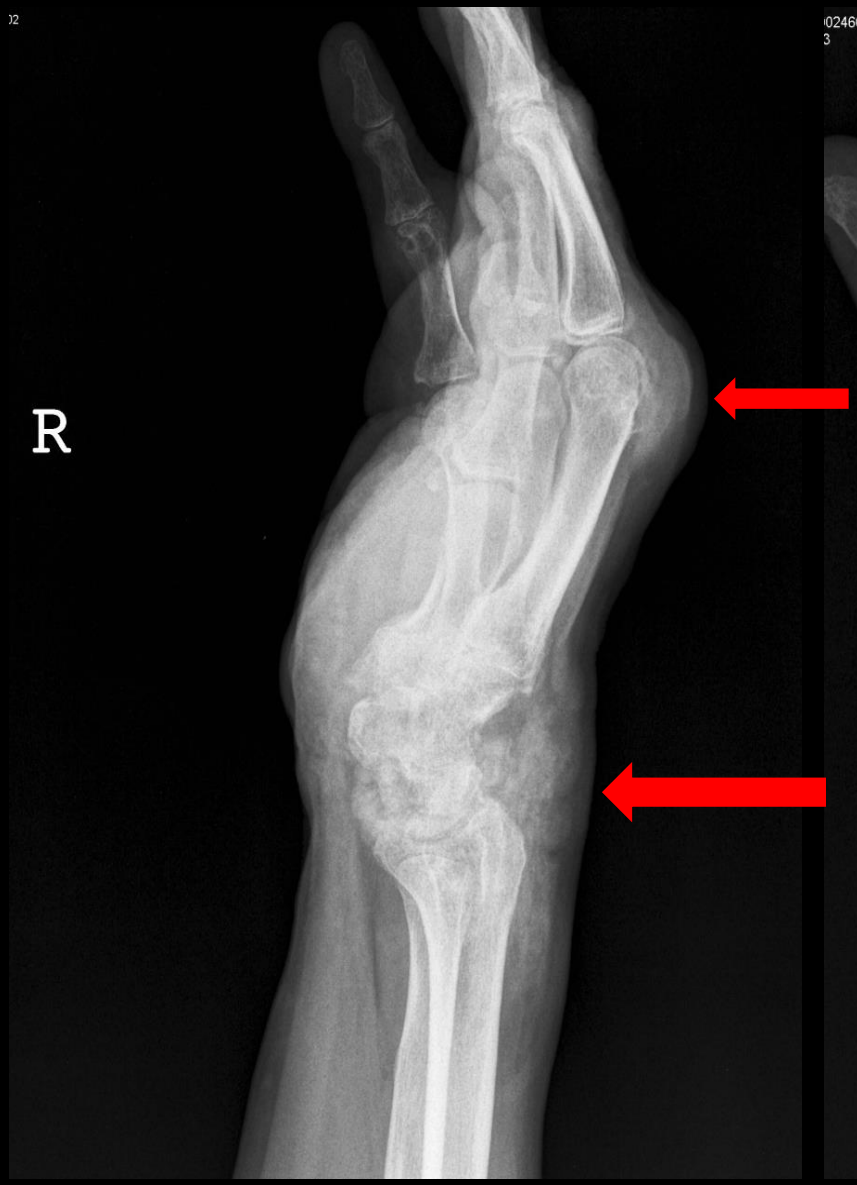
54 y/o Male

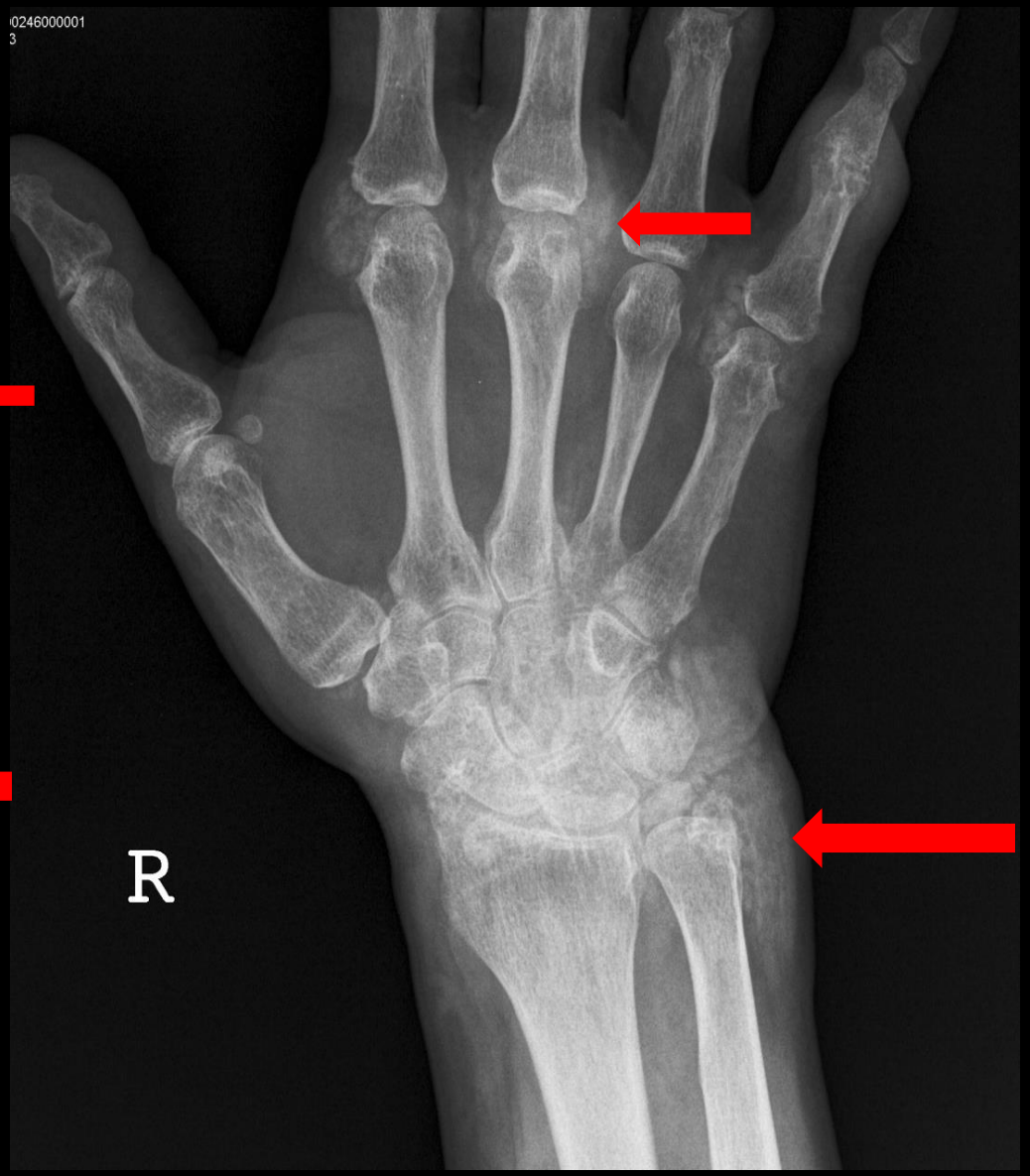
What is your diagnosis?





A25





Diagnosis:
Gouty arthritis

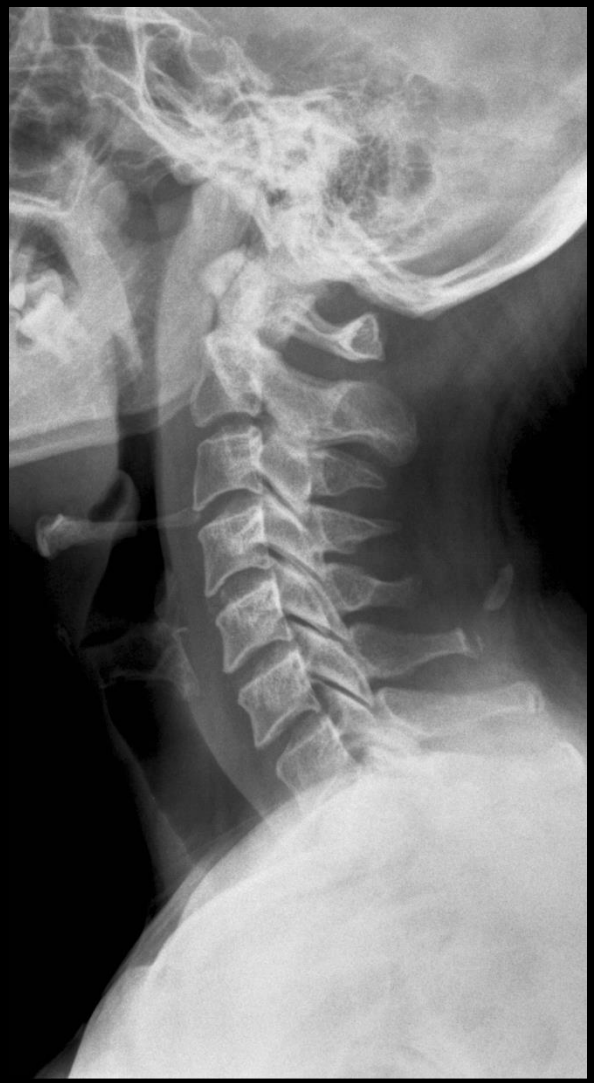
- Gouty arthritis is caused by monosodium urate crystals
- The erosions are characteristic, frequently near a joint but not specifically marginal with sclerotic margins and a punched-out appearance .
- Periarticular osteopenia is also absent.
- Presence of marked soft-tissue swelling from gouty tophus deposition.
- Calcification of such tophi is uncommon in the absence of coexisting renal disease.
- The most common site, the first metatarsophalangeal joint of the foot. Other joints, such as the interphalangeal joints of the hands and feet are not uncommon.

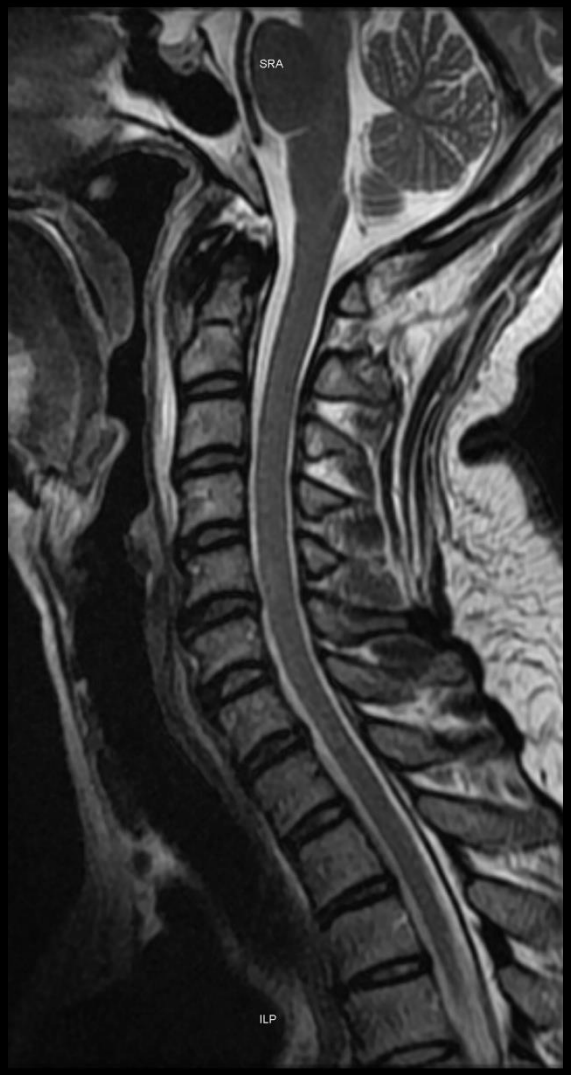
Q26

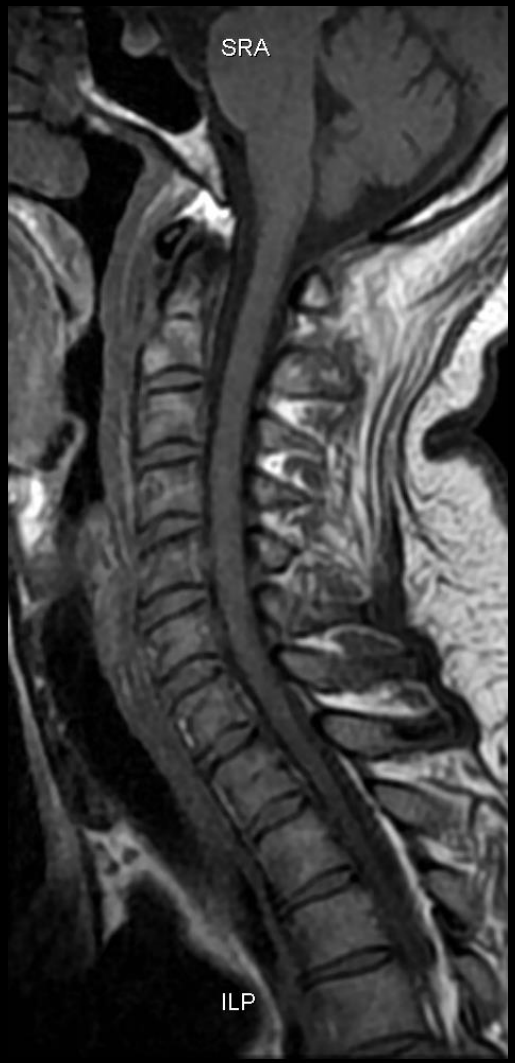
41 y/o Female

Neck stiffiness for several days.

What is your diagnosis?

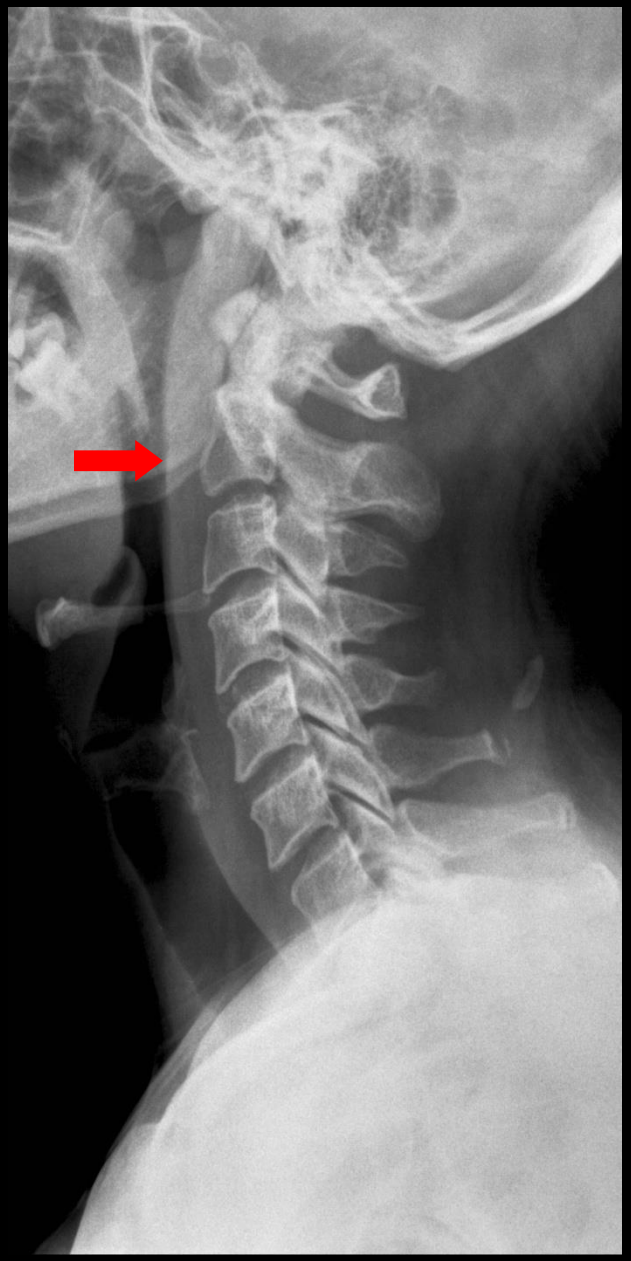


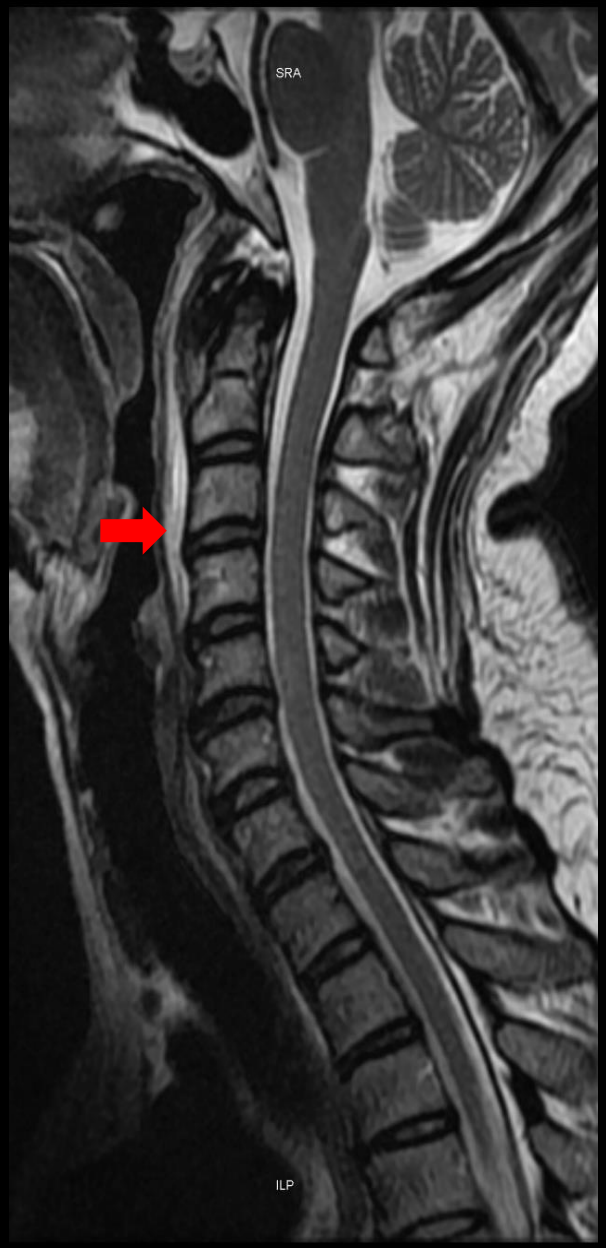


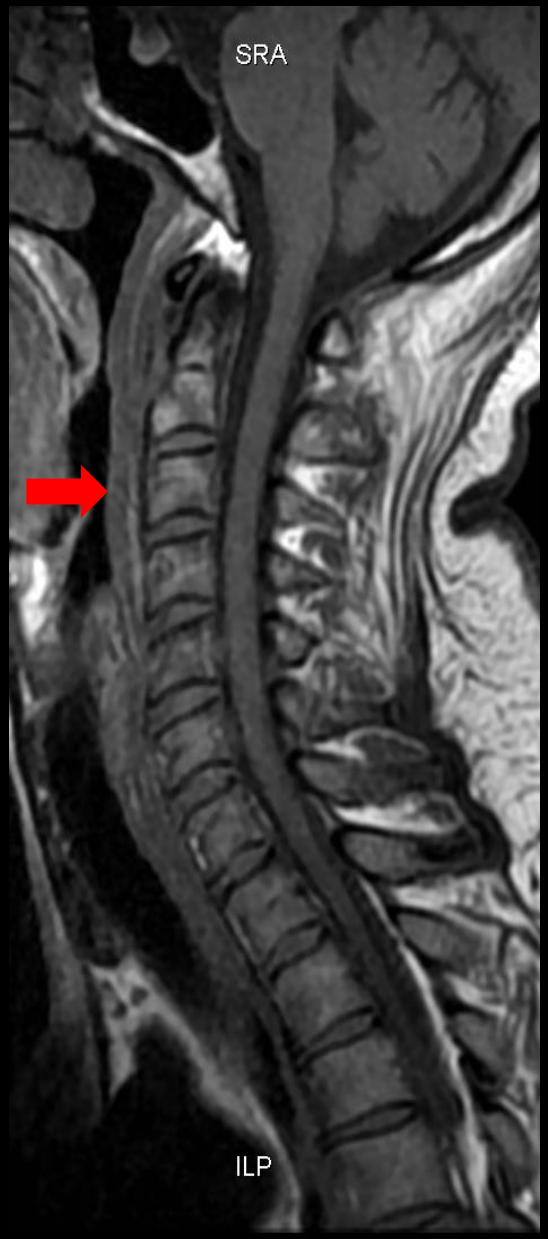


A26

Diagnosis: Inflammtory change at retropharyngeal space



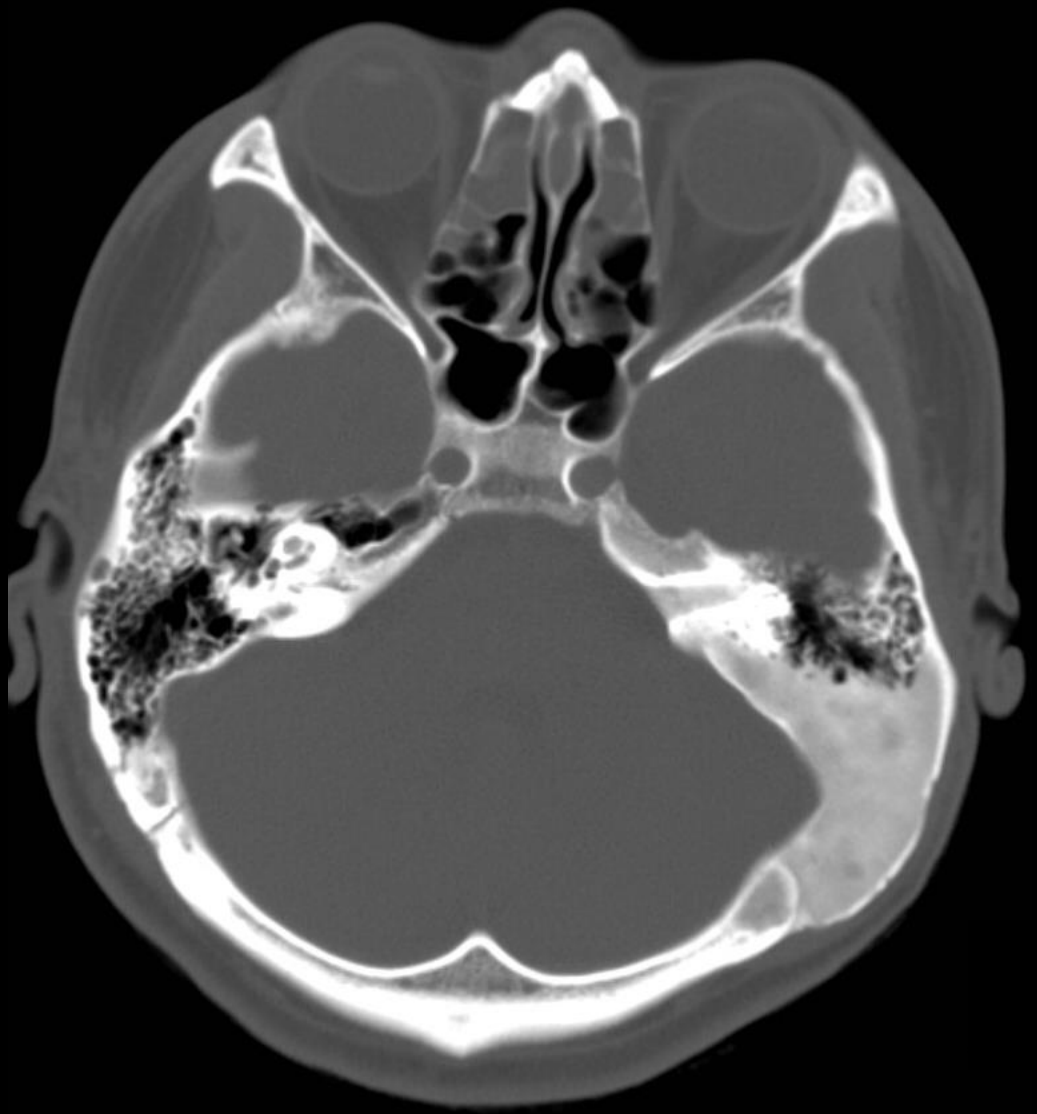

SRA
ILP


SRA
ILP

Q27

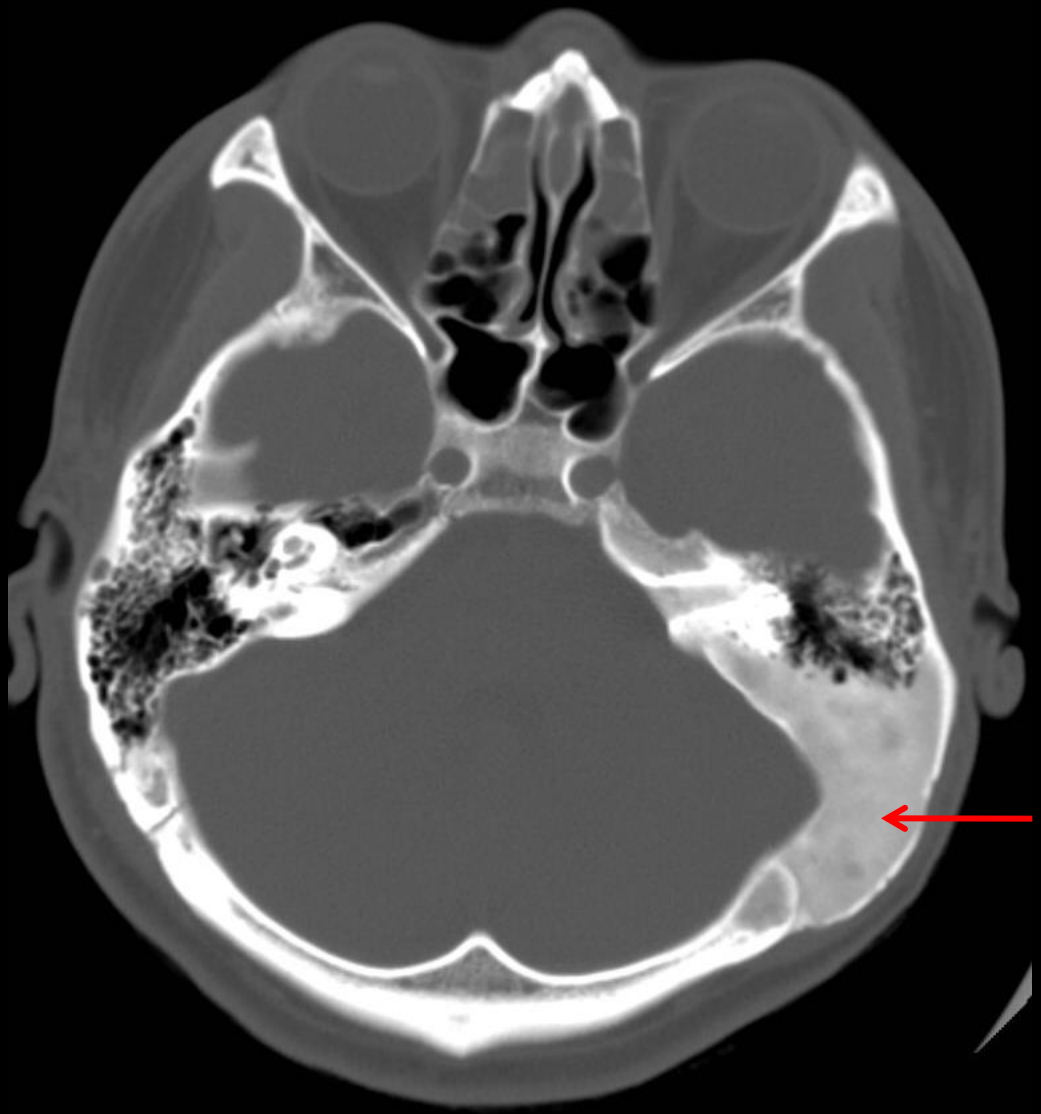
18 y/o Male
Concussion.

What is your diagnosis?



A27

Diagnosis:
Fibrous Dysplasia



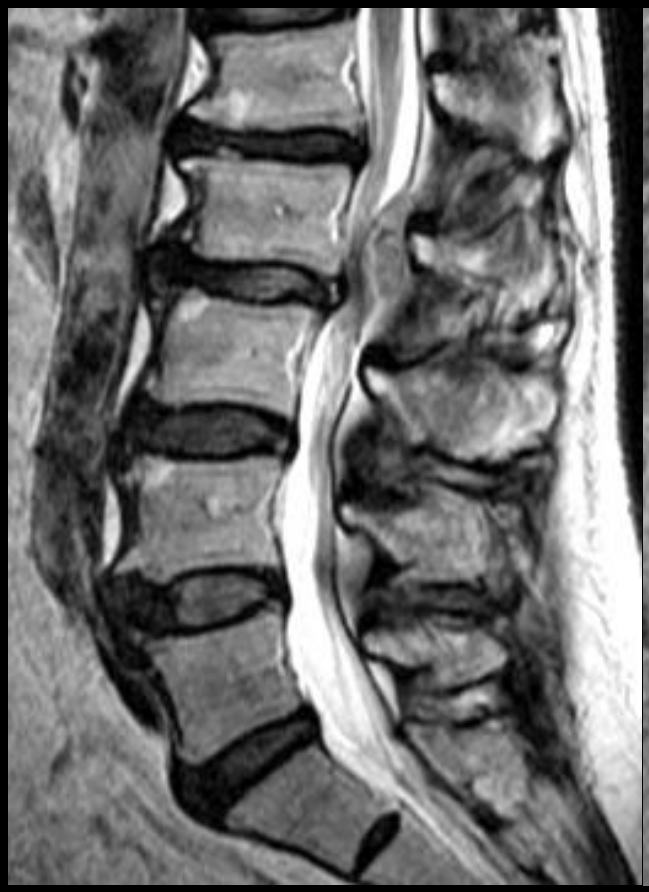
Discussion

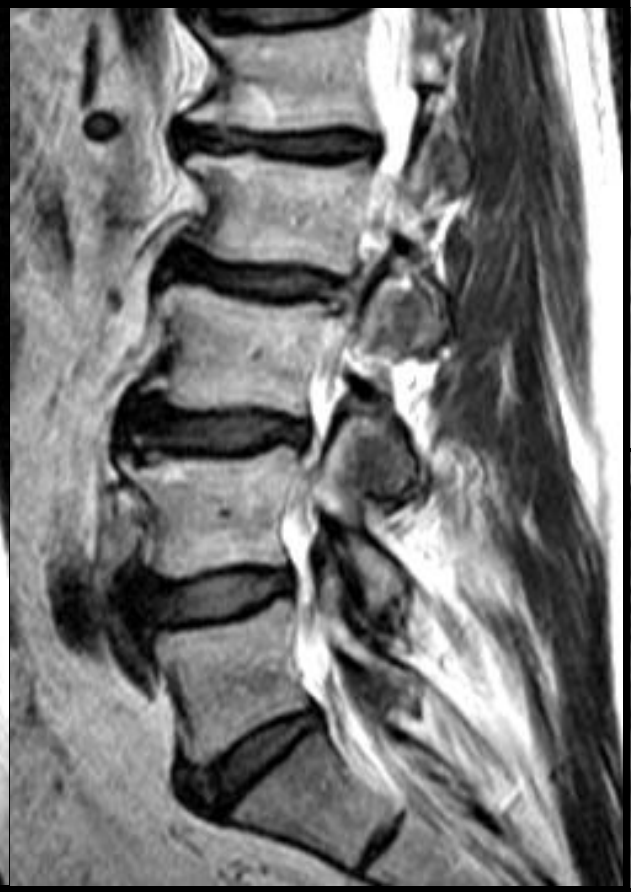
- Congenital disarder characterized by expanding lesions with mixture ffibrous tissue and woven bone
- McCune·Albright syndrome (MAS): One of the most common FD syndromes
- Defect in osteoblastic differentiation and maturatian.
- "Ground glass" appearance on PF or CT and homogeneously decreased signal on T2WI characteristic.
- Most common signs/symptoms: Painless swelling or deformity.

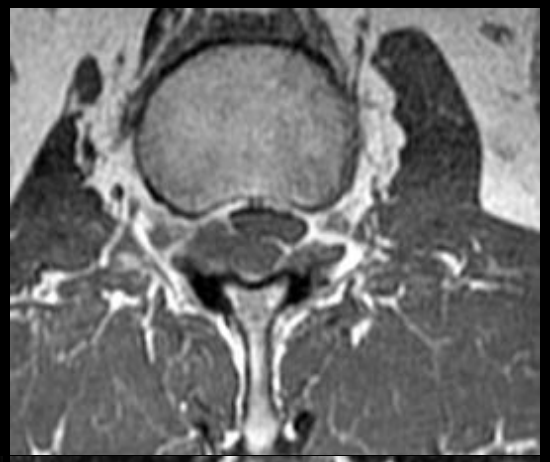
Q28

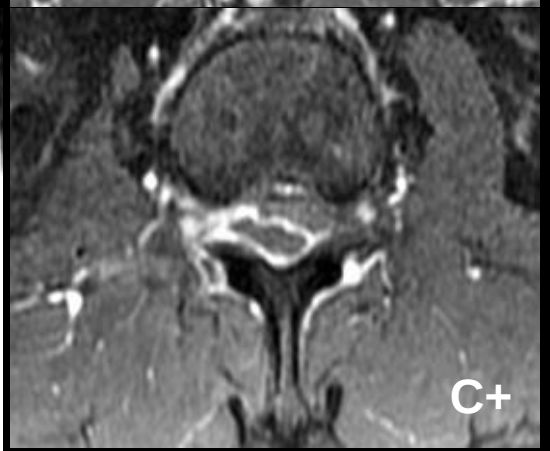
75 y/o man
suffered from progressive pain in his both thighs when standing straight for the past 2 weeks.

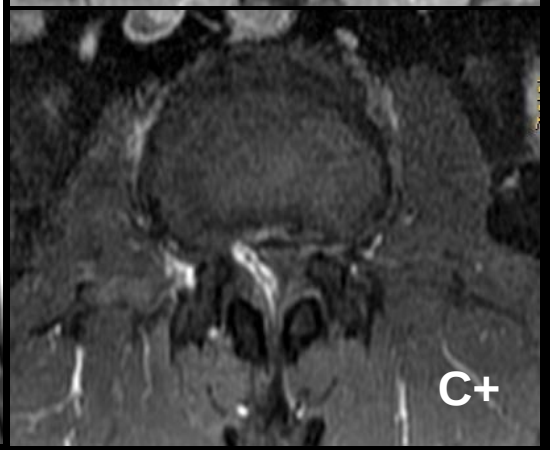
What is your diagnosis?





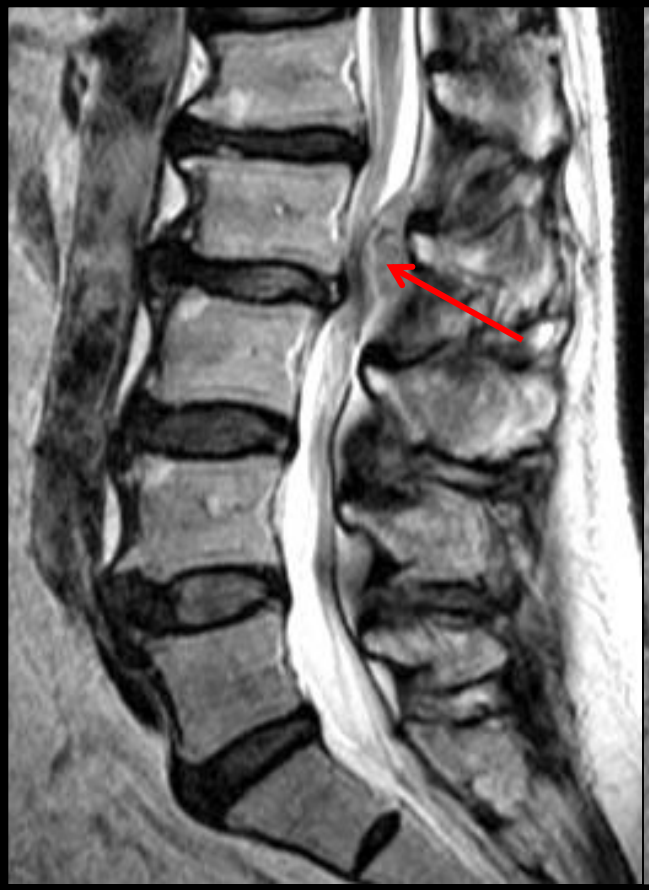


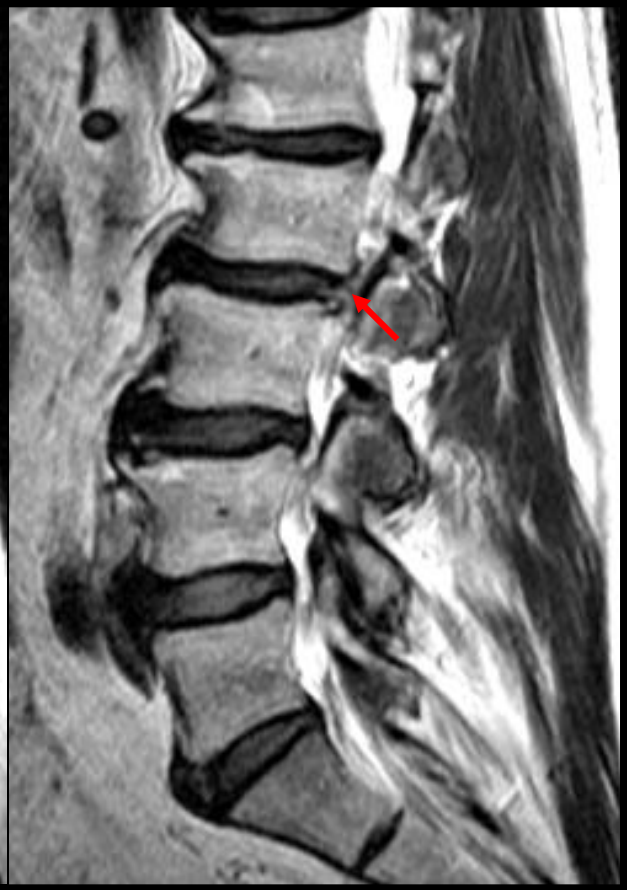


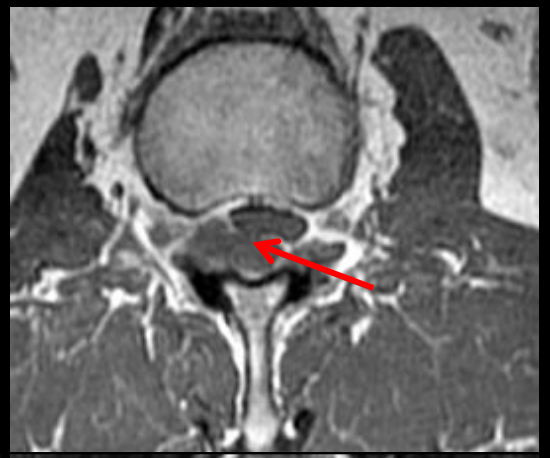


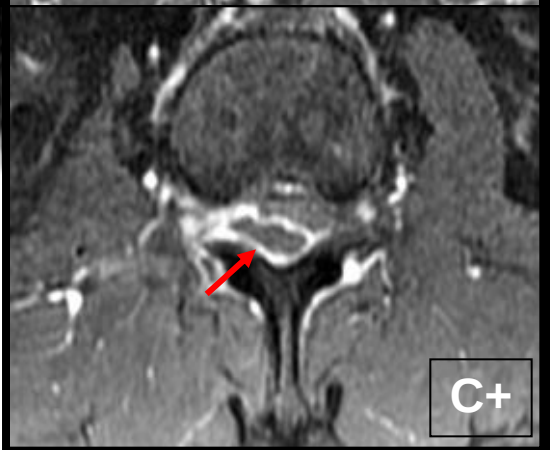
A28

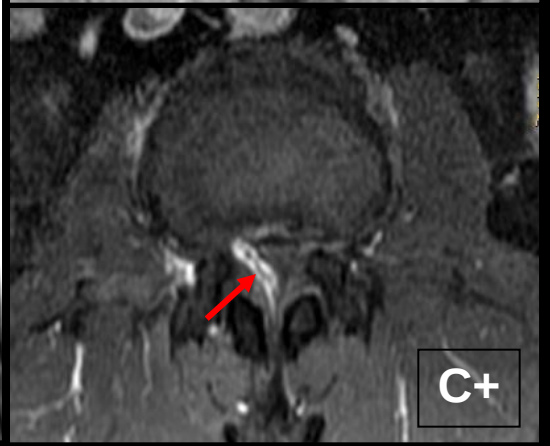
Diagnosis: Sequestrated disc with a posterior epidural migrating fragment








C+


C+

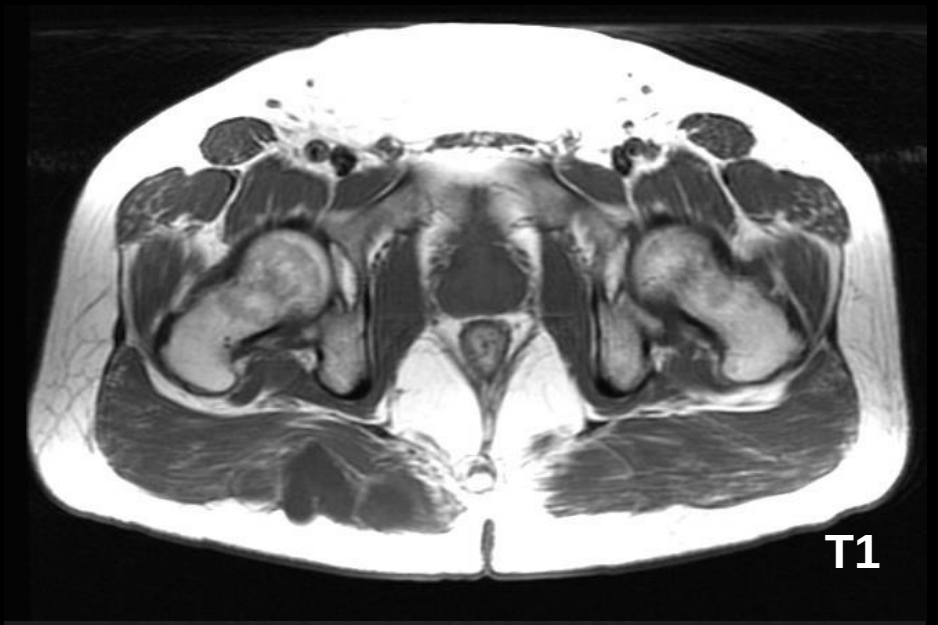
- **Findings:**
- At L2-3, a right posterior epidural mass lesion exhibited an isointense signal relative to the intervertebral disc on both T1- and T2-weighted images, and having a rim enhancement on gadolinium-enhanced T1-weighted images. A disrupted outermost annulus (red arrow) of the adjacent disc and a tract-like enhancement (yellow arrow) leading to the right posterior epidural space were noted.

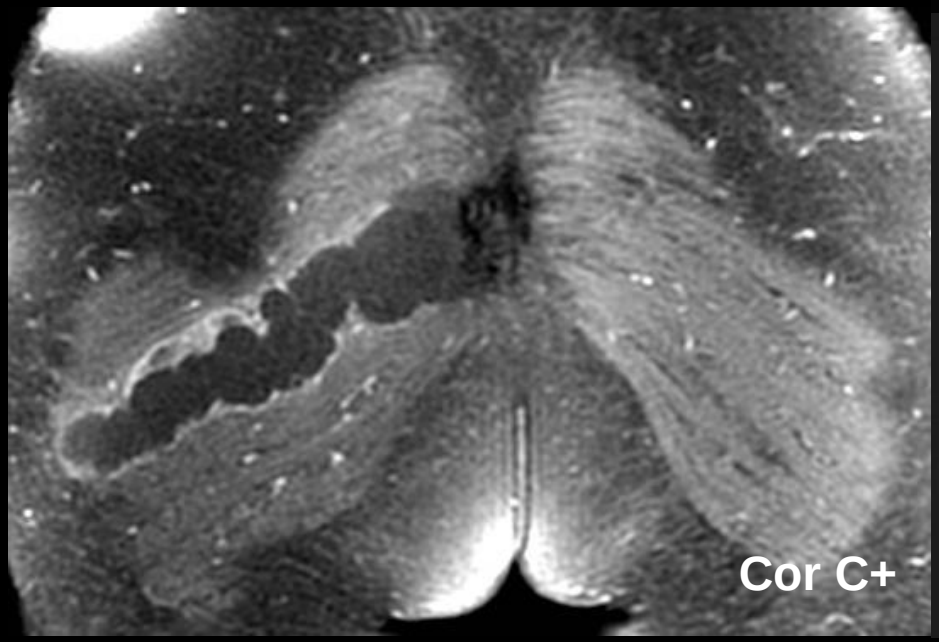
- **Discussion:**
- As for sequestrated fragment, 80% shows low on T1W and high on T2W whereas 20% iso- on T1W and T2W relative to degenerated disc.
- As for abscess or cyst, both have high SI on T2W, and hematoma has iso- or high on T1W.

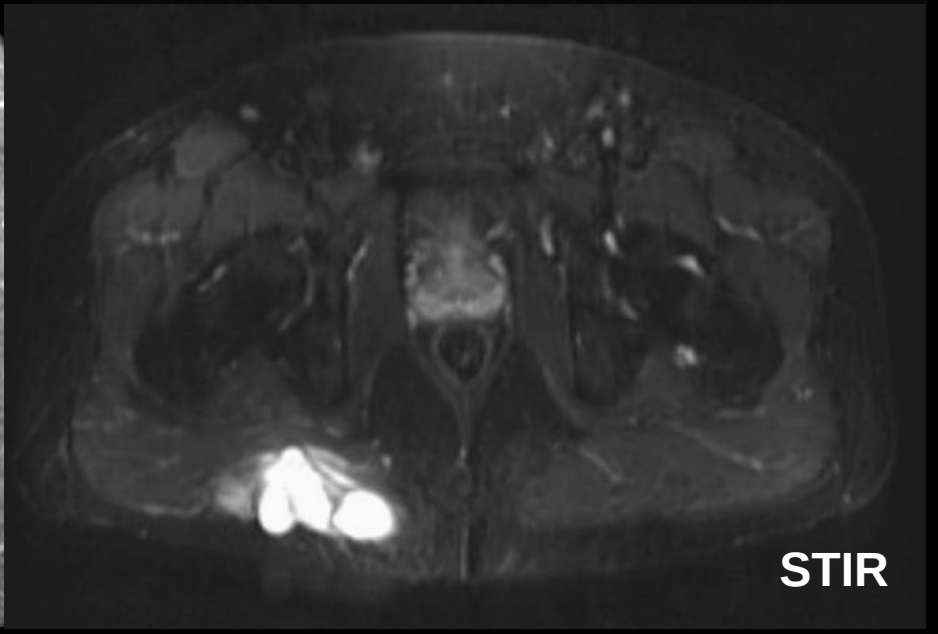
Q29

45 y/o man
A palpable mass in his right buttock for several months.

What is your diagnosis?

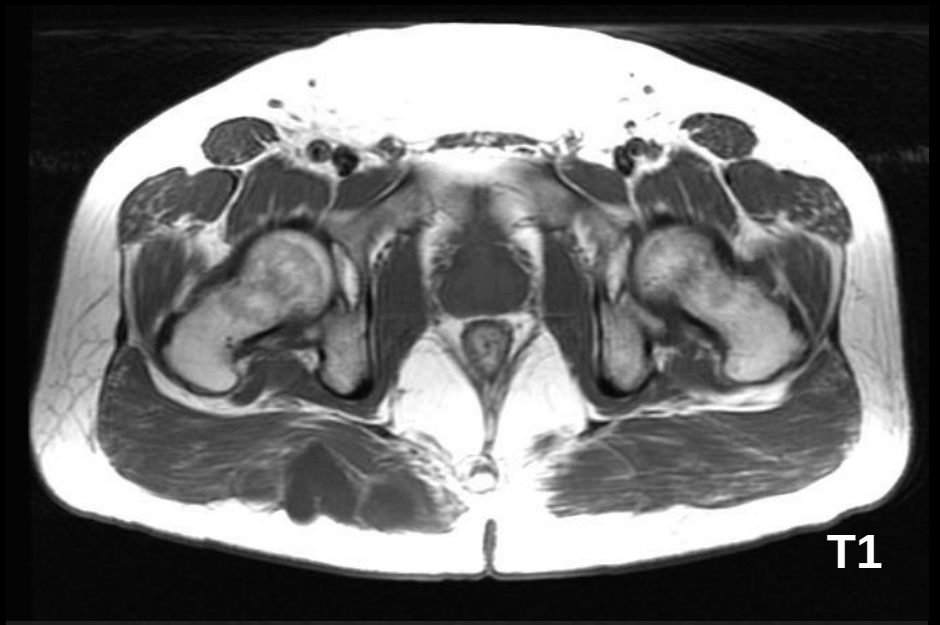


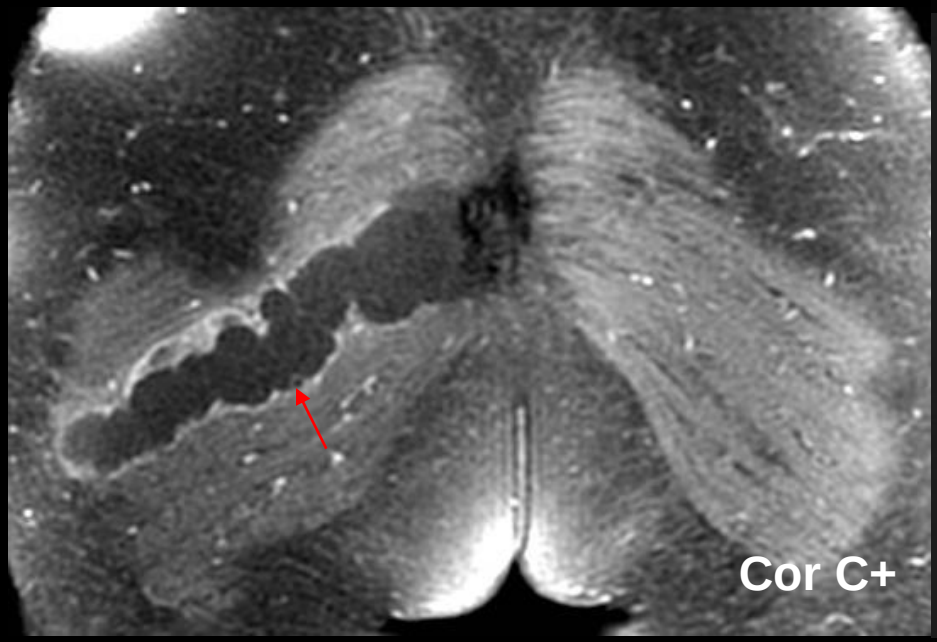


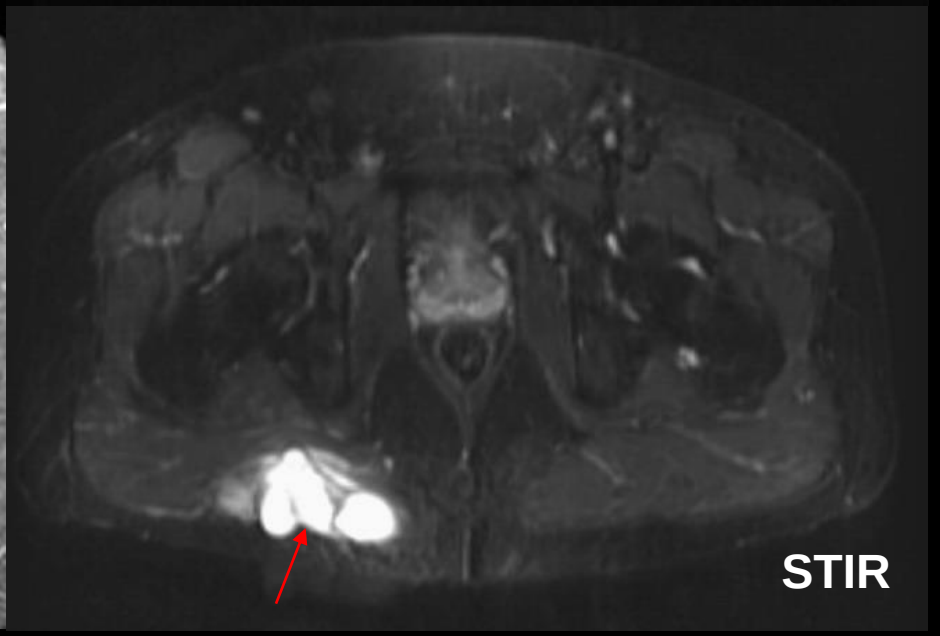


A29

Diagnosis: Intramuscular myxoma


T1


Cor C+


STIR

- **Findings:**
- On MRI, an intramuscular cystic lesion with homogeneous SI on T1-, T2-weighted and STIR images at the right gluteus muscle, and the mass had thin peripheral enhancement (arrow) after gadolinium administration.

- At surgery, the mass was tender, had a well-defined margin, and looked reddish brown. Microscopically, the surgical specimen revealed hypocellular, composed of spindle to satellite cells in myxoid stroma. Few capillary vessels were noted. Neither cellular atypia nor mitosis was seen.

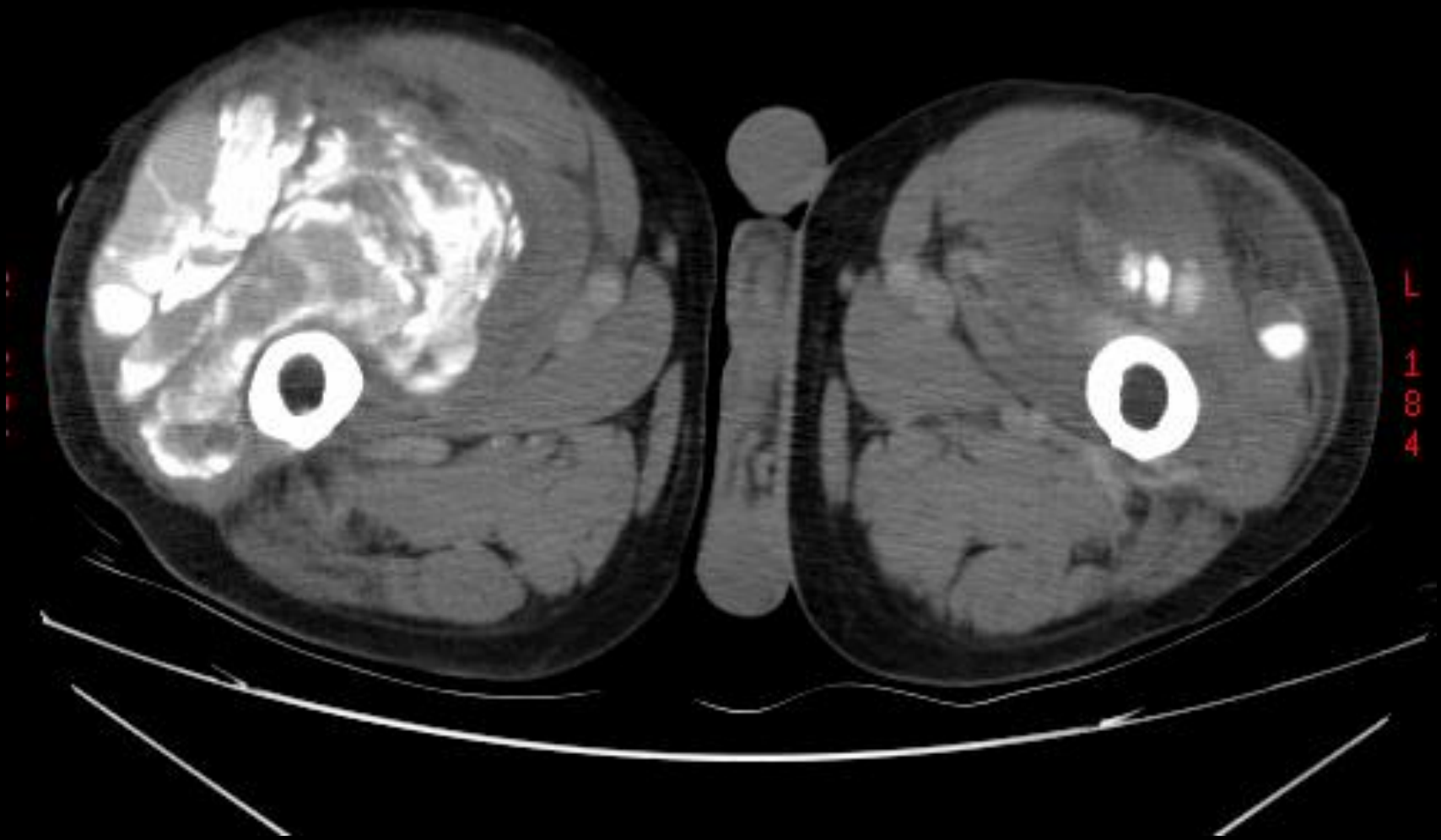
- Histologic diagnosis was compatible with intramuscular myxoma.
- **Discussion:**
- Most tumors (95%) present with a homogeneous low SI on T1 and high SI on fluid-sensitive MR sequences because of the high water content of mucin. Intramuscular myxomas are histologically hypocellular, hypovascular and myxoid.

Q30

54 y/o man

Had a clinical history of renal dialysis for 6 years.

What is your diagnosis?



A30

Diagnosis: Tumoral calcinosis-like metastatic calcification

Diagnosis: Tumoral calcinosis-like metastatic calcification

- Multiple large deposits of tumoral calcifications in soft tissue can be seen in uremic patients, accompanying by secondary hyperparathyroidism and renal osteodystrophy, and occurs in people who have received renal dialysis for over 3 years.
- Most masses are asymptomatic and do not limit the range of motion of adjacent joints.
- The masses of tumoral calcinosis are thought to be originated from bursal calcifications, extending with growth to adjacent tissues, but rarely causing bone erosion.
- Activity of the masses can be suggested on imaging when the mass contains cystic spaces, whereas collagen sclerosis without fluid may indicate inactivity.
- Large calcified periarticular masses have also been reported in hypervitaminosis D and sarcoidosis. Renal failure is rare in sarcoidosis.

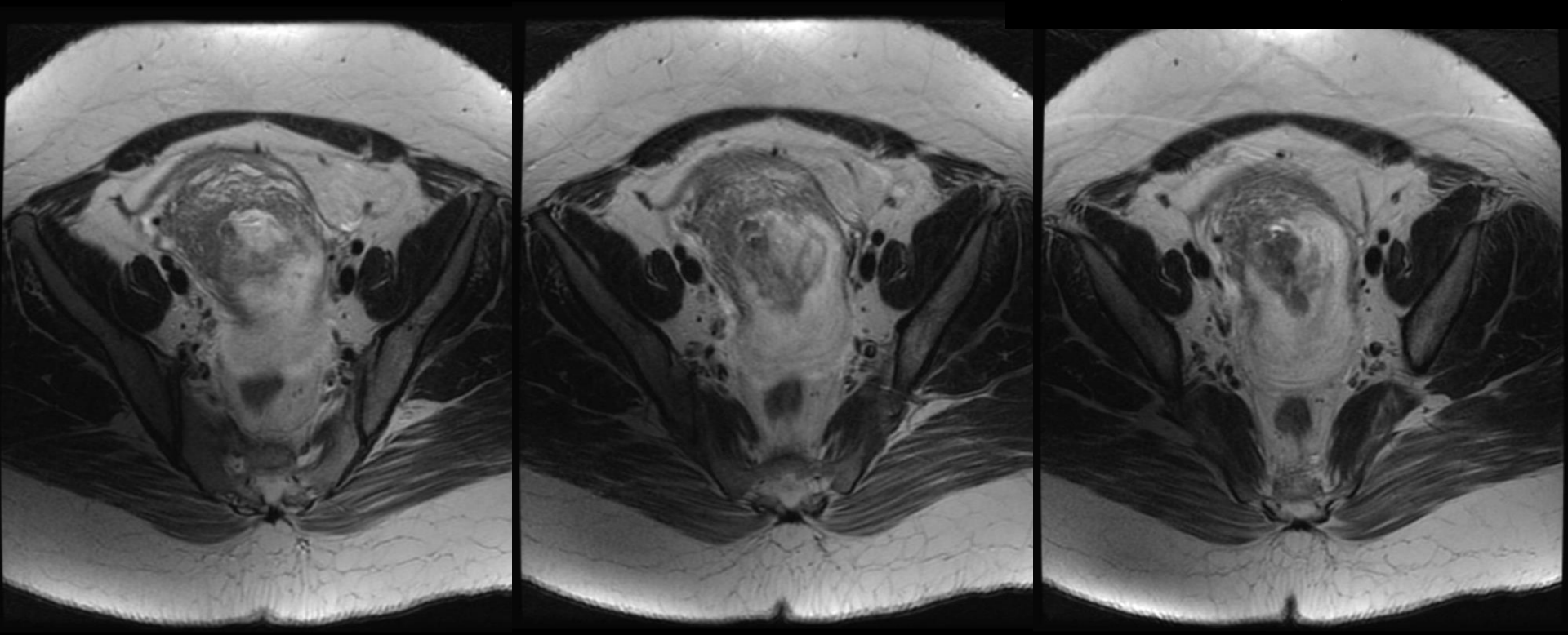
Q31-1

29 y/o woman

Vaginal bleeding on 3rd postpartum

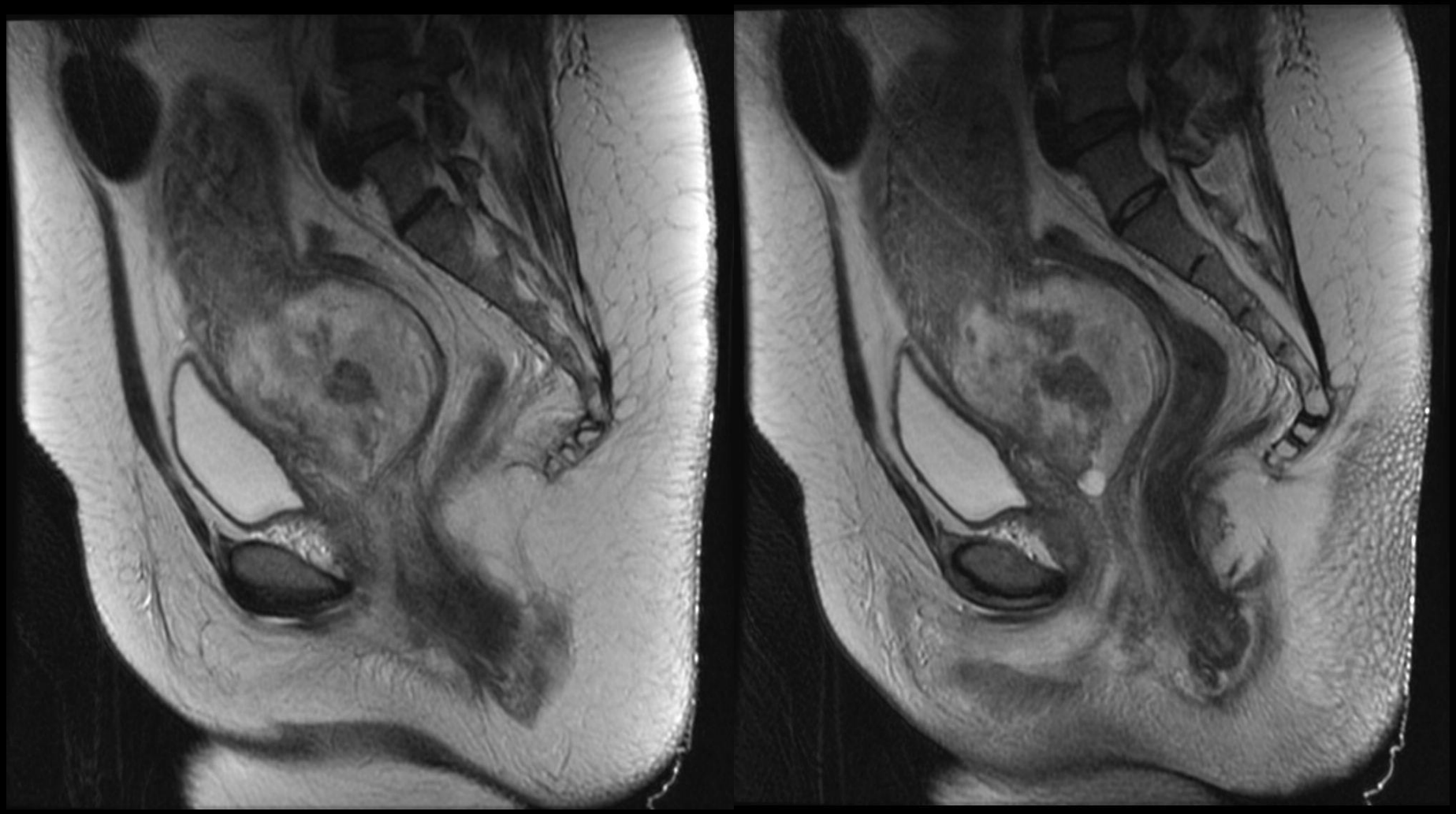
What is your diagnosis?

本題有2張影像，每張一分鐘。



Q31-2

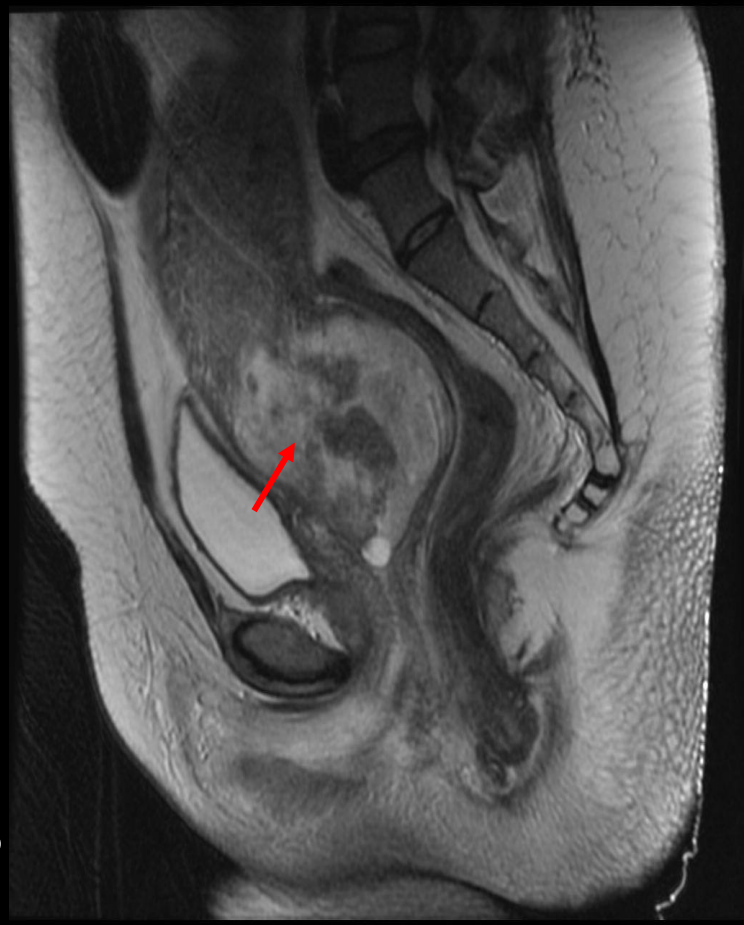
29 y/o woman
Vaginal bleeding on 3rd postpartum



A31

Diagnosis
Retained Placenta

- With MR, the retained product of conception (RPOC) is seen as a mass projecting into endometrial cavity with heterogenous signal intensity, and heterogenous enhancement.
- The appearance may overlap with gestational trophoblastic disease, or uterine arteriovenous malformation.



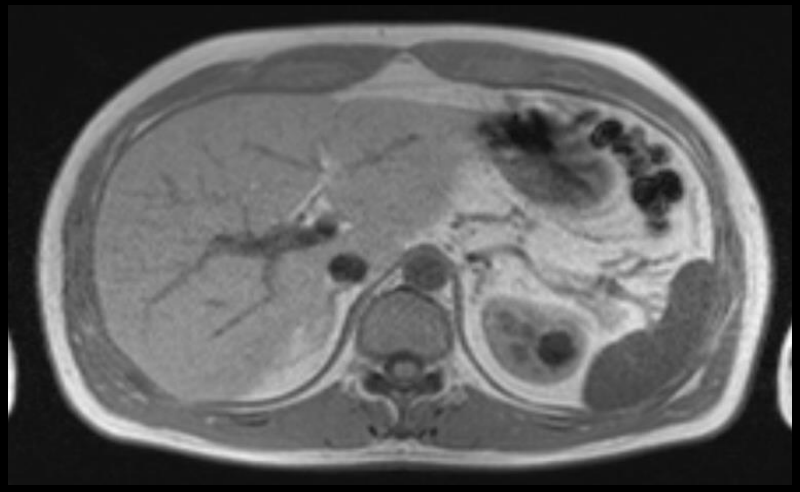
RadioGraphics 2004; 24, 1301-1316

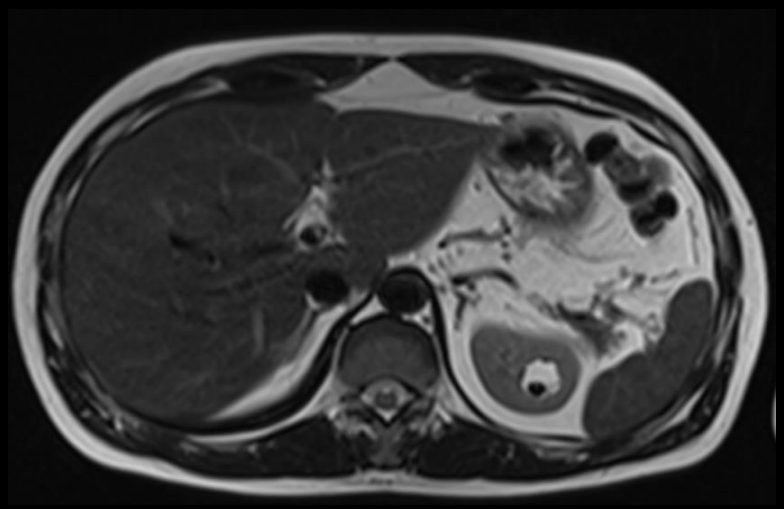
Q32

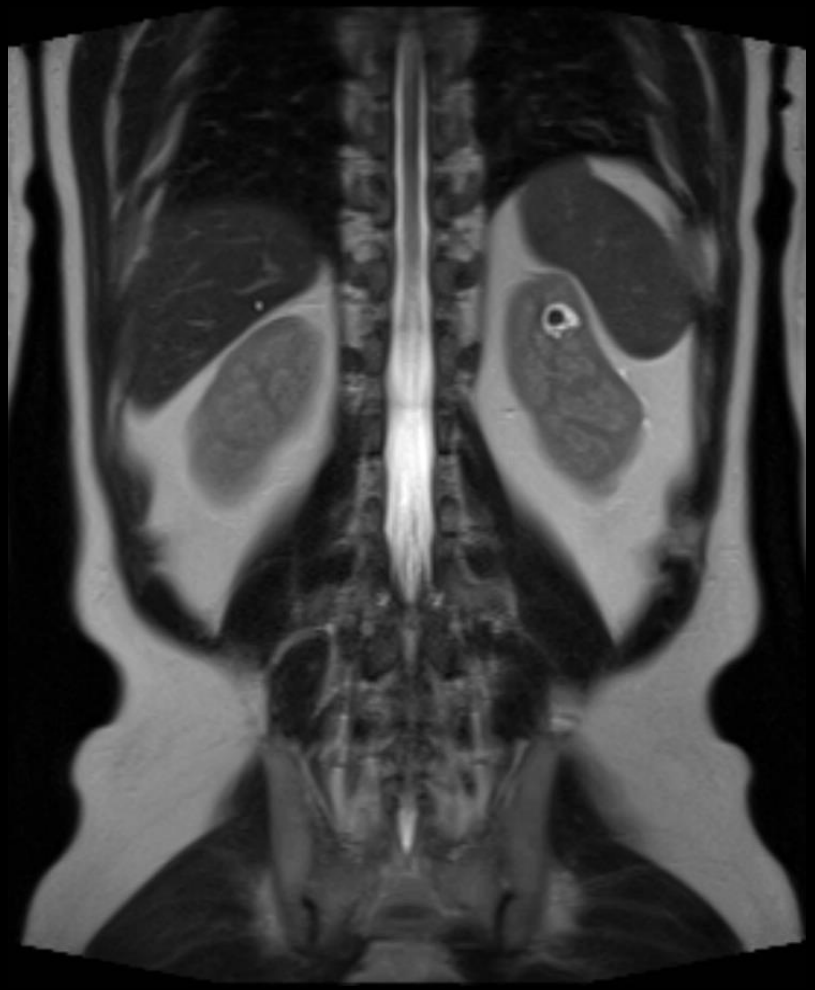
43y/o man

Incidental finding in medical checkup

What is your diagnosis?



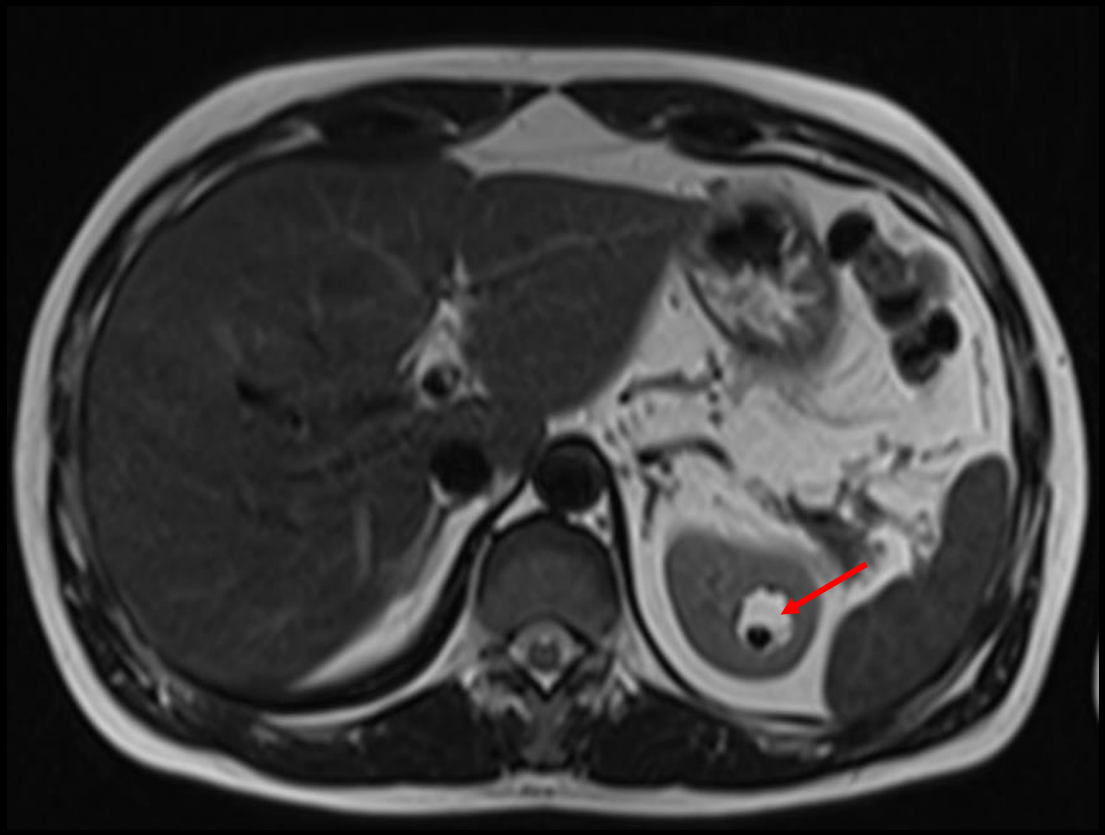




A32

Diagnosis:

Calyceal diverticulum with calculus, left



Discussion

- Caliceal diverticulum are smooth walled, nonsecretory cavities within the renal parenchyma that are lined with transitional cell and received by passive retrograde filling from the adjacent collecting system, usually through a narrow infundibulum. It is believed to be congenital in origin
- There is no predilection for gender or side and they are bilateral in 3% of cases.

J Urol. 2000;163(1):28-32

- TYPE I (calyx):
  - more common; connected to caliceal cup, usually at fornix; bulbous shape; narrow connecting infundibulum of varying length; few millimeters in diameter; in polar region especially upper pole
- TYPE II (pelvis):
  - interpolar region; communicates directly with pelvis; usually larger and rounder; neck short and not easily identified

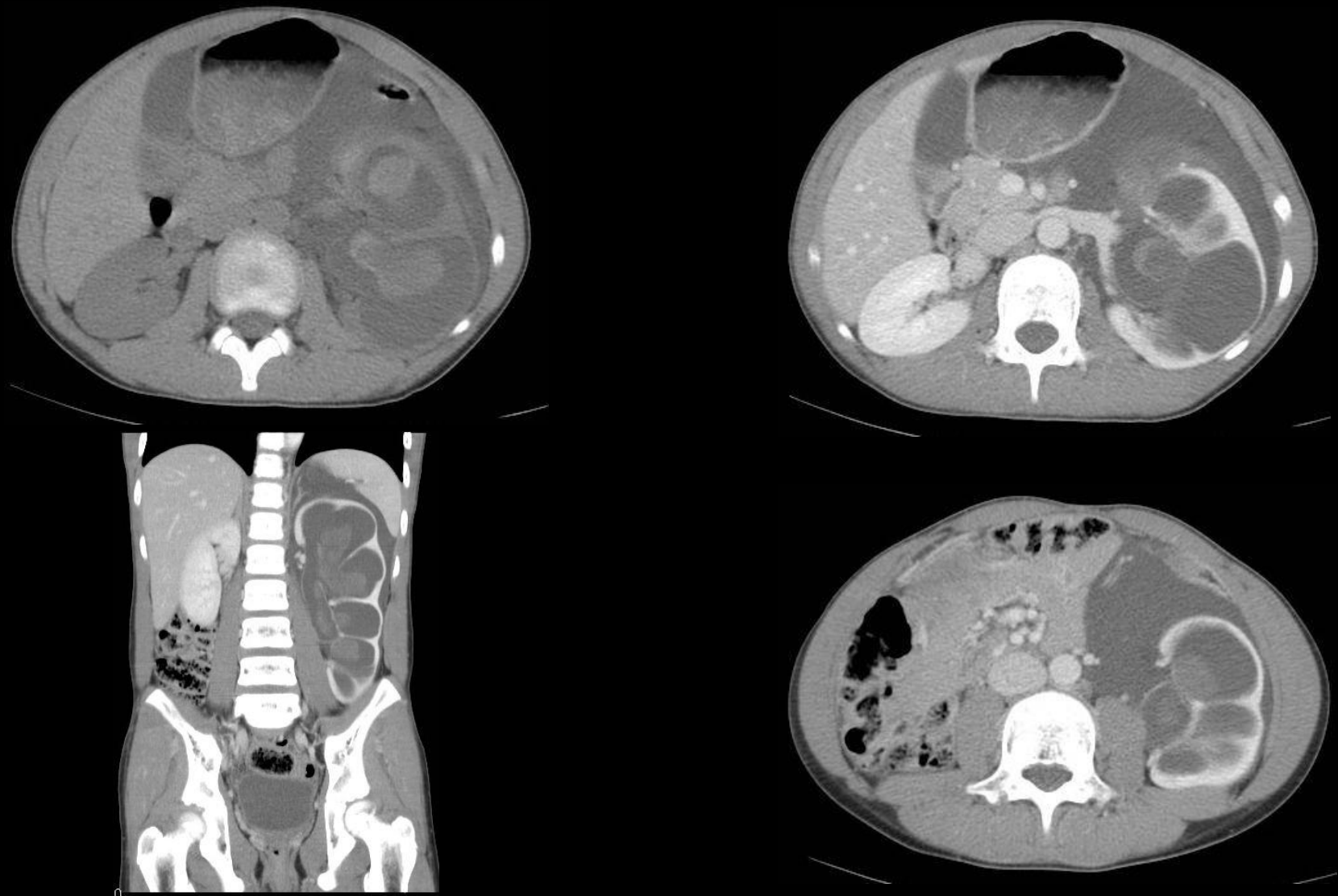
Radiology Review Manual 6th ed.

Q33

12 y/o boy

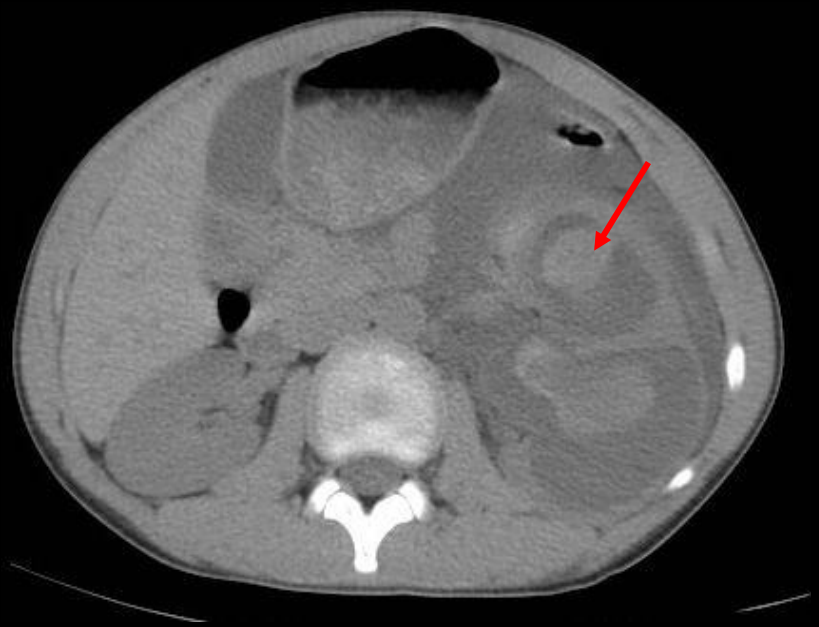
Left flank soreness for 1 day

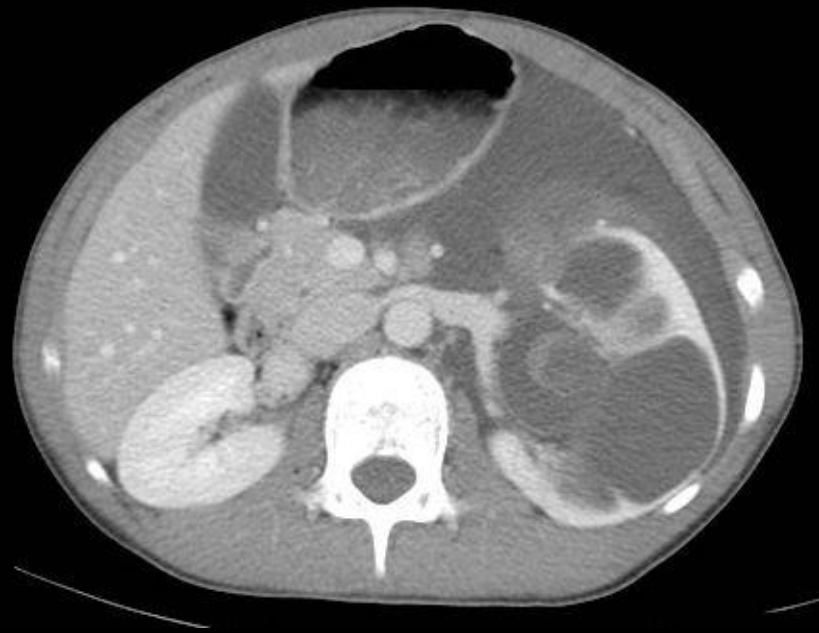
AAST grade?



A33

Diagnosis:
Left renal injury, Grade IV





Radiographics. 2004 ; 24 Suppl 1:S247-80. Review

Discussion

- Indications for imaging in blunt trauma include
  - gross hematuria
  - microscopic hematuria and hypotension (systolic blood pressure <90 mm Hg) or other associated injuries requiring CT evaluation
  - blunt trauma with other injuries known to be associated with (eg, rapid deceleration, fall from a height, direct contusion or of flank soft tissues, fractures of the lower ribs or thoracolumbar spine), regardless of the presence of hematuria
- Renal injury grading: AAST grading

Radiographics. 2009 Nov;29(7):2033-53

AAST (American Association for the Surgery of Trauma) Renal injury scale

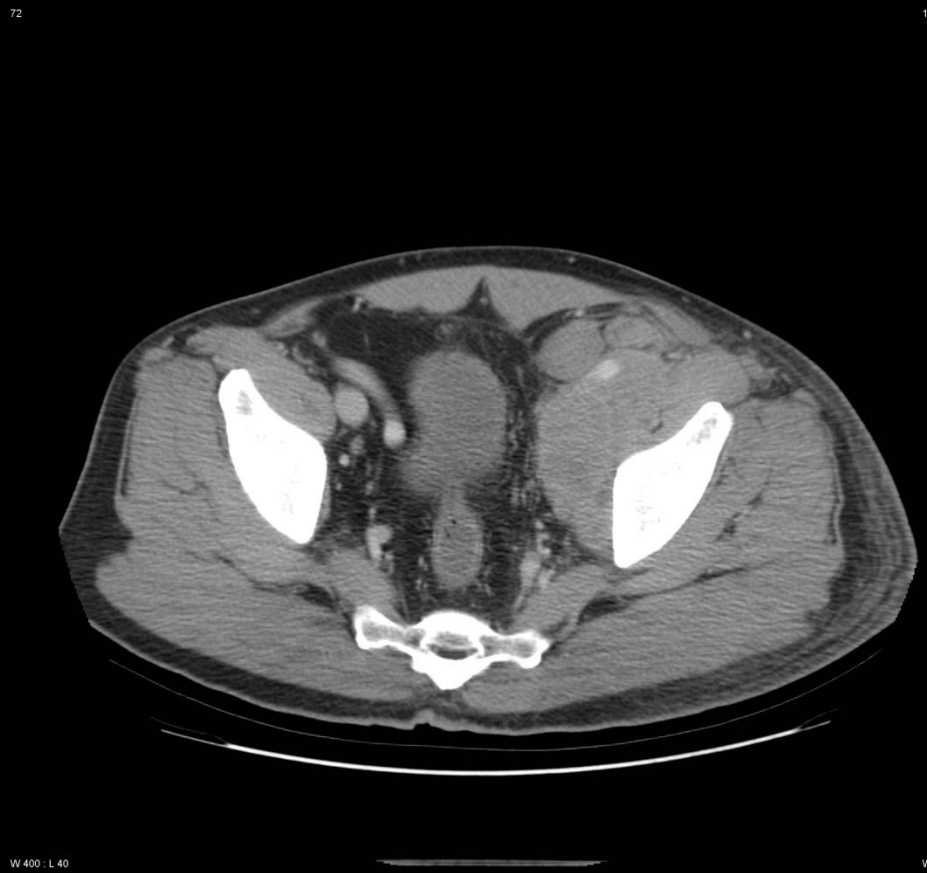
Grade*	Type of Injury	Description
I	Normal contusion	Microscopic or gross hematuria with normal urologic findings
	Hematoma	Nonexpanding subcapsular hematomas with no laceration
II	Hematoma	Nonexpanding perinephric (perirenal) hematomas confined to the retroperitoneum
	Laceration	Superficial cortical lacerations less than 1 cm in depth without collecting system injury
III	Laceration	Renal lacerations greater than 1 cm in depth without collecting system injury
IV	Laceration	Renal lacerations extending through the renal cortex, medulla, and collecting system
	Vascular injury†	Injuries involving the main renal artery or vein with contained hematoma, segmental infarctions without associated lacerations
V	Laceration	Shattered kidney, ureteropelvic junction avulsions
	Vascular injury	Complete laceration (avulsion) or thrombosis of the main renal artery or vein that devascularizes the kidney

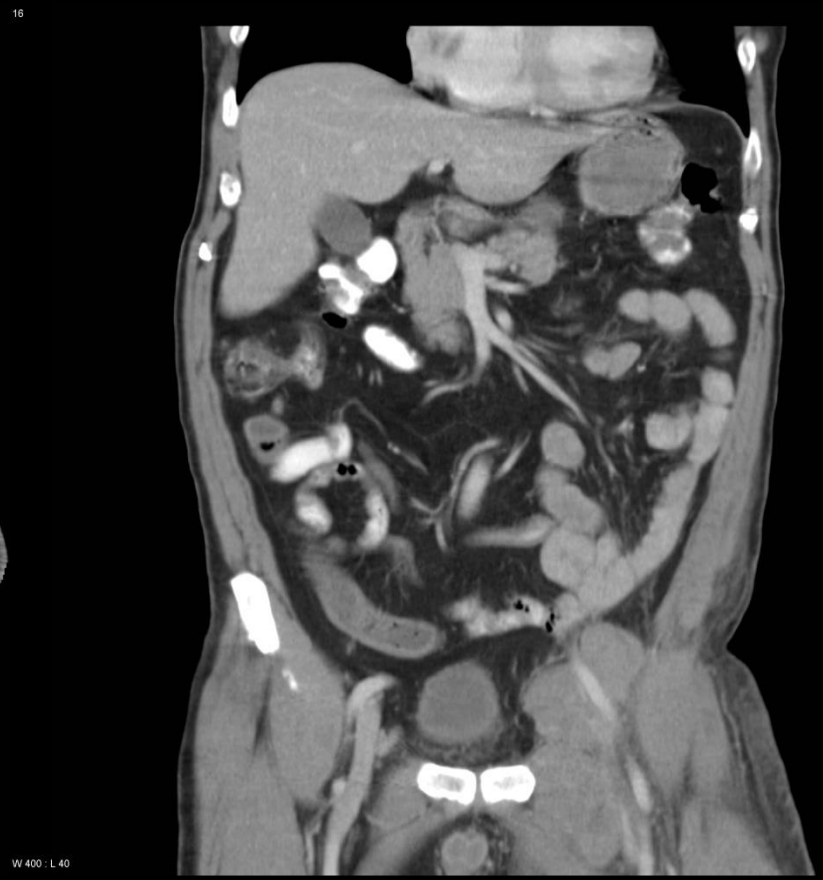
Q34

57 y/o man

Enlarging left inguinal mass in recent 2 months

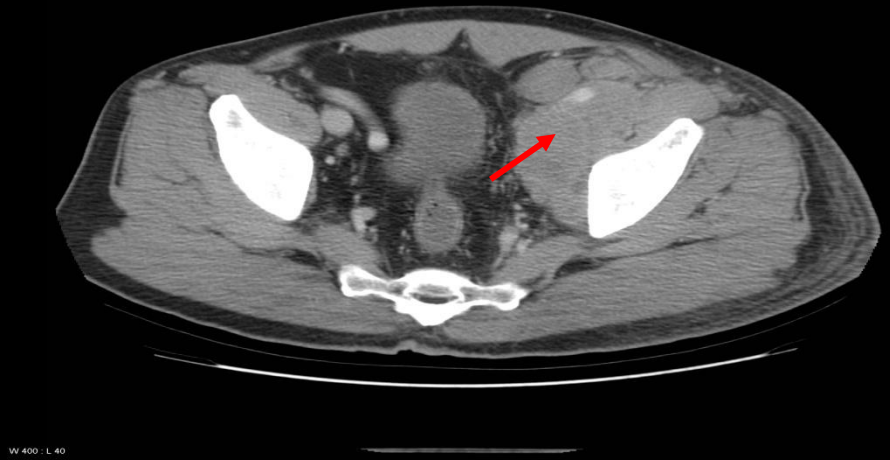
What is your diagnosis?

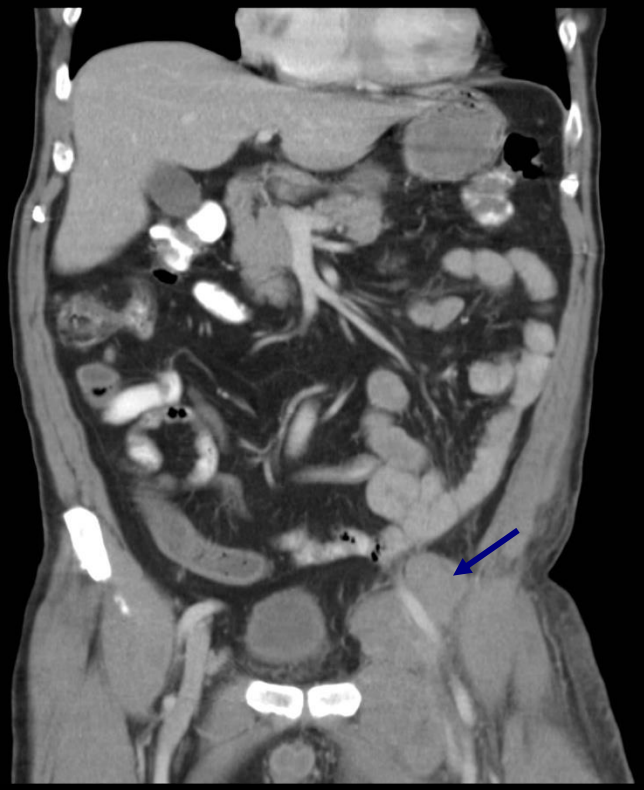




A34

- **Diagnosis**
  - **Lymphoma (Red arrow)**
  - **Sandwich sign (Hamburger Sign, *blue* arrow)**



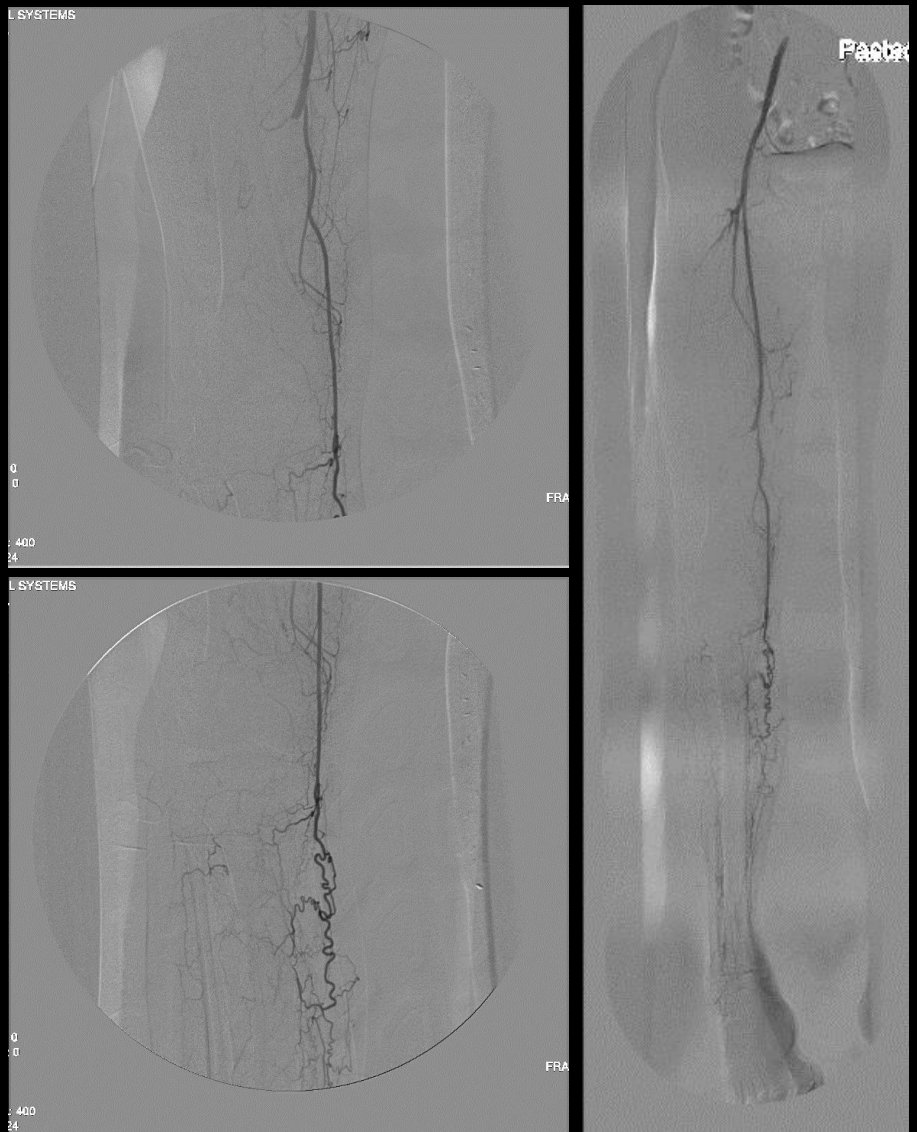


Q35

29 y/o male

heavy smoker

What is your diagnosis?

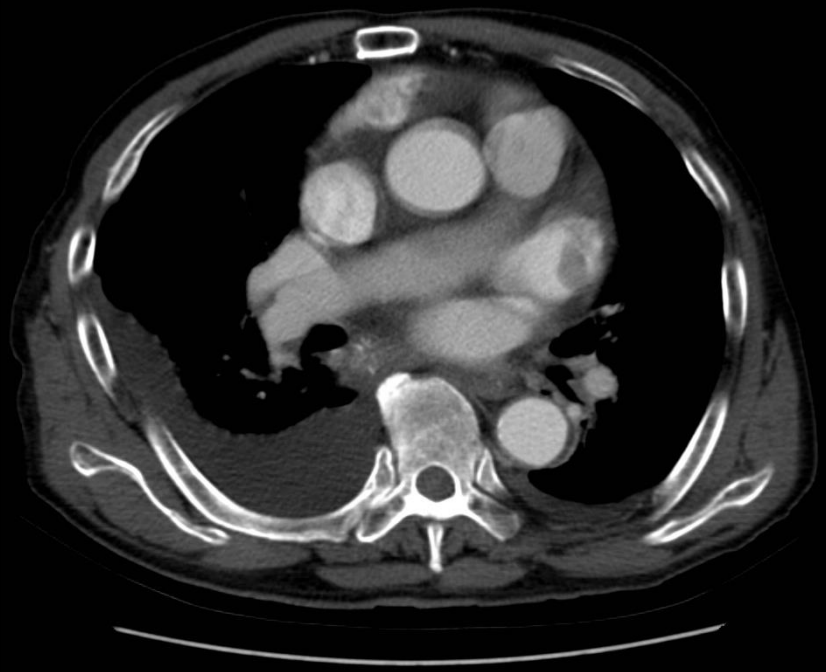


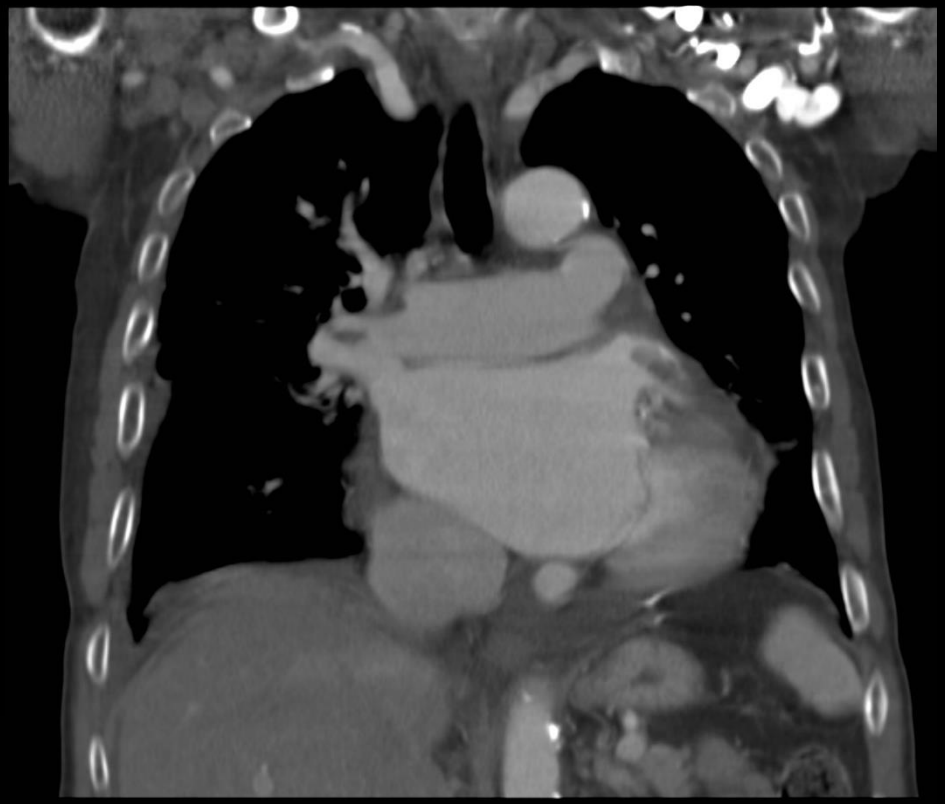
A35

Diagnosis:
Buerger's disease
(Thromboangiitis obliterans)

Q36

83 y/o M
with cardiomegaly
Where is the filling defect located?



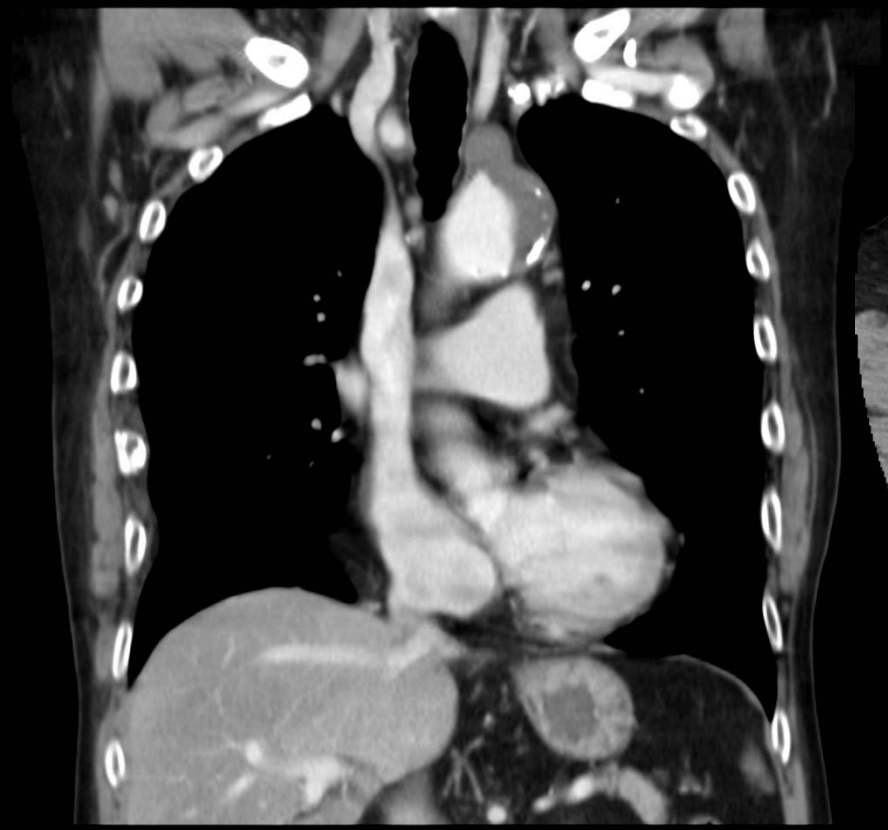


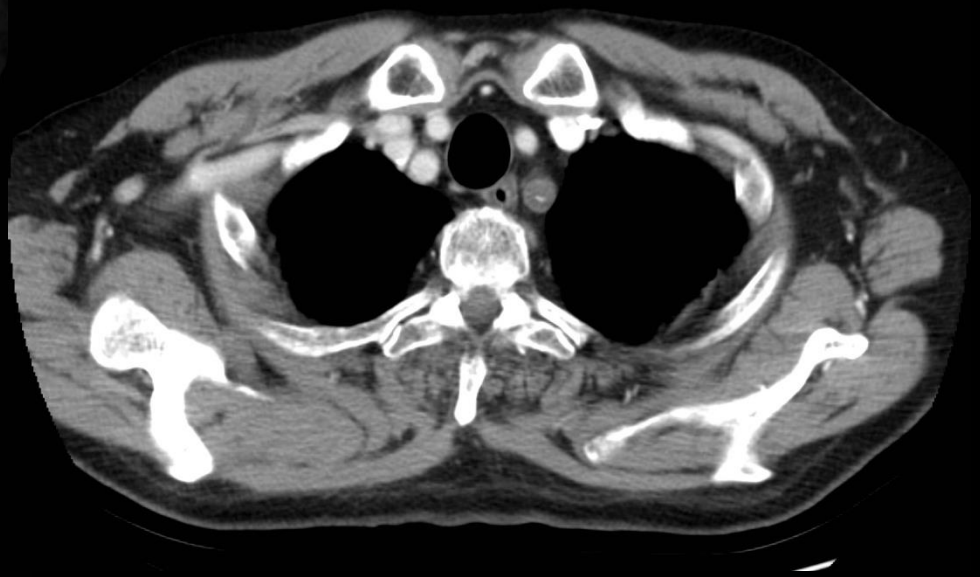
A36

Diagnosis:
Left atrium, r/o left atrial appendages

Q37

A 83 y/o man
long-standing hypertension
What is your diagnosis?

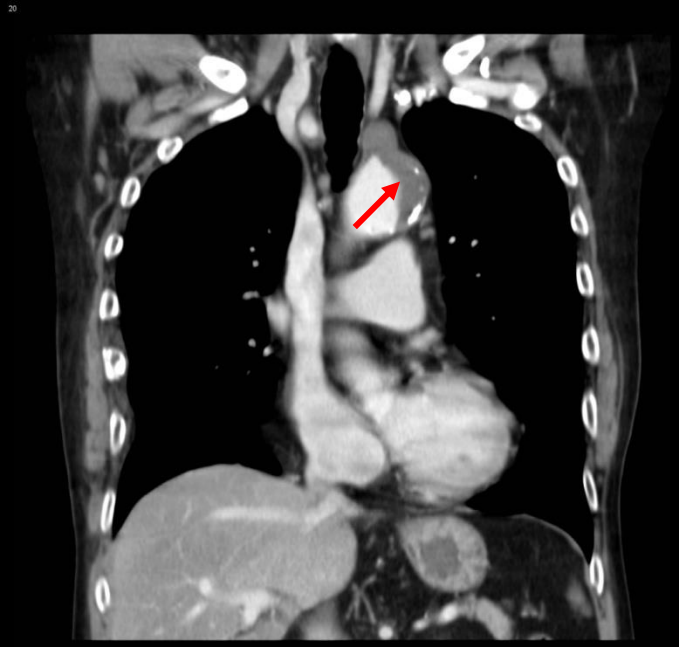


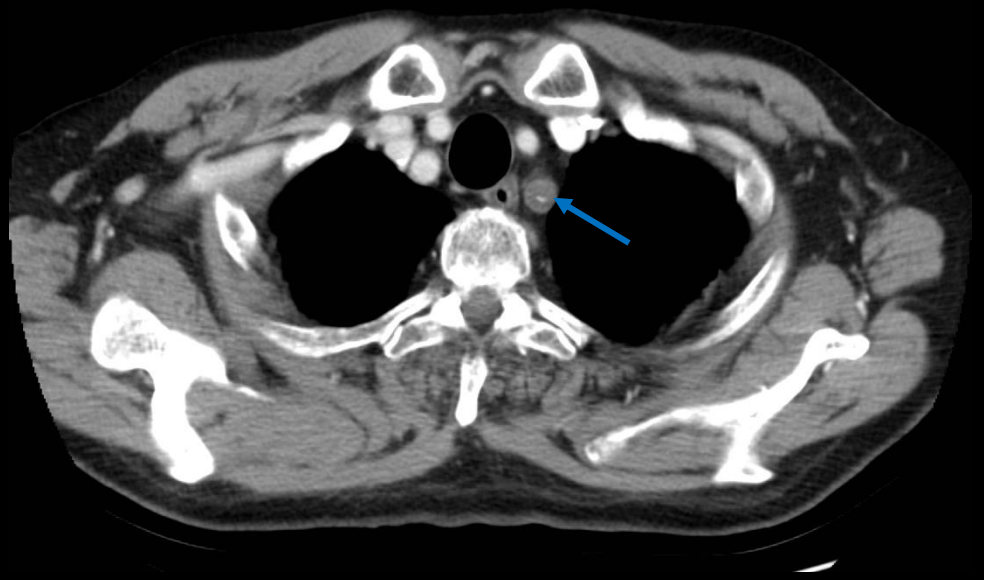


A37

Diagnosis:

Mural thrombus (red arrow)of aorta with subclavian steal phenomena (blue arrow)





Discussion

- Subclavian steal phenomena
  - subclavian artery steno-occlusive disease proximal to the origin of the vertebral artery and is associated with flow reversal in the vertebral artery
- Imaging manisfestation of the subclavian steal syndrome (SSS)
- Subclavian steal produces symptoms by flow-related phenomena rather than embolic. When an atherosclerotic lesion in the proximal subclavian artery progresses to cause hemodynamically significant stenosis, collateral vessels from the subclavian artery gradually enlarge. The upper extremity becomes dependent on these large collateral blood vessels that originate from the subclavian artery distal to the obstruction

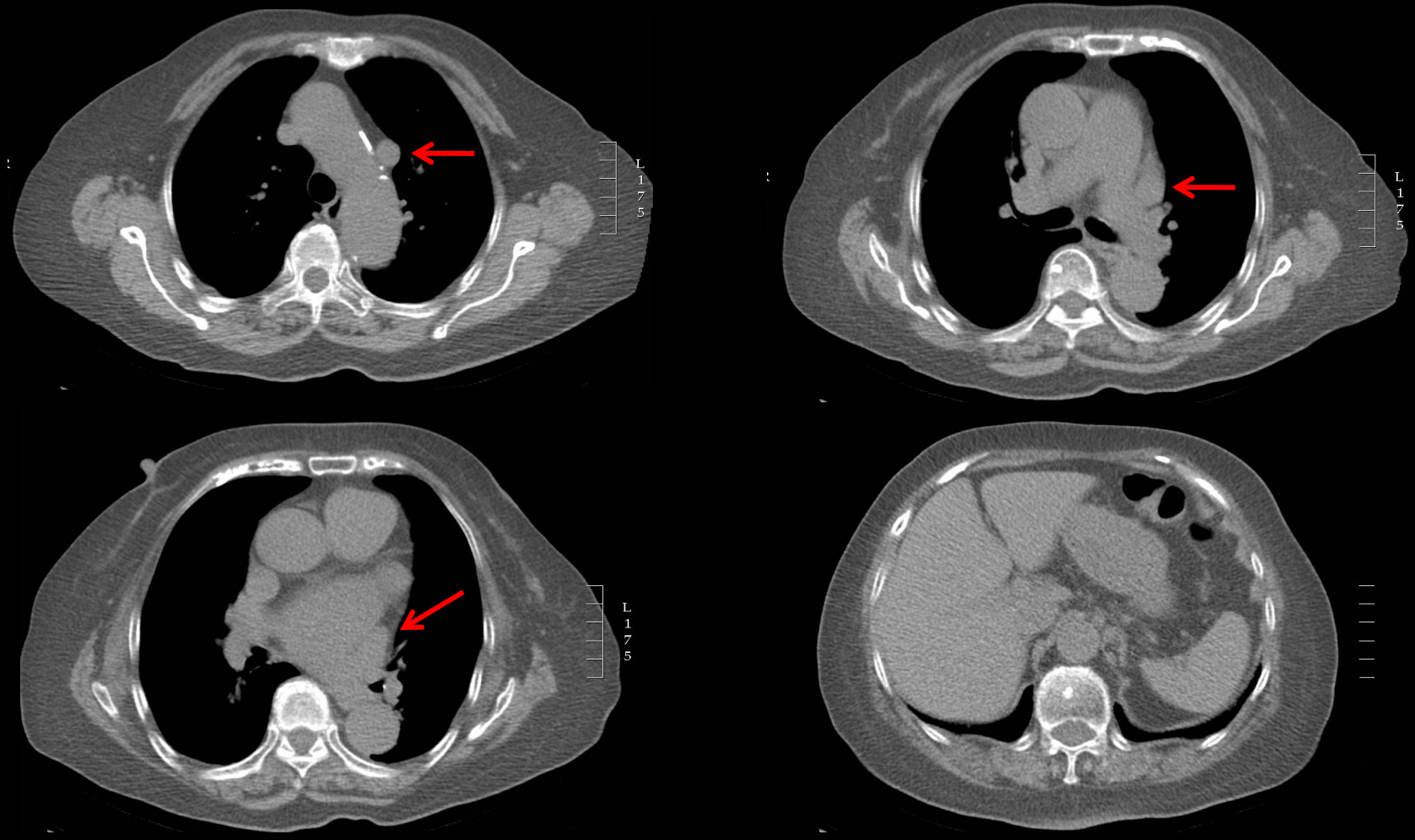
Medscape emedicine

Q38

A 85 y/o woman

Health exam

What is your diagnosis?



A38

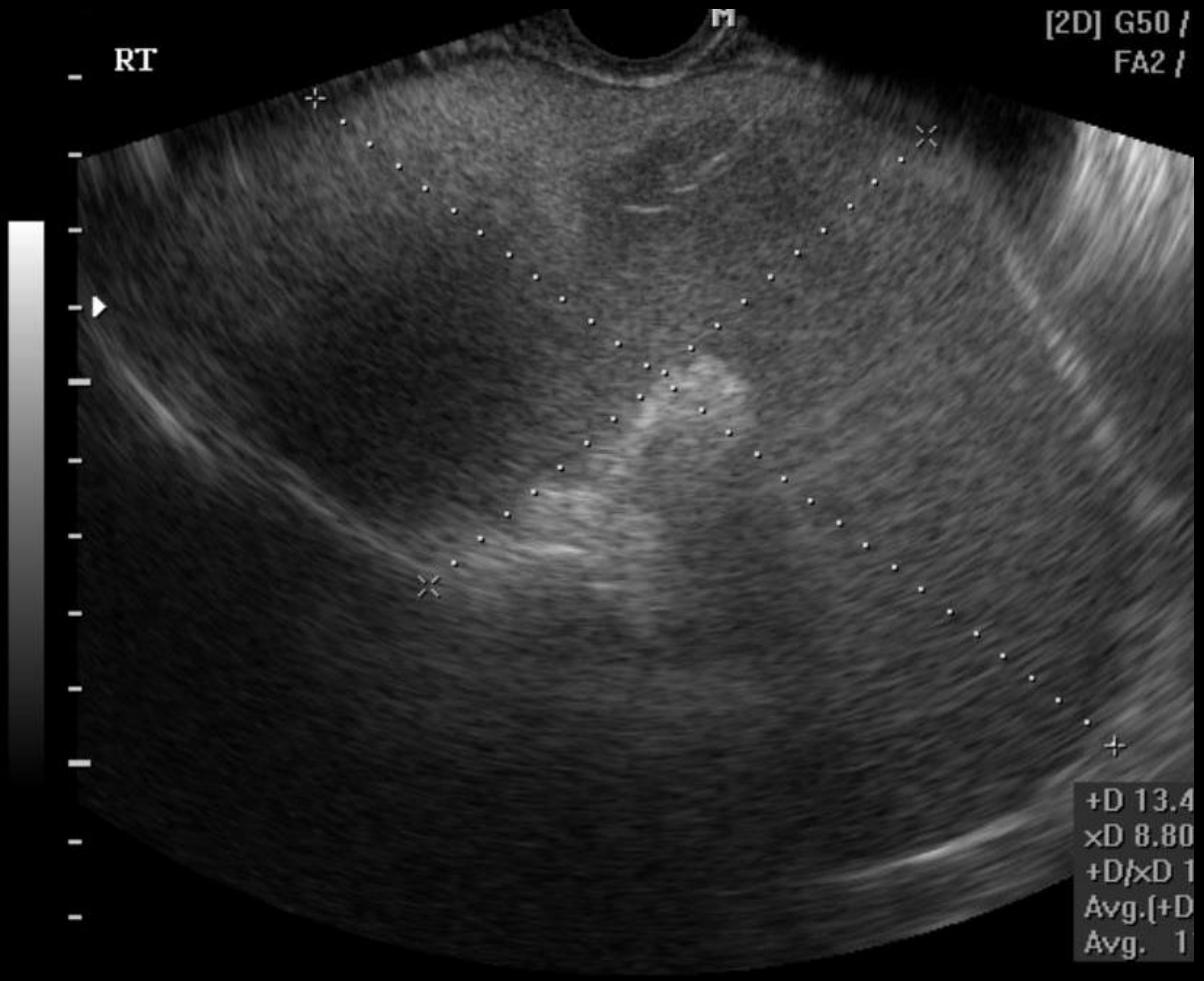
Diagnosis:
Persistent left SVC

Q39

27 y/o woman

Lower abdominal mass

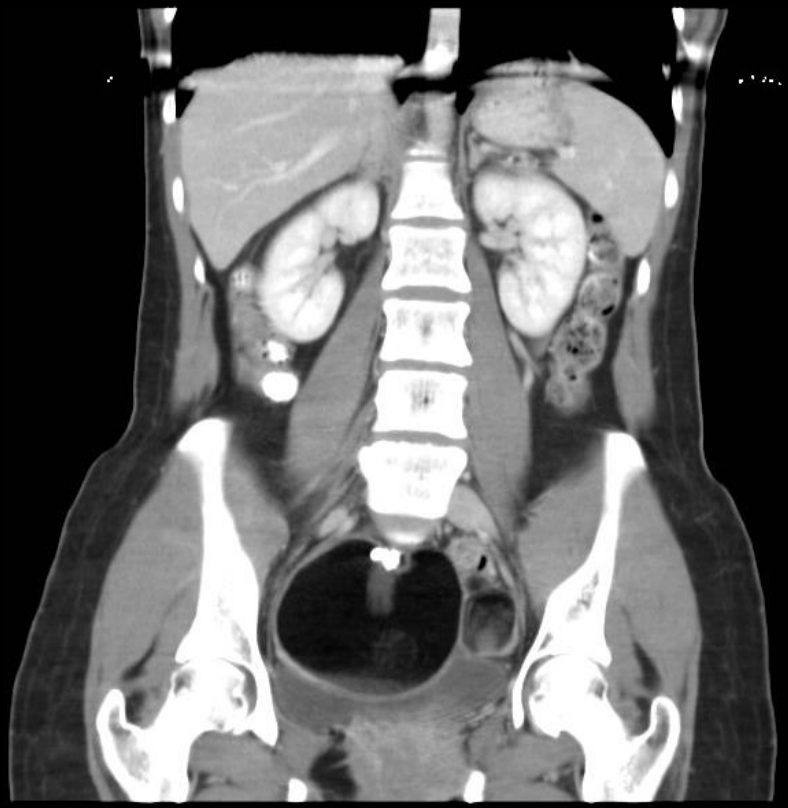
What is your diagnosis?

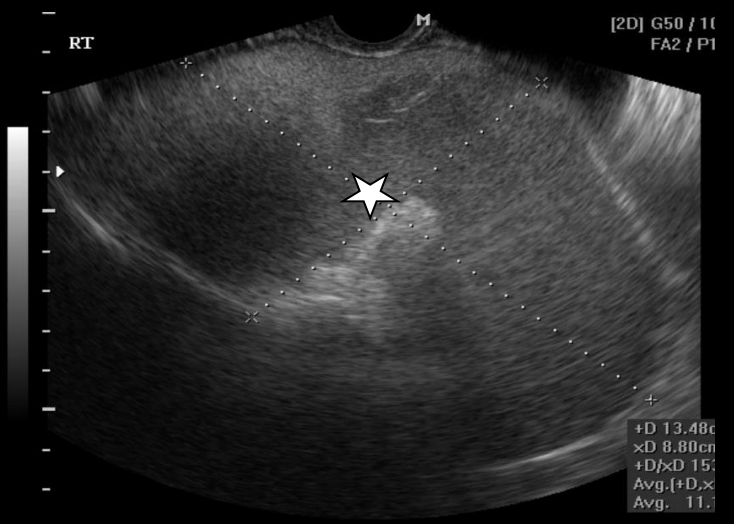


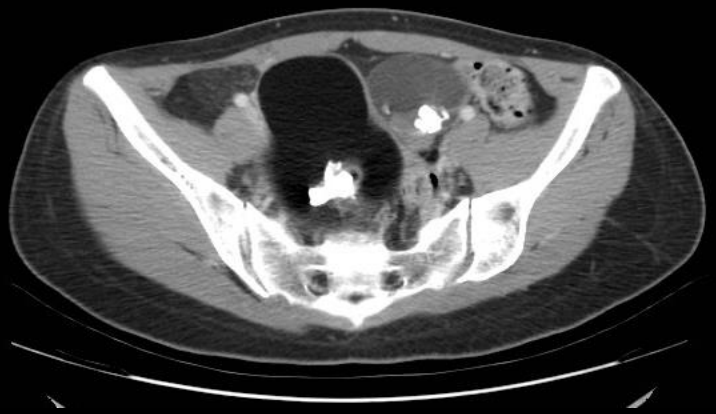
A39

Diagnosis:

Mature teratoma (Dermoid cyst)







Discussion

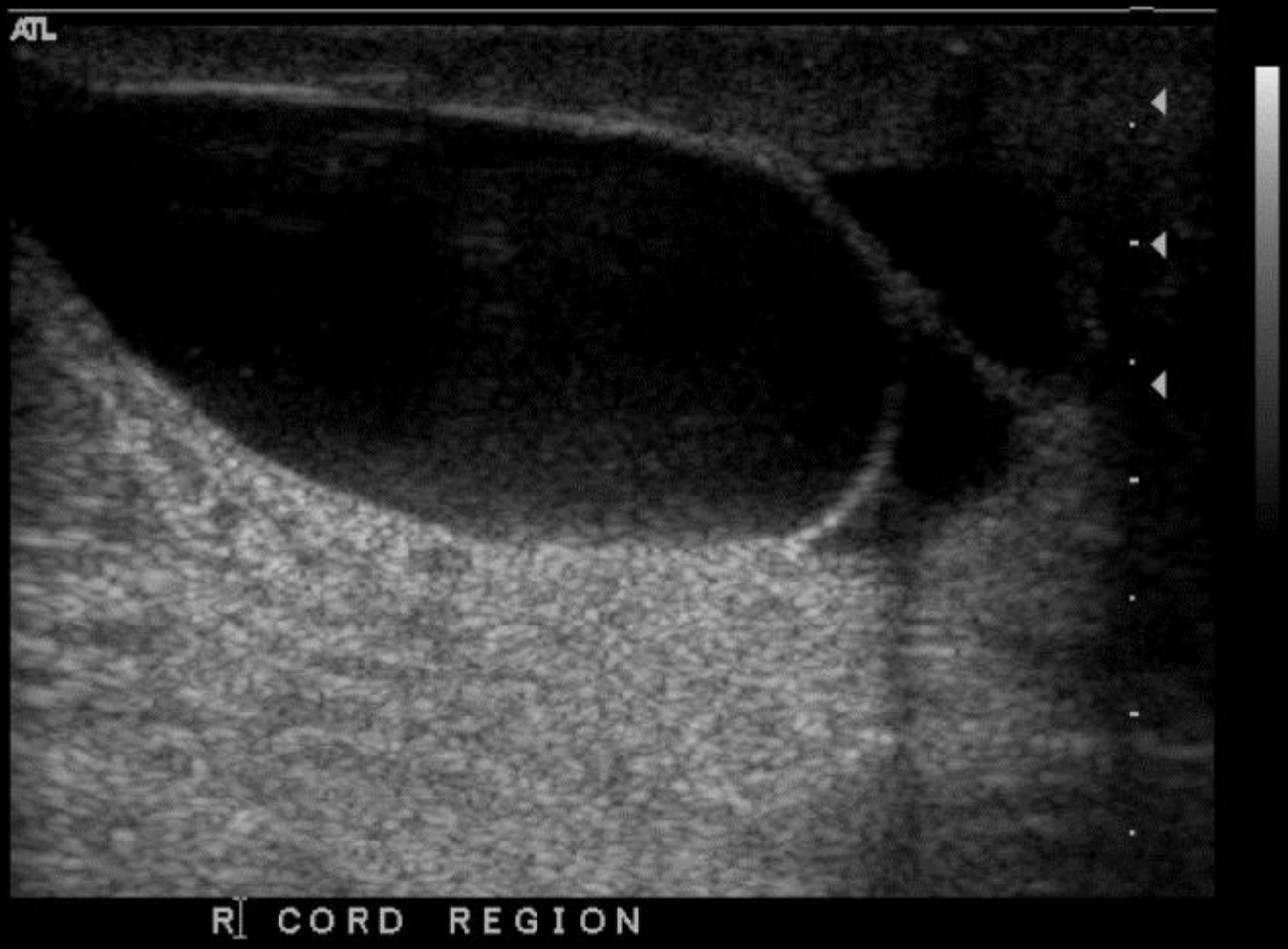
- Dermoid cyst=mature teratoma
  - Congenital benign germ cell tumor containing mature tissues from all 3 germ cell layers with predominance of ectodermal component
- 20% of ovarian tumors in adults; 66–80% of pediatric ovarian tumors; Most common ovarian neoplasm! Common in reproductive life (80%); age peak 20–40 years
- *Origin:* self-fertilization of a single germ cell after the first meiotic division (= random error in meiosis)

Radiology Review Manual 6th ed.

- U/S
  - complex mass containing echogenic components (66%);
    - “tip of the iceberg” sign = echogenic mass with “dirty” acoustic shadowing (=mixture of sebum + hair strands creates multiple tissue interfaces) in a predominantly cystic mass (25–44%) (DDx: stool-filled rectosigmoid)
    - fat-fluid level
  - predominantly solid mass (10–31%)
  - purely cystic tumor (9–15%)
  - echogenic focus with acoustic shadowing (due to calcification)
- CT
  - round mass of fat floating in interface between two water-density components (93%)
  - Rokitansky nodule = dermoid plug (81%) of adipose tissue, usually single, may be multiple
  - sebum-rich fat-fluid level in cyst cavity (12%)
  - globular calcifications (tooth) / rim of calcification (56%)

Q40

74 y/o male
enlarged scrotum
What is your diagnosis?



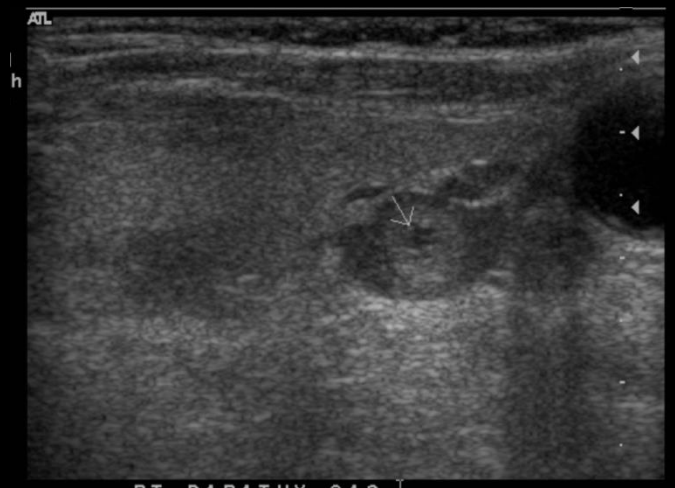
A40

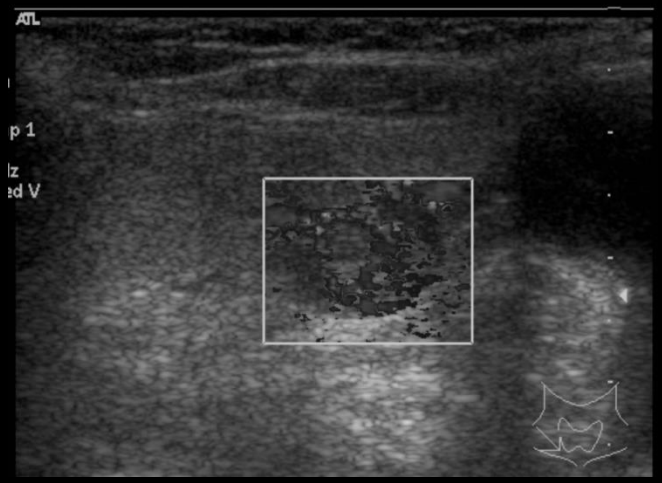
Diagnosis: spermatocele

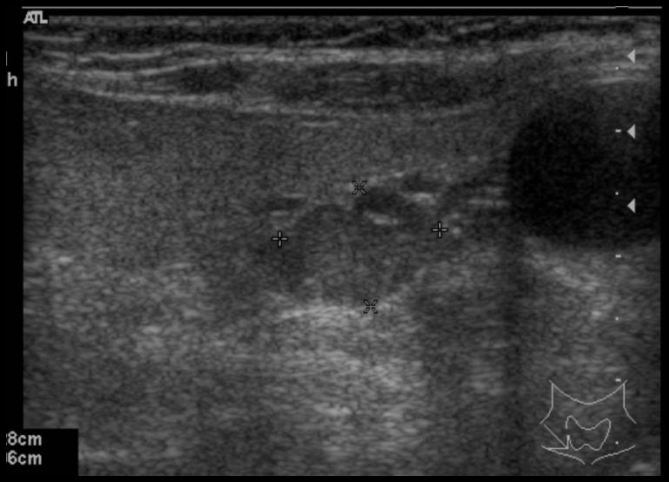
Q41

62 y/o female
proximal limb weakness
high serum calcium level

What is your diagnosis?







A41

Diagnosis:

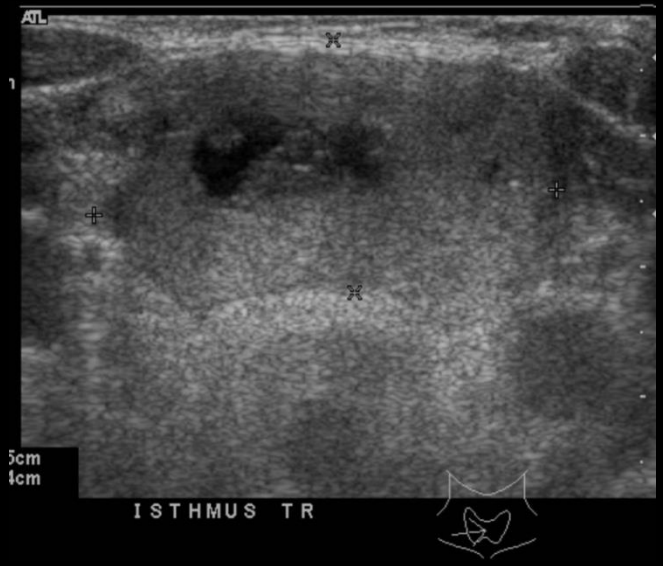
parathyroid proliferation with hyperparathyroidism

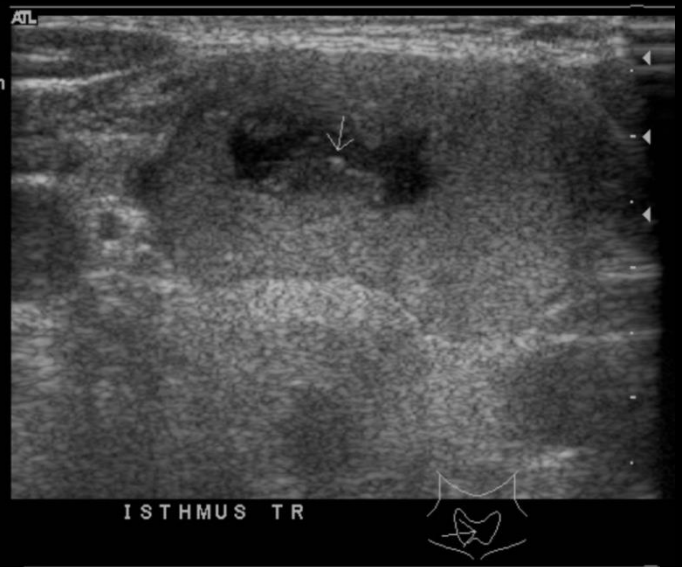
Q42

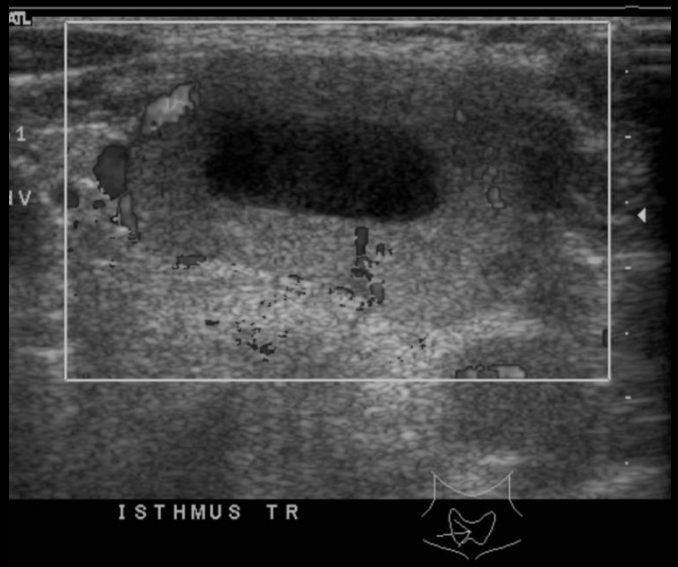
67 y/o female

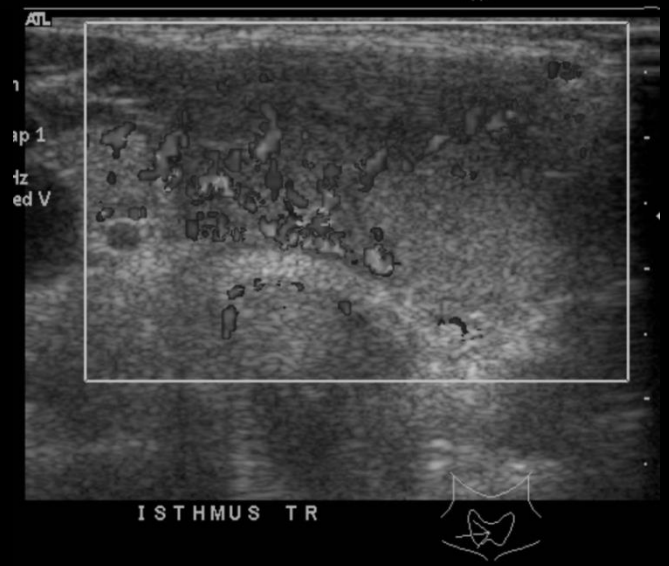
Anterior neck mass with size progression

What is your diagnosis?









A42

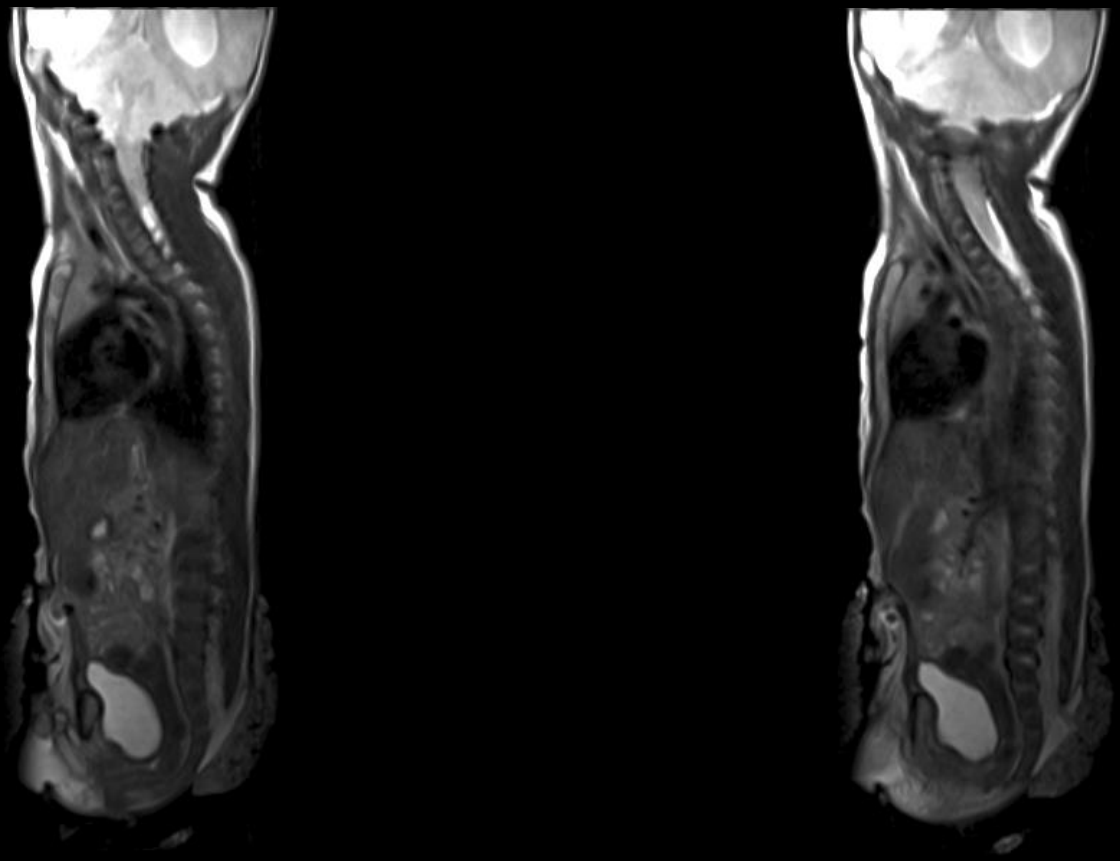
Diagnosis:
Hurthle cell adenoma

Q43

Male newborn

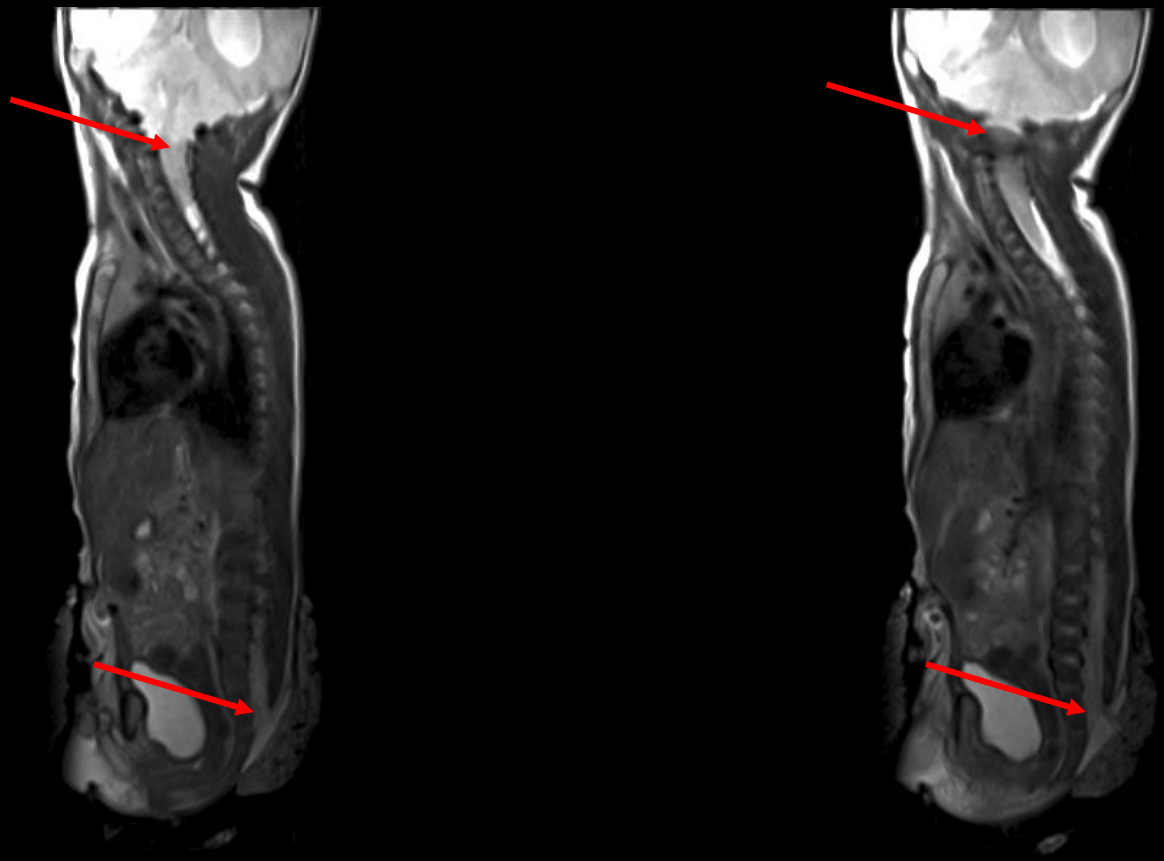
With hydrocephalus

What is your diagnosis?



A43

Diagnosis:
Chiari II malformation



Discussion

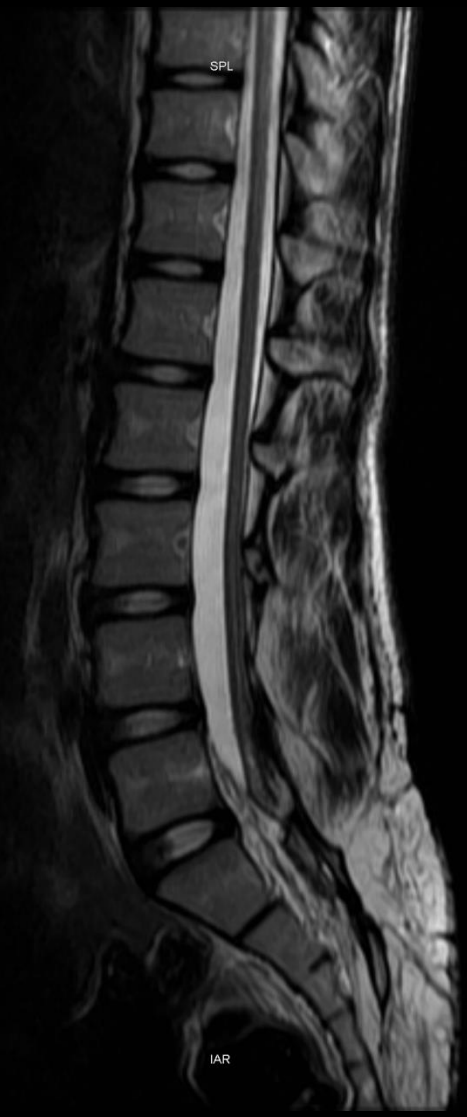
1.Caudally displaced 4th ventricle
2.Caudally displaced brainstem
3.Tonsillar + vermian herniation through foramen magnum.
Associated with

- spinal anomalies: lumbar myelomeningocele or syringohydromyelia
- Supratemtorial anomalies: dysgenesis of corpus callosum, obstructive hydrocephalus following closure of myelomeningocele, absence of septum pellucidum, excessive cortical gyration
- not associated with basilar impression/C1 assimilation/klippel-feil deformity.

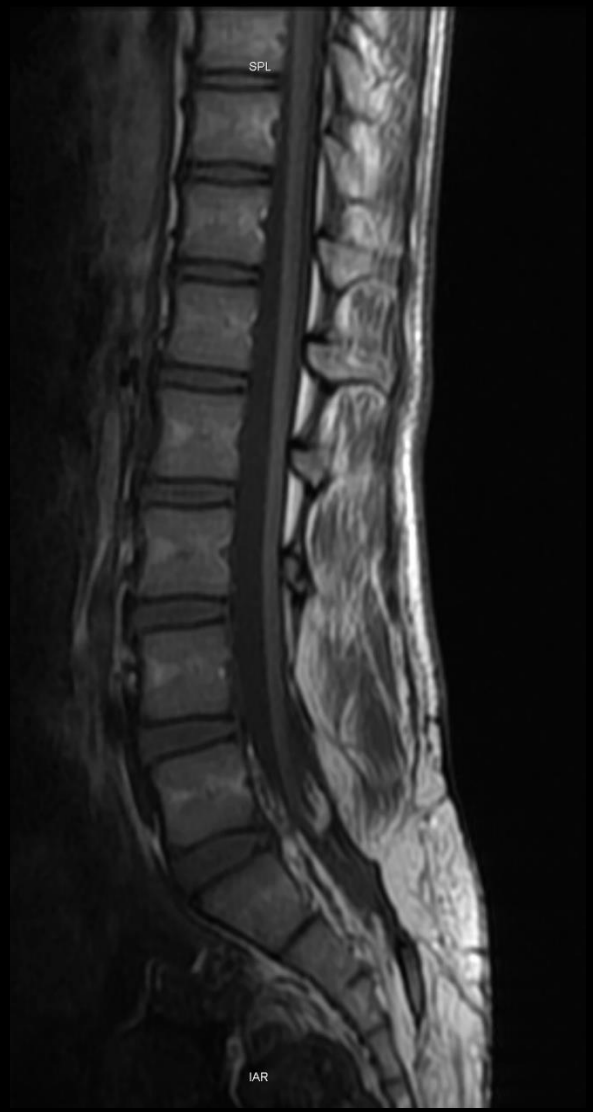
Q44

15 y/o Female

What is your diagnosis?



T2

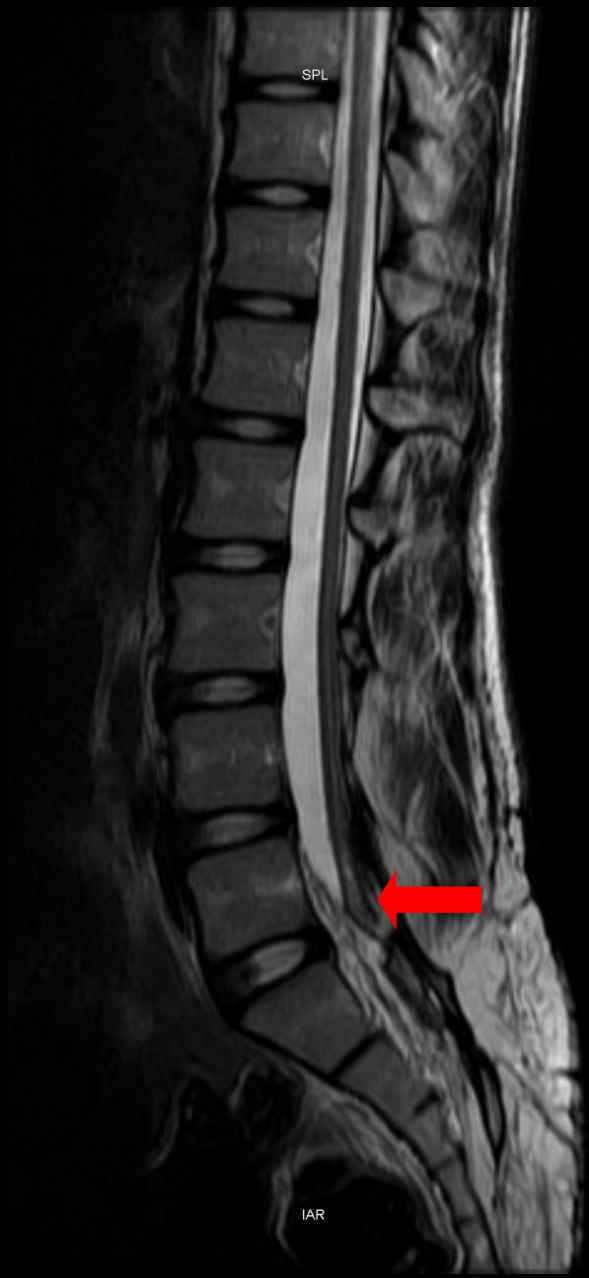


T1

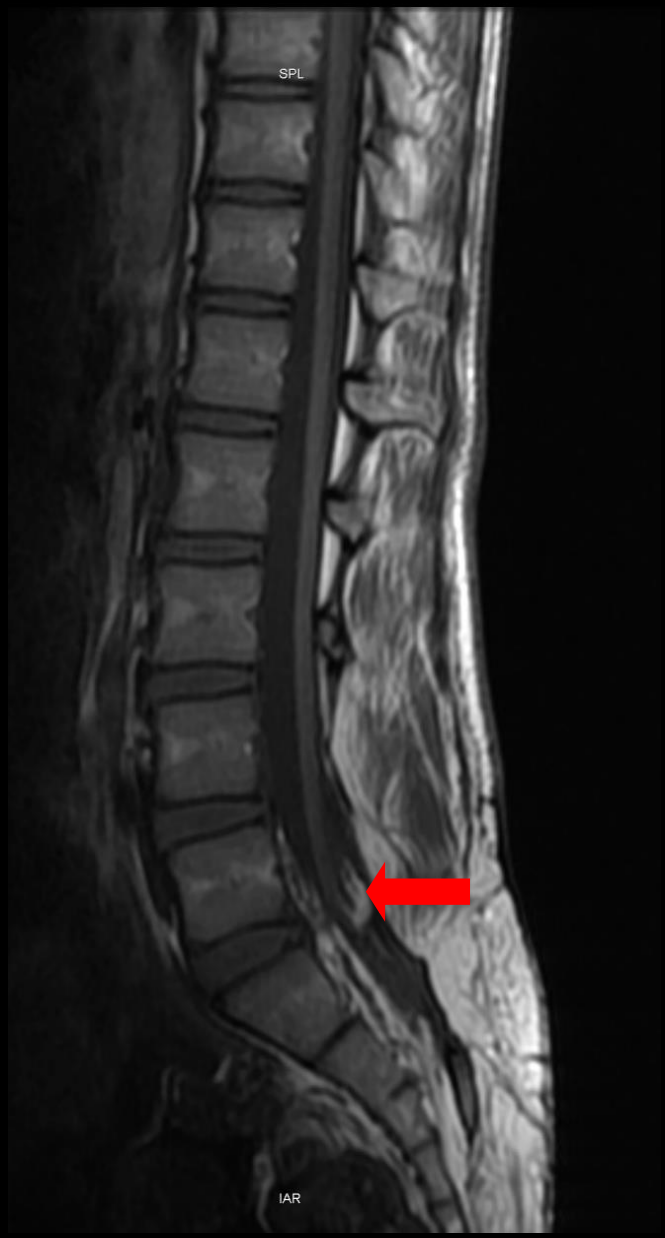
A44

Diagnosis:

Tethered spinal cord with lipoma



T2



T1

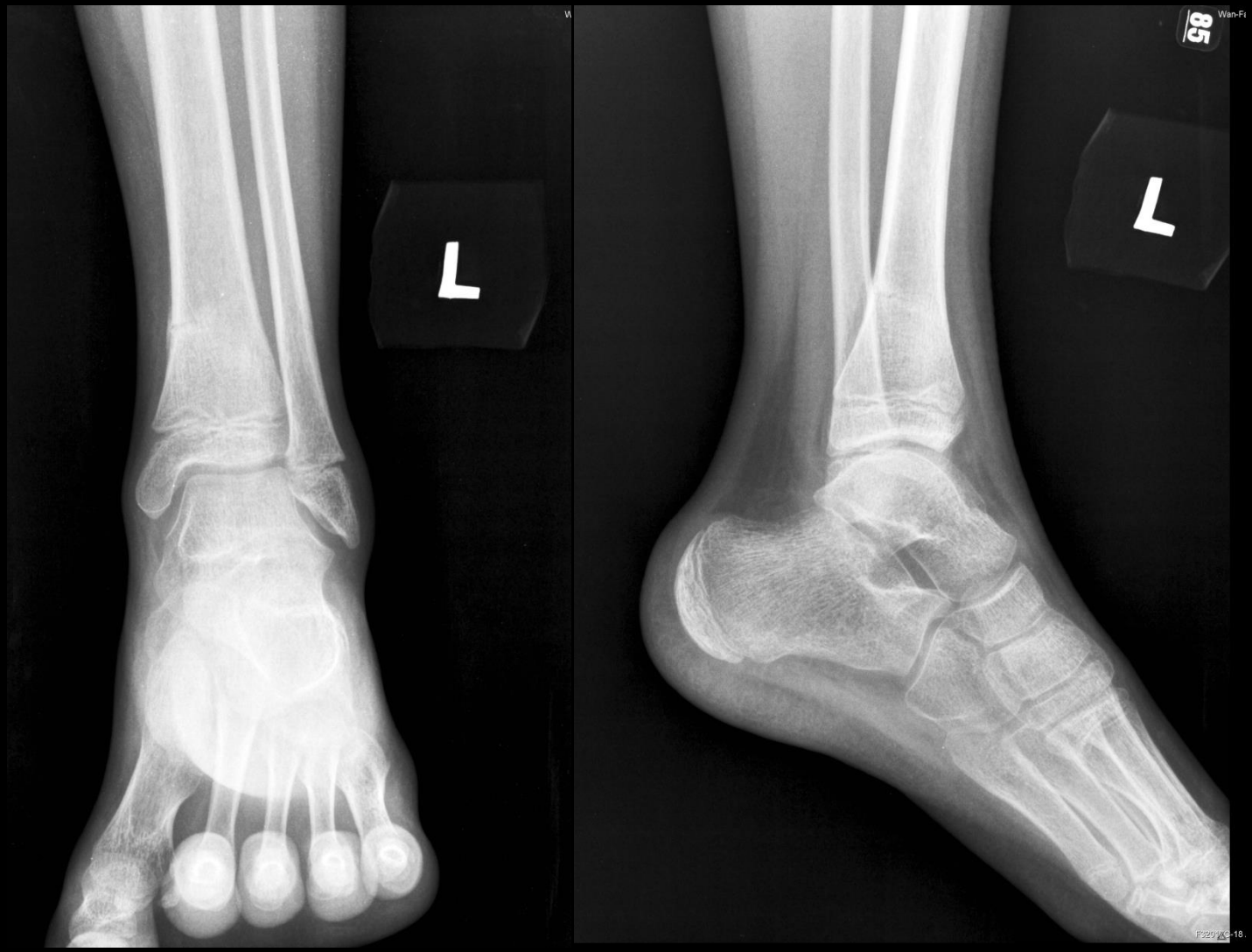
Tethered spinal cord

- A tethered spinal cord is caused by tissue that attaches and limits movement of the spinal cord.
- Rare disease – it happens in about 0.05-0.25 of 1000 births.
- The various forms include : tight filum terminale, lipomeningomyelocele, split cord malformations, dermal sinus tracts , dermoids, and cystoceles.
- Common symptoms include back pain, foot deformities, leg pain/weakness, scoliosis and incontinence.

Q45

9 y/o F
Trauma

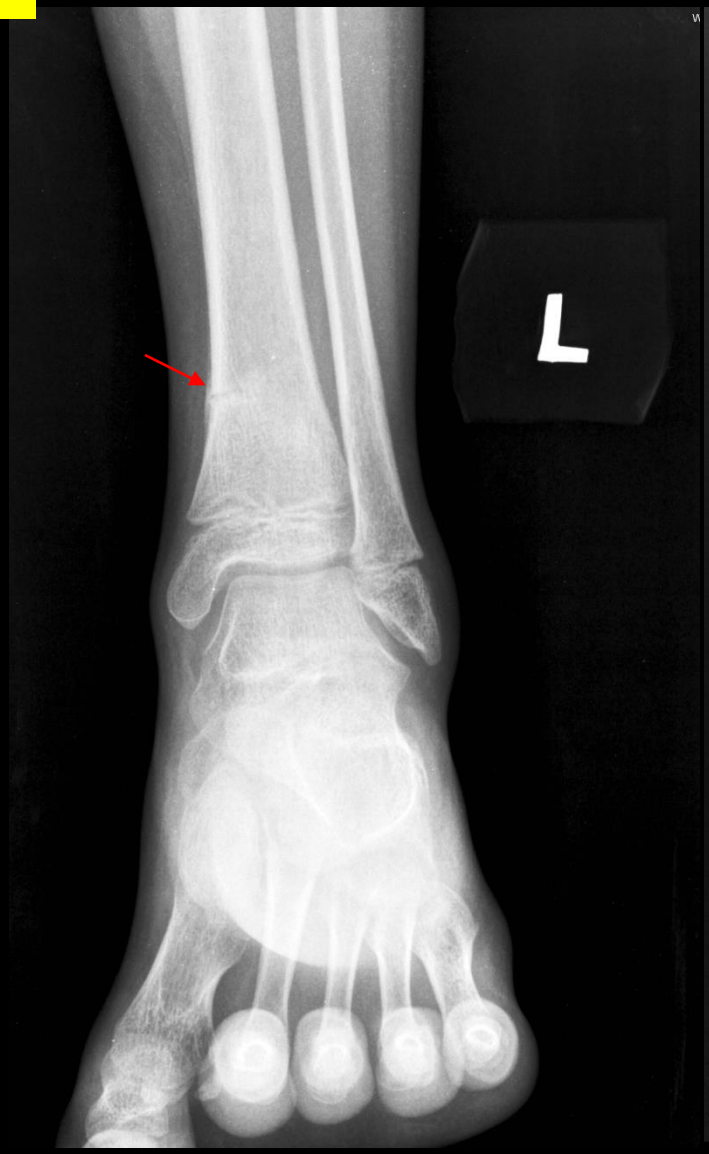
What is your diagnosis?

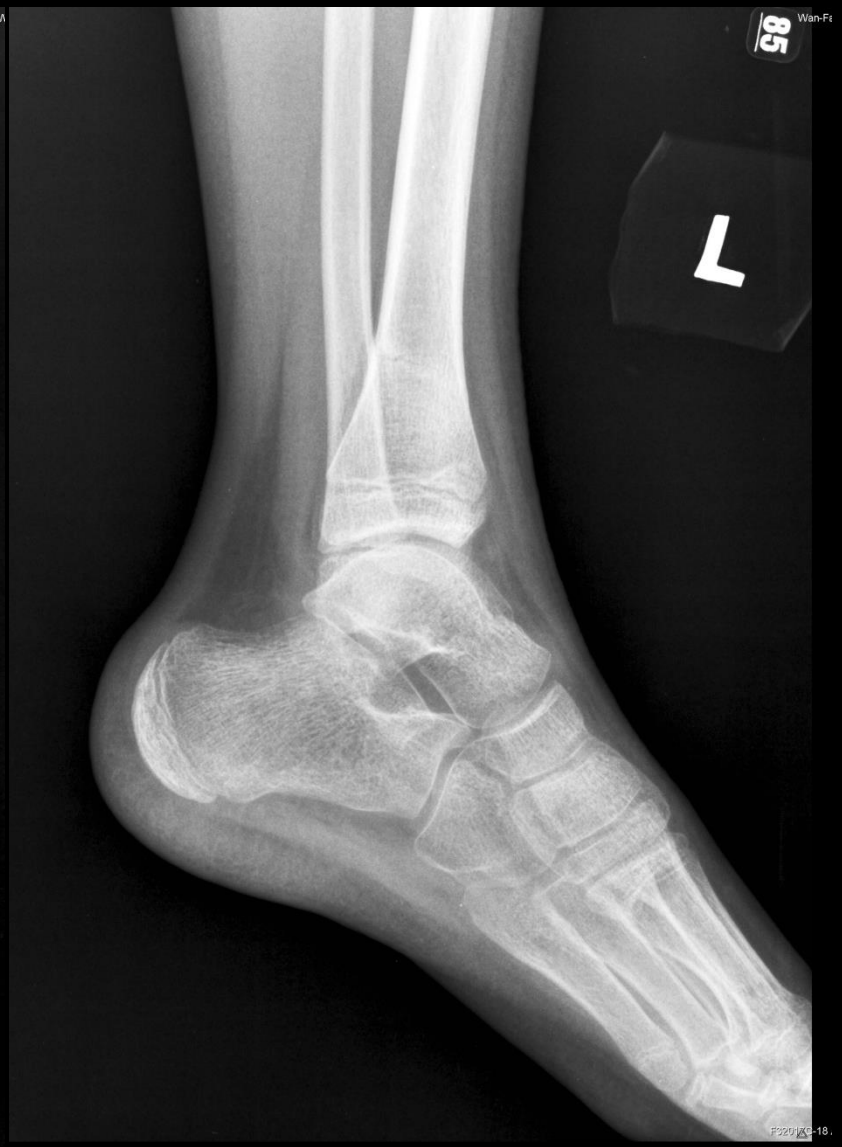


Diagnosis: Greenstick fracture

- The pliability of the child's skeleton relative to that of an adult allows the occurrence of four unique types of s:
- *(a)* plastic deformity (the bone is deformed beyond its ability to recoil but not to the point at which an outright fracture occurs, and it appears as an excessively bowed bone without cortical disruption);
- *(b)* torus fracture (occurs at the junction of the metaphysis and diaphysis from compression forces);
- *(c)* greenstick fracture (occurs when the bone is fractured on the side opposite the impact, but an incomplete fracture occurs with the cortex and periosteum remaining intact)
- *(d)* fracture involving the physis

A45



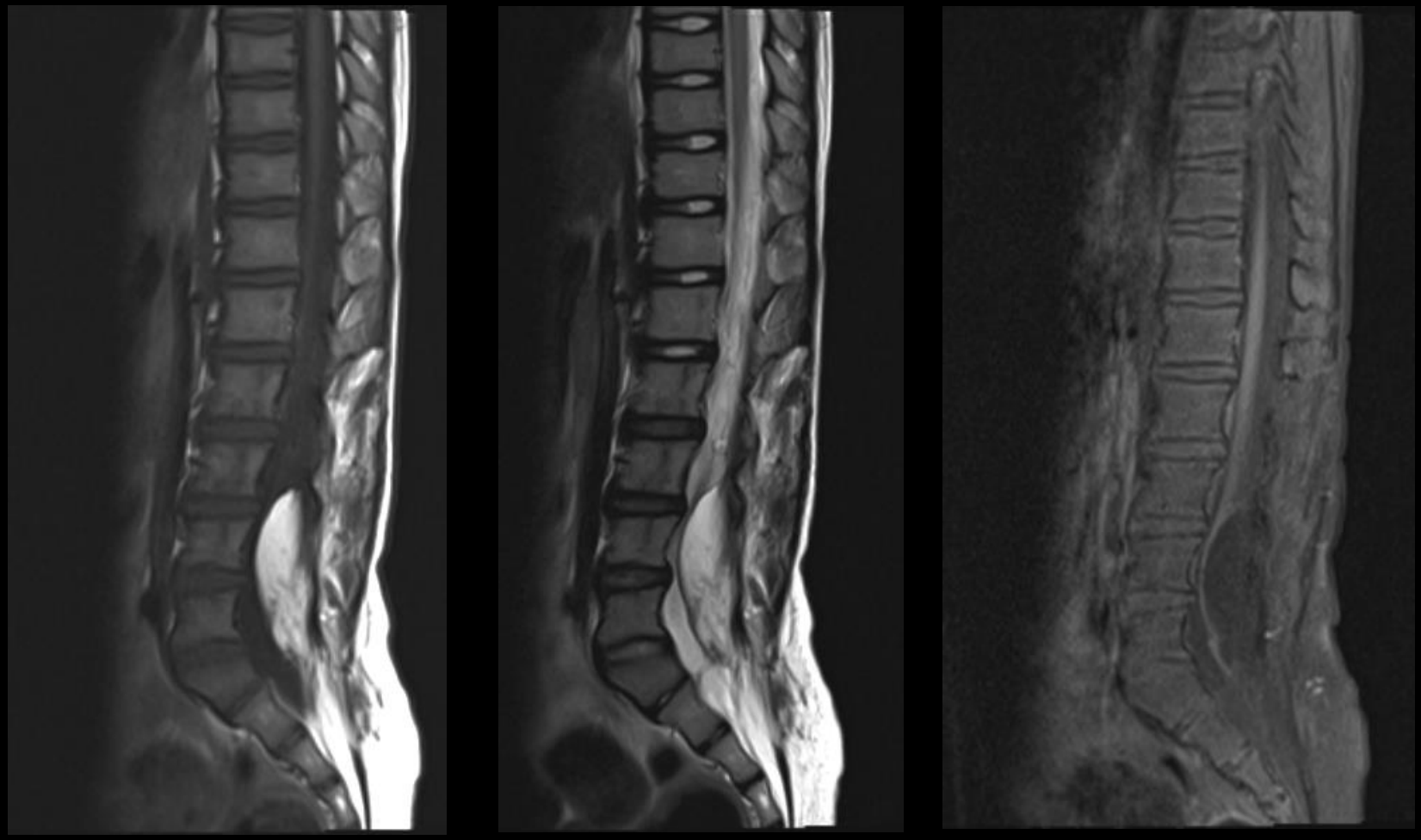


Q46

10 y/o male

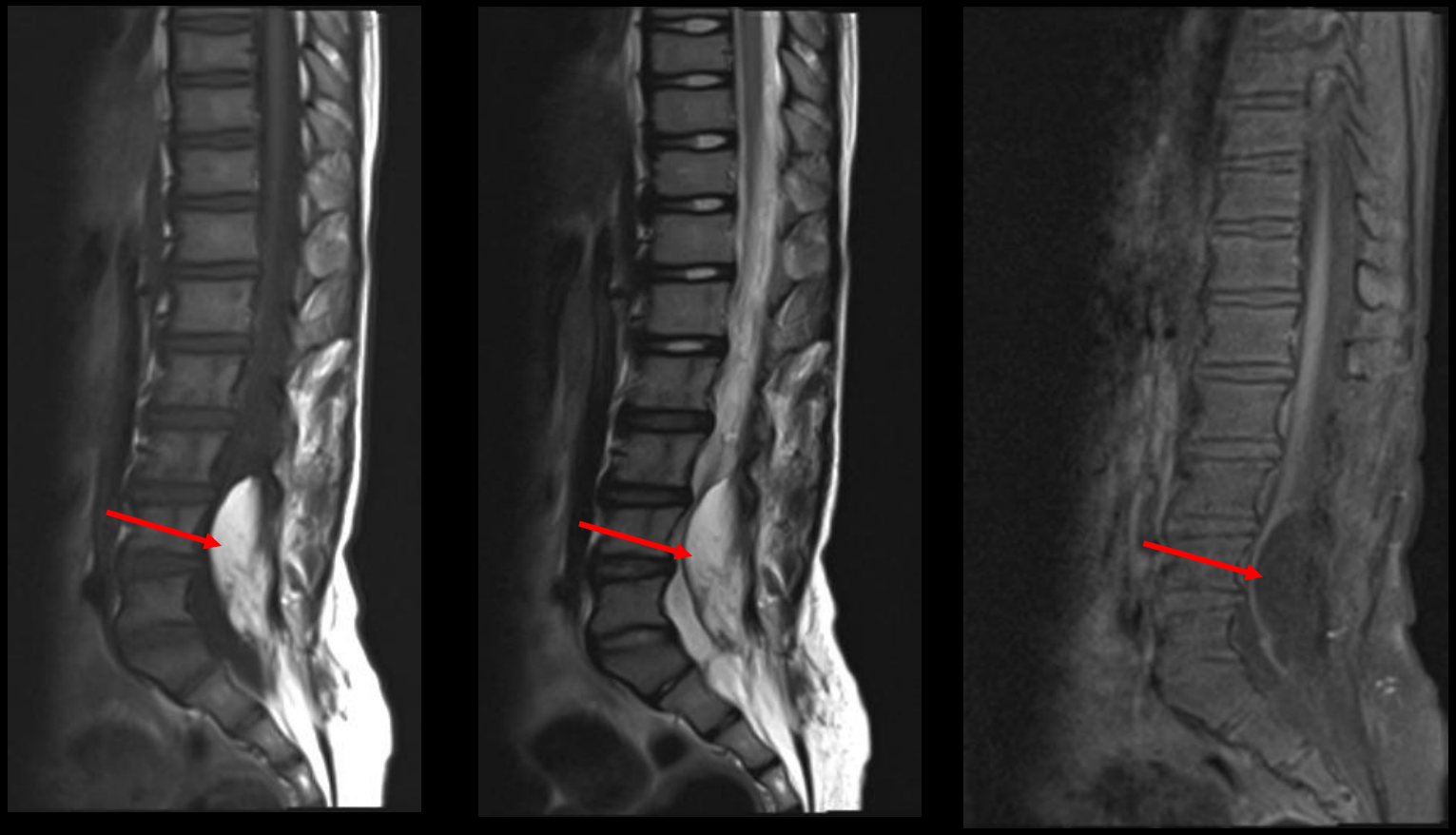
Spina bifida

What is your diagnosis?



A46

Diagnosis: lipomyelomeningocele



lipoma extending through the left paramedian dorsal defect of lumbosacral spine to form a large intracanalicular component.

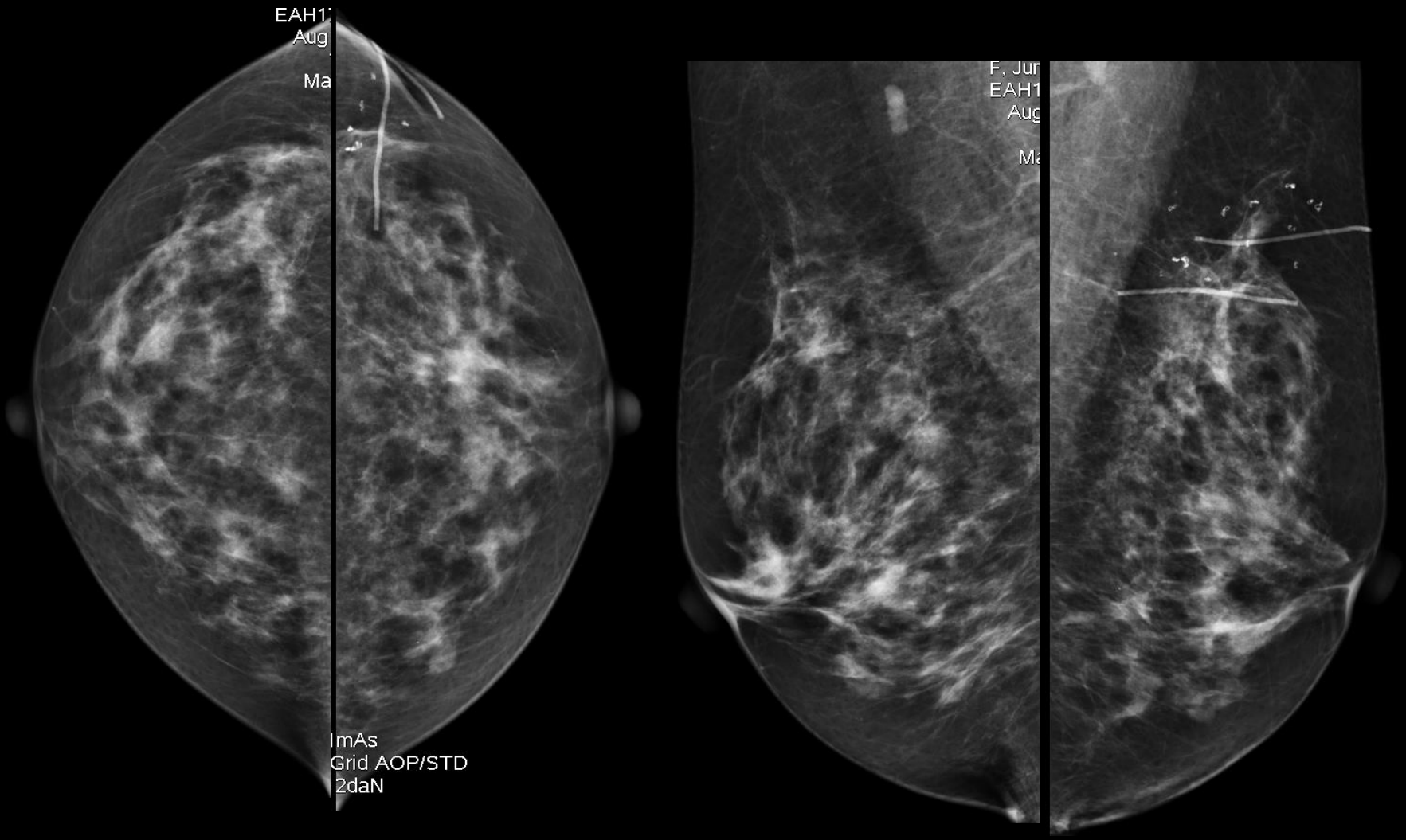
Discussion

- Lipoma tightly attached to exposed dorsal surface of neural placode blending with subcutaneous fat
- Age<6months F>M sensory loss in sacral dermatome, motor loss, bladder dysfunction., foot deformity, leg pain
- Site: lipoma dorsally continuous with subcutaneous fat
- Deformed undulating spinal cord with dorsal cleft
- Tethered cord
- Ventral + dorsal nerve foots leave neural placode ventrally
- Dilated subarachnoid space.

Q47

Screening mammography

What is your diagnosis?



A47

Diagnosis:
Benign suture calcifications in LUOQ

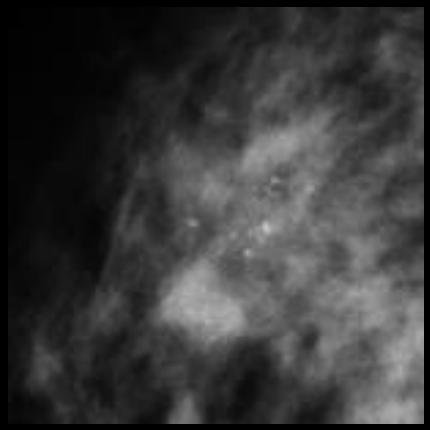
- New benign calcifications are found in the conservatively treated breast with a reported incidence of 28% within 6–12 months after therapy
- Calcified knots, thick branching linear forms, and double tracks may also be seen on mammograms; these findings represent calcified suture material.

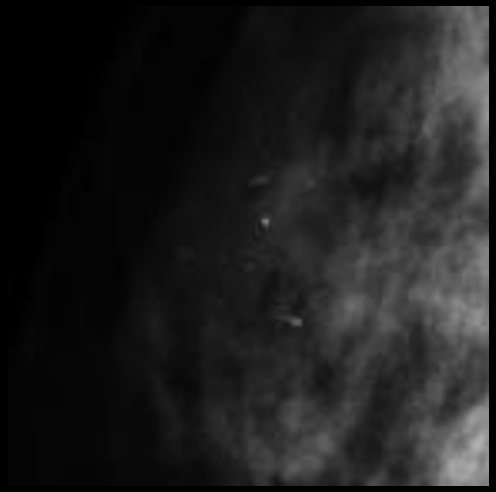
Mammographic Findings after Breast Conservation Therapy
October 1999 RadioGraphics, 19, S53-S62.

Q48-1

Screening mammography

What is your BIRADS diagnosis?





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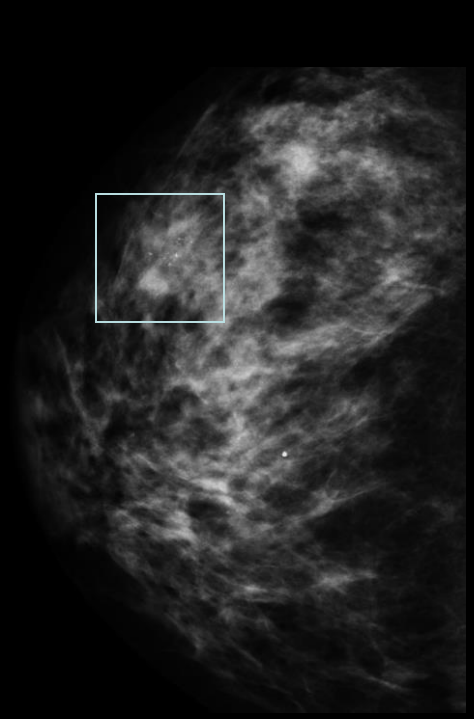
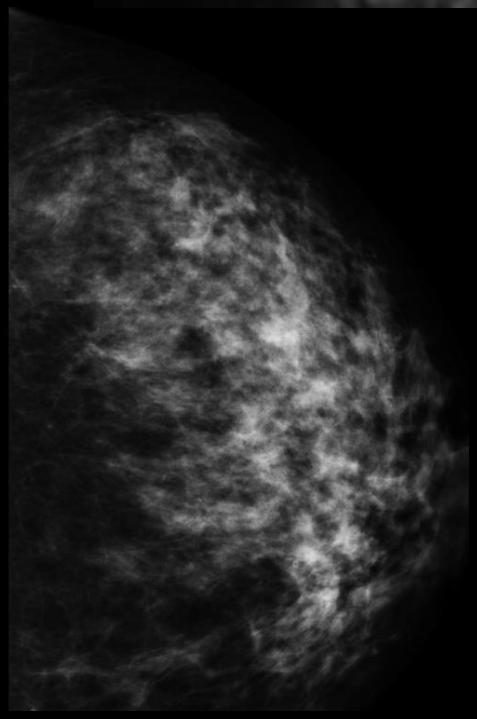
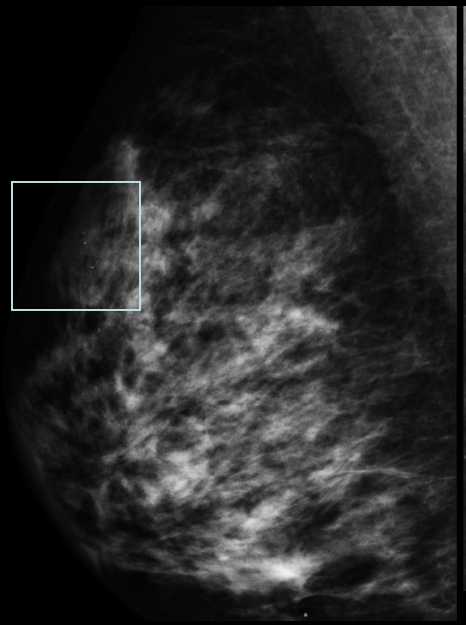
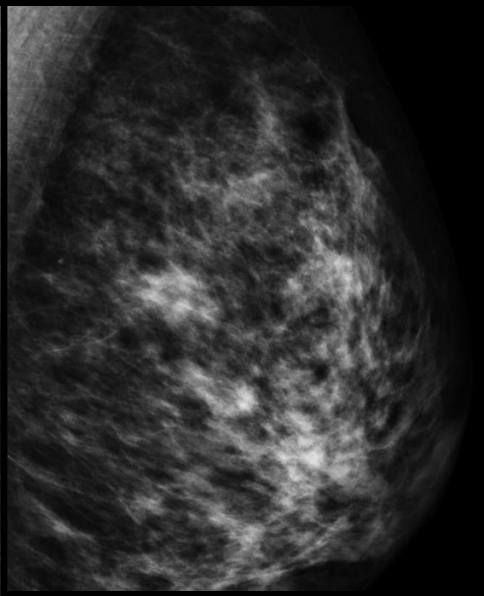




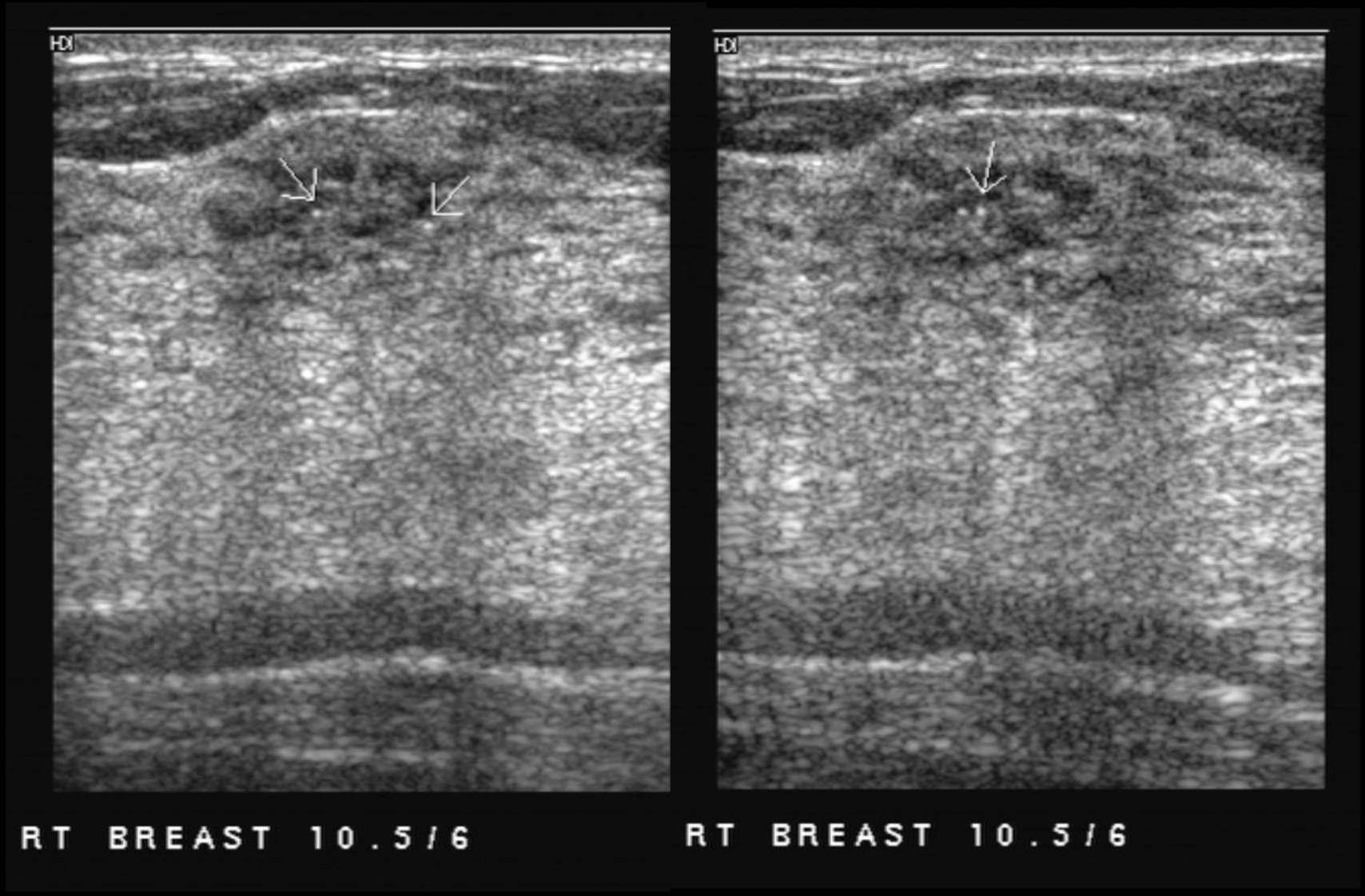




Q48-2

Right breast sonography:

What is your BIRADS diagnosis?



A48

Q1: microcalcifications,

BIRADS-Category: 4 or 5

Q2: BIRADS-Category: 5,

excisional biopsy

Discussion

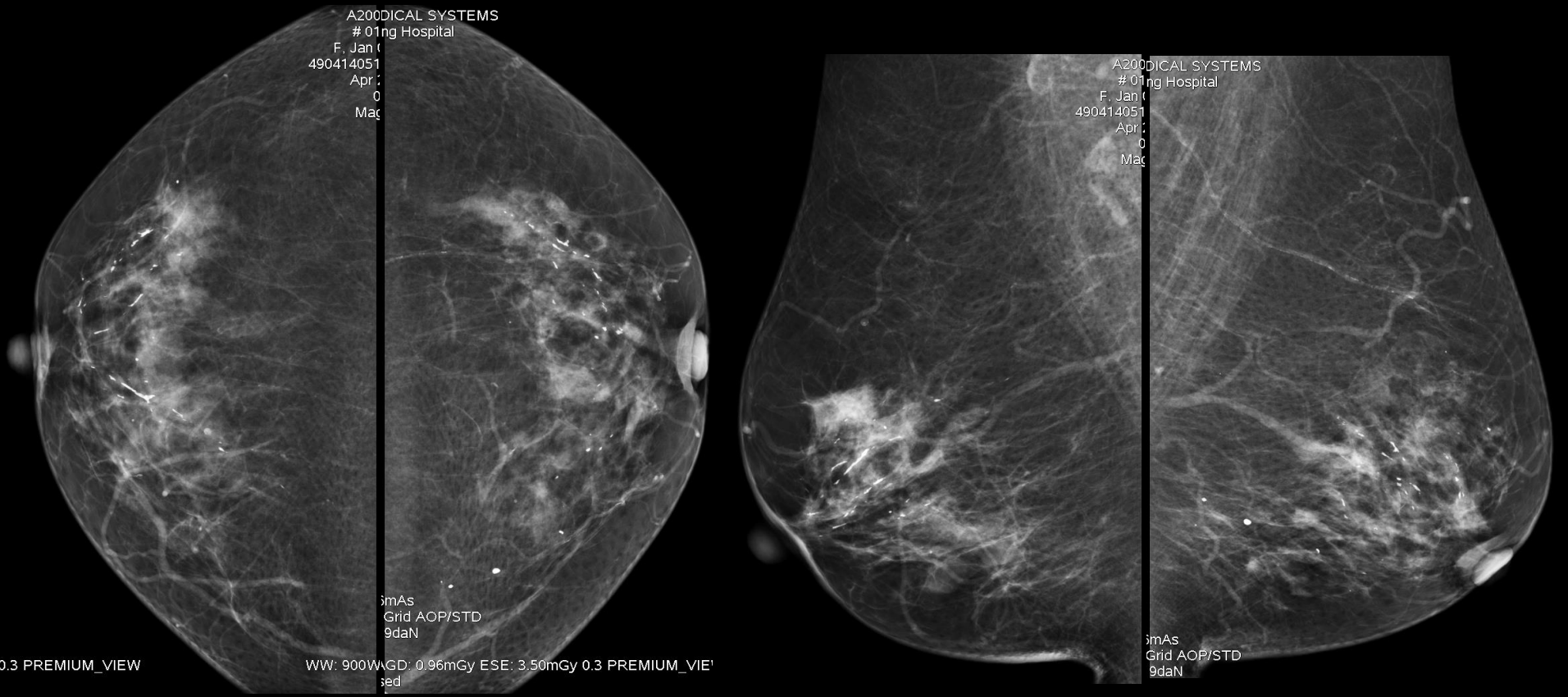
- Associated with malignant mass by mammogram in 40%, pathologically with special stains in 60%
- 20% of clustered microcalcifications represent a malignant process
- Fragmented, irregular contour, polymorphic, casting rod-shaped without polarity, Y-shaped branching pattern, granular "salt and pepper" pattern, reticular pattern
- Tight cluster over an area of $1cm^2$ or less

Radiology Review Manual, 5th edition,
Lippincott Williams & Wilkins

Q49

Screening mammography

What is your diagnosis?



A49

Diagnosis:
Bilateral benign ductal secretory disease

- Mammary duct ectasia = secretory disease of breast
- Multiple often bilateral dense round / oval calcifications with lucent center + polarity (toward nipple)
- Intraductal uniform linear, often "niddle-shaped" calcification of wide caliber, occasionally branching (within ducts / confined to duct walls)

Radiology Review Manual, 5th edition,
Lippincott Williams & Wilkins

Discussion

- **Invasive ductal carcinoma** :
  - Spiculated mass (36%) is principal finding
  - Malignant calcifications (45-60%)
- **Fibrocystic change :**
  - **Individual round / ovoid cysts with discrete smooth margins**
  - **“Oyster pearl-like” / psammoma-like calcifications**
  - **“Involutional type” calcification = very fine punctate calcifications evenly distributed within one / more lobes against a fatty background**

Radiology Review Manual, 5th edition,
Lippincott Williams & Wilkins

Q50-1

Right breast palpable nodule for 1 week

What is your BIRADS diagnosis?

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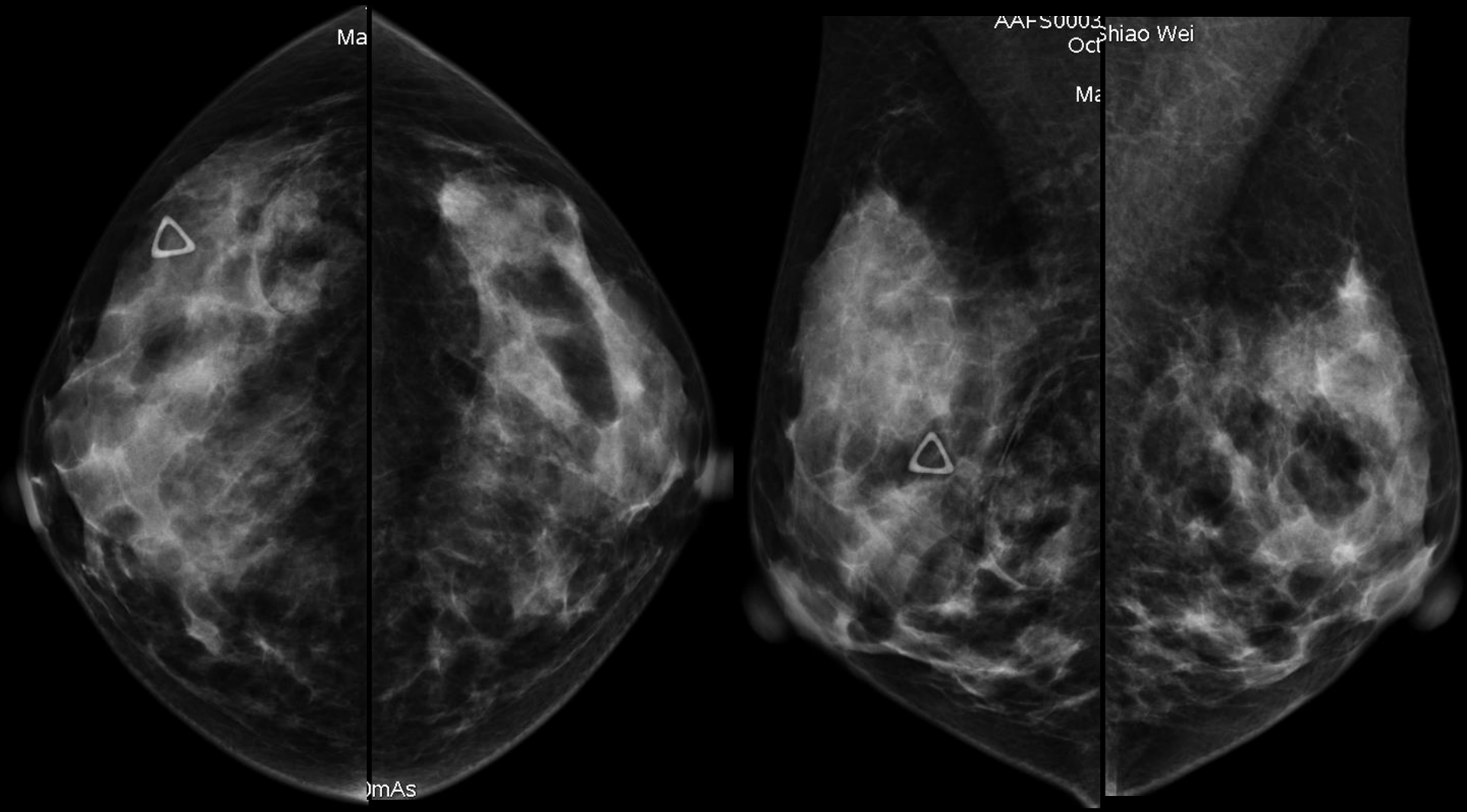
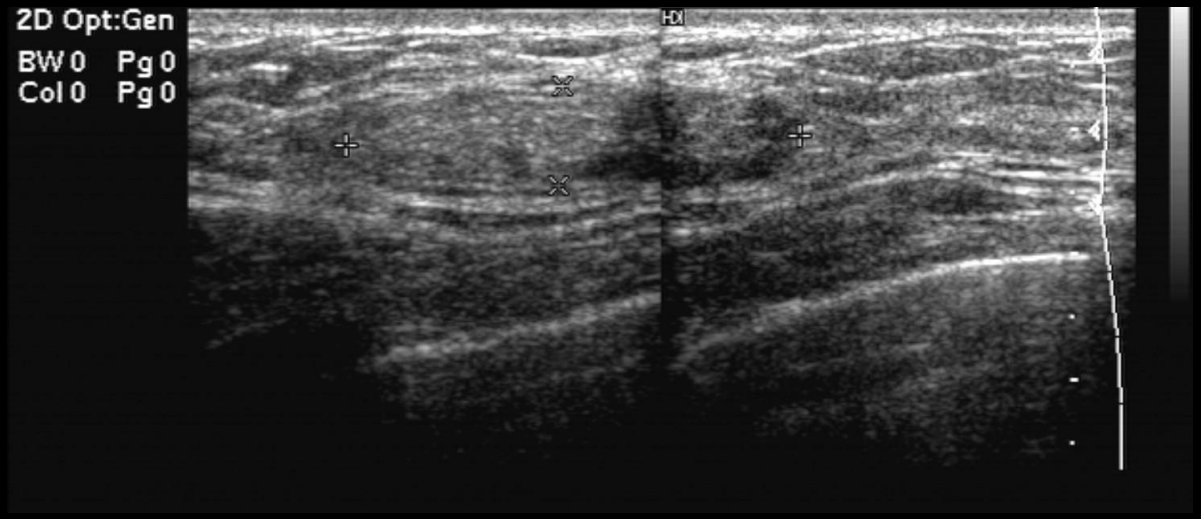
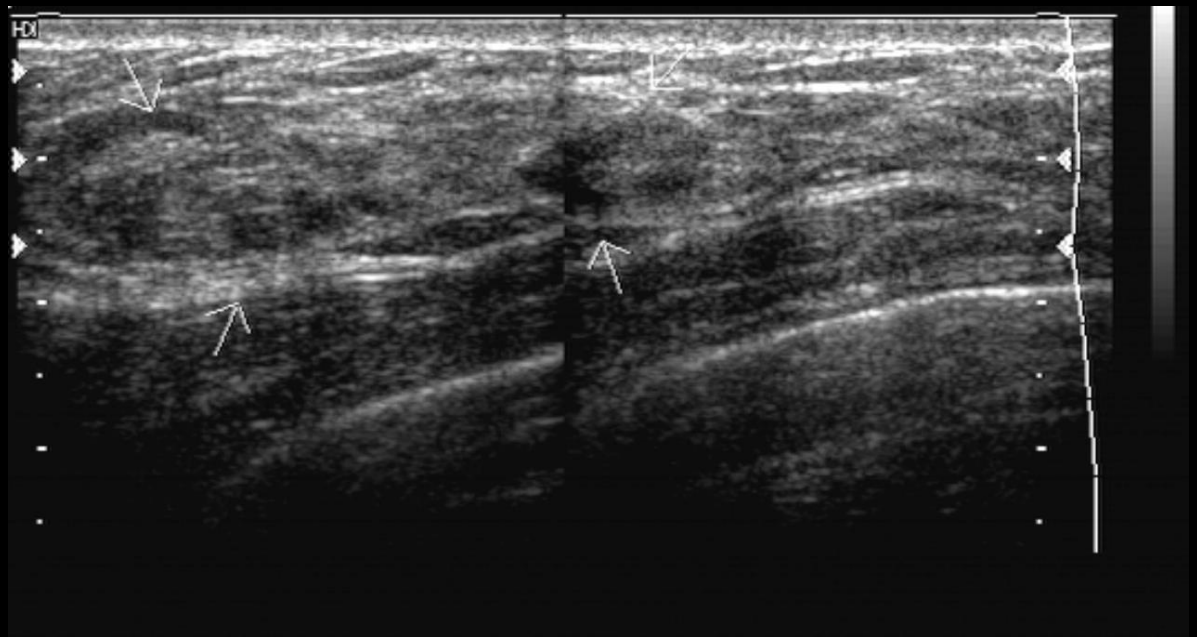


Q50-2

Right breast palpable nodule for 1 week

What is your BIRADS diagnosis?





A50

Diagnosis:

Hamartoma or fibroadenolipoma in RUOQ

- Normal / dysplastic mammary tissue composed of dense fibrous tissue + variable amount of fat
- Round/ovoid well-cirumscribed mass usually > 3cm
- Thin smooth pseudocapsule (= thin layer of surrounding fibrous tissue)

Radiology Review Manual, 5th edition,
Lippincott Williams & Wilkins

Discussion

- Most common signs/symptoms Asymptomatic or vague abdominal pain Jaundice, GI bleeding (rarely), palpable abdominal mass; Lab data: Usually normal; ± elevated liver or pancreatic enzymes
- Age: < 35 years (rarely reported in older adults) Gender: 90% are women Ethnicity: African-Americans, Asians, or other non-Caucasians
- Complications: Hemorrhage, biliary obstruction Prognosis: Good, after surgical resection < 10% metastasize or recur
- Additional CT finding:
  - ± calcification (5-10%)
  - Low-density areas of variable size within lesion; depends on degree of hemorrhage and necrosis
  - Thick, enhancing "capsule" (solid component)
  - ± vascular invasion, metastases to liver, nodes
- Diagnostic checklist:
  - Consider Encapsulated, mostly solid pancreatic mass in young African-American or Asian female

Diagnostic imaging Abdomen 2nd edition