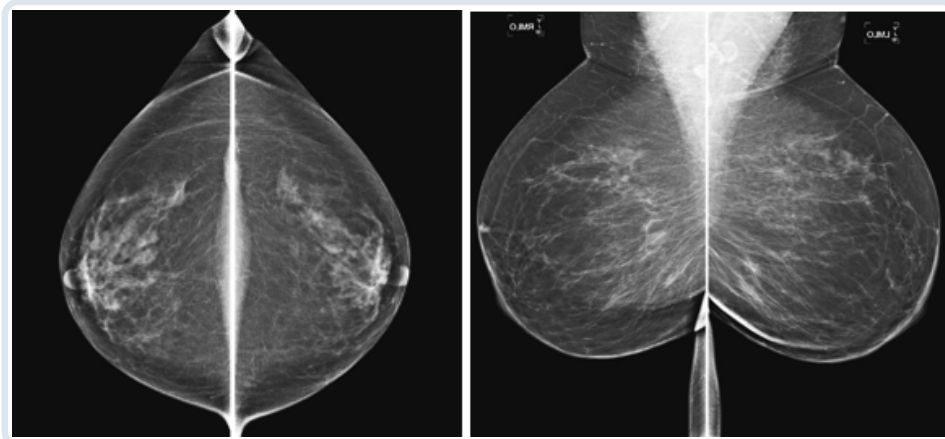


QUESTION

Identify the radiological investigation shown in the image below:



A Mammography

CORRECT

B CT scan

C X-ray

D MRI

RIGHT ANSWER

OK A. Mammography

WHY THIS IS RIGHT

Mammography is identified by standard CC and MLO projection views showing compressed breast tissue with characteristic fibroglandular (white) and fatty (dark) tissue patterns using specialized low-energy X-rays.

Key Visual Clues:

- Compressed breast between plates
- Fibroglandular densities (white)
- Fat appears dark
- Views:
 - CC (Craniocaudal)
 - MLO (Mediolateral oblique)

| Modality | Radiation | Use | Key Feature |

| ----- | ----- | --- | ----- |

| Mammography | Low-dose X-ray | Screening breast cancer | Microcalcifications |

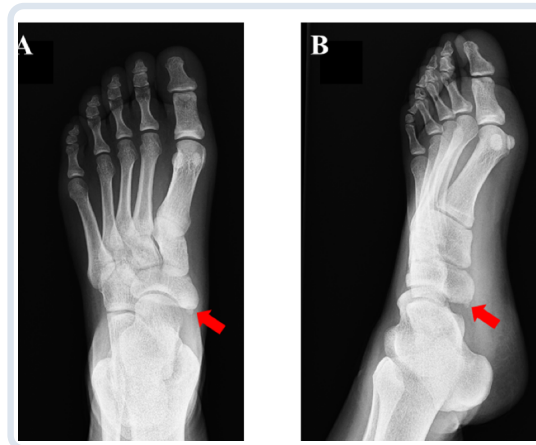
| Ultrasound | No radiation | Cyst vs solid | Real-time |

| MRI | No radiation | High-risk screening | Contrast enhancement |

| CT | High radiation | Not routine for breast | Cross-sectional |

QUESTION

On the provided X-ray of the foot, identify the bone marked with red arrow.



A Talus

B Navicular

CORRECT

C Lateral calcaneus

D Medial calcaneus

RIGHT ANSWER

OK

B. Navicular

WHY THIS IS RIGHT

The navicular bone is a boat-shaped tarsal bone located medially in the midfoot between the talus proximally and three cuneiforms distally, serving as the keystone of the medial longitudinal arch.

| Option | Verdict | Why |

| ----- | ----- | --- |

| A. Talus | ☐ | Superior bone, forms ankle joint |

| B. Navicular | ☒ | Medial midfoot, anterior to talus |

| C. Lateral calcaneus | ☐ | Calcaneus is posterior (heel), not midfoot |

| D. Medial calcaneus | ☐ | Calcaneus doesn't have medial/lateral distinction like this in X-ray ID questions |



QUESTION

Identify the image.



A Fluoroscopy

CORRECT

B Barium swallow

C Acid ingestion

D Alkali ingestion

RIGHT ANSWER

A. Fluoroscopy

WHY THIS IS RIGHT

Fluoroscopy is a dynamic X-ray imaging technique used to visualize the motion of the pharynx and esophagus during swallowing. It provides real-time assessment, unlike a static barium swallow.

Fluoroscopy

- Dynamic imaging (real-time) ☐
- Used with contrast (e.g., barium)
- Shows:
 - Swallowing
 - Peristalsis
 - Reflux
- Appears like a continuous sequence rather than a single image

| Application | Example |

| ----- | ----- |

| GI studies | Barium swallow, meal, enema |

| Interventions | Angiography, catheter placement |

| Orthopedics | C-arm guidance |

| Urology | MCU (micturating cystourethrogram) |

| Option | Type | Key Feature |

| ----- | ---- | ----- |

| Fluoroscopy | Modality ☐ | Real-time imaging |

| Barium swallow | Procedure | Uses fluoroscopy |

| Acid ingestion | Disease | Coagulative necrosis |

| Alkali ingestion | Disease | Liquefactive necrosis |

QUESTION

Identify the marked ligament on knee MRI.



A PCL

CORRECT

B ACL

C Meniscus

D MCL

RIGHT ANSWER

OK A. PCL

WHY THIS IS RIGHT

The arrow points to the posterior cruciate ligament attaching to posterior tibial condyle. ACL lies anteriorly, menisci are cartilaginous pads, and MCL is medial extracapsular.

Signature Clues:

- Location: Posterior to ACL
- Shape: Thick, C-shaped / curved band
- Signal: Uniformly low signal (dark)
- Attachment: From tibia -> medial femoral condyle

| Ligament | Function |

| ----- | ----- |

| PCL | Prevents posterior displacement of tibia |

| ACL | Prevents anterior displacement |

| Structure | Appearance |

| ----- | ----- |

| PCL | Thick, dark, curved |

| ACL | Thin, oblique |

| Meniscus | Triangular |

| MCL | Linear (medial side) |

QUESTION

Identify the correct statement:

- A** CT uses non-filtered X-rays
- B** Radiation exposure in CT scan is 20mSv
- C** CT is the initial investigation for gallstones
- D** HU of water is zero

CORRECT

RIGHT ANSWER

- OK** D. HU of water is zero

WHY THIS IS RIGHT

The Hounsfield Unit (HU) of water is zero, serving as a reference point for measuring the radiodensity of various tissues in CT imaging.

X-rays pass through body

↓

Different tissues attenuate differently

↓

Computer assigns attenuation value

↓

Standardized as Hounsfield Units (HU)

↓

Water = 0 (reference point)

Substance	HU Value
-----------	----------

-----	-----
-------	-------

Air	-1000
-----	-------

Fat	-100 to -50
-----	-------------

Water	0
-------	---

Soft tissue	+30 to +60
-------------	------------

Bone	+1000
------	-------

QUESTION

Which contrast agent is safe in a patient with renal failure?

A USG contrast agents

CORRECT

B MRI contrast agents

C Iodinated contrast

D CT contrast agent

RIGHT ANSWER

OK

A. USG contrast agents

WHY THIS IS RIGHT

USG contrast agents, such as SONO (sulfur hexafluoride microbubbles), are the only contrast agents safe for use in patients with renal failure as they are excreted via the lungs and do not rely on renal clearance. USG contrast is SAFE-

Composition: Microbubbles (gas-filled)

Excretion:

- Eliminated via lungs (exhaled air)
- NOT dependent on kidneys

So: No renal burden -> safe in renal failure

Contrast Type	Modality	Risk in Renal Failure
USG contrast	Ultrasound	SAFE
MRI contrast (Gadolinium)	MRI	NSF risk
Iodinated contrast	CT	Contrast nephropathy
CT contrast agent	CT	Same as iodinated

Condition	Avoid
Renal failure	Iodinated + Gadolinium
Pregnancy	Radiation (CT/X-ray)
Allergy history	Iodinated contrast

QUESTION

| Which imaging modality is contraindicated in pregnancy?

A USG

B MRI

C CT

CORRECT

D Doppler

RIGHT ANSWER

OK

C. CT

WHY THIS IS RIGHT

CT uses ionizing radiation, harmful to fetus, hence contraindicated. CT is contraindicated because-

Risks to fetus:

- DNA damage
- Congenital malformations
- Growth retardation
- Increased cancer risk later in life

Especially dangerous in: First trimester

USG, MRI, and Doppler are safe as they do not involve radiation.

| Modality | Radiation | Safe in Pregnancy |

| ----- | ----- | ----- |

| USG | ☐ No | ☐ Safe |

| MRI | ☐ No | ☐ Safe (avoid contrast) |

| CT | Yes | ☐ Avoid |

| Doppler | ☐ No | ☐ Safe |

QUESTION

| A patient with chronic diarrhea shows the following CT appearance. Diagnosis?



A Ulcerative colitis

CORRECT

B Tubercular colitis

C Crohn's disease

D Pseudomembranous enterocolitis

RIGHT ANSWER

OK

A. Ulcerative colitis

WHY THIS IS RIGHT

Loss of haustrations gives a smooth tubular colon, typical of chronic ulcerative colitis.
TB affects ileocecal junction, Crohn shows skip lesions, pseudomembranous colitis shows accordion sign.

QUESTION

| Which of the following is not echogenic on USG?

A Bile

CORRECT

B Gallstones

C Fat

D Diaphragm

RIGHT ANSWER

OK

A. Bile

WHY THIS IS RIGHT

On ultrasonography, structures that reflect sound waves appear echogenic (bright), while fluid-filled structures appear anechoic (dark).

- Bile -> anechoic (black) -> not echogenic
- Gallstones -> highly echogenic with posterior acoustic shadow
- Fat -> echogenic

Diaphragm -> echogenic bright curvilinear structure

QUESTION

A 3-day-old newborn baby boy is brought to the hospital with difficulty breathing, cyanosis and coughing whenever he is fed. The baby was born full-term via vaginal delivery, and his mother had an uneventful pregnancy. He had a birth weight of 2.8 kg and was discharged from the hospital after 48 hours of observation. On examination, the baby appears to be in respiratory distress, with increased work of breathing and decreased oxygen saturation levels. What would be the best contrast of choice for study?

A Iohexol

CORRECT

B Gastrografin

C Water

D Barium

RIGHT ANSWER

OK A. Iohexol

WHY THIS IS RIGHT

A neonate with cyanosis, coughing, and respiratory distress during feeding suggests tracheoesophageal fistula (TEF)/esophageal atresia.

For contrast study in suspected TEF:

- Use a non-ionic, water-soluble contrast (e.g., Iohexol)
- It is less irritating to lungs if aspirated
- Safer than hyperosmolar agents like Gastrografin

Avoid:

- Barium -> causes severe chemical pneumonitis if aspirated
- Gastrografin -> hyperosmolar, risk of pulmonary edema

QUESTION

What should be done to improve the contrast of an X-ray film in a morbidly obese patient?

A Decrease KVP

B Increase KVP

C Increase mAs

D Increase both KvP and mAs

CORRECT

RIGHT ANSWER

OK

D. Increase both KvP and mAs

WHY THIS IS RIGHT

In morbidly obese patients, greater tissue thickness causes increased X-ray absorption and scatter, leading to poor penetration and low image quality. To obtain an optimal radiograph:

- Increase kVp -> improves beam penetration through thick tissues
- Increase mAs -> increases number of photons reaching detector, improving image density

QUESTION

| Which of the following statements are false regarding X Rays?

A Loss of soft tissue planes is the earliest X-ray change of infection

B Glass pieces can be seen as radiopaque in X-ray images

C Cartilage is not visualized on X-ray.

D Live bone is more radio-opaque than dead bone on X- Ray images

CORRECT

RIGHT ANSWER

OK

D. Live bone is more radio-opaque than dead bone on X- Ray images

WHY THIS IS RIGHT

On X-ray, dead bone (sequestrum) appears more radiopaque (whiter) than living bone because it loses its blood supply and undergoes increased mineralization, while surrounding living bone becomes osteopenic due to inflammation. Therefore, the statement that live bone is more radiopaque than dead bone is false.

Key Radiology Points:

- Earliest sign of infection on X-ray: Loss of soft tissue planes/swelling
- Glass pieces: Radiopaque and visible on X-ray
- Cartilage: Not visualized on X-ray (radiolucent)
- Sequestrum (dead bone): More radiopaque than viable bone

QUESTION

Which of the following isn't considered a benefit of USG compared to Mammography?

- A** Can be used for screening mammographically undetectable or clinically non palpable breast mass CORRECT
- B** Useful in young females with dense breast
- C** Differentiates between solid and Cystic lesions in the Breast
- D** Guided biopsy can be done

RIGHT ANSWER

- OK** **A. Can be used for screening mammographically undetectable or clinically non palpable breast mass**

WHY THIS IS RIGHT

Breast ultrasonography (USG) is primarily a diagnostic adjunct to mammography-not a primary screening tool. It is especially useful in *young women with dense breasts*, But not routinely used for screening clinically non-palpable or mammographically occult breast masses due *lower sensitivity for microcalcifications.* so, Not recommended as routine screening in average-risk women.

- ☐ Correct answer: A
- B. Useful in young females with dense breasts**
- ☐ Correct - Mammography sensitivity decreases in dense breasts. USG performs better in dense tissue.
- C. Differentiates solid vs cystic lesions**
- ☐ Classic advantage of USG. Mammography cannot reliably do this.
- D. Guided biopsy can be done**
- ☐ Real-time imaging allows USG-guided FNAC/core biopsy.

TAKEAWAY

Mammography = screening tool.
Ultrasound = problem-solving tool (ie one step after screening)

QUESTION

| Which of the following is not a true statement about CT?

- A MDCT offers a better 3D reconstruction
- B The higher the pitch, the lower will be the CT quality
- C Helical CT is faster than non-helical CT
- D The higher the pitch, the higher will be the radiation dose**

CORRECT

RIGHT ANSWER

- OK D. The higher the pitch, the higher will be the radiation dose**

WHY THIS IS RIGHT

In CT imaging, pitch refers to table movement per gantry rotation relative to beam width.

Imagine CT scan table is like a moving conveyor belt.

- Low pitch -> Table moves slowly
- High pitch -> Table moves fast

When the table moves slowly:

- X-rays overlap more
- Patient gets more radiation

When the table moves faster (high pitch):

- X-rays overlap less
- Patient gets less radiation

So:

High pitch = Faster scan = Less overlap = Less radiation dose

That's why option D is wrong.

Simple rule to remember:

- Higher pitch -> lower dose -> slightly lower image quality

Thus:

- Higher pitch -> faster scan, lower radiation dose, slightly lower image quality
- Lower pitch -> slower scan, higher radiation dose, better image quality

Multidetector CT (MDCT) enables rapid acquisition and superior 3D reconstruction compared with conventional CT.

QUESTION

A 70-year-old man comes to the casualty after 3 episodes of sudden loss of vision in his right eye like a curtain falling down, each of which resolved spontaneously after about 2 minutes. He has a history of hypertension and diabetes. Neurological examination of the patient is normal. What investigation would aid in the management of this patient?

A Doppler of the neck

CORRECT

B MRI Diffusion-weighted imaging of the brain

C Non-contrast head CT

D Ocular B scan

RIGHT ANSWER

OK **A. Doppler of the neck**

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$19" here and does not include a written explanation for this item.

QUESTION

All of the following are correct differences between normal radiography and mammography, except:

- A Radiography uses tungsten as the target, while mammography uses molybdenum
- B Beryllium is used as the exit window in mammography
- C Mammography uses Bremsstrahlung radiation for better tissue contrast
- D Aluminum filter is used in radiography, while molybdenum is used in mammography

CORRECT

RIGHT ANSWER

- OK
- C. Mammography uses Bremsstrahlung radiation for better tissue contrast

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1a" here and does not include a written explanation for this item.

QUESTION

A 24 year old female comes to emergency with complaints of acute abdominal pain. The attending physician wants to get an abdominal X-ray done for the same. What does the “10 day rule” advise regarding X-ray exposure for women of child bearing age refer to?

- A A gap of less than 10 days between 2 successive X rays.
- B Avoid non urgent X-rays within 10 days post menstruation.
- C Perform X-rays during the first 10 days of the menstrual cycle.**
- D X rays should be avoided 10 days before menstruation.

CORRECT

RIGHT ANSWER

- OK
- C. Perform X-rays during the first 10 days of the menstrual cycle.**

WHY THIS IS RIGHT

The “10-day rule” recommends that non-urgent radiological examinations involving ionizing radiation in women of reproductive age should be performed within the first 10 days of the menstrual cycle (counting from the first day of menstruation).

This timing minimizes the risk of irradiating an unrecognized early pregnancy, as ovulation and potential conception are unlikely during this period.

QUESTION

Functional MRI (fMRI) works on which of the following principles?

- A** Diffusion restriction of water molecules
- B** T1 shortening due to gadolinium uptake
- C** **Blood Oxygen Level-Dependent (BOLD) contrast**
- D** Changes in proton density of neuronal tissue

CORRECT

RIGHT ANSWER

- OK** **C. Blood Oxygen Level-Dependent (BOLD) contrast**

WHY THIS IS RIGHT

Functional MRI (fMRI) is based on Blood Oxygen Level-Dependent (BOLD) contrast, which detects changes in regional cerebral blood flow and oxygenation associated with neuronal activity. Active brain areas consume more oxygen, leading to local changes in oxyhemoglobin/deoxyhemoglobin ratio that alter magnetic properties and signal intensity on MRI, allowing mapping of functional brain activity without contrast injection.

QUESTION

| All of the following are correctly paired with HU on CT except:

A Fat: 0-20

CORRECT

B Contrast: 130

C Acute hemorrhage: 60-70

D Calcification: 800-1000

RIGHT ANSWER

OK

A. Fat: 0-20

WHY THIS IS RIGHT

Hounsfield units (HU) on CT quantify tissue density relative to water (0 HU). Fat has negative attenuation values due to low density and typically ranges from -50 to -100 HU, not 0-20 HU.

Typical CT attenuation values:

- Air: ~ -1000 HU
- Fat: -50 to -100 HU
- Water: 0 HU
- Soft tissue/contrast: ~30-130 HU
- Acute hemorrhage: ~60-70 HU

Bone/calcification: 800-1000+ HU

QUESTION

| Which of the following investigations does not use ionizing radiation?

A Scintigraphy

B **FAST**

CORRECT

C IVP

D DSA

RIGHT ANSWER

OK **B. FAST**

WHY THIS IS RIGHT

FAST (Focused Assessment with Sonography in Trauma) uses ultrasound, which is a non-ionizing imaging modality and does not expose patients to radiation.

In contrast, scintigraphy, intravenous pyelography (IVP), and digital subtraction angiography (DSA) all involve ionizing radiation-either from radiotracers or X-rays. Ultrasound and MRI are the primary imaging modalities that avoid ionizing radiation and are preferred when radiation exposure must be minimized (e.g., in pregnancy or repeated imaging).

QUESTION

What is the diagnosis?



A Wolman disease

B Chronic pancreatitis

CORRECT

C Acute pancreatitis

D TB

RIGHT ANSWER

B. Chronic pancreatitis

WHY THIS IS RIGHT

Chronic pancreatitis shows pancreatic calcifications. Wolman disease affects adrenals, acute pancreatitis lacks calcification, TB rarely involves pancreas.

Key Radiological Features:

- Pancreatic calcifications
- Dilated irregular pancreatic duct ("chain of lakes")
- Gland atrophy
- Possible pseudocysts

Feature	Chronic Pancreatitis	Acute Pancreatitis	Wolman Disease	TB
Calcification	Present	Absent	Adrenal	Rare
Pancreas size	Atrophic	Enlarged	Normal	Variable
Duct	Dilated, irregular	Normal	Normal	Variable
Age	Adults	Any	Infants	Any
Key clue	Calcified pancreas	Edema	Adrenal calcification	Nodes/ascites

QUESTION

Identify the sign.



A Double ring sign

CORRECT

B String sign

C Bird beak sign

D Double bubble sign

RIGHT ANSWER

OK A. Double ring sign

WHY THIS IS RIGHT

Button battery shows concentric double ring on X-ray. String sign is Crohn's, bird beak is achalasia, double bubble is duodenal atresia.

The "Halo Within a Halo"

The double ring sign (also called the target sign) is a classic imaging appearance seen in: Intussusception (most commonly in children)

It represents bowel telescoping into itself, creating concentric rings.

Key Radiological Features:

- Concentric rings ("target" or "donut" sign)
- Alternating hypoechoic and hyperechoic layers
- Seen best on ultrasound

Sign	Condition	Imaging Modality	Appearance
Double ring (target)	Intussusception	USG/CT	Concentric rings
String sign	Crohn / pyloric stenosis	Barium	Narrow lumen
Bird beak	Achalasia / volvulus	Barium	Tapered end
Double bubble	Duodenal atresia	X-ray	Two air bubbles

QUESTION

| What is the likely diagnosis based on the MRCP image?



CORRECT

A Choledochal cyst

B Cholangiocarcinoma

C Caroli disease

D Choledocholithiasis

RIGHT ANSWER

OK A. Choledochal cyst

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$19" here and does not include a written explanation for this item.

QUESTION

A 6-week-old child was brought to the emergency department with complaints of recurrent projectile vomiting. USG of the child is shown below. What is the likely diagnosis?



A Duodenal atresia

B Jejunal atresia

C CHPS (Congenital Hypertrophic Pyloric Stenosis)

CORRECT

D Midgut volvulus

RIGHT ANSWER

OK C. CHPS (Congenital Hypertrophic Pyloric Stenosis)

WHY THIS IS RIGHT

CHPS presents with projectile non-bilious vomiting and USG shows thickened pylorus (>4 mm, canal >16 mm). Atresias cause bilious vomiting, volvulus shows corkscrew sign.

Key USG Signs:

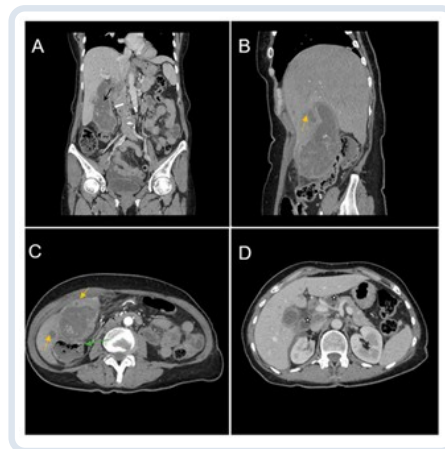
- "Target sign" / "Donut sign" (transverse view)
- Elongated pyloric canal (longitudinal view)
- Thickened pyloric muscle

Parameter	Cutoff
Muscle thickness	> 4 mm ☐
Pyloric canal length	> 16 mm ☐

Feature	CHPS	Duodenal Atresia	Jejunal Atresia	Volvulus
Age	2-8 weeks	Birth	Birth	Neonate
Vomiting	Projectile, non-bilious	Bilious	Bilious	Bilious
Imaging	USG	X-ray	X-ray	USG / contrast
Key sign	Target sign	Double bubble	Multiple levels	Whirlpool
Level of obstruction	Gastric outlet	Proximal	Mid bowel	Twisting

QUESTION

Based on the CT images provided, which of the following is the most likely diagnosis?



A Retroperitoneal tumor

B GB mass

CORRECT

C Right renal carcinoma

D HCC

RIGHT ANSWER

OK

B. GB mass

WHY THIS IS RIGHT

Gallbladder carcinoma presents as a heterogeneous mass in the gallbladder fossa with direct liver invasion and loss of fat planes, distinguishable from other abdominal masses by its characteristic location and infiltrative growth pattern.

Key Imaging Clues:

- Mass in gallbladder fossa
- Irregular wall thickening or polypoidal lesion
- Loss of normal GB outline
- Direct liver invasion
- Possible biliary obstruction

Feature	GB Mass	HCC	RCC	Retroperitoneal Tumor
Origin	Gallbladder	Liver	Kidney	Retroperitoneum
Location	GB fossa	Intrahepatic	Renal	Posterior
Enhancement	Heterogeneous	Arterial + washout	Strong enhancement	Variable
Liver invasion	Common	Primary site	Rare	Displacement
Key clue	Replaces GB	Cirrhosis background	Renal mass	Organ displacement

QUESTION

An elderly man with dysphagia and halitosis for 7 months undergoes barium swallow. Most likely diagnosis?



- A Esophageal neoplasia
- B Achalasia
- C Zenker's diverticulum**
- D Diffuse esophageal spasm

CORRECT

RIGHT ANSWER

- OK** C. Zenker's diverticulum

WHY THIS IS RIGHT

Zenker's diverticulum is a pharyngoesophageal pouch at Killian's dehiscence, presenting with dysphagia, regurgitation, and bad breath.

Hallmark Imaging Features:

- Posterior outpouching
- At pharyngoesophageal junction (Killian's dehiscence)
- Barium-filled sac
- May retain food -> explains halitosis

Cricopharyngeal dysfunction

↓

↑ Intraluminal pressure

↓

Weak area (Killian's dehiscence)

↓

Posterior mucosal herniation

↓

Zenker's diverticulum

↓

Food retention -> halitosis

Achalasia shows bird-beak, diffuse spasm shows corkscrew, neoplasia causes progressive obstruction.

| Condition | Key Feature | Imaging |

| ----- | ----- | ----- |

| Zenker's diverticulum | Halitosis | Posterior pouch |

| Achalasia | Bird beak | Distal narrowing |

| Esophageal cancer | Irregular narrowing | Shouldering |

| Diffuse spasm | Corkscrew esophagus | Multiple contractions |

QUESTION

| Which investigation is shown below?



A X ray Defecography

CORRECT

B MR Defecography

C Barium Swallow

D Barium meal follow through

RIGHT ANSWER

OK A. X ray Defecography

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1a" here and does not include a written explanation for this item.

QUESTION

| Most useful investigation for localizing a parathyroid adenoma?**A Sestamibi scan**

CORRECT

B USG**C** FDG PET**D** MRI

RIGHT ANSWER

OK **A. Sestamibi scan**

WHY THIS IS RIGHT

Tc-99m sestamibi scan with SPECT is best for parathyroid adenoma localization due to functional uptake and 3D accuracy.

Signature Imaging Features:

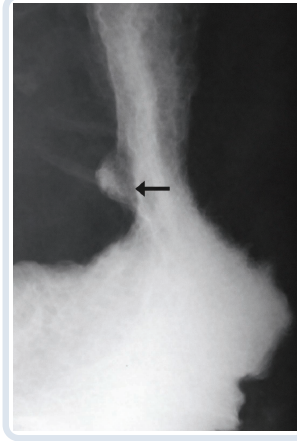
- Diffuse, continuous colonic wall thickening
- Loss of haustral folds -> smooth tube
- “Lead pipe” appearance
- Starts from rectum and extends proximally

Feature	Ulcerative Colitis	Crohn's Disease
Pattern	Continuous	Skip lesions
Location	Colon only	Entire GI tract
Depth	Mucosa	Transmural
Imaging	Lead pipe colon	Cobblestone
Complications	Toxic megacolon	Fistula, strictures

USG and MRI are less sensitive, PET is not routine.

QUESTION

A 45-year-old man is being evaluated for epigastric pain and burning sensation for the past few weeks. A barium study was done for the patient. Which of the following findings on barium study would indicate that the ulcer is benign?



A Hampton's line

CORRECT

B Carman meniscus

C Ulcer projecting in the lumen

D Interruption of rugae at ulcer edge

RIGHT ANSWER

OK A. Hampton's line

WHY THIS IS RIGHT

On barium study, benign gastric ulcers show characteristic radiologic features that help differentiate them from malignant ulcers.

Benign ulcer features:

- Hampton's line - a thin radiolucent line at the ulcer neck due to mucosal edema (highly suggestive of benign ulcer)
- Ulcer crater projects beyond the expected gastric contour
- Radiating mucosal folds extending up to the ulcer margin
- Smooth, regular margins

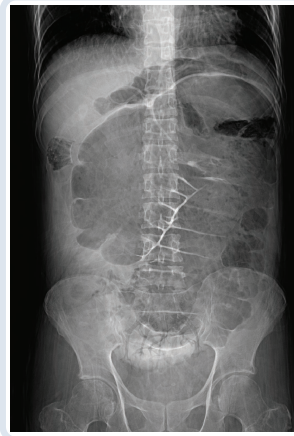
Malignant ulcer features:

- Carman meniscus sign
- Ulcer projecting into the lumen
- Irregular, nodular margins

Abrupt interruption of rugal folds

QUESTION

An 45 year old lady presents with acute abdominal pain and distension. What is the most likely diagnosis?



- A** Sigmoid volvulus
- B** Large bowel obstruction due to fecolith
- C** **Cecal volvulus**
- D** Small bowel obstruction due to bowel perforation

CORRECT

RIGHT ANSWER

OK C. Cecal volvulus

WHY THIS IS RIGHT

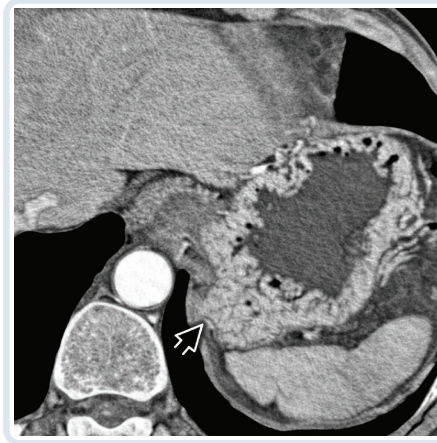
Cecal volvulus presents with acute abdominal pain and distension and shows a markedly dilated, displaced cecum (often in left upper abdomen) on X-ray with a “coffee bean/kidney-shaped” loop and small bowel obstruction features.

Key distinction:

- Cecal volvulus: dilated cecum displaced upward/left, small bowel dilatation
- Sigmoid volvulus: massively dilated loop from pelvis with classic coffee-bean pointing to RUQ and no small bowel dilatation initially.

QUESTION

A 42-year-old man presents with acidity and abdominal pain for the past few months, not relieved by taking antacids. CECT abdomen is shown below. Which of the following is the next best investigation?



A Endoscopic ultrasound

B Secretin stimulation test

CORRECT

C H. pylori stool antigen test

D Double contrast barium study

RIGHT ANSWER

OK B. Secretin stimulation test

WHY THIS IS RIGHT

Refractory peptic ulcer disease with abdominal pain and imaging suggestive of a pancreatic/duodenal lesion should raise suspicion for gastrinoma (Zollinger-Ellison syndrome).

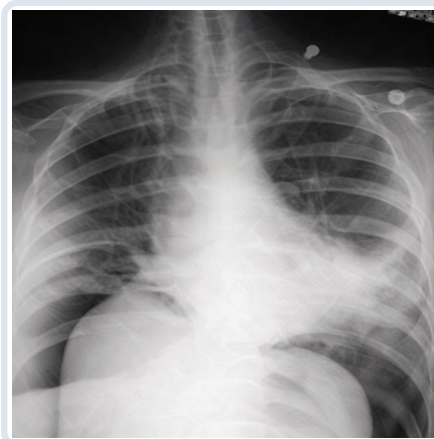
The secretin stimulation test is the most sensitive confirmatory test for gastrinoma - paradoxically, gastrin levels increase after secretin administration, unlike normal physiology.

Why not others?

- A. Endoscopic ultrasound: For tumor localization after confirming gastrinoma.
- C. H. pylori test: For routine peptic ulcer; does not explain refractory ulcers with pancreatic lesion.
- D. Barium study: Shows ulcer only, not the cause.

QUESTION

A 38-year-old female presented to the emergency department with the sudden onset of severe epigastric pain. On physical exam, she had a temperature of 100.4° F, a pulse of 115bpm and a blood pressure of 125/72mmHg. Abdomen was tender & rigid. What is the likely diagnosis?



- A Pneumothorax
- B Pneumoperitoneum**
- C Subdiaphragmatic abscess
- D Intestinal obstruction

CORRECT

RIGHT ANSWER

- B. Pneumoperitoneum**

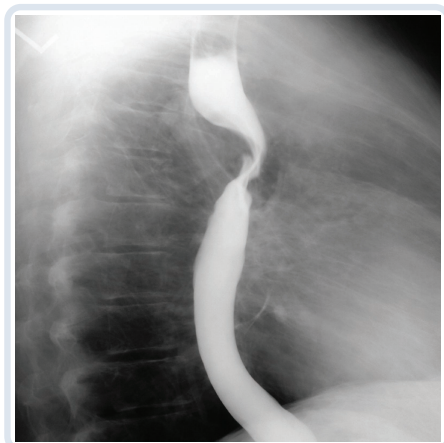
WHY THIS IS RIGHT

Pneumoperitoneum refers to free air within the peritoneal cavity, most commonly due to perforation of a hollow viscus (e.g., perforated peptic ulcer). On erect chest X-ray, it appears as air under the diaphragm, especially under the right hemidiaphragm.

- Sudden severe abdominal pain
- Board-like rigidity (peritonitis)
- Fever, tachycardia
- Surgical emergency

QUESTION

A 45-year-old male patient presents to their primary care physician with a complaint of dysphagia. He reports that he experiences a sensation of food getting stuck in his throat when he eats. He also reports some mild chest discomfort with exertion. The patient has a history of Down syndrome and congenital heart disease. Barium swallow is shown here. Which imaging modality should be performed next?



A Chest X-ray

B Manometry

C UGIE

D Computed tomography angiography

CORRECT

RIGHT ANSWER

OK D. Computed tomography angiography

WHY THIS IS RIGHT

A barium swallow showing external compression of the esophagus with dysphagia and history of congenital heart disease suggests vascular compression (e.g., aberrant subclavian artery or vascular ring). The next best investigation is CT angiography, which clearly delineates vascular anatomy and confirms the diagnosis.

- Dysphagia + smooth extrinsic compression on barium swallow -> suspect vascular cause
- Seen with:
 - Aberrant right subclavian artery (dysphagia lusoria)
 - Double aortic arch
 - Other vascular rings
- Best next test: CT angiography (defines vessels and compression)

QUESTION

A 3-month-old baby presents to you with jaundice. USG of the liver shows the following abnormality. What is the best investigation to confirm the diagnosis?



A Tc99m sulfur colloid scan

B Intra-operative cholangiography

CORRECT

C MIBG

D MRCP

RIGHT ANSWER

OK

B. Intra-operative cholangiography

WHY THIS IS RIGHT

In infants with persistent jaundice and ultrasound features suggestive of biliary atresia (e.g., triangular cord sign, absent/atrophic gallbladder), the gold standard for confirmation is intra-operative cholangiography, which demonstrates absent or discontinuous extrahepatic bile ducts.

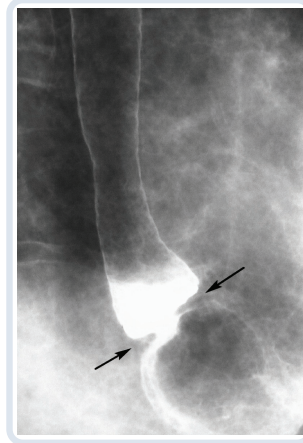
- Presents with prolonged neonatal jaundice, pale stools, dark urine
- USG: triangular cord sign, small/absent gallbladder
- Best confirmatory test: Intraoperative cholangiography
- Early diagnosis critical -> Kasai portoenterostomy ideally before 6-8 weeks

Other investigations:

- HIDA scan -> screening/supportive, not definitive
- MRCP -> limited in infants
- Liver biopsy -> supportive

QUESTION

A 45-year-old man is evaluated in the emergency department for chest pain that developed while eating a piece of steak at a restaurant. He reports intermittent episodes of food (particularly meat) getting stuck in his lower chest over the past 3 years. Patient's barium swallow image is shown below. Which of the following is the most likely diagnosis?



- A** Achalasia
- B** Adenocarcinoma of the esophagus
- C** Plummer-Vinson syndrome
- D** Schatzki's ring

CORRECT

RIGHT ANSWER

- OK** D. Schatzki's ring

WHY THIS IS RIGHT

Schatzki ring is a thin mucosal ring located at the gastroesophageal junction, causing intermittent solid food dysphagia, especially with poorly chewed meat ("steakhouse syndrome"). Symptoms may be long-standing and episodic

Barium swallow:

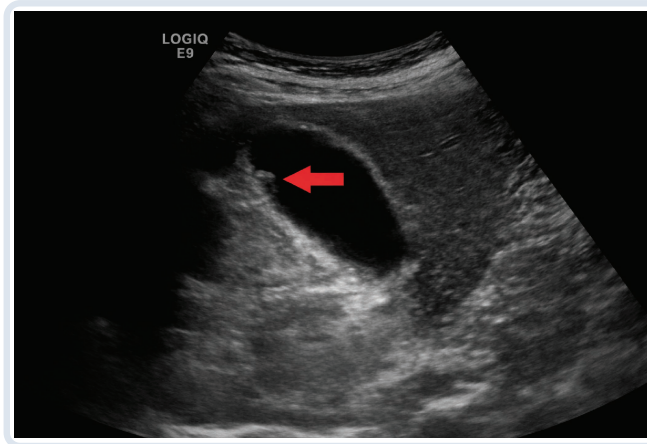
- Smooth, thin, circumferential narrowing at distal esophagus
- Located at the squamocolumnar junction

Differentiation:

- Achalasia -> Bird-beak tapering + dysphagia to solids & liquids
- Esophageal adenocarcinoma -> Progressive dysphagia + irregular narrowing
- Plummer-Vinson syndrome -> Upper esophageal web

QUESTION

A lady was incidentally diagnosed with a 0.5 cm solid mass in her gall Bladder on USG as shown. What is the next step in the management?



A Reassure the patient and follow up

CORRECT

B Laparoscopic Cholecystectomy

C Open Cholecystectomy

D CECT Abdomen

RIGHT ANSWER

OK

A. Reassure the patient and follow up

WHY THIS IS RIGHT

Gallbladder polyps <1 cm (especially <6 mm) detected incidentally on ultrasonography are usually benign (most commonly cholesterol polyps) and are managed with observation and periodic follow-up, not surgery.

Management based on size:

- <6 mm: Reassurance and periodic USG follow-up
- 6-9 mm: Serial follow-up (especially if risk factors present)
- ≥10 mm: Cholecystectomy due to malignancy risk
- Any size + symptoms/risk factors (PSC, age >50, sessile polyp) -> consider surgery

QUESTION

I All of these are causes of bilious vomiting in a neonate at birth except?

- A** https://corebtr-assets-production.s3.ap-south-1.amazonaws.com/questions_image/option/01KMD3KX99B9NK1WYJ2WN0YF11.jpg
- B** https://corebtr-assets-production.s3.ap-south-1.amazonaws.com/questions_image/option/01KMD3KXD5Q1BG4EKQ4HNZ049N.jpg
- C** https://corebtr-assets-production.s3.ap-south-1.amazonaws.com/questions_image/option/01KMD3KXGXZC2RJX440JDBSCBM.jpg CORRECT
- D** https://corebtr-assets-production.s3.ap-south-1.amazonaws.com/questions_image/option/01KMD3KXMW00CSEYRDHAAM3FZK.jpg

RIGHT ANSWER

- OK** **C.** https://corebtr-assets-production.s3.ap-south-1.amazonaws.com/questions_image/option/01KMD3KXGXZC2RJX440JDBSCBM.jpg

WHY THIS IS RIGHT

Bilious vomiting in a neonate indicates intestinal obstruction distal to the ampulla of Vater and is a surgical emergency.

-Common causes of bilious vomiting at birth:

- Duodenal atresia ("double bubble" sign)
- Malrotation with midgut volvulus
- Jejunal/ileal atresia
- Meconium ileus

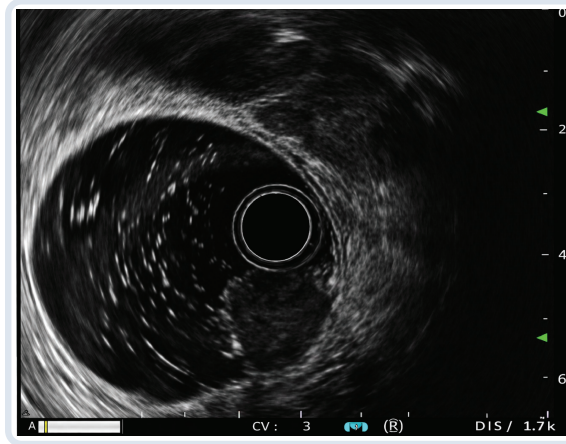
Not a cause:

- Hypertrophic pyloric stenosis (Option C image)

- o Causes non-bilious projectile vomiting
- o Obstruction is proximal to the ampulla
- o Presents at 2-6 weeks of age, not at birth

QUESTION

The imaging shows a detailed cross-sectional view of the esophageal wall and surrounding structures. All of the following are uses of this imaging modality except:



- A** Biliary microlithiasis
- B** Staging of esophageal cancer
- C** Drainage of pancreatic pseudocyst
- D** Evaluation of gastroesophageal reflux disease (GERD)

CORRECT

RIGHT ANSWER

- OK** **D. Evaluation of gastroesophageal reflux disease (GERD)**

WHY THIS IS RIGHT

The image represents Endoscopic Ultrasound (EUS), which provides high-resolution cross-sectional imaging of the GI wall and adjacent structures.

- Circular cross-sectional view, Central echoendoscope, Layered wall structure of the esophagus clearly visible

EUS is actually used for:

- ☐ Staging of esophageal cancer
- Best modality to assess depth of invasion (T staging)

- ☐ Biliary microlithiasis

- Detects tiny stones/sludge not seen on USG

- ☐ Drainage of pancreatic pseudocyst

- EUS-guided cystogastrostomy is standard

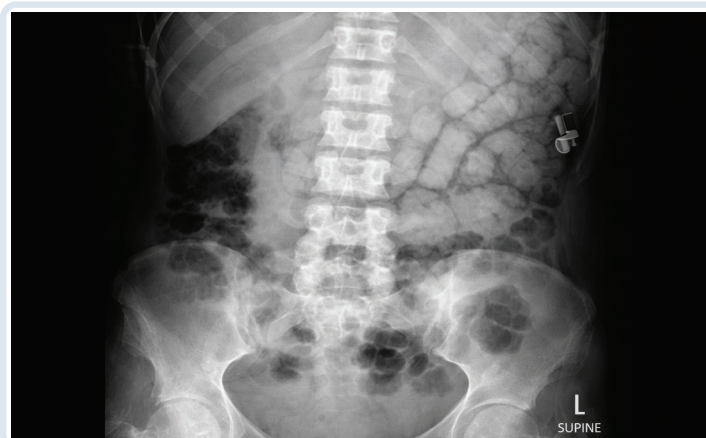
- ☐ Evaluation of GERD

GERD evaluation is done by: Endoscopy, 24-hour pH monitoring, Manometry

EUS has no role GERD diagnosis.

QUESTION

A person at the airport with symptoms showing agitations showed following x- ray findings. He was carrying enema apparatus and laxatives. Which of the following is a wrong statement?



A Abdominal CT imaging is required

B He is malingering

CORRECT

C He is body packer

D He is at risk of poisoning

RIGHT ANSWER

OK

B. He is malingering

WHY THIS IS RIGHT

History clue:

- Airport
- Agitation
- Carrying enema apparatus and laxatives

This screams drug smuggler trying to evacuate packets.

A. Abdominal CT imaging is required

- ☐ True - CT is more sensitive and helps confirm number/location of packets.

C. He is body packer

- ☐ True - Radiograph is classic for this.

D. He is at risk of poisoning

- ☐ True - If a packet ruptures -> acute drug toxicity -> can be fatal.

B. He is malingering

This is the wrong statement.

This is not malingering.

There is clear radiographic evidence of foreign bodies.

This is a medical emergency and should not be mistaken for malingering.

QUESTION

A 52-year-old man with long-standing cirrhosis undergoes a barium swallow. The image shows multiple serpiginous, worm-like filling defects along the distal esophagus, creating a “rosary-bead” appearance. Which of the following is the MOST likely diagnosis?



A Esophageal webs

B Esophageal varices

CORRECT

C Candidiasis

D Diffuse esophageal spasm

RIGHT ANSWER

OK

B. Esophageal varices

WHY THIS IS RIGHT

Esophageal varices: is an important cause of upper GI bleed.

On barium swallow, esophageal varices appear as multiple serpiginous, filling defects in the distal esophagus producing a classic “rosary-bead” or “string-of-beads” appearance.

They occur due to portal hypertension (commonly from cirrhosis) causing *dilated submucosal venous channels* in lower esophagus

Veins in lower esophagus dilate and bulge into the lumen.

Why not other options:

- Esophageal webs: Thin, smooth shelf-like filling defect (usually upper esophagus), not serpiginous.
- Candidiasis: Irregular shaggy mucosa with plaque-like filling defects (“feathery” appearance).
- Diffuse esophageal spasm: “Corkscrew esophagus” due to multiple contractions, not worm-like filling defects.

QUESTION

While performing a HIDA scan in a patient with gallstones, the gallbladder was not visualized. What could be the possible diagnosis?

- A Normal Scan
- B Emphyema gallbladder
- C Bile duct obstruction

D Acute cholecystitis

CORRECT

RIGHT ANSWER

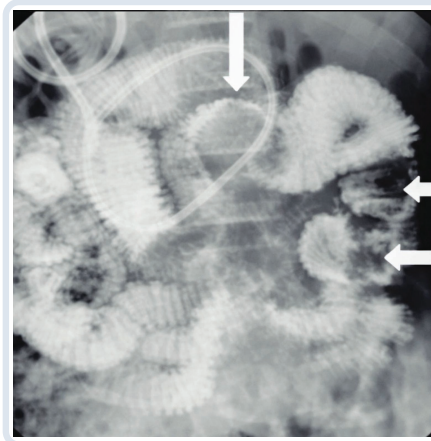
D. Acute cholecystitis

WHY THIS IS RIGHT

In a HIDA (hepatobiliary iminodiacetic acid) scan, non-visualization of the gallbladder indicates cystic duct obstruction, most commonly due to a gallstone, which is diagnostic of acute cholecystitis. In acute cholecystitis, the radiotracer enters the liver and bile ducts but cannot fill the gallbladder due to cystic duct blockage, leading to persistent non-visualization even on delayed images.

QUESTION

Identify the radiological procedure shown below?



A Enteroclysis

CORRECT

B Proctography

C Barium enema

D Barium meal follow through

RIGHT ANSWER

OK A. Enteroclysis

WHY THIS IS RIGHT

Enteroclysis is a specialized fluoroscopic study of the small intestine in which contrast is directly infused into the jejunum via a nasojejunal tube, providing detailed evaluation of small bowel mucosa, distensibility, and transit. It is superior to a routine barium meal follow-through for detecting subtle mucosal lesions, strictures, adhesions, and early inflammatory bowel disease (especially Crohn disease), as it provides uniform bowel distension and better mucosal visualization.

Why not others:

- Proctography: Studies rectum during defecation -> no small bowel loops or NJ tube.
- Barium enema: Contrast via rectum to visualize colon -> shows large bowel, not small intestine.
- Barium meal follow-through: Oral contrast, no nasojejunal tube; less uniform small bowel distension.

QUESTION

A 5-year-old child has recurrent urinary tract infections, a weak urinary stream, and intermittent incontinence. The radiological image demonstrates the characteristic findings. What is the most likely diagnosis?



A Ureterocele

CORRECT

B Duplicated collecting system

C Posterior urethral valves (PUV)

D Vesicoureteric reflux (VUR)

RIGHT ANSWER

OK **A. Ureterocele**

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$19" here and does not include a written explanation for this item.

QUESTION

An imaging study was performed to assess the urinary tract. Which radiological modality is shown in the image?



CORRECT

A IVP**B** RGU**C** MCU**D** Plain X-ray

RIGHT ANSWER

OK

A. IVP

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1a" here and does not include a written explanation for this item.

QUESTION

A patient presented with abdominal pain and sterile pyuria, and the x-ray showed the following features. What is the likely diagnosis?



A Putty kidney

CORRECT

B Nephrocalcinosis

C Staghorn calculus

D Psoas calcification

RIGHT ANSWER

OK A. Putty kidney

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1b" here and does not include a written explanation for this item.

QUESTION

A lady presented with a pelvic mass which was hyperintense on T1-weighted image, hyperintense on T1-fat saturated image, and hypointense on T2-weighted image with T2 shading. What is the likely diagnosis?

- A** Teratoma
- B** Endometrioma
- C** Carcinoma ovary
- D** Dysgerminoma

CORRECT

RIGHT ANSWER

B. Endometrioma

WHY THIS IS RIGHT

The source quiz contains the placeholder “\$1c” here and does not include a written explanation for this item.

QUESTION

What is the diagnosis based on the CT image?



A Renal cyst

B PUJO

CORRECT

C ADPKD

D Horseshoe kidney

RIGHT ANSWER

OK B. PUJO

WHY THIS IS RIGHT

Pelviureteric junction obstruction causes massive pelvis dilatation with parenchymal thinning. ADPKD shows multiple cysts, renal cyst is solitary, horseshoe kidney is fused poles.

Key Radiological Features:

- Dilated renal pelvis + calyces
- Abrupt narrowing at PUJ
- Normal ureter (key differentiator!)
- Kidney may appear enlarged

Z

Feature	PUJO	Renal Cyst	ADPKD	Horseshoe Kidney
Pelvis	Dilated	Normal	Distorted	Normal
Ureter	Normal	Normal	Normal	Normal
Cysts	No	Single	Multiple bilateral	No
Shape	Ballooned pelvis	Round lesion	Enlarged kidneys	Fused kidneys
Key clue	Hydronephrosis only	Simple cyst	Many cysts	Fusion anomaly

QUESTION

A 65-year-old postmenopausal woman presents with vaginal bleeding. What is the most likely diagnosis based on the image provided?



CORRECT

A Adenomyosis

B Intramural fibroid

C Endometriosis

D Endometrial hyperplasia

RIGHT ANSWER

OK A. Adenomyosis

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1d" here and does not include a written explanation for this item.

QUESTION

Which of the following statements is true regarding the investigation shown below?



- A** Invasive procedure
- B** Non-invasive and can diagnose pelviureteric junction obstruction CORRECT
- C** Gold standard for bladder cancer
- D** Done percutaneously

RIGHT ANSWER

- OK** **B. Non-invasive and can diagnose pelviureteric junction obstruction**

WHY THIS IS RIGHT

Intravenous pyelography (IVP) is a non-invasive radiographic examination that can effectively diagnose pelviureteric junction obstruction through visualization of contrast excretion by the kidneys.

PUJO:

Cystoscopy is the gold standard for bladder carcinoma, IVP may just show a filling defect.

There is no percutaneous component, only IV contrast needs to be injected.



QUESTION

A patient presents with ureteric colic. Examination is normal. What is the best imaging to diagnose?

- A MRI
- B Ureteroscopy

C NCCT KUB

CORRECT

D CECT KUB

RIGHT ANSWER

C. NCCT KUB

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1e" here and does not include a written explanation for this item.

QUESTION

| Best diagnostic investigation for suspected ureteric stone?

A NCCT KUB

CORRECT

B USG KUB**C** CECT KUB**D** Ureteroscopy

RIGHT ANSWER

OK

A. NCCT KUB

WHY THIS IS RIGHT

Non-contrast CT KUB is gold standard for ureteric stones, detecting all types except indinavir.

What NCCT shows:

- Stone = hyperdense (bright white)
- Hydroureter / hydronephrosis
- Exact location + size
- Detects even radiolucent stones (e.g., uric acid)

| Modality | Role | Limitation |

| ----- | ---- | ----- |

| NCCT KUB | ☐ | Best diagnostic test | Radiation |

| USG KUB | Screening (pregnancy) | Misses ureteric stones |

| CECT KUB | Tumor evaluation | Masks stones |

| Ureteroscopy | Diagnostic + therapeutic | Invasive |

USG may miss stones, CECT obscures them, ureteroscopy is therapeutic not diagnostic.

QUESTION

What is the likely diagnosis in the image shown below:



A Pancake kidney

B Ectopic kidney

C Horseshoe kidney

D Crossed fused ectopia

CORRECT

RIGHT ANSWER

OK

D. Crossed fused ectopia

WHY THIS IS RIGHT

Crossed fused renal ectopia is a congenital anomaly in which both kidneys are located on the same side and fused together, with one ureter crossing the midline to enter the bladder at its normal position. It is the second most common renal fusion anomaly after horseshoe kidney.

Differentiation:

- Horseshoe kidney: Fusion at lower poles across midline with isthmus
- Pancake kidney: Complete fusion in pelvis

Ectopic kidney: Single kidney in abnormal location, not fused

QUESTION

In patients with renal failure, which imaging technique is appropriate for visualizing vessels without causing further renal impairment?

- A CT angiography
- B DSA
- C MRI Contrast-enhanced angiography

D Time-of-flight MRI angiography

CORRECT

RIGHT ANSWER

OK D. Time-of-flight MRI angiography

WHY THIS IS RIGHT

In patients with renal failure, non-contrast vascular imaging is preferred to avoid contrast-induced nephropathy (iodinated contrast in CT/DSA) and nephrogenic systemic fibrosis (gadolinium in contrast MRI). Time-of-flight (TOF) MR angiography is a non-contrast technique that visualizes blood vessels using flow-related enhancement and is safest for evaluating vasculature in renal impairment.

Key Points:

- CT angiography & DSA: Use iodinated contrast -> risk of contrast-induced nephropathy
- Contrast MRI angiography: Uses gadolinium -> risk of nephrogenic systemic fibrosis in renal failure
- TOF MR angiography: No contrast required -> safest option

QUESTION

A 13-year-old boy presents to trauma center after skid injury, with lower abdominal pain and blood at meatus. The bladder is not palpable. What is the next step?

- A** SPC
- B** Foley's catheterization
- C** Wait and watch

D RGU

CORRECT

RIGHT ANSWER

OK
D. RGU

WHY THIS IS RIGHT

Blood at the urethral meatus after trauma is a classic sign of urethral injury and is a contraindication to blind urethral catheterization. The next step is to perform a retrograde urethrogram (RGU) to assess urethral integrity before attempting catheter placement.

- Suspect urethral injury in trauma with:
 - Blood at meatus
 - Perineal/scrotal hematoma
 - High-riding prostate
 - Inability to void
- First investigation: Retrograde urethrogram
- Avoid Foley catheterization until urethral injury ruled out

If urethral injury confirmed -> suprapubic catheterization

QUESTION

A 4-month-old girl is diagnosed with a febrile urinary tract infection. A voiding cystourethrogram is shown in the image. Which of the following is the most likely cause of this infant's presentation?



CORRECT

A Congenital short intravesical ureter length

B Damage to the rectovaginal septum

C Obstruction due to a renal stone

D Presence of a posterior urethral valve

RIGHT ANSWER

OK

A. Congenital short intravesical ureter length

WHY THIS IS RIGHT

In infants with recurrent febrile UTI, vesicoureteral reflux (VUR) is the most common underlying cause. It occurs due to a congenitally short intravesical ureter, leading to an incompetent ureterovesical junction and retrograde flow of urine from bladder to ureter and kidney.

Key Imaging (VCUG):

- Contrast refluxing from bladder into ureters ± kidneys
- May show dilated ureters and renal pelvis

Pathophysiology:

Short submucosal ureteric tunnel -> Loss of flap-valve mechanism -> Urine reflux -> Recurrent UTI and renal scarring

QUESTION

A 35-year-old man with a history of RTA with intense pain in the suprapubic region. On examination, abdominal distention was present. Heart rate and blood pressure was normal. Imaging is shown below. What is the diagnosis?



A Membranous urethral injury

B Acute urinary retention

C Intraperitoneal bladder rupture

D Extraperitoneal bladder rupture

CORRECT

RIGHT ANSWER

OK

D. Extraperitoneal bladder rupture

WHY THIS IS RIGHT

Bladder injury following blunt trauma (e.g., RTA) is classified as intraperitoneal or extraperitoneal rupture, and imaging findings on retrograde cystography/CT cystography help differentiate them.

Extrapertioneal bladder rupture (Most common; associated with pelvic fracture):

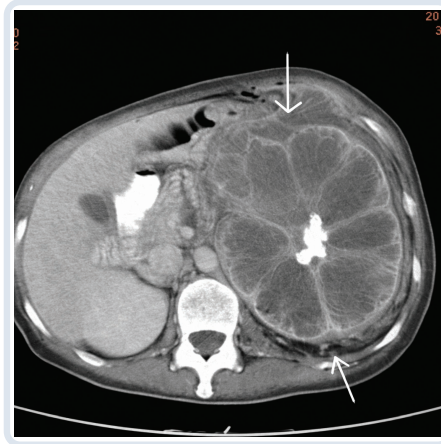
- Contrast extravasation confined to perivesical space
- "Flame-shaped" or irregular contrast around bladder
- Does not outline bowel loops
- Usually managed conservatively with catheter drainage

Intraperitoneal bladder rupture:

- Contrast outlines bowel loops
- Contrast seen in peritoneal cavity (paracolic gutters)
- Requires surgical repair

QUESTION

What is the likely diagnosis based on the given image?



- A AD PCKD
- B PUJ obstruction

C Xanthogranulomatous pyelonephritis

CORRECT

- D Putty kidney

RIGHT ANSWER

C. Xanthogranulomatous pyelonephritis

WHY THIS IS RIGHT

CT showing an enlarged kidney replaced by multiple low-attenuation areas with a central staghorn calculus (“bear paw sign”) is characteristic of xanthogranulomatous pyelonephritis (XGP).

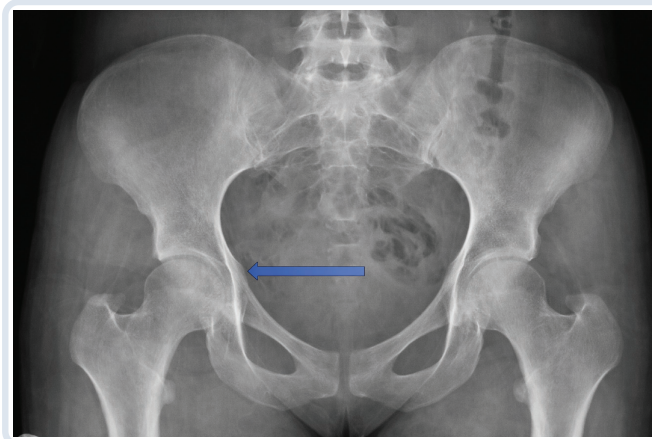
- Chronic suppurative infection of the kidney
- Commonly associated with obstruction by staghorn calculus
- Renal parenchyma replaced by lipid-laden macrophages (foamy histiocytes)
- Presents with flank pain, fever, weight loss, recurrent UTIs
- Management: often nephrectomy

Differentials:

- ADPKD -> Bilateral multiple cysts
- PUJ obstruction -> Dilated pelvis without destructive inflammatory pattern
- Putty kidney -> Calcified non-functioning kidney in renal TB

QUESTION

Identify the nerve block given at the point shown:



A Pudendal nerve

CORRECT

B Sciatic nerve

C Obturator nerve

D Inferior rectal nerve

RIGHT ANSWER

OK A. Pudendal nerve

WHY THIS IS RIGHT

A nerve block given near the ischial spine targets the pudendal nerve.

Anatomical basis:

- Pudendal nerve (S2-S4) exits pelvis via greater sciatic foramen,
- Wraps around ischial spine/sacrospinous ligament,
- Re-enters via lesser sciatic foramen into pudendal canal (Alcock's canal).

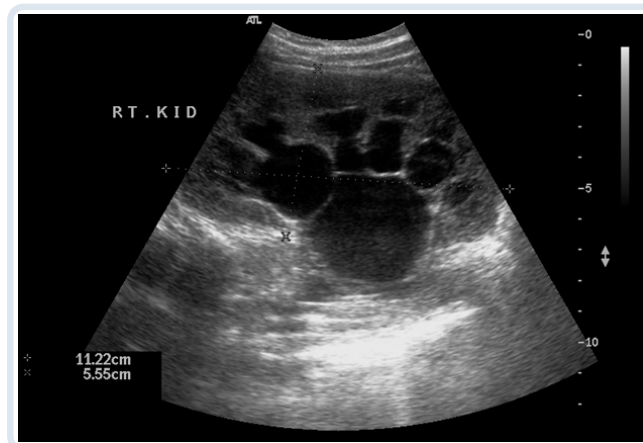
Clinical use of pudendal nerve block:

- Obstetric analgesia (second stage of labor)
- Episiotomy repair
- Perineal procedures
- Hemorrhoid surgery

QUESTION

A 7-year-old child presents with intermittent left-sided flank pain, episodes of vomiting after heavy fluid intake, and a palpable abdominal mass. USG finding is shown below

What is the management of above condition?



A Rovsing procedure

B Endoscopic ablation

C Anderson Hynes Pyeloplasty

CORRECT

D Partial Nephrectomy

RIGHT ANSWER

OK

C. Anderson Hynes Pyeloplasty

WHY THIS IS RIGHT

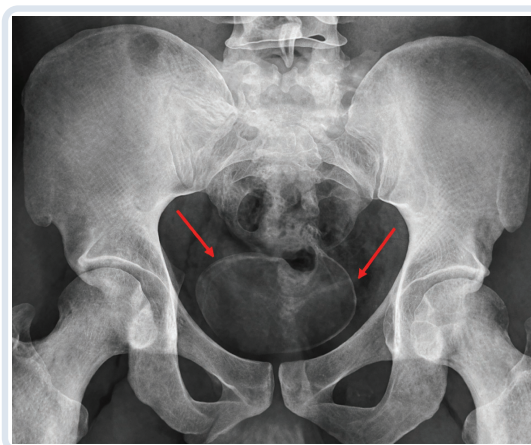
Intermittent flank pain after heavy fluid intake with ultrasound showing gross hydronephrosis in a child is characteristic of pelvi-ureteric junction (PUJ) obstruction. The definitive treatment for symptomatic PUJ obstruction with preserved renal function is Anderson-Hynes pyeloplasty, which relieves obstruction and preserves kidney function.

Why not other options:

- Rovsing procedure: Used for appendicitis (pain in RLQ on LLQ palpation) - not for hydronephrosis/PUJ obstruction.
- Endoscopic dilation: Temporary or less effective; not definitive treatment in children with significant PUJ obstruction.
- Partial nephrectomy: Done for non-functioning renal segment or tumors, not for PUJ obstruction with salvageable kidney.

QUESTION

A 28 year old man from rural area presents with painless hematuria and irritative voiding symptoms. Abdominal X-ray is shown below. This radiographic pattern is most characteristic of:



A Schistosomiasis

CORRECT

B Genitourinary tuberculosis

C Neurogenic bladder

D Pelvic abscess

RIGHT ANSWER

OK

A. Schistosomiasis

WHY THIS IS RIGHT

Curvilinear or “eggshell” calcification outlining the urinary bladder on X-ray is characteristic of urinary schistosomiasis (*Schistosoma haematobium*).

Patients typically present with painless hematuria and irritative urinary symptoms, and chronic infection can lead to bladder wall fibrosis, calcification, and increased risk of squamous cell carcinoma of the bladder.

Why not others:

- GU tuberculosis: Thimble bladder, irregular calcification - not smooth rim.
- Neurogenic bladder: Trabeculated/distended bladder, no calcification.
- Pelvic abscess: Soft tissue mass, no bladder wall calcification.

QUESTION

A 50-year-old man presents with a chronic, non-productive cough, mild dyspnea, and fatigue. He has a long-standing occupational history as a construction laborer with significant exposure to dust and sand. A chest X-ray demonstrates characteristic changes, as shown in the image below. Which of the following is the most likely diagnosis?



A Tuberculosis

B Asbestosis

C Bagassosis

D Silicosis

CORRECT

RIGHT ANSWER

OK D. Silicosis

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$19" here and does not include a written explanation for this item.

QUESTION

A 3-month-old infant is brought to the emergency department with complaints of cyanosis and difficulty breathing. A chest X-ray shows the findings given below. What is the most likely diagnosis?



- A** Atrial septal defect
- B** Ventricular septal defect
- C** Tetralogy of Fallot
- D** Transposition of the great arteries

CORRECT

RIGHT ANSWER

OK
C. Tetralogy of Fallot

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1a" here and does not include a written explanation for this item.

QUESTION

A patient is brought to the casualty following a road traffic accident. On examination, the patient is conscious, BP is 90/60 mm Hg, respiratory rate is 40 breaths per minute, and pulse rate is 120 bpm. The X-ray is shown below. What is the next best step in management?



A Pericardiocentesis

B Thoracotomy

C Needle thoracostomy

CORRECT

D Chest tube insertion

RIGHT ANSWER

OK

C. Needle thoracostomy

WHY THIS IS RIGHT

The source quiz contains the placeholder “\$1b” here and does not include a written explanation for this item.

QUESTION

A patient presents in OPD with a history of fever and cough for 5 days. On auscultation, crepts were heard on right side. Chest X-ray is given below. Mark the correct finding in this case?



A Apical segment of Right lower lobe consolidation

B Right middle lobe consolidation

CORRECT

C Posterior segment of right lower lobe consolidation

D Loculated pleural effusion

RIGHT ANSWER

OK

B. Right middle lobe consolidation

WHY THIS IS RIGHT

Right middle lobe consolidation is suggested by the obscuration of the right heart border and the specific location of opacity on the chest X-ray, aligned with the patient's clinical presentation of respiratory symptoms.

Key Radiological Sign -> Silhouette Sign □

Right heart border is obscured

This is the giveaway because-

- Right middle lobe lies adjacent to right heart border
- When it consolidates -> the border disappears

| Lost Border | Diagnosis |

| ----- | ----- |

| Right heart border | Right middle lobe □ |

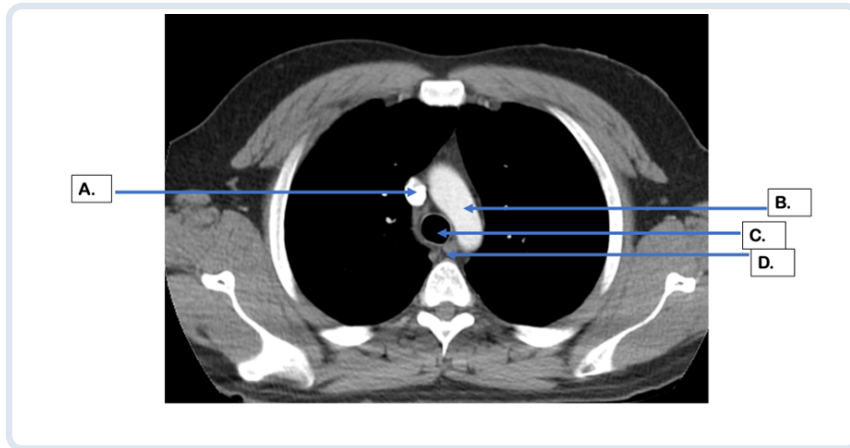
| Left heart border | Lingula |

| Right diaphragm | Right lower lobe |

| Left diaphragm | Left lower lobe |

QUESTION

Match the following: A-SVC, B-Aorta, C-Esophagus, D-Trachea



A A-SVC, B-Aorta, C-Esophagus, D-Trachea

B A-SVC, B-Aorta, C-Trachea, D-Esophagus

CORRECT

C A-Aorta, B-SVC, C-Esophagus, D-Trachea

D A-SVC, B-MPA, C-Esophagus, D-Trachea

RIGHT ANSWER

OK

B. A-SVC, B-Aorta, C-Trachea, D-Esophagus

WHY THIS IS RIGHT

SVC lies right, aorta is central arch, trachea is air-filled anterior, esophagus lies posterior. Correct match is A-SVC, B-Aorta, C-Trachea, D-Esophagus.

Structure	Position	Density	Key Clue
Trachea	Central	Air (black)	Round, lumen
Esophagus	Posterior to trachea	Soft tissue	Collapsed
SVC	Right	Soft tissue	Thin-walled vein
Aorta	Left	Soft tissue	Thick-walled artery

QUESTION

| What is the likely diagnosis?



A Lung Abscess

CORRECT

B TB

C Fungal pneumonia

D Hydropneumothorax

RIGHT ANSWER

OK A. Lung Abscess

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1c" here and does not include a written explanation for this item.

QUESTION

What is the likely diagnosis?



A Labelling error

B **Kartagener syndrome**

CORRECT

C Pneumoperitoneum

D Cystic fibrosis

RIGHT ANSWER

OK

B. Kartagener syndrome

WHY THIS IS RIGHT

Kartagener syndrome triad: situs inversus, bronchiectasis, sinusitis. Cystic fibrosis has bronchiectasis but no situs inversus. Pneumoperitoneum shows free air, not dextrocardia.

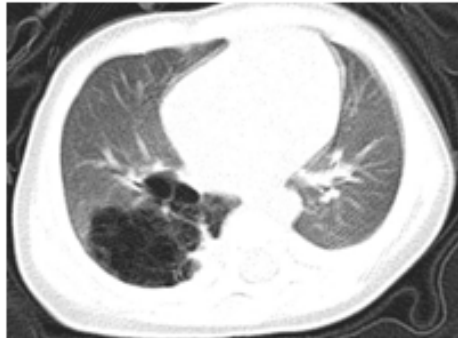
Key Imaging Clues:

- Dextrocardia (cardiac apex on right)
- Situs inversus totalis (organs reversed)
- Signs of bronchiectasis:
 - Dilated bronchi
 - "Tram-track" appearance

Feature	Kartagener	CF	Pneumoperitoneum	Labelling Error
Dextrocardia	□	□	□	□
Situs inversus	□	□	□	□
Bronchiectasis	□	□	□	□
Key cause	Ciliary defect	CFTR mutation	Perforation	Human error
Exam clue	Mirror organs	Thick mucus	Air under diaphragm	Inconsistent findings

QUESTION

A 6-year-old child presenting with recurrent respiratory infections. What is the likely diagnosis?



A Pyopneumothorax

B CPAM

CORRECT

C CDH

D Lung abscess

RIGHT ANSWER

OK

B. CPAM

WHY THIS IS RIGHT

Congenital pulmonary airway malformation shows multiple cystic air-filled spaces. Pyopneumothorax has pleural air-fluid, CDH shows bowel in chest, abscess is single cavity.

Key Radiological Features:

- Multiple cystic lucencies in lung
- Usually unilateral
- May have:
 - Air-filled cysts
 - Air-fluid levels (if infected)
- Commonly involves lower lobes

Feature	CPAM	Lung Abscess	CDH	Pyopneumothorax
Age	Child	Any	Neonate	Any
Number of lesions	Multiple cysts	Single	Multiple bowel loops	Single
Wall	Thin	Thick	Bowel wall	Pleural
Infection	Recurrent	Acute	Early distress	Severe
Key clue	Congenital cysts	Thick cavity	Bowel in chest	Pleural air-fluid

QUESTION

Based on the image shown below, which of the following is the most likely diagnosis?



A Congenital Diaphragmatic Hernia

CORRECT

B Congenital Pulmonary Airway Malformation

C Bronchopulmonary Sequestration

D Pneumothorax

RIGHT ANSWER

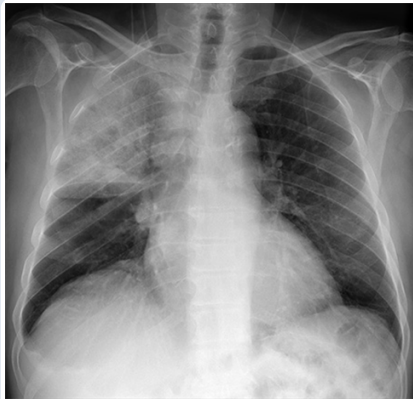
OK A. Congenital Diaphragmatic Hernia

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1d" here and does not include a written explanation for this item.

QUESTION

| What is the most probable diagnosis based on the image provided?



- A** RUL collapse
- B** RUL consolidation
- C** Bronchogenic carcinoma
- D** Lung abscess

CORRECT

RIGHT ANSWER

OK

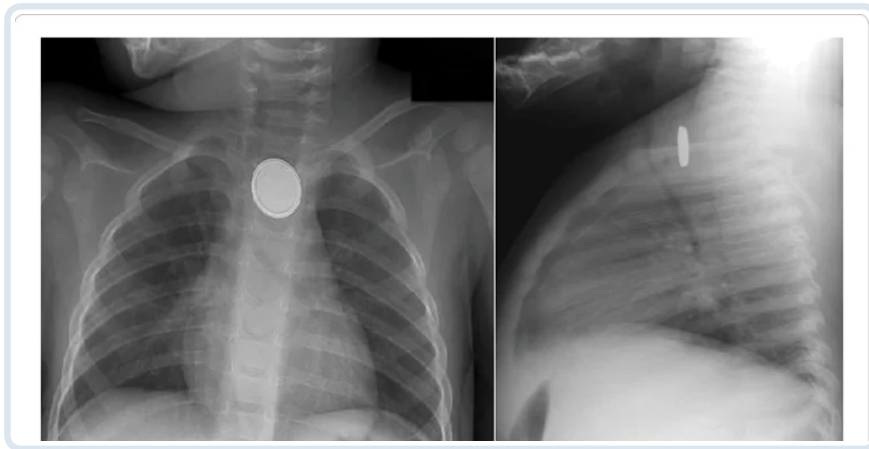
B. RUL consolidation

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1e" here and does not include a written explanation for this item.

QUESTION

A child presents with breathlessness. Chest X ray shows a radiopaque circular object with double rim. Identify?



A Button battery

CORRECT

B Coin

C Ball

D Bottle cap

RIGHT ANSWER

OK

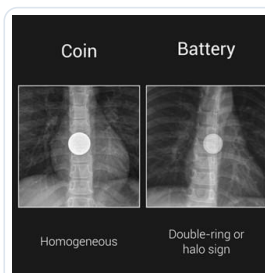
A. Button battery

WHY THIS IS RIGHT

Button batteries show a double rim/halo on X-ray, unlike coins or other objects. They are a medical emergency due to caustic leakage and electrical injury, requiring urgent removal.

Radiological Signs:

- Double rim / halo sign (two concentric circles)
- Usually lodged in esophagus
- On lateral view:
- Step-off sign (unequal edges)



QUESTION

A 35-year-old male presents to the trauma center after RTA with shortness of breath. The supine CXR is shown below. What is the likely diagnosis?



A Hemothorax

CORRECT

B Pneumothorax

C Pulmonary contusion

D Diaphragm injury

RIGHT ANSWER

OK A. Hemothorax

WHY THIS IS RIGHT

In a supine chest X-ray of a trauma patient, a hemothorax presents as a diffuse opacity throughout the affected hemithorax due to the gravitational spread of blood in the pleural space.

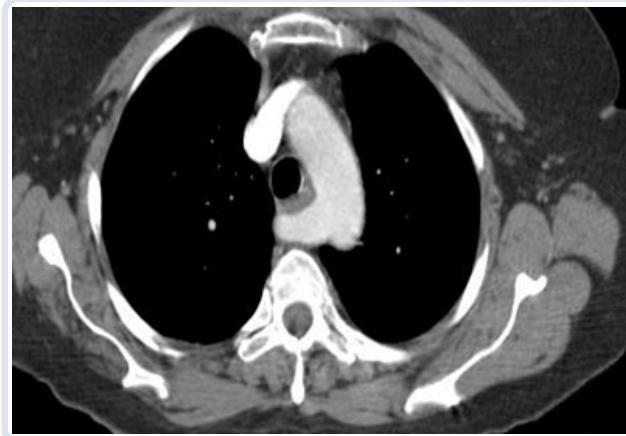
Key Radiological Clues:

- Diffuse haziness on one side (veiling opacity)
- No clear fluid level (because supine)
- Possible loss of diaphragmatic outline
- Lung may appear compressed

Condition	CXR Feature	Key Difference
Hemothorax	Diffuse haziness (supine)	Fluid
Pneumothorax	Deep sulcus sign	Air
Pulmonary contusion	Patchy opacities	Parenchymal
Diaphragm injury	Elevated/irregular diaphragm	Structural

QUESTION

What is the likely diagnosis based on the given image?



A Aberrant right subclavian artery

CORRECT

B Right sided aortic arch

C Tracheal diverticulum

D Esophageal duplication

RIGHT ANSWER

OK **A. Aberrant right subclavian artery**

WHY THIS IS RIGHT

An aberrant right subclavian artery is an anatomical variant where the artery arises as the fourth branch of the aortic arch and courses posterior to the esophagus, often leading to dysphagia lusoria due to esophageal compression.

Signature Imaging Clues:

- Indentation on posterior wall of esophagus
- Vessel arising distally from aortic arch
- Courses behind the esophagus (retro-esophageal)

Condition	Imaging Feature	Key Difference
ARSA	Posterior esophageal indentation	Retro-esophageal vessel
Right-sided aortic arch	Right arch shadow	No posterior compression
Tracheal diverticulum	Air pouch near trachea	Not vascular
Esophageal duplication	Cystic mass	No vascular flow

QUESTION

Identify the marked structure:



A Posterior rib

CORRECT

B Anterior rib

C Costal cartilage

D Pulmonary artery

RIGHT ANSWER

OK A. Posterior rib

WHY THIS IS RIGHT

The posterior rib appears as a horizontal structure on a chest X-ray, distinguishing it from the more curved anterior ribs and other thoracic structures.

Feature	Posterior Ribs	Anterior Ribs
Orientation	Horizontal ☐	Oblique downward ☐
Visibility	More prominent	Less prominent
Density	Thicker	Thinner
Use	Count ribs (lung expansion)	Less useful



QUESTION

A 35 year old man presents to the emergency department with sudden onset shortness of breath. Below is the CT of the patient. What is the next best step in management?



A Needle thoracostomy

CORRECT

B Intercostal chest tube insertion

C Sputum microscopy and culture

D Thoracic ultrasound

RIGHT ANSWER

OK

A. Needle thoracostomy

WHY THIS IS RIGHT

CT shows tension pneumothorax.

Key Radiological Signs:

- Collapsed lung
- Air in pleural space (black area)
- Mediastinal shift to opposite side
- Compression of great vessels -> ↓ venous return

Air enters pleural space (one-way valve)

↓

Air accumulates -> pressure increases

↓

Lung collapses

↓

Mediastinum shifts

↓

↓ Venous return to heart

↓

Shock + death (if untreated)

Immediate needle thoracostomy in 5th ICS midaxillary line is lifesaving. Chest tube follows for definitive management.

Other options are not appropriate in emergency.

QUESTION

A 55 year old chronic smoker presents with drooping of the right eyelid, constricted pupil, and absence of sweating on the right side of the face. He also complains of shoulder pain and tingling sensation in the right arm. The chest x-ray of the patient is given below. Which of the following is the best investigation to confirm the diagnosis?



- A Sputum microscopy
- B CT scan-guided biopsy
- C Nerve conduction studies
- D Chest ultrasound

CORRECT

RIGHT ANSWER

- OK B. CT scan-guided biopsy

WHY THIS IS RIGHT

Pancoast Tumor:

- Tumor located at lung apex (superior sulcus)
- Usually non-small cell lung carcinoma (NSCLC)

It invades:

- Sympathetic chain -> Horner syndrome
- Brachial plexus -> arm pain/paresthesia
- Ribs/vertebrae -> bone pain

The clinical picture suggests Pancoast tumor with Horner's syndrome. CT-guided biopsy confirms diagnosis.

Classic Radiographic Findings:

- Apical opacity
- Rib destruction (sometimes)
- May be subtle -> often missed on X-ray

Sputum microscopy is for infection, nerve conduction for neuropathy, ultrasound is not definitive.

QUESTION

Eggshell calcification is seen in all the following, except?

- A** Silicosis
- B** Sarcoidosis
- C** Post-radiation therapy lymph nodes
- D** **Metastatic lymph nodes**

CORRECT

RIGHT ANSWER

- OK** **D. Metastatic lymph nodes**

WHY THIS IS RIGHT

Eggshell calcification refers to thin, peripheral rim-like calcification of lymph nodes, most commonly seen in silicosis and can also be seen in sarcoidosis and occasionally in post-radiation treated lymph nodes. It is not typical of metastatic lymph nodes, which more commonly show irregular, central, or amorphous calcifications rather than the classic thin peripheral “eggshell” pattern.

QUESTION

Which of the following findings are seen in a high-resolution CT scan of fungal pneumonia?

A Kerley lines

B Hilar lymph nodes

C Pleural effusion

D Cavitary lesions with surrounding ground glass opacities

CORRECT

RIGHT ANSWER

OK D. Cavitary lesions with surrounding ground glass opacities

WHY THIS IS RIGHT

On HRCT, invasive fungal pneumonia (especially *Aspergillus*) classically shows:

- Nodules or cavitary lesions
- Surrounding ground-glass opacity -> "Halo sign" (due to hemorrhage around lesion)

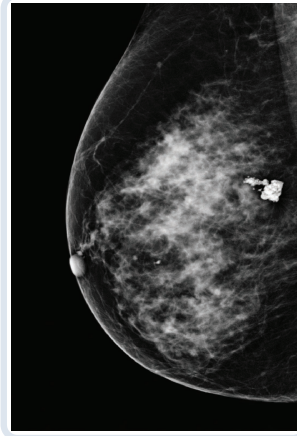
This is highly suggestive of invasive fungal infection, particularly in immunocompromised patients.

Why not others?

- A. Kerley lines: Seen in interstitial pulmonary edema (CHF), not fungal infection.
- B. Hilar lymph nodes: Common in TB, lymphoma, sarcoidosis, not typical for invasive fungal pneumonia.
- C. Pleural effusion: May occur but is non-specific and not characteristic.

QUESTION

A 32-year-old woman presents to the breast clinic with a painless lump in her left breast that she discovered during a self-examination. On examination, a well-defined, mobile, firm, and non-tender mass of 2 cm is palpated in the upper outer quadrant of the left breast. The overlying skin is smooth, and there is no nipple discharge or lymphadenopathy. Mammogram is shown below. Classify the following mammography lesion as per BIRADS staging:



A BIRADS 1

B BIRADS 2

CORRECT

C BIRADS 3

D BIRADS 4

RIGHT ANSWER

OK B. BIRADS 2

WHY THIS IS RIGHT

BI-RADS 2 (benign) lesions show classic benign features such as well-defined margins, coarse “popcorn” calcifications, simple cysts, or fibroadenoma, with no suspicious features. These findings have 0% malignancy risk and require routine screening only, not biopsy or short-interval follow-up.

BI-RADS Scoring System (Mammography):

- BI-RADS 0: Incomplete - need additional imaging
- BI-RADS 1: Negative (normal)
- BI-RADS 2: Benign lesion (0% malignancy) -> routine screening
- BI-RADS 3: Probably benign (<2% risk) -> short-interval follow-up (6 months)
- BI-RADS 4: Suspicious (2-95% risk) -> biopsy required

o 4A: Low suspicion

o 4B: Moderate

o 4C: High

- BI-RADS 5: Highly suggestive of malignancy (>95%) -> treat as cancer
- BI-RADS 6: Known biopsy-proven malignancy

QUESTION

A 30-year-old male presents with chronic sinusitis and recurrent respiratory tract infections since childhood. CXR is shown below. Which of the following is the most likely diagnosis?



- A Cystic fibrosis
- B Kartagener syndrome**
- C Primary ciliary dyskinesia
- D Asthma

CORRECT

RIGHT ANSWER

- OK
- B. Kartagener syndrome**

WHY THIS IS RIGHT

Kartagener syndrome is a subtype of primary ciliary dyskinesia characterized by the triad of:

- Chronic sinusitis
- Bronchiectasis with recurrent respiratory infections
- Situs inversus/dextrocardia on chest X-ray

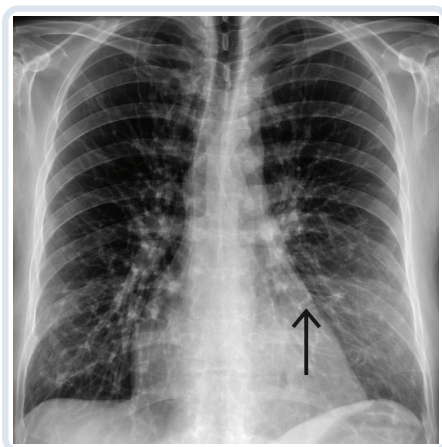
It results from defective dynein arms causing impaired mucociliary clearance and recurrent infections since childhood.

Why not others?

- A. Cystic fibrosis: Causes recurrent infections, but usually has pancreatic insufficiency, malabsorption, infertility, not situs inversus.
- C. Primary ciliary dyskinesia: Broad term; Kartagener is its classic triad variant with situs inversus (seen on CXR).
- D. Asthma: Causes wheeze, not chronic sinusitis + lifelong recurrent infections + bronchiectasis.

QUESTION

A 28-year-old man presents with the history of cough for one week. He also gives a history of hemoptysis for 1 month and fever for 4 days. The X-ray is given below. What is the diagnosis?



A LLL consolidation

CORRECT

B Lingula consolidation

C LUL consolidation

D Pericardial effusion

RIGHT ANSWER

OK A. LLL consolidation

WHY THIS IS RIGHT

On chest X-ray, loss of the left hemidiaphragm silhouette with preserved left heart border indicates left lower lobe (LLL) consolidation due to the silhouette sign, which helps localize lung pathology.

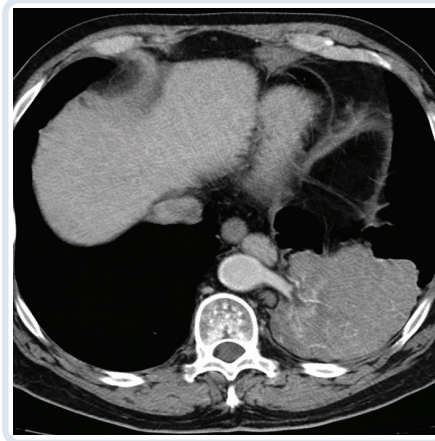
Silhouette Sign Principle: Loss of normal border occurs when pathology is in anatomical contact with that structure.

Localization:

- LLL consolidation -> Obscures left hemidiaphragm
- Lingular consolidation -> Obscures left heart border
- RML consolidation -> Obscures right heart border
- RLL consolidation -> Obscures right hemidiaphragm

QUESTION

A 19-year-old college student who had a history of frequent respiratory infections as a child presents to the OPD. He has been experiencing recurrent episodes of coughing and shortness of breath over the past few months. He also complains of fatigue and chest pain, particularly on the left side. The CT scan reveals a mass in the lower lobe of his left lung as shown. What is the likely diagnosis?



- A Hamartoma
- B Lobar pneumonia
- C Sequestration
- D Squamous cell carcinoma

CORRECT

RIGHT ANSWER

OK C. Sequestration

WHY THIS IS RIGHT

Pulmonary sequestration is a congenital anomaly characterized by non-functioning lung tissue that lacks normal communication with the tracheobronchial tree and receives arterial supply from the systemic circulation (usually aorta). It commonly presents in adolescents or young adults with recurrent localized lung infections, most often in the posterior basal segment of the left lower lobe.

Key Imaging Features (CT):

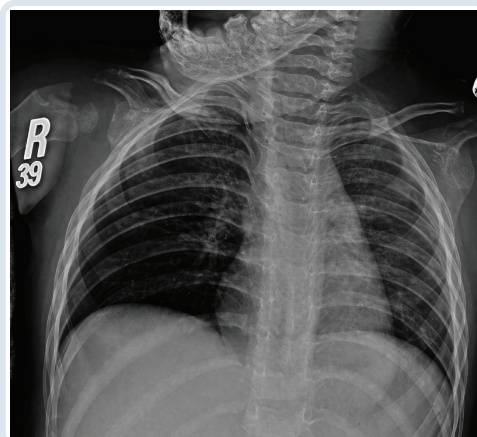
- Well-defined mass in lower lobe (usually left)
- Systemic arterial supply from aorta
- No communication with bronchial tree

Types:

- Intralobar sequestration (most common): within normal lung, recurrent infections
- Extralobar sequestration: separate pleural covering, seen in infants

QUESTION

8-month-old boy is brought to the emergency department due to respiratory distress. Severe cough and wheezing began an hour ago while the patient was playing at his cousin's house. Chest radiograph is shown in the image below. Which of the following is the most likely cause of this patient's symptoms?



A Anaphylaxis

B Asthma

C Bronchiolitis

D Foreign body aspiration

CORRECT

RIGHT ANSWER

OK

D. Foreign body aspiration

WHY THIS IS RIGHT

Foreign body aspiration should be suspected in infants with sudden onset cough, wheeze, unilateral decreased breath sounds and respiratory distress, especially during play or eating. Chest X-ray may show unilateral hyperinflation (air trapping) due to a ball-valve obstruction, even if the foreign body is radiolucent.

- X-ray: unilateral hyperlucent lung, mediastinal shift, or collapse

Most common site: Right main bronchus (more vertical and wider)

Diagnosis & management:

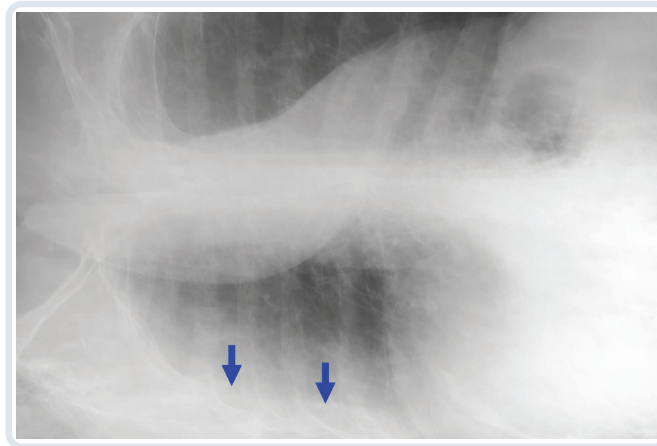
- High suspicion -> Rigid bronchoscopy (gold standard)
- Both diagnostic and therapeutic

Why not other options?

- Anaphylaxis: Would have urticaria, hypotension, bilateral wheeze - not unilateral hyperinflation.
- Asthma: Recurrent episodes, bilateral wheeze; rare at 8 months and not sudden during play.
- Bronchiolitis: Viral prodrome (fever, coryza), bilateral findings.

QUESTION

| What is the minimum amount of fluid to be detected by this X-ray?



A 25ml

CORRECT

B 5ml

C 75ml

D 250ml

RIGHT ANSWER

OK

A. 25ml

WHY THIS IS RIGHT

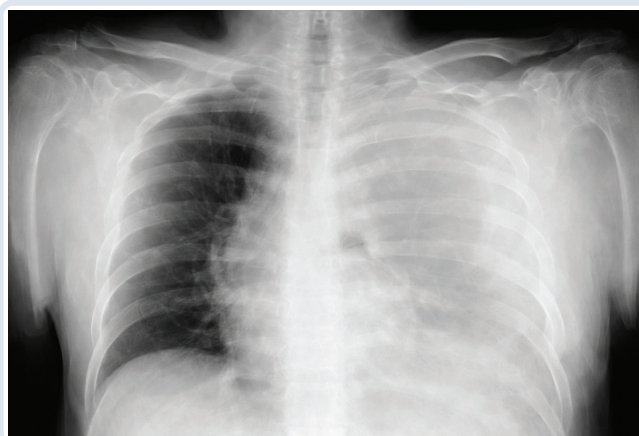
On a lateral decubitus chest X-ray, as little as ~25 mL of pleural fluid can be detected because fluid layers dependently between the lung and chest wall, making this view the most sensitive plain radiographic method for small pleural effusions.

Minimum pleural fluid detectable:

- Lateral decubitus view: ~25 mL (most sensitive X-ray view)
- PA erect chest X-ray: ~200 mL
- Blunting of costophrenic angle: ~175-200 mL
- Supine X-ray: Often misses small effusions

QUESTION

A 35-year-old male presents to the trauma center after RTA with shortness of breath. The supine CXR is shown below. The BP is 109/88mm Hg and pulse is 98/min. What is the next step?



A Needle thoracocentesis

B ICD insertion

CORRECT

C ET Intubation

D NG tube insertion

RIGHT ANSWER

OK

B. ICD insertion

WHY THIS IS RIGHT

In trauma patients, a massive hemothorax or large pleural collection on chest X-ray requires immediate intercostal chest drain (ICD) insertion.

- Supine CXR showing white-out of hemithorax -> suggests hemothorax/large effusion
- Patient symptomatic (dyspnea) but hemodynamically stable
- Definitive management: tube thoracostomy (ICD)

Why not others:

- Needle thoracocentesis -> only for tension pneumothorax
- ET intubation -> if airway compromise/respiratory failure
- NG tube -> unrelated

QUESTION

| Cardiac output can be determined using the following except?

A Cardiac output can be determined using the following except?

B **Coronary angiography**

CORRECT

C Cardiac MRI

D Echocardiography

RIGHT ANSWER

OK **B. Coronary angiography**

WHY THIS IS RIGHT

Cardiac output (CO) can be measured using techniques that assess stroke volume and heart rate or use indicator dilution methods.

Methods to measure cardiac output:

- Pulmonary artery (Swan-Ganz) catheterization: Thermodilution method
- Echocardiography: Calculates stroke volume using Doppler
- Cardiac MRI: Accurate volumetric assessment of ventricular output

Not used to measure cardiac output:

Coronary angiography: Visualizes coronary artery anatomy and stenosis but does not measure cardiac output

QUESTION

A 46-year-old male presented to the clinic with a persistent cough, fatigue, weight loss. X-ray of the patient is as given below. What is the most likely diagnosis?



A Aspergilloma

B TB

CORRECT

C Carcinoma lung

D Sarcoidosis

RIGHT ANSWER

OK

B. TB

WHY THIS IS RIGHT

Chest X-ray in pulmonary tuberculosis typically shows upper lobe infiltrates, cavitation, fibrosis, and volume loss, often associated with systemic symptoms like chronic cough, weight loss, and fatigue.

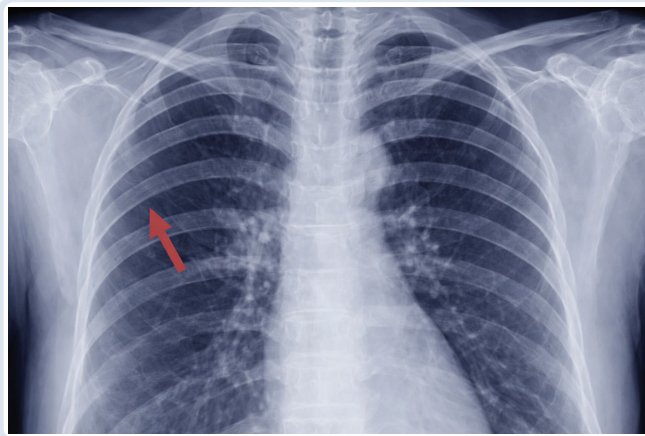
Post-primary TB classically involves the apical and posterior segments of upper lobes due to higher oxygen tension, and cavitory lesions help distinguish it from other causes of chronic lung disease.

Why not other options:

- Aspergilloma: Shows a fungal ball within a pre-existing cavity with an air crescent sign and mobile intracavitary mass - not primary infiltrative upper lobe disease.
- Carcinoma lung: Usually presents as a solitary mass, irregular opacity, or collapse - not typical bilateral apical cavitory lesions.
- Sarcoidosis: Bilateral hilar lymphadenopathy ± reticulonodular pattern; cavitation is uncommon.

QUESTION

Identify the fracture site in the X-ray shown below.



A Right posterior end of 5th rib

B Right posterior end of 6th rib

CORRECT

C Right posterior end of 7th rib

D Right anterior end of 6th rib

RIGHT ANSWER

OK

B. Right posterior end of 6th rib

WHY THIS IS RIGHT

On a PA chest X-ray, posterior ribs are more horizontal and clearly visualized, while anterior ribs slope downward toward the sternum and are less distinct.

To localize a rib fracture:

- Identify the rib level by counting posterior ribs (which are easier to count).
- Use the inferior angle of scapula (~7th rib posteriorly) and vertebral alignment as landmarks.
- Fractures near the vertebral column correspond to the posterior end of ribs.

In this X-ray, the fracture line is seen along a horizontally oriented rib near the vertebral column, consistent with a right posterior 6th rib fracture.

QUESTION

A 55 year old man with hypertension, hyperlipidemia and a history of smoking presents for a routine evaluation. He is asymptomatic at the moment but is concerned about his cardiovascular health due to a family history of heart disease. Which of the following scores is used to assess coronary artery disease risk based on calcification on NCCT?

A CHA2DS2-VaSc score

B Agatston score

CORRECT

C Reynold's risk score

D Carpreg score

RIGHT ANSWER

OK B. Agatston score

WHY THIS IS RIGHT

The Agatston score is used to quantify coronary artery calcification (CAC) on (NCCT) .
it Assesses risk of coronary artery disease and future cardiovascular events.

Higher calcium scores correlate with increased atherosclerotic burden and guide risk stratification and preventive therapy (e.g., statins).

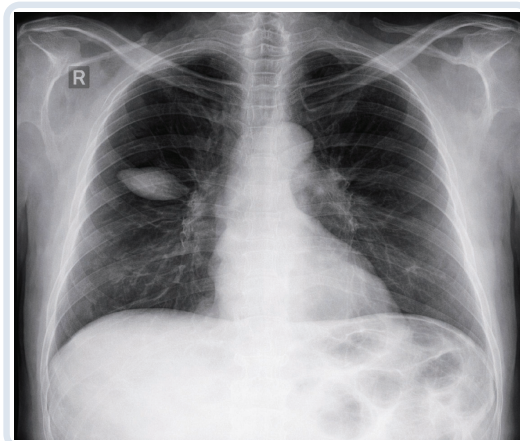
Other scores like CHA₂DS₂-VASc and Reynolds risk score assess clinical risk but are *not based on CT coronary calcification*.

Why not other options:

- CHA₂DS₂-VASc score: Used to assess stroke risk in atrial fibrillation,.
- Reynolds risk score: Estimates cardiovascular risk using clinical and lab factors (CRP, lipids),.
- CARPREG score: Predicts cardiac risk in pregnant women with heart disease.

QUESTION

A 70 year old male patient with a history of congestive heart failure presents with worsening shortness of breath and pleuritic chest pain. A chest X-ray is taken, which is shown below. Which of the following statements about the finding on the chest X-ray is most accurate?



A It is most commonly seen with effusion occupying the oblique fissure.

B It may be mistaken for a lung mass due to its appearance.

CORRECT

C It will typically require surgical intervention to resolve.

D It is mostly associated with exudative pleural effusion.

RIGHT ANSWER

OK

B. It may be mistaken for a lung mass due to its appearance.

WHY THIS IS RIGHT

There is a well-defined, lens-shaped opacity in the lung field.
This is ***NOT*** a true lung mass, It is fluid trapped in a fissure.
This is called: ☐ Pseudotumor (Vanishing tumor) / Interlobar pleural effusion.

PATHOPHYSIOLOGY:

In heart failure:

- Fluid accumulates and Sometimes it collects inside a lung fissure
- It forms a ***rounded opacity*** and starts looking like a tumor ***due to the rounded morphology.***

☐ It disappears when heart failure improves , because it is just fluid.
Hence called a vanishing tumor.

QUESTION

A 62 year old male with a history of smoking presents to the emergency department with shortness of breath and fever. A chest X-ray is performed as shown below. Which of the following radiological signs is seen in this case?



A Luftsichel sign

B Flat waist sign

C Golden S sign

CORRECT

D Superior triangle sign

RIGHT ANSWER

OK C. Golden S sign

WHY THIS IS RIGHT

The Golden “S” sign on chest X-ray indicates right upper lobe collapse due to a central obstructing mass (commonly bronchogenic carcinoma). It appears as an S-shaped contour of the minor fissure caused by a combination of lobar collapse and a hilar mass. This sign is an important radiological clue to underlying lung malignancy causing lobar atelectasis.

Why not other options:

- Luftsichel sign: Seen in left upper lobe collapse, crescent of air near aortic arch.
- Flat waist sign: Seen in mitral stenosis (cardiac contour change), not lung collapse.
- Superior triangle sign: Seen in left lower lobe collapse behind cardiac shadow.

QUESTION

A 2-month-old infant presents with tachypnea, poor feeding, and recurrent lower respiratory tract infections. On examination, there is tachycardia, mild right-sided chest flattening, and a soft continuous murmur heard over the right lower lung field.

SpO₂ is 92%.

ECHO shows:

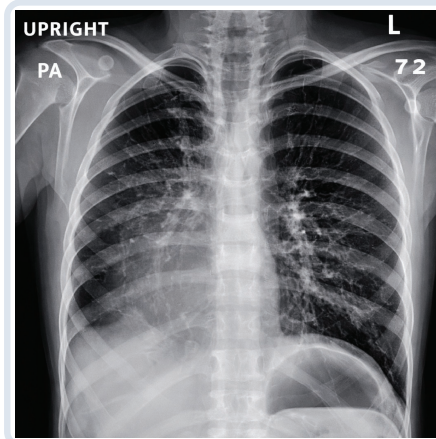
Right pulmonary veins draining into the IVC

Right lung smaller than left

Evidence of left-to-right shunt

Mild pulmonary hypertension

What is the most likely diagnosis?



- A** Total anomalous pulmonary venous return (TAPVR)
- B** Scimitar syndrome
- C** Pulmonary sequestration
- D** Anomalous left coronary artery from pulmonary artery (ALCAPA)

CORRECT

RIGHT ANSWER

OK

B. Scimitar syndrome

WHY THIS IS RIGHT

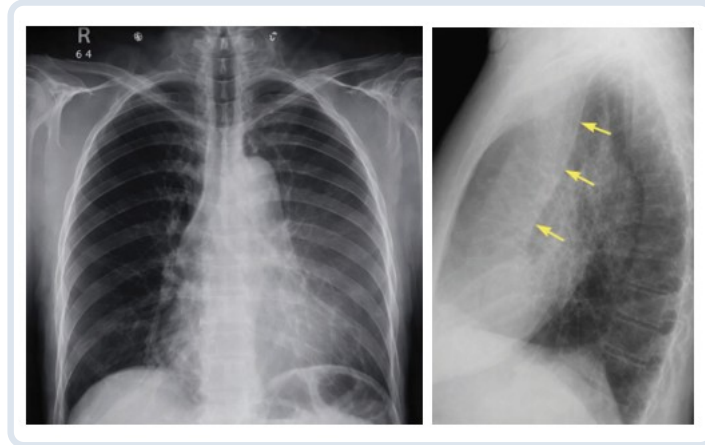
Scimitar syndrome is a form of partial anomalous pulmonary venous return where the right pulmonary veins drain into the IVC, often associated with a hypoplastic right lung, dextroposition of heart, and left-to-right shunt. On chest X-ray, a characteristic curved vascular shadow along the right cardiac border ("scimitar sign") may be seen. Infants present with recurrent respiratory infections, tachypnea, and features of pulmonary hypertension due to increased pulmonary blood flow.

Why not others:

- TAPVR: All pulmonary veins drain abnormally; causes severe cyanosis early. Here only right pulmonary veins → IVC (partial).
- Pulmonary sequestration: Nonfunctioning lung tissue with systemic arterial supply; no anomalous pulmonary venous drainage.
- ALCAPA: Anomalous coronary artery → presents with heart failure/ischemia, not lung hypoplasia or anomalous pulmonary veins.

QUESTION

A 28-year-old man presents with cough for 1 week and hemoptysis for 1 month. He has had fever for the last 14 days. Chest Xray PA is given below. What is the most likely diagnosis?



A Right middle lobe consolidation

B Left lower lobe collapse

C Left upper lobe (LUL) collapse

CORRECT

D Pericardial effusion

RIGHT ANSWER

OK C. Left upper lobe (LUL) collapse

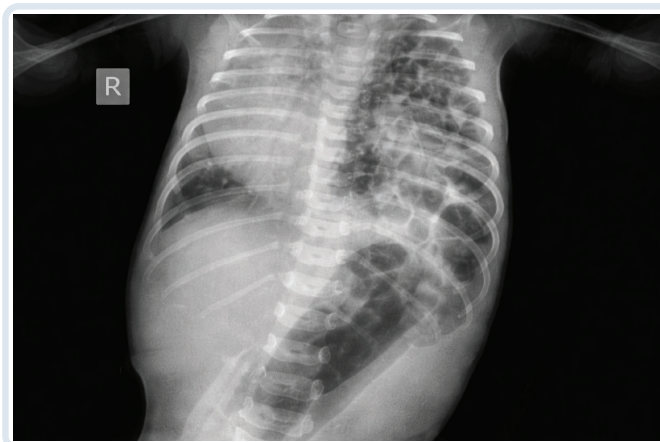
WHY THIS IS RIGHT

Left upper lobe collapse on chest X-ray is suggested by a veil-like opacity over the left lung with elevation of the left hilum and the classic Luftsichel sign (crescent of air adjacent to the aortic arch due to hyperinflated lower lobe).

On lateral view, anterior displacement of the oblique fissure confirms upper lobe collapse. Recognition of lobar collapse patterns helps localize disease and identify underlying causes such as endobronchial obstruction (e.g., TB, tumor, mucus plug).

QUESTION

A term baby with respiratory distress is intubated following CXR. Saturation remains 80% despite ventilation. What is the next best step?



- A Start CPAP
- B Insert a nasogastric tube for decompression**
- C Immediate surgery
- D High-frequency oscillatory ventilation (HFOV) directly

CORRECT

RIGHT ANSWER

- B. Insert a nasogastric tube for decompression**

WHY THIS IS RIGHT

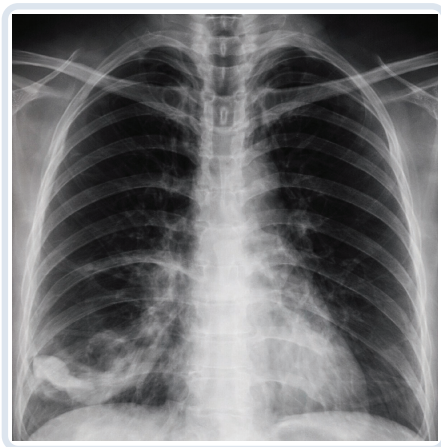
In a neonate with respiratory distress and CXR showing bowel loops in the thorax (suggestive of congenital diaphragmatic hernia), the immediate management is nasogastric tube insertion for gastric decompression. This reduces intrathoracic bowel distension and lung compression, improving ventilation and oxygenation before definitive surgical repair. Bag-mask ventilation and CPAP should be avoided as they worsen gastric distension.

Why not others:

- CPAP: Worsens gastric distension -> more lung compression.
- Immediate surgery: Stabilize first, then operate.
- HFOV: Consider later if needed, not first step.

QUESTION

A 25-year-old shepherd from Rajasthan presents with cough and mild chest pain for past few days . What is the MOST likely diagnosis?



A Lung abscess

B Pneumatocele

C Hydatid cyst

CORRECT

D Tuberculoma

RIGHT ANSWER

OK

C. Hydatid cyst

WHY THIS IS RIGHT

A well-defined rounded cystic lesion in the lung of a patient from an endemic rural area (e.g., shepherd with exposure to sheep/dogs) is characteristic of a pulmonary hydatid cyst caused by *Echinococcus granulosus*. Chest X-ray may show a solitary, spherical homogeneous opacity; if ruptured, signs like water-lily sign or air crescent sign may appear. Hydatid disease commonly involves liver and lungs and is associated with exposure to livestock and dogs.

Why not other options:

- Lung abscess: Thick-walled cavity with air-fluid level and surrounding consolidation; usually with fever and toxicity.
- Pneumatocele: Thin-walled air-filled cyst, typically post-staphylococcal pneumonia in children.
- Tuberculoma: Solid round opacity, often in upper lobes $\pm$ calcification; not a large smooth cyst.

QUESTION

A 45-year-old woman with long-standing rheumatic mitral stenosis undergoes a chest X-ray. Which of the following is NOT a radiological feature of Left Atrial Enlargement (LAE)?

A Straightening of left heart border

B Double left heart border

CORRECT

C Splaying of carina

D Posterior displacement of esophagus

RIGHT ANSWER

OK

B. Double left heart border

WHY THIS IS RIGHT

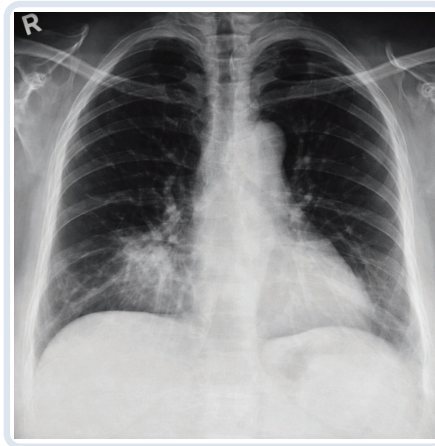
Left atrial enlargement (LAE), commonly seen in mitral stenosis, produces characteristic chest X-ray findings due to enlargement of the left atrium. These include:

- Straightening of left heart border (prominent left atrial appendage)
- Splaying of carina ($>90^\circ$)
- Posterior displacement of esophagus on barium swallow

A double right heart border (double density sign) is the true sign of LA enlargement, not a double left heart border. Therefore, “double left heart border” is not a feature of LAE.

QUESTION

| What is the most likely diagnosis?



- A Interstitial pneumonia
- B Community-acquired pneumonia**
- C Bronchopneumonia
- D TB

CORRECT

RIGHT ANSWER

- OK B. Community-acquired pneumonia**

WHY THIS IS RIGHT

Chest X-ray in community-acquired pneumonia (CAP) typically shows lobar or segmental consolidation with homogeneous opacity, often with air bronchograms and loss of normal lung markings in the affected area.

This contrasts with:

- Bronchopneumonia: Patchy, multifocal peribronchial opacities involving multiple lobes
- Interstitial pneumonia: Reticular or ground-glass interstitial pattern
- Pulmonary TB: Upper lobe infiltrates, cavitation, fibrosis, or nodular lesions

QUESTION

| Radiologically, pulmonary plethora is indicated by all of the following except:

- A** Descending pulmonary artery diameter >16 mm
- B Kerley B lines**
- C** Diameter of peripheral arteries > accompanying bronchiole
- D** More than 6 blood vessels in outer 1/3rd

CORRECT

RIGHT ANSWER

OK

B. Kerley B lines

WHY THIS IS RIGHT

Pulmonary plethora refers to increased pulmonary vascularity due to increased pulmonary blood flow (e.g., left-to-right shunts like ASD, VSD, PDA). Radiological signs include enlarged central pulmonary arteries, prominent peripheral vessels extending to the lung periphery (>6 vessels in outer one-third), and peripheral arteries larger than accompanying bronchi.

Kerley B lines indicate interstitial pulmonary edema from pulmonary venous hypertension (e.g., left heart failure), not pulmonary plethora; therefore, they are not a feature of increased pulmonary blood flow.

QUESTION

A 65-year-old male with a 40-pack-year smoking history presents with cough and unintentional weight loss. A contrast-enhanced CT scan reveals a mass in the right upper lobe of the lung suspicious for bronchogenic carcinoma. Which of the following organs must be evaluated to assess for common metastasis?

A Spleen

B Adrenals

CORRECT

C Pancreas

D Kidneys

RIGHT ANSWER

OK

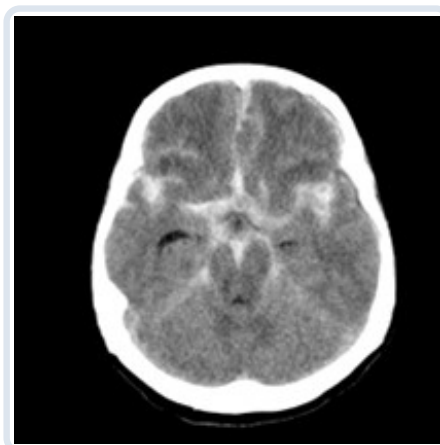
B. Adrenals

WHY THIS IS RIGHT

Bronchogenic carcinoma commonly metastasizes hematogenously to the adrenal glands, liver, brain, and bones. Therefore, evaluation of the adrenals with CT or PET-CT is essential during staging of lung cancer, even in asymptomatic patients, as adrenal metastasis is frequent and may alter management and prognosis.

QUESTION

A 50-year-old patient presents with persistent headache, nausea, vomiting, and altered sensorium. A non-contrast CT (NCCT) brain scan shows hyperdense areas in the image given below. Which is the most likely diagnosis?



A Subarachnoid hemorrhage

CORRECT

B Pyogenic meningitis

C Encephalitis

D Cerebral abscess

RIGHT ANSWER

OK A. Subarachnoid hemorrhage

WHY THIS IS RIGHT

Acute subarachnoid hemorrhage appears as hyperdensity in basal cisterns and sulci on non-contrast CT, presenting clinically with sudden severe headache, nausea, vomiting, and altered sensorium.

- Hyperdensity in:
 - Basal cisterns (classic “star sign”)
 - Sylvian fissures
 - Interhemispheric fissure
- Blood follows CSF spaces, not brain parenchyma

Condition	CT Appearance	Key Location
SAH	Hyperdense in sulci/cisterns	Subarachnoid space
Epidural hematoma	Biconvex (lens-shaped)	Outside dura
Subdural hematoma	Crescent-shaped	Between dura & arachnoid
Intracerebral bleed	Focal hyperdense area	Brain parenchyma

QUESTION

A 2-month-old infant is brought to the OPD with a parietal swelling present since birth. An X-ray was ordered and is shown below. What is the likely diagnosis?



A Cephalhematoma

CORRECT

B Subgaleal hematoma

C Encephalocele

D Caput Succedaneum

RIGHT ANSWER

OK

A. Cephalhematoma

WHY THIS IS RIGHT

No explanation was provided in the source quiz.

	Cephalhematoma	Caput Succedaneum	Subgaleal hematoma	Encephalocele
Site	Sub-pericranial	Sub-cutaneous fluid collection	Between galea, aponeurosis and pericranium	Herniation of intracranial contents through defect in skull vault
Cause	Instrumental Delivery	Normal Vaginal delivery	Trauma during delivery, particularly with vacuum	Neural tube defects
Presentation	Focal swelling, limited by suture line	Focal swelling, not limited by suture line	Diffuse swelling	Neurological deficit symptoms
Prognosis	Observation, may resolve spontaneously by 2-3 months	Self-resolves within a few days to weeks	Transfusion if severe, monitoring for anemia, surgical drainage if necessary	Surgical repair, neurosurgical intervention as needed
Image				

QUESTION

What is the likely diagnosis?



A Acute EDH

B Chronic EDH

C Chronic SDH

CORRECT

D Acute SDH

RIGHT ANSWER

OK

C. Chronic SDH

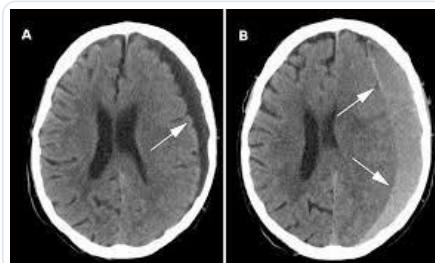
WHY THIS IS RIGHT

Chronic subdural hematoma is crescent-shaped and hypodense due to old blood. EDH is biconvex, acute SDH is hyperdense.

Key Radiological Features:

- Crescent-shaped collection
- Hypodense (dark) due to old blood
- Crosses suture lines
- Causes:
 - Mass effect
 - Midline shift

Feature	Chronic SDH	Acute SDH	EDH
Shape	Crescent	Crescent	Biconvex
Density	Hypodense	Hyperdense	Hyperdense
Cause	Venous	Venous	Arterial
Cross sutures	Yes	Yes	No
Onset	Slow	Rapid	Rapid



QUESTION

| What is the likely diagnosis?



A Dandy Walker malformation

B Chiari malformation

CORRECT

C Vein of Galen malformation

D Encephalocele

RIGHT ANSWER

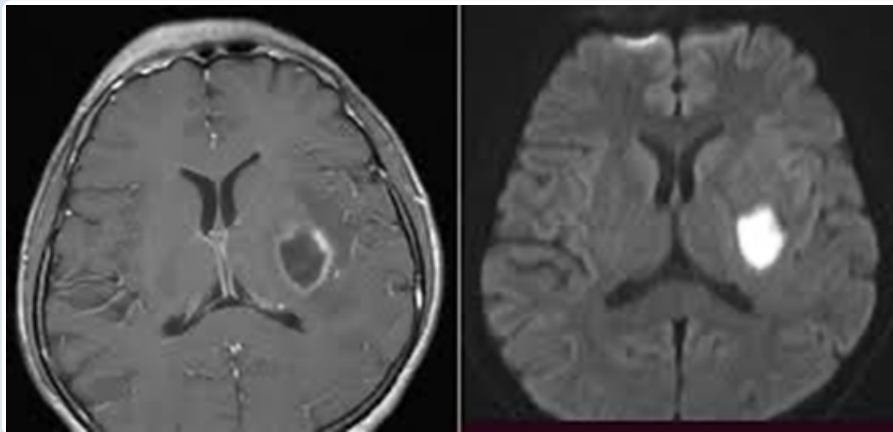
OK B. Chiari malformation

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$19" here and does not include a written explanation for this item.

QUESTION

What is the likely diagnosis?



CORRECT

A

Abscess

B

Tuberculomas

C

Cryptococcomas

D

Neurocysticercosis (NCC)

RIGHT ANSWER

OK

A. Abscess

WHY THIS IS RIGHT

Brain abscess shows ring-enhancing lesion with diffusion restriction on DWI. Tuberculomas lack restriction, cryptococcomas show soap-bubble, NCC has scolex.

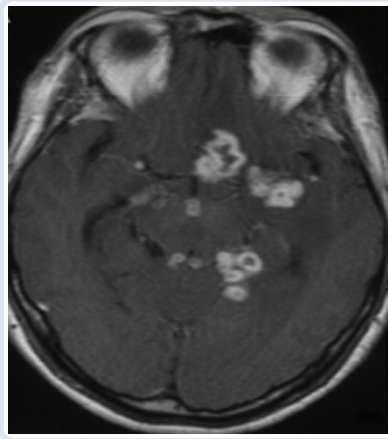
Key Imaging Features:

- Smooth, thin ring enhancement
- Central diffusion restriction
- Extensive perilesional edema
- Mass effect

Feature	Abscess	Tuberculoma	NCC	Cryptococcoma
Wall	Smooth	Irregular	Thin	Minimal
DWI	Restricted	No	No	No
Edema	Marked	Moderate	Mild	Minimal
Key sign	Pus cavity	Lipid peak	Scolex	Soap bubbles
Host	Any	TB endemic	Endemic	Immunocompromised

QUESTION

A 20-year-old male patient presented with a headache and altered sensorium. MRI was performed, which revealed multiple ring-enhancing lesions. What will be the next step to confirm the diagnosis?



A MR spectroscopy

CORRECT

B CBNAAT of CSF

C Biopsy

D SWI

RIGHT ANSWER

OK A. MR spectroscopy

WHY THIS IS RIGHT

MR spectroscopy detects lipid-lactate peak, distinguishing tuberculomas from NCC. CBNAAT is for meningitis, biopsy is invasive, SWI detects bleeds. MR Spectroscopy MRS analyzes metabolites inside the lesion, helping distinguish between different causes of ring lesions.

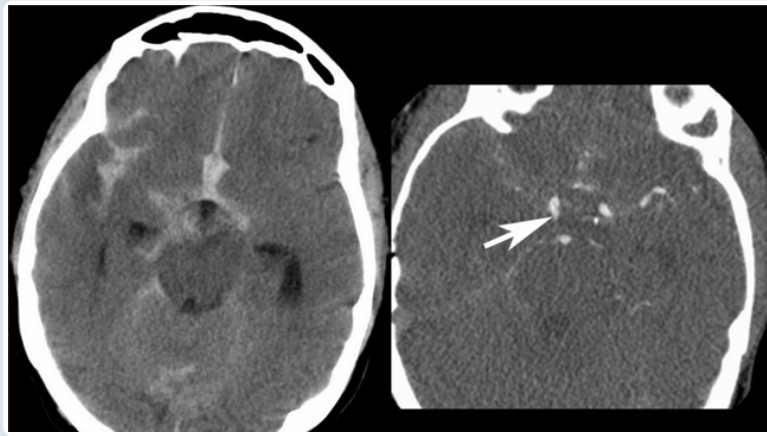
It is:

- Non-invasive
- Highly diagnostic
- Helps avoid biopsy in many cases

Feature	Tuberculoma	Abscess	NCC	Metastasis
Number	Multiple	Single/multiple	Multiple	Multiple
Enhancement	Ring	Ring	Ring	Ring
MRS	Lipid peak	Amino acids	Variable	↑ Choline
Edema	Moderate	Marked	Mild	Variable
Key clue	India, TB endemic	Infection signs	Scolex	Primary tumor

QUESTION

A 35-year-old lady presents with sudden severe headache. CT is shown below. What is the likely diagnosis?



A SAH

CORRECT

B SDH

C EDH

D Pneumocephalus

RIGHT ANSWER

OK

A. SAH

WHY THIS IS RIGHT

Subarachnoid hemorrhage shows blood in cisterns, often from aneurysm rupture. SDH is crescent-shaped, EDH is biconvex, pneumocephalus shows air density.

Key Imaging Findings:

- Hyperdensity in basal cisterns
- Blood in:
 - Sylvian fissures
 - Interhemispheric fissure
- Classic "Star sign" (blood outlining cisterns)

Feature	SAH	SDH	EDH	Pneumocephalus
	-----	---	---	-----
Location	Subarachnoid space	Subdural	Epidural	Intracranial air
Shape	Fills sulci/cisterns	Crescent	Biconvex	Black air
Density	Hyperdense	Hyper/hypo	Hyperdense	Hypodense
Key sign	Star sign	Crescent	Lens	Air pockets
Cause	Aneurysm rupture	Vein rupture	Artery rupture	Trauma/surgery

QUESTION

What is the likely diagnosis?



A Anencephaly

CORRECT

B Cystic hygroma

C Encephalocele

D Dandy Walker malformation

RIGHT ANSWER

OK A. Anencephaly

WHY THIS IS RIGHT

Anencephaly shows absent cranial vault and forebrain with frog-eye sign. Cystic hygroma is neck cyst, encephalocele is herniation, Dandy Walker shows posterior fossa cyst.

Key Radiological Signs:

- Absent calvarium (no skull vault)
- “Frog-eye sign” (prominent orbits)
- Disorganized brain tissue
- Polyhydramnios may be present

Feature	Anencephaly	Cystic Hygroma	Encephalocele	Dandy-Walker
Skull vault	Absent	Present	Defect present	Present
Brain tissue	Absent/disorganized	Normal	Herniated	Abnormal cerebellum
Location	Whole cranial vault	Neck	Focal skull defect	Posterior fossa
Key sign	Frog-eye	Neck cyst	Sac-like protrusion	Enlarged 4th ventricle



QUESTION

A 25-year-old patient was involved in a road traffic accident. He was initially conscious, but later became unconscious and subsequently died. On postmortem examination, multiple petechial hemorrhages are observed in the corpus callosum. What is the most probable diagnosis?

A Diffuse vascular injury

B Diffuse axonal injury

CORRECT

C Subdural hematoma

D Ischemic injury

RIGHT ANSWER

OK

B. Diffuse axonal injury

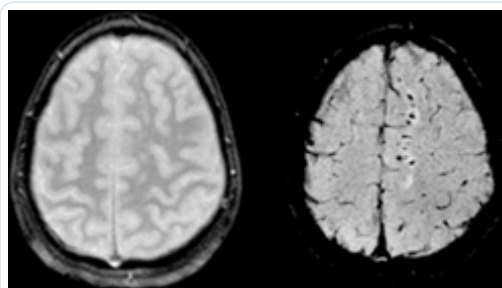
WHY THIS IS RIGHT

Diffuse axonal injury from rotational trauma presents with characteristic petechial hemorrhages in the corpus callosum, grey-white matter junctions, and brainstem, with clinical deterioration after initial consciousness.

Key Imaging Clues:

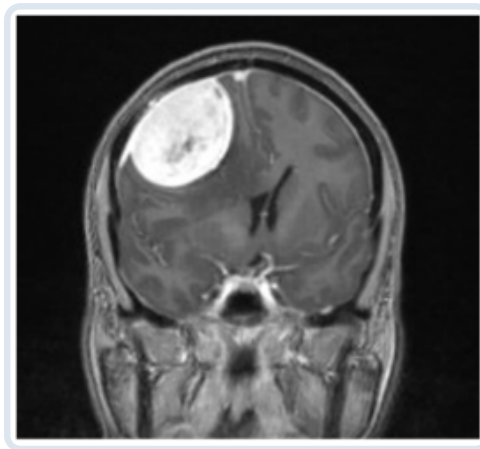
- Multiple small hemorrhagic foci
- Best seen on:
- MRI (GRE / SWI) -> blooming lesions
- CT may be:
- Normal or subtle early

Feature	DAI	Subdural Hematoma	Ischemic Injury
-----	---	-----	-----
Mechanism	Shearing	Venous bleed	Vascular occlusion
Location	Deep (CC, brainstem)	Extra-axial	Arterial territory
Imaging	Tiny hemorrhages	Crescent collection	Hypodensity
CT early	Often normal	Visible	Visible
Best modality	MRI (GRE/SWI)	CT	MRI (DWI)



QUESTION

A 30-year-old male presents for evaluation, and his MRI brain is shown below. What is the most likely diagnosis?



CORRECT

A Meningioma**B** Glioma**C** Ependymoma**D** Pilocytic astrocytoma

RIGHT ANSWER

OK A. Meningioma

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1a" here and does not include a written explanation for this item.

QUESTION

The sign shown in the image below, is typically associated with which of the following conditions?



CORRECT

A Carotid body tumor**B** Carotid aneurysm**C** Branchial cleft cyst**D** Jugular vein thrombosis

RIGHT ANSWER

OK A. Carotid body tumor

WHY THIS IS RIGHT

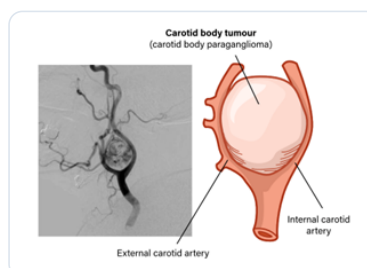
The Lyre sign, characterized by splaying of the internal and external carotid arteries at the bifurcation, is pathognomonic for carotid body tumor (paraganglioma).

Signature Imaging Feature:

- "Lyre sign"
- Tumor at carotid bifurcation
- Splits:
 - Internal carotid artery (ICA)
 - External carotid artery (ECA)

The vessels look like a lyre (string instrument)

Condition	Imaging Feature	Key Difference
Carotid body tumor	ICA & ECA splayed (Lyre sign)	Hypervascular
Carotid aneurysm	Dilated vessel	No splaying
Branchial cleft cyst	Cystic lesion	Non-vascular
Jugular vein thrombosis	Venous filling defect	Posterior location



QUESTION

In the given image, the white arrow is pointing to which of the following structures?



A Thyroid cartilage

B Epiglottis

C Vallecula

D Pyriform sinus

CORRECT

RIGHT ANSWER

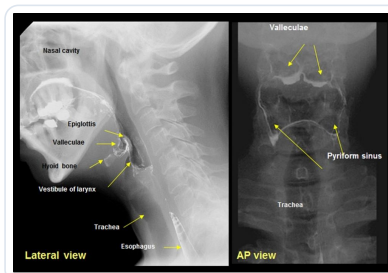
OK D. Pyriform sinus

WHY THIS IS RIGHT

The pyriform sinuses appear as paired lateral air-filled recesses of the hypopharynx on AP neck X-rays, serving as important landmarks for foreign body detection and swallowing assessment.

Signature Clues:

- Air-filled space
- Lateral to larynx (on both sides)
- Located in hypopharynx
- Appears as a triangular recess



QUESTION

Identify the CT image finding near the orbit.



A Orbital cellulitis

B Subperiosteal abscess

CORRECT

C Preseptal cellulitis

D Sinusitis only

RIGHT ANSWER

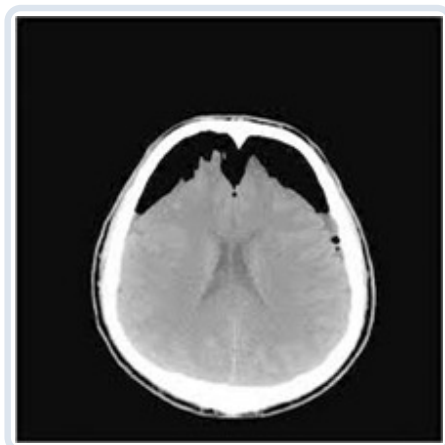
OK B. Subperiosteal abscess

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1b" here and does not include a written explanation for this item.

QUESTION

| Mt. Fuji sign is seen in:



CORRECT

A Pneumocephalus

B Pneumomediastinum

C Pneumoperitoneum

D Pneumothorax

RIGHT ANSWER

OK A. Pneumocephalus

WHY THIS IS RIGHT

The Mt. Fuji sign is indicative of tension pneumocephalus and is characterized by the peaking of the frontal lobes due to intracranial air pressure.

Key Imaging Features:

- Air in subdural space
- Frontal lobes pushed apart
- Shape resembles Mount Fuji peak
- Indicates tension (pressure effect)

| Sign | Diagnosis |

| --- | ----- |

| Mt. Fuji sign | Tension pneumocephalus |

| Crescent sign | Subdural hematoma |

| Target sign | Schwannoma / lesions |

| Eye of tiger | PKAN |

QUESTION

Identify the artery marked with a blue arrow on MR angiography.



A Posterior auricular artery

B Middle meningeal artery

C Superficial temporal artery

CORRECT

D Occipital artery

RIGHT ANSWER

OK C. Superficial temporal artery

WHY THIS IS RIGHT

The superficial temporal artery is a terminal branch of the external carotid, running laterally at the temples. External carotid artery

↓

Terminal branches

↓

Superficial temporal artery

↓

Frontal + parietal branches

↓

Supplies scalp

Posterior auricular lies behind the ear, middle meningeal is intracranial, and occipital supplies the posterior scalp.

QUESTION

A child with seizures has CECT as shown below. Most likely diagnosis?



A Tuberculoma

B Neurocysticercosis

CORRECT

C Brain abscess

D Cerebral metastasis

RIGHT ANSWER

OK

B. Neurocysticercosis

WHY THIS IS RIGHT

The “scolex sign” (central dot within ring lesion) is pathognomonic for neurocysticercosis.

Signature Imaging Clues:

- Ring-enhancing lesion
- Eccentric hyperdense dot inside -> scolex (the parasite's head)
- Surrounding edema (varies by stage)
- Often small (<2 cm), sometimes multiple

Vesicular stage

(cyst + scolex, no edema)

↓

Colloidal stage □

(ring enhancement + edema)

↓

Granular nodular stage

(shrinking lesion)

↓

Calcified stage

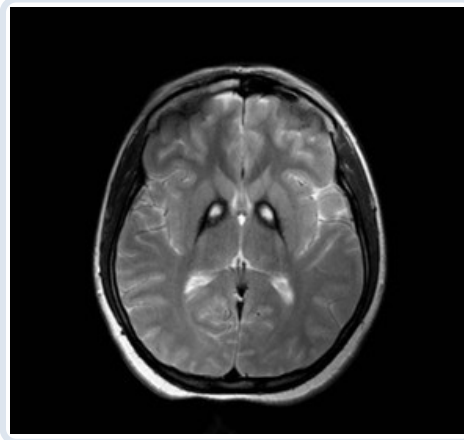
(no edema, seizures persist)

Tuberculoma and abscess lack scolex, metastases are rare in children.

Feature	NCC	Tuberculoma	Abscess	Metastasis
Size	Small	Larger	Variable	Variable
Number	Single/multiple	Often single	Single	Multiple
Scolex	□□ Present	□ Absent	□	□
Edema	Mild-moderate	Marked	Marked	Variable
Wall	Thin	Thick, irregular	Smooth	Irregular

QUESTION

Brain MRI of a patient with movement disorder is shown below. This is most suggestive of:



A Pantothenate kinase associated neurodegeneration

CORRECT

B Krabbe disease

C Wilson disease

D Huntington chorea

RIGHT ANSWER

OK

A. Pantothenate kinase associated neurodegeneration

WHY THIS IS RIGHT

PKAN shows bilateral hypointensity in globus pallidus with central hyperintensity on T2 MRI, resembling a tiger's eye. It is due to iron deposition and gliosis.

Hallmark Finding:

"Eye of the Tiger" sign

- ☐ Central T2 hyperintensity (gliosis/necrosis)
- ☐ Surrounding hypointensity (iron deposition)
- Located in globus pallidus

| Condition | MRI Finding | Key Feature |

| ----- | ----- | ----- |

| PKAN | Eye of tiger sign | Iron in globus pallidus |

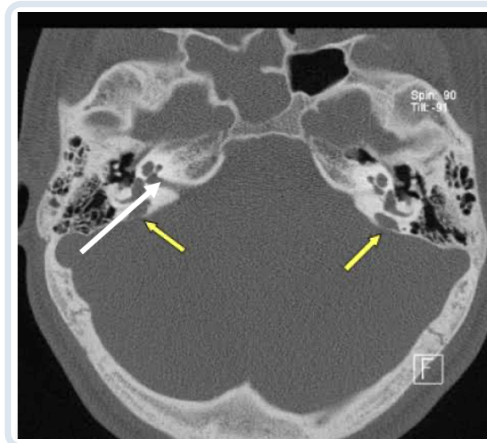
| Wilson disease | T2 hyperintensity in basal ganglia | Copper accumulation |

| Huntington | Caudate atrophy | Chorea |

| Krabbe disease | White matter changes | Demyelination |

QUESTION

Identify the structure marked with white arrow in the below image.



A External auditory meatus

B Internal auditory meatus

CORRECT

C Carotid canal

D Vestibular aqueduct

RIGHT ANSWER

OK

B. Internal auditory meatus

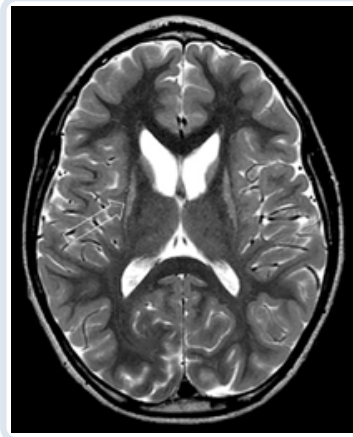
WHY THIS IS RIGHT

The internal auditory meatus transmits cranial nerves VII and VIII. External auditory meatus is outer canal, carotid canal transmits ICA, vestibular aqueduct houses endolymphatic duct (marked with yellow).

Structure	Location	Function	Key Feature
Internal auditory meatus	Petrous temporal (medial)	CN VII, VIII	Deep, intracranial
External auditory meatus	Lateral	Sound conduction	Leads to tympanic membrane
Carotid canal	Anterior petrous	Internal carotid artery	Vascular
Vestibular aqueduct	Posterior	Endolymphatic duct	Very thin canal

QUESTION

A 28-year-old man presents with purposeless involuntary, jerky movements of the face and limbs that have gradually worsened over the past year. His family reports personality changes, irritability and progressive forgetfulness. On examination, he has choreiform movements involving both upper and lower limbs and an unsteady gait. Which of the following is the most likely diagnosis?



A Tardive Dyskinesia

B Huntington's disease

CORRECT

C Sydenham's chorea

D Tourette syndrome

RIGHT ANSWER

OK B. Huntington's disease

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1c" here and does not include a written explanation for this item.

QUESTION

A 5-year-old child was brought unconscious. NCCT of the head was performed and shown below. All of the following should be worked up except:



A Karyotyping

CORRECT

B Skeletal survey

C Ophthalmological evaluation

D Physical examination

RIGHT ANSWER

OK A. Karyotyping

WHY THIS IS RIGHT

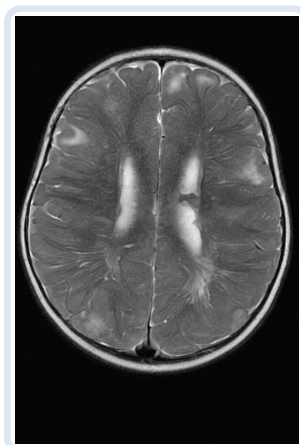
In a child with intracranial hemorrhage suggestive of non-accidental injury (shaken baby syndrome), evaluation should include:

- Detailed physical examination
- Skeletal survey to detect fractures
- Ophthalmologic exam for retinal hemorrhages

These help confirm child abuse. Karyotyping is not part of routine workup, as the condition is traumatic, not genetic.

QUESTION

A 6-month-old infant presents with a history of multiple seizures and developmental delay. On physical examination, you notice facial lesions, hypopigmented macules on the skin, and ungual fibromas. MRI brain is shown. What is the likely diagnosis?



A TSC

CORRECT

B NF1

C VHL

D Birt-Hogg-Dube syndrome

RIGHT ANSWER

OK

A. TSC

WHY THIS IS RIGHT

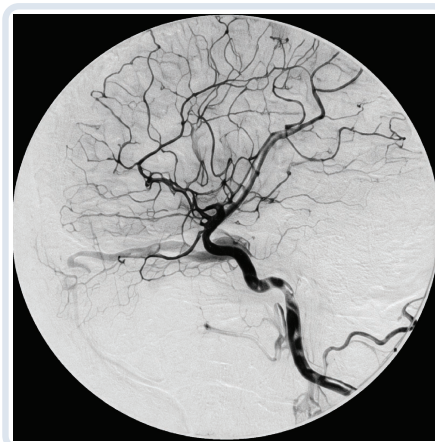
Tuberous sclerosis complex (TSC) is an autosomal dominant neurocutaneous disorder characterized by seizures, developmental delay, and cutaneous lesions such as hypopigmented “ash-leaf” macules, facial angiofibromas, and ungual fibromas. MRI brain typically shows cortical tubers and subependymal nodules/ giant cell astrocytoma.

Genetics:

- Mutation in TSC1 (hamartin) or TSC2 (tuberin)
- Leads to hamartomas in multiple organs

QUESTION

What is the most likely diagnosis according to the given image in a 35 year old male presenting post-RTA?



CORRECT

- A** Carotid-cavernous fistula
- B** Pseudoaneurysm of internal carotid artery
- C** Tumor blush of angiofibroma
- D** Extensive head and neck hemangioma

RIGHT ANSWER

OK

A. Carotid-cavernous fistula

WHY THIS IS RIGHT

Carotid-cavernous fistula is an abnormal high-flow communication between the cavernous segment of the internal carotid artery and cavernous sinus, most commonly due to head trauma.

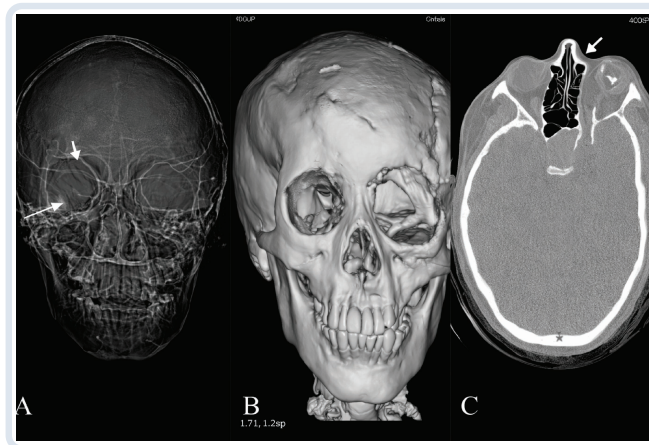
- Post-traumatic pulsatile exophthalmos
- Chemosis, orbital bruit
- Cranial nerve III, IV, VI palsies -> diplopia
- Angiography: early filling of cavernous sinus and dilated ophthalmic veins

Why not other options:

- B. Pseudoaneurysm of internal carotid artery -> Shows a localized contrast-filled outpouching from artery, not early filling of cavernous sinus or venous channels.
- C. Tumor blush of angiofibroma -> Seen in nasopharyngeal tumor, with feeding vessels from maxillary artery and tumor vascular blush, not cavernous sinus communication.
- D. Extensive head & neck hemangioma -> Shows diffuse vascular channels/soft tissue mass, no direct ICA-cavernous sinus fistula or early venous filling.

QUESTION

What is the likely diagnosis in the given patient showing the “bare orbit sign”?



A Sphenoid wing dysplasia

CORRECT

B Sphenoid wing fracture

C Orbital blow out fracture

D Orbital apex syndrome

RIGHT ANSWER

OK A. Sphenoid wing dysplasia

WHY THIS IS RIGHT

The “bare orbit sign” on skull radiograph/CT refers to absence or thinning of the greater wing of sphenoid, classically seen in sphenoid wing dysplasia, a hallmark feature of Neurofibromatosis type 1 (NF1). Leads to enlarged orbital cavity and pulsatile proptosis. May show herniation of temporal lobe into orbit

Differentials:

- Orbital blow-out fracture -> floor defect, not sphenoid absence
- Sphenoid fracture -> traumatic irregular margins
- Orbital apex syndrome -> neurological deficits without bony dysplasia

QUESTION

A patient presents to emergency department with chronic ear discharge and head ache with ear pain. CT revealed the following findings. What is the most probable diagnosis?



A Temporal abscess

B Occipital abscess

C Cerebellar abscess

CORRECT

D Subdural abscess

RIGHT ANSWER

OK

C. Cerebellar abscess

WHY THIS IS RIGHT

Chronic suppurative otitis media (CSOM), especially with cholesteatoma, can lead to intracranial complications via direct spread through bone or venous channels. The most common brain abscess from otogenic infection occurs in the cerebellum (posterior fossa) and may present with headache, ear discharge, fever, and signs of raised intracranial pressure.

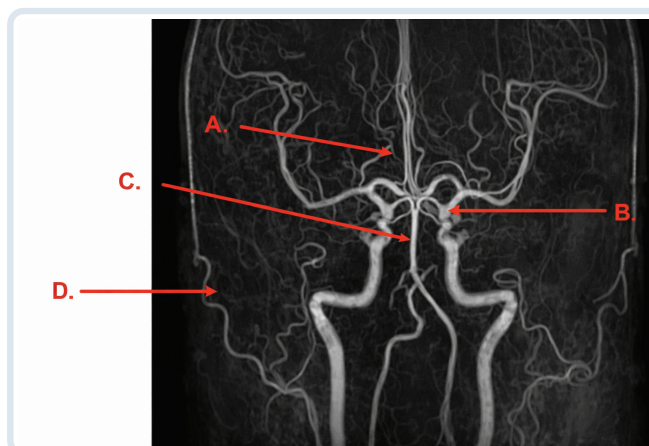
Key Imaging Clue: Ring-enhancing lesion in posterior fossa/cerebellum on CT

Otogenic Intracranial Complications:

- Cerebellar abscess -> most common
- Temporal lobe abscess
- Lateral sinus thrombosis
- Meningitis
- Extradural/subdural abscess

QUESTION

Identify the correct pair:



A A-A1 ACA

B B-P1 PCA

CORRECT

C C-Vertebral artery

D D-Middle meningeal artery

RIGHT ANSWER

OK

B. B-P1 PCA

WHY THIS IS RIGHT

On MR angiography of the Circle of Willis, the P1 segment of the posterior cerebral artery (PCA) is the portion that extends from the basilar artery bifurcation to the posterior communicating artery (PCoA). Correct identification of vascular segments is essential for localizing aneurysms, arterial occlusions, and stroke territories.

Key Anatomical Points:

- P1 PCA -> From basilar bifurcation to PCoA
- A1 ACA -> From internal carotid artery (ICA) to anterior communicating artery (ACoA)
- Vertebral arteries -> Join to form basilar artery (posterior circulation)
- Middle meningeal artery -> External carotid branch; not part of Circle of Willis

Correct identification:

- A -> A1 segment of ACA
- B -> P1 segment of PCA (correct option in question)
- C -> Basilar artery
- D -> Middle cerebral artery (MCA)

QUESTION

A 60-year-old male presents to the casualty with chest pain radiating to the back. He is diagnosed with a type A aortic dissection and undergoes emergent open repair. During the postoperative period, he develops thoracic back pain and an inability to move his bilateral lower extremities. Pinprick testing reveals bilateral loss of pain and temperature sensation below the level of the xiphoid process. Injury to which of the following arteries most likely explains this patient's clinical presentation?

- A** Artery of Adamkiewicz CORRECT
- B** Anterior thoracic epidural artery
- C** Posterior spinal arteries
- D** Middle meningeal artery

RIGHT ANSWER

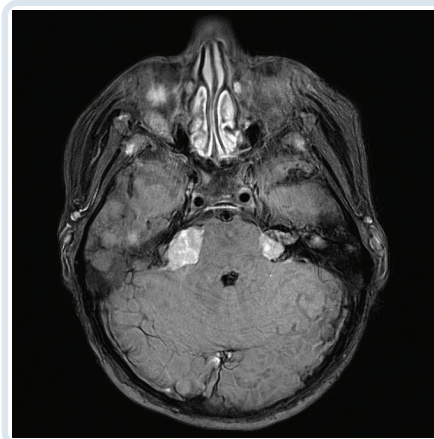
- OK** A. Artery of Adamkiewicz

WHY THIS IS RIGHT

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QUESTION

A 25-year-old male presents with progressive hearing loss in the right ear and occasional imbalance over the past year. MRI of the brain is shown below. Which of the following genetic mutations is most likely associated with this patient's condition?



A Merlin

CORRECT

B Neurofibromin

C GNAS

D GNAQ

RIGHT ANSWER

OK A. Merlin

WHY THIS IS RIGHT

Vestibular schwannoma (acoustic neuroma) presents with progressive unilateral sensorineural hearing loss and imbalance and is strongly associated with mutation of the NF2 gene encoding merlin (schwannomin) on chromosome 22.

- Tumor arises from Schwann cells of vestibular division of CN VIII
- MRI: Cerebellopontine angle (CPA) enhancing mass

Differentiation:

- Neurofibromin -> NF1 (cafe au lait macules, optic nerve gliomas, neurofibromas)
- Merlin (NF2) -> Vestibular schwannoma
- GNAS -> McCune-Albright syndrome, toxic thyroid nodule
- GNAQ -> Uveal melanoma, storage weber syndrome.

QUESTION

A 50-year-old female presents with a history of progressive vision loss in her right eye. An MRI of the orbit reveals a lesion with a characteristic appearance. Which of the following is the most likely diagnosis based on the MRI findings?



A Optic nerve sheath meningioma

B Optic nerve glioma

CORRECT

C Choroidal melanoma

D Optic neuritis

RIGHT ANSWER

OK

B. Optic nerve glioma

WHY THIS IS RIGHT

- 50-year-old female
- Progressive unilateral vision loss
- MRI shows enlargement of the optic nerve

Imaging reasoning:

Optic nerve glioma typically shows:

- Fusiform enlargement of the optic nerve
- Intrinsic expansion of the nerve
- No “tram-track” enhancement pattern

Ruling out other options:

- Choroidal melanoma -> intraocular mass, not optic nerve enlargement
- Optic neuritis -> inflammatory, no mass lesion
- Optic nerve sheath meningioma :shows the classic: “Tram-track” sign (enhancing sheath surrounding non-enhancing nerve), more common in middle aged females, dural based lesion. That pattern is different from intrinsic nerve expansion.

QUESTION

What is the most likely cause of the condition depicted in the HRCT below?



A Aspergillus niger

B Staphylococcus aureus

C Aspergillus fumigatus

CORRECT

D Candida albicans

RIGHT ANSWER

OK C. Aspergillus fumigatus

WHY THIS IS RIGHT

On HRCT of paranasal sinuses, allergic fungal rhinosinusitis (AFRS) typically shows hyperdense sinus opacification with heterogeneous areas ("double density" sign) due to fungal concretions. The most common causative organism is *Aspergillus fumigatus*.

Key Radiologic Clue:

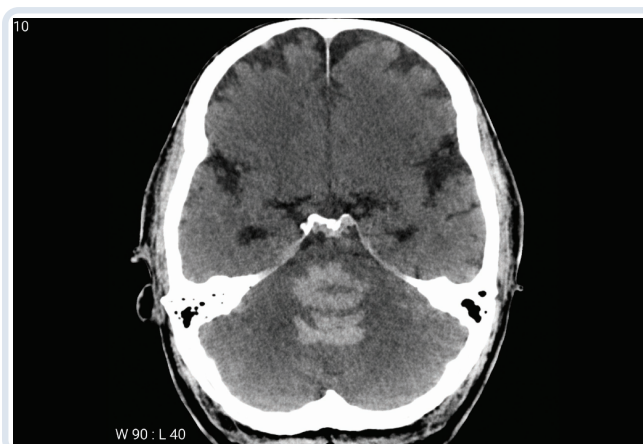
- Heterogeneous hyperattenuating material within expanded sinuses
- Possible sinus expansion with bone remodeling (not frank destruction)

Microbiology Correlation:

- *Aspergillus fumigatus* -> Most common cause of allergic fungal sinusitis
- *Aspergillus niger* -> More commonly causes otomycosis
- *Staphylococcus aureus* -> Acute bacterial sinusitis
- *Candida albicans* -> Rare cause of sinus fungal ball

QUESTION

A 56-year-old male presents with sudden onset altered sensorium. What is the likely diagnosis?



A Hypertensive hemorrhage

B Berry aneurysm rupture

C Pontine hemorrhage

CORRECT

D EDH

RIGHT ANSWER

OK

C. Pontine hemorrhage

WHY THIS IS RIGHT

- 56-year-old male
 - Sudden onset altered sensorium
- strongly suggests an acute intracranial bleed.

Imaging clue:

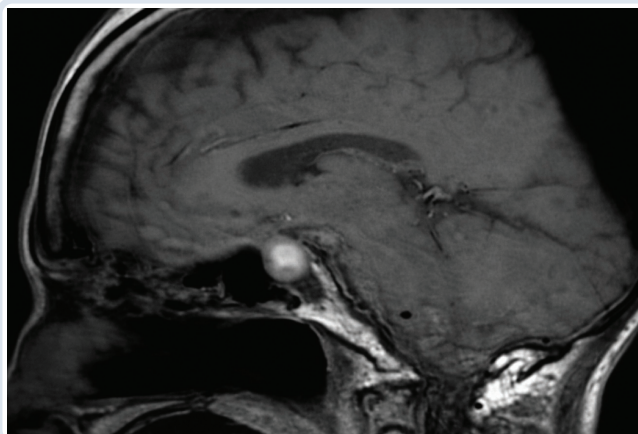
The CT shows a hyperdense lesion in the pons (brainstem) - centrally located in the posterior fossa. The location is classic for pontine hemorrhage, most commonly due to chronic hypertension.

Pontine haemorrhage presents with :

- sudden loss of consciousness
- altered sensorium,
- pinpoint pupils
- abnormal posturing
- Hypertensive hemorrhage -> Usually basal ganglia (putamen), thalamus, cerebellum - not specifically centered in the pons.
- Berry aneurysm rupture -> Causes subarachnoid hemorrhage (blood in basal cisterns).
- EDH -> Lens-shaped extra-axial bleed.

QUESTION

A 42-year-old woman presents with a severe, sudden-onset, throbbing headache and double vision for the past 30 minutes. She has a history of migraine and reports frequent headaches. She has not had her period for several months. On examination, her blood pressure is 95/61 mm Hg, and visual field testing reveals decreased visual acuity and loss of peripheral vision in both eyes. MRI of brain is shown below. Which of the following is the most likely diagnosis?



A Transient ischemic attack

B Pituitary apoplexy

CORRECT

C Sheehan syndrome

D Migraine with aura

RIGHT ANSWER

OK B. Pituitary apoplexy

WHY THIS IS RIGHT

The source quiz contains the placeholder “\$1e” here and does not include a written explanation for this item.

QUESTION

| Identify the image?



A Orbital cellulitis

CORRECT

B Subperiosteal abscess

C Preseptal cellulitis

D Sinusitis only

RIGHT ANSWER

OK A. Orbital cellulitis

WHY THIS IS RIGHT

□ Correct Diagnosis: Orbital cellulitis

Orbital cellulitis = infection posterior to the orbital septum

CT findings:

- Diffuse inflammatory fat stranding
- Thickened extraocular muscles
- Proptosis
- No discrete abscess cavity

Why NOT subperiosteal abscess?

A subperiosteal abscess would show:

- A well-defined crescent/lentiform fluid collection
- Clear periosteal elevation along lamina papyracea
- Often rim enhancement

Here, the inflammation appears diffuse rather than loculated.

| Condition | CT Finding |

| ----- | ----- |

| Preseptal cellulitis | Anterior to septum only |

| Orbital cellulitis | Diffuse postseptal inflammation |

| Subperiosteal abscess | Localized medial lentiform collection |

QUESTION

A 2-year-old child with a history of fall 1 year back with parietal bone fracture, has now presented with a painful and growing parietal swelling. What is the likely diagnosis?

A Growing scalp hematoma

B Leptomeningeal cyst

CORRECT

C Subdural hygroma

D Chronic abscess

RIGHT ANSWER

OK

B. Leptomeningeal cyst

WHY THIS IS RIGHT

The source quiz contains the placeholder “\$1f” here and does not include a written explanation for this item.

QUESTION

A 30-year-old multiparous woman presents with chronic lower back pain. The pain is non-radiating, worse with activity, and improves with rest. There are no neurological deficits. X-ray pelvis shows bilateral symmetric sclerosis of the iliac side of the sacroiliac joints, with joint spaces preserved. What is the most likely diagnosis?

- A** Ankylosing spondylitis
- B** Osteitis condensans ilii
- C** Sacroiliitis
- D** Metastatic bone disease

CORRECT

RIGHT ANSWER

- OK** B. Osteitis condensans ilii

WHY THIS IS RIGHT

- ☐ Sclerosis only on the iliac side
- ☐ Symmetrical
- ☐ Joint space preserved
- ☐ Pain *worse with activity*, better with rest
- ☐ Osteitis Condensans iliis a benign condition
 - Seen mostly in multiparous women
 - Causes triangular sclerosis on iliac side
 - SI joint space remains normal
 - No joint erosions ,No fusion

To rule out Ankylosing spondylitis:

- Causes erosions
- Causes joint space narrowing
- Eventually leads to joint fusion
- Pain is inflammatory
- Pain worse in morning, better with activity.

*

QUESTION

| Empty thecal sac sign on MRI is seen in:

A Arachnoiditis

CORRECT

B Discitis

C Vertebral osteomyelitis

D Tethered cord syndrome

RIGHT ANSWER

OK

A. Arachnoiditis

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$20" here and does not include a written explanation for this item.

QUESTION

A 58 year old woman presents with progressive headaches and focal seizures. MRI brain shows a well defined extra axial, dural based mass with adjacent hyperostosis and a dural tail sign. An MR spectroscopy is done to further characterise the lesion. Which of the following spectral peaks is most characteristic of this tumor?

A Elevated myo-inositol peak.

B Prominent alanine peak.

CORRECT

C Markedly increased lipid lactate peak.

D Increased NAA peak.

RIGHT ANSWER

OK

B. Prominent alanine peak.

WHY THIS IS RIGHT

A well-defined extra-axial, dural-based mass with hyperostosis and a dural tail on MRI is characteristic of meningioma. On *MR spectroscopy*, meningiomas show a *prominent alanine peak*, -due to high alanine content in these tumors. -Also demonstrate high choline and low N-acetylaspartate (NAA), reflecting high cellular turnover and non-neuronal origin respectively.

Why not other options:

- Elevated myo-inositol: low-grade gliomas and Alzheimer disease
- Lipid-lactate peak: Suggests high-grade tumors, necrosis, abscess, or metastasis, not benign meningioma.
- Increased NAA: Marker of neuronal tissue; reduced in extra-axial tumors like meningioma.

QUESTION

A 10-year-old boy presents with symptoms suggestive of osteomyelitis. An MRI is performed and the radiologist notes a finding indicative of acute osteomyelitis. Which of the following findings is considered pathognomic for this condition?

A Penumbra sign

B Sequestrum

C Bone marrow edema

CORRECT

D Involucrum

RIGHT ANSWER

OK

C. Bone marrow edema

WHY THIS IS RIGHT

On MRI, the earliest and most sensitive finding of *acute osteomyelitis* is *bone marrow edema*, Bone marrow edema gives:

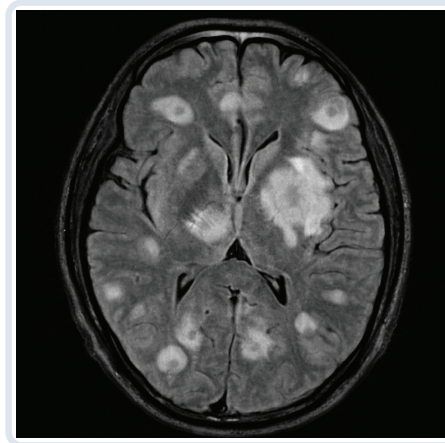
- low signal on T1
 - high signal on T2/STIR sequences due to inflammatory exudate within marrow.
 - For *early detection of osteomyelitis* (because marrow edema appears before cortical destruction) , MRI becomes the imaging modality of choice.
- ie- (sequestrum, or involucrum formation seen in later stages)

Why not other options:

- Penumbra sign: Seen in subacute osteomyelitis (Brodie abscess), not acute stage.
- Sequestrum: Dead bone fragment seen in chronic osteomyelitis.
- Involucrum: New bone formation around sequestrum in chronic osteomyelitis.

QUESTION

A 32-year-old HIV-positive man with CD4 count of 60 cells/ μ L presents with headache, confusion, and focal seizures. MRI brain given below
Which of the following is the most likely diagnosis?



- A CNS Lymphoma
- B Cerebral Toxoplasmosis**
- C Tuberculoma
- D Neurocysticercosis

CORRECT

RIGHT ANSWER

OK **B. Cerebral Toxoplasmosis**

WHY THIS IS RIGHT

In HIV patients with CD4 <100 cells/ μ L, multiple ring-enhancing brain lesions with surrounding edema on MRI are most commonly due to cerebral toxoplasmosis.

Lesions are typically multiple, involve basal ganglia or corticomedullary junction, and present with headache, seizures, and focal deficits.

CNS lymphoma is usually solitary, while neurocysticercosis shows cysts with scolex and tuberculomas often have different clinical context.

QUESTION

In radiation therapy, a Linear Accelerator is commonly used for treating cancer. Which type of energy does a linear accelerator generate to destroy malignant cells?

A Gamma rays

B Neutron

C Proton

D X-ray

CORRECT

RIGHT ANSWER

OK D. X-ray

WHY THIS IS RIGHT

Linear accelerators (LINAC) produce high-energy X-rays through bremsstrahlung when accelerated electrons strike a tungsten target, delivering megavoltage photon beams for cancer radiotherapy.

Modality	Source	Radiation Type	Use
-----	-----	-----	---
LINAC	Accelerated electrons	X-rays (photon beam)	Most common EBRT
Cobalt therapy	Radioisotope	Gamma rays	Older technique
Proton therapy	Cyclotron	Proton beam	Precision therapy
Neutron therapy	Nuclear reactions	Neutrons	Rare, specialized

QUESTION

In radiological physics, which of the following statement best describes eV?

- A** The speed of an electron in a magnetic field
- B** The force acting on an electron in an electric field
- C** The energy gained by an electron when accelerated through a potential difference of one volt CORRECT
- D** The kinetic energy of an electron at rest in a vacuum

RIGHT ANSWER

- OK** **C. The energy gained by an electron when accelerated through a potential difference of one volt**

WHY THIS IS RIGHT

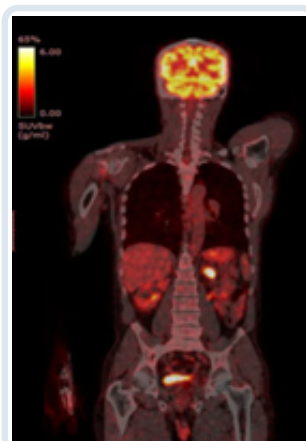
An electron volt (eV) is the energy gained by an electron accelerated through a potential difference of one volt, equal to 1.602×10^{-19} joules, fundamental for understanding X-ray production energies.

Quantity	Formula	Meaning
Energy	$E = eV$	Energy gained by charge
Electron charge	$e = 1.6 \times 10^{-19} \text{ C}$	Constant
Voltage	V	Potential difference

Option	Verdict	Why
A. Speed of electron in magnetic field	❌	Speed depends on energy, but eV itself is not speed
B. Force on electron in electric field	❌	Force = charge × field, not energy
C. Energy gained through 1 volt	✅	Exact definition of eV
D. Kinetic energy at rest	❌	Electron at rest has zero kinetic energy

QUESTION

Identify the imaging modality given below.



A Cerebral blood flow scan

B PET CT

CORRECT

C Sestamibi scan

D Full body MDCT

RIGHT ANSWER

OK

B. PET CT

WHY THIS IS RIGHT

PET CT combines metabolic imaging with CT anatomy, using FDG uptake to detect malignant cells. It works on the principle of coincidence detection and annihilation reaction. It is crucial in oncology for staging and monitoring tumors.

Key Imaging Features

- Color-coded metabolic activity
- Background CT anatomy visible
- Areas of high uptake = "hot spots"
- Usually uses:
- FDG (fluorodeoxyglucose)

Modality	Color	Functional Info	Anatomical Info	Scope
PET-CT	☐ Yes	☐ Metabolic	☐ CT	Whole body
CBF scan	☐	☐ Perfusion	☐ Brain	
Sestamibi	☐	☐ Functional	☐ Targeted	
MDCT	☐	☐	☐	Whole body

QUESTION

A woman has been diagnosed with endometrial carcinoma is undergoing radiotherapy. Choose the correct statement?

A Intensity is inversely proportional to the square of the distance from the source

CORRECT

B Small blood vessels are most radioresistant

C Rapidly proliferating cells are most radioresistant

D Small intestinal mucosa is most radio-resistant

RIGHT ANSWER

OK

A. Intensity is inversely proportional to the square of the distance from the source

WHY THIS IS RIGHT

The Inverse Square Law is critical to understanding radiation dosage and safety in radiotherapy, ensuring that radiation exposure is managed correctly to maximize the therapeutic effect while minimizing harm to healthy tissues. This principle helps in planning and delivering radiation treatments effectively.

QUESTION

| Most sensitive investigation for parathyroid tumor imaging?

A Tc Sestamibi scan

B Tc Sestamibi SPECT

CORRECT

C USG

D MRI

RIGHT ANSWER

OK B. Tc Sestamibi SPECT

WHY THIS IS RIGHT

Sestamibi SPECT combines nuclear imaging with CT, giving 3D localization and higher sensitivity than planar sestamibi.

Key Imaging Features:

- Focal persistent uptake on delayed images
- Usually inferior to thyroid
- SPECT adds 3D localization

Tc-99m sestamibi injected

↓

Early uptake (thyroid + parathyroid)

↓

Delayed phase

↓

Thyroid washes out

↓

Parathyroid retains tracer

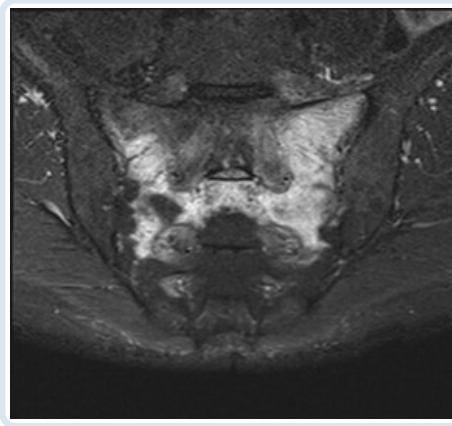
↓

SPECT -> precise 3D localization □

USG and MRI are less sensitive, PET is not routine.

QUESTION

| The finding shown in the MRI is most characteristic of which condition?



A Multiple myeloma

B Sacral insufficiency fracture

CORRECT

C Acute osteomyelitis

D Bone marrow edema

RIGHT ANSWER

OK

B. Sacral insufficiency fracture

WHY THIS IS RIGHT

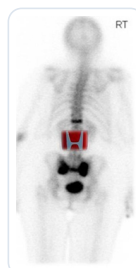
The Honda sign is an H-shaped hyperintensity on sacral STIR MRI, pathognomonic for sacral insufficiency fracture. It represents bilateral sacral ala edema connected by a horizontal line.

Signature Pattern:

- H-shaped / Honda sign
- Vertical lines -> both sacral alae
- Horizontal line -> sacral body
- Hyperintense marrow edema on STIR/T2
- Often bilateral symmetric

It looks like a tiny scooter logo etched into the sacrum

Condition	MRI Pattern	Key Feature
-----	-----	-----
Sacral insufficiency fracture	H-shaped edema	Bilateral, symmetric
Multiple myeloma	Focal lesions	Lytic, punched-out
Osteomyelitis	Diffuse edema + abscess	Infection signs
Bone marrow edema (non-specific)	Patchy	No specific pattern



QUESTION

Which of the following is the best investigation to calculate ejection fraction of the heart?

A Thallium MPI

B 18-FDG PET

C Cardiac MRI

CORRECT

D Pyrophosphate scan

RIGHT ANSWER

OK C. Cardiac MRI

WHY THIS IS RIGHT

Cardiac MRI is the gold standard non-invasive modality for accurate measurement of left ventricular ejection fraction (LVEF) because it provides high-resolution, three-dimensional volumetric assessment without geometric assumptions. It allows precise calculation of end-diastolic and end-systolic volumes and is highly reproducible, making it superior to nuclear scans for EF quantification.

Why not other options:

A. Thallium MPI: Assesses myocardial perfusion and ischemia; EF can be estimated but is less accurate than cardiac MRI.

B. 18-FDG PET: Evaluates myocardial viability and metabolism, not routinely used to calculate ejection fraction.

D. Pyrophosphate scan: Used mainly for cardiac amyloidosis detection, not for measuring EF.

QUESTION

A woman has been diagnosed with endometrial carcinoma is undergoing radiotherapy. Choose the correct statement?

A Intensity is inversely proportional to the square of the distance from the source

CORRECT

B Small blood vessels are most radioresistant

C Rapidly proliferating cells are most radioresistant

D Small intestinal mucosa is most radio-resistant

RIGHT ANSWER

OK A. Intensity is inversely proportional to the square of the distance from the source

WHY THIS IS RIGHT

Radiation intensity follows the inverse square law, meaning the intensity of radiation exposure is inversely proportional to the square of the distance from the radiation source. Even small increases in distance significantly reduce radiation exposure.

Radiobiology Principles:

- Rapidly dividing, poorly differentiated cells -> most radiosensitive

(e.g., bone marrow, intestinal mucosa, germ cells)

- Well-differentiated, slowly dividing cells -> radioresistant

(e.g., muscle, nerve)

Small blood vessels are radiosensitive and can be damaged

QUESTION

| Which of the following will be avid on FDG PET scan?

- A** Typical carcinoid
- B** Mucinous adenocarcinoma
- C** Atypical carcinoid
- D** Calcified TB granulomas

CORRECT

RIGHT ANSWER

OK C. Atypical carcinoid

WHY THIS IS RIGHT

Correct answer: C) Atypical carcinoid

Now let's understand this very simply ☐

FDG PET scan detects high glucose metabolism.

So tumors that:

- Grow faster
- Are more aggressive
- Have higher metabolic activity

☐ will show high FDG uptake (FDG avid).

Typical carcinoid

- Low-grade tumor
 - Slow growing
 - Low metabolism
- ☐ Usually NOT very FDG avid

Atypical carcinoid

- More aggressive
 - Higher mitotic activity
 - Higher metabolism
- ☐ FDG avid

Mucinous adenocarcinoma

- Has lots of mucin
 - Low cellularity
 - Often low FDG uptake
- ☐ Not strongly avid

Calcified TB granuloma

- Old healed lesion
 - No active metabolism
- ☐ Not FDG avid

Easy exam rule:

Low-grade tumor -> Low FDG uptake

High-grade tumor -> High FDG uptake

Atypical carcinoid is higher grade than typical.

So answer = C.

QUESTION

A patient comes to you with an inoperable small cell lung carcinoma. He is posted for thoracic external beam radiotherapy. How will the respiratory movement be counteracted during this procedure?

A Arc modulation

B Gating

CORRECT

C Fractionation

D Afterloading

RIGHT ANSWER

OK B. Gating

WHY THIS IS RIGHT

Respiratory gating is used in thoracic radiotherapy to compensate for tumor movement caused by breathing. Radiation is delivered only during a specific phase of the respiratory cycle (usually end-expiration), ensuring accurate targeting of the tumor while minimizing radiation exposure to surrounding healthy tissues. This technique improves precision in treating lung and upper abdominal tumors during external beam radiotherapy.

Why not other options:

- Arc modulation: Refers to rotational delivery of radiation (IMRT/VMAT) to improve dose distribution, not to control respiratory motion.
- Fractionation: Dividing total radiation dose into multiple sessions to reduce toxicity; unrelated to breathing movement.

Afterloading: Used in brachytherapy where radioactive source is placed after applicator insertion; not for respiratory motion control.

QUESTION

| All of the following are considered radioprotectors, except:

A Zinc oxide

B Amifostine

C Melatonin

D Cisplatin

CORRECT

RIGHT ANSWER

OK D. Cisplatin

WHY THIS IS RIGHT

Radioprotectors are agents that *protect normal tissues from radiation-induced damage* by scavenging free radicals or enhancing DNA repair.

Examples : amifostine, melatonin, and zinc compounds which reduce radiation toxicity to healthy cells.

Cisplatin is not a radioprotector; it is a radiosensitizer that enhances the effect of radiation on tumor cells by increasing DNA damage and inhibiting repair, thereby improving cancer treatment efficacy.

QUESTION

| All of the following radioisotopes have a half-life of less than 1 day, except:

A Iodine 132

B Technetium 99m

C Iodine 125

CORRECT

D ¹⁸F FDG

RIGHT ANSWER

OK

C. Iodine 125

WHY THIS IS RIGHT

Most commonly used diagnostic radioisotopes have short half-lives (<24 hours) to minimize radiation exposure while allowing effective imaging.

- Technetium-99m: ~6 hours
- Iodine-132: ~2-3 hours
- ¹⁸F-FDG: ~110 minutes
- Iodine-125: ~60 days (long half-life)

Iodine-125 has a prolonged half-life and is mainly used in brachytherapy (e.g., prostate implants) rather than routine diagnostic imaging.

QUESTION

A 62-year-old man with obstructive LUTS undergoes a Tc-99m MDP bone scan. Multiple hot spots are seen throughout the knee, ribs, and pelvis. His serum ALP is normal, PSA is normal, and MRI of the spine is unremarkable. Which of the following is the most likely cause of false-positive hot spots on the bone scan?

- A** Multiple myeloma
- B** Degenerative joint disease
- C** Bone infarction
- D** Renal osteodystrophy

CORRECT

RIGHT ANSWER

- OK** B. Degenerative joint disease

WHY THIS IS RIGHT

Tc-99m MDP bone scan detects areas of increased osteoblastic activity, not specifically malignancy. Therefore, many benign conditions can produce false-positive hot spots, especially degenerative joint disease (osteoarthritis). Degenerative changes commonly cause increased tracer uptake in weight-bearing joints (spine, knees, ribs, pelvis) and may mimic metastasis. Correlation with clinical findings, PSA/ALP levels, and other imaging helps distinguish benign degenerative uptake from true skeletal metastases.

QUESTION

| All of the following statements about alpha radiation are correct, except:

- A** Alpha particles have high ionisation ability
- B** Alpha particles have highest molecular mass among radiations
- C** Alpha particles are the most penetrating form of radiation
- D** Alpha radiation is blocked by paper

CORRECT

RIGHT ANSWER

OK

C. Alpha particles are the most penetrating form of radiation

WHY THIS IS RIGHT

Alpha particles are heavy, positively charged particles with the highest mass and ionizing power among common radiations, causing intense local tissue damage. However, they have very low penetrating ability and can be stopped by a sheet of paper or the outer layer of skin.
Penetration order of radiation: Alpha < Beta < Gamma (most penetrating).

QUESTION

During a PET scan evaluation for suspected lymphoma, the scanner detects simultaneous 511 keV gamma photons arriving at two opposite detectors. This phenomenon is essential because it:

- A** Improves spatial resolution by eliminating Compton scatter
- B** Determines tracer distribution using time-of-flight coincidence detection
- C** Measures the half-life of the radionuclide
- D** Produces functional images by detecting β^+ particles directly

CORRECT

RIGHT ANSWER

- B. Determines tracer distribution using time-of-flight coincidence detection**

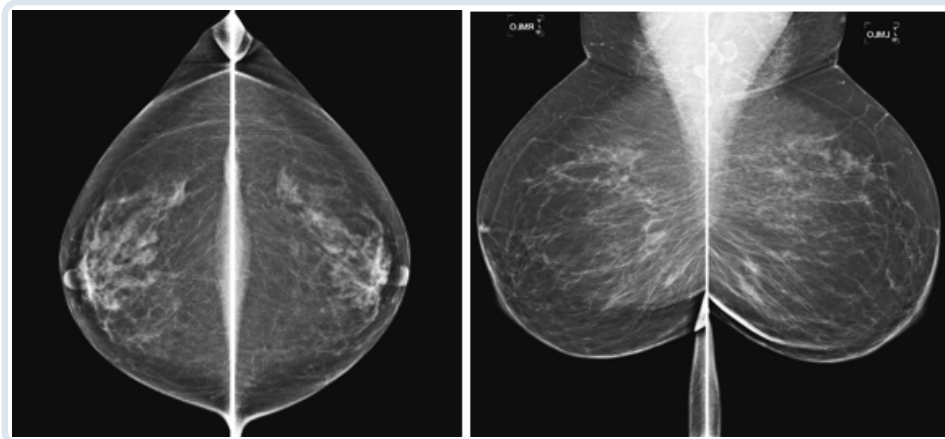
WHY THIS IS RIGHT

Positron emission tomography (PET) detects pairs of 511 keV gamma photons produced when a positron emitted from a radionuclide annihilates with an electron. These photons travel in opposite directions and are detected simultaneously by opposing detectors (coincidence detection).

This simultaneous detection allows accurate localization of the radiotracer using time-of-flight and coincidence principles, enabling reconstruction of tracer distribution and generation of functional metabolic images. PET does not directly detect positrons or measure radionuclide half-life; instead, it maps tissue metabolism based on coincident gamma photon detection.

QUESTION

Identify the radiological investigation shown in the image below:



A Mammography

CORRECT

B CT scan

C X-ray

D MRI

RIGHT ANSWER

OK A. Mammography

WHY THIS IS RIGHT

Mammography is identified by standard CC and MLO projection views showing compressed breast tissue with characteristic fibroglandular (white) and fatty (dark) tissue patterns using specialized low-energy X-rays.

Key Visual Clues:

- Compressed breast between plates
- Fibroglandular densities (white)
- Fat appears dark
- Views:
 - CC (Craniocaudal)
 - MLO (Mediolateral oblique)

| Modality | Radiation | Use | Key Feature |

| ----- | ----- | --- | ----- |

| Mammography | Low-dose X-ray | Screening breast cancer | Microcalcifications |

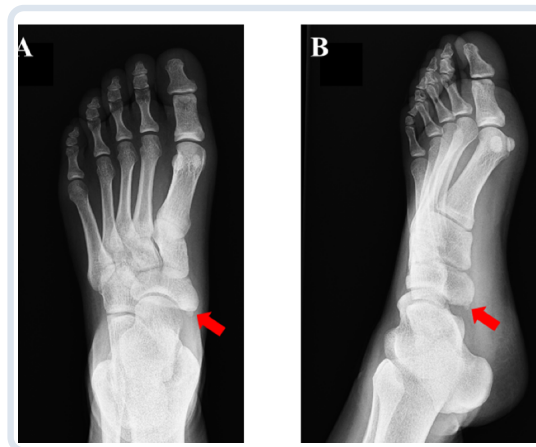
| Ultrasound | No radiation | Cyst vs solid | Real-time |

| MRI | No radiation | High-risk screening | Contrast enhancement |

| CT | High radiation | Not routine for breast | Cross-sectional |

QUESTION

On the provided X-ray of the foot, identify the bone marked with red arrow.



A Talus

B Navicular

CORRECT

C Lateral calcaneus

D Medial calcaneus

RIGHT ANSWER

OK

B. Navicular

WHY THIS IS RIGHT

The navicular bone is a boat-shaped tarsal bone located medially in the midfoot between the talus proximally and three cuneiforms distally, serving as the keystone of the medial longitudinal arch.

| Option | Verdict | Why |

| ----- | ----- | --- |

| A. Talus | ☐ | Superior bone, forms ankle joint |

| B. Navicular | ☒ | Medial midfoot, anterior to talus |

| C. Lateral calcaneus | ☐ | Calcaneus is posterior (heel), not midfoot |

| D. Medial calcaneus | ☐ | Calcaneus doesn't have medial/lateral distinction like this in X-ray ID questions |



QUESTION

I Identify the image.



A Fluoroscopy

CORRECT

B Barium swallow

C Acid ingestion

D Alkali ingestion

RIGHT ANSWER

OK

A. Fluoroscopy

WHY THIS IS RIGHT

Fluoroscopy is a dynamic X-ray imaging technique used to visualize the motion of the pharynx and esophagus during swallowing. It provides real-time assessment, unlike a static barium swallow.

Fluoroscopy

- Dynamic imaging (real-time) ☐
- Used with contrast (e.g., barium)
- Shows:
 - Swallowing
 - Peristalsis
 - Reflux
- Appears like a continuous sequence rather than a single image

| Application | Example |

| ----- | ----- |

GI studies	Barium swallow, meal, enema
Interventions	Angiography, catheter placement
Orthopedics	C-arm guidance
Urology	MCU (micturating cystourethrogram)

| Option | Type | Key Feature |

| ----- | ---- | ----- |

Fluoroscopy	Modality ☐	Real-time imaging
Barium swallow	Procedure	Uses fluoroscopy
Acid ingestion	Disease	Coagulative necrosis
Alkali ingestion	Disease	Liquefactive necrosis

QUESTION

Identify the marked ligament on knee MRI.



A PCL

CORRECT

B ACL

C Meniscus

D MCL

RIGHT ANSWER

OK A. PCL

WHY THIS IS RIGHT

The arrow points to the posterior cruciate ligament attaching to posterior tibial condyle. ACL lies anteriorly, menisci are cartilaginous pads, and MCL is medial extracapsular.

Signature Clues:

- Location: Posterior to ACL
- Shape: Thick, C-shaped / curved band
- Signal: Uniformly low signal (dark)
- Attachment: From tibia -> medial femoral condyle

| Ligament | Function |

| ----- | ----- |

| PCL | Prevents posterior displacement of tibia |

| ACL | Prevents anterior displacement |

| Structure | Appearance |

| ----- | ----- |

| PCL | Thick, dark, curved |

| ACL | Thin, oblique |

| Meniscus | Triangular |

| MCL | Linear (medial side) |

QUESTION

Identify the correct statement:

- A CT uses non-filtered X-rays
- B Radiation exposure in CT scan is 20mSv
- C CT is the initial investigation for gallstones
- D HU of water is zero**

CORRECT

RIGHT ANSWER

- OK
- D. HU of water is zero**

WHY THIS IS RIGHT

The Hounsfield Unit (HU) of water is zero, serving as a reference point for measuring the radiodensity of various tissues in CT imaging.

X-rays pass through body

↓

Different tissues attenuate differently

↓

Computer assigns attenuation value

↓

Standardized as Hounsfield Units (HU)

↓

Water = 0 (reference point)

Substance	HU Value
Air	-1000
Fat	-100 to -50
Water	0
Soft tissue	+30 to +60
Bone	+1000

QUESTION

Which contrast agent is safe in a patient with renal failure?

A **USG contrast agents**

CORRECT

B MRI contrast agents

C Iodinated contrast

D CT contrast agent

RIGHT ANSWER

OK

A. USG contrast agents

WHY THIS IS RIGHT

USG contrast agents, such as SONO (sulfur hexafluoride microbubbles), are the only contrast agents safe for use in patients with renal failure as they are excreted via the lungs and do not rely on renal clearance. USG contrast is SAFE-

Composition: Microbubbles (gas-filled)

Excretion:

- Eliminated via lungs (exhaled air)
- NOT dependent on kidneys

So: No renal burden -> safe in renal failure

Contrast Type	Modality	Risk in Renal Failure
USG contrast ☐	Ultrasound	☐ SAFE
MRI contrast (Gadolinium)	MRI	NSF risk
Iodinated contrast	CT	☐ Contrast nephropathy
CT contrast agent	CT	☐ Same as iodinated

Condition	Avoid
Renal failure	Iodinated + Gadolinium
Pregnancy	Radiation (CT/X-ray)
Allergy history	Iodinated contrast

QUESTION

| Which imaging modality is contraindicated in pregnancy?

A USG

B MRI

C CT

CORRECT

D Doppler

RIGHT ANSWER

OK

C. CT

WHY THIS IS RIGHT

CT uses ionizing radiation, harmful to fetus, hence contraindicated. CT is contraindicated because-

Risks to fetus:

- DNA damage
- Congenital malformations
- Growth retardation
- Increased cancer risk later in life

Especially dangerous in: First trimester

USG, MRI, and Doppler are safe as they do not involve radiation.

| Modality | Radiation | Safe in Pregnancy |

| ----- | ----- | ----- |

| USG | ☐ No | ☐ Safe |

| MRI | ☐ No | ☐ Safe (avoid contrast) |

| CT | Yes | ☐ Avoid |

| Doppler | ☐ No | ☐ Safe |

QUESTION

| A patient with chronic diarrhea shows the following CT appearance. Diagnosis?



A Ulcerative colitis

CORRECT

B Tubercular colitis

C Crohn's disease

D Pseudomembranous enterocolitis

RIGHT ANSWER

OK A. Ulcerative colitis

WHY THIS IS RIGHT

Loss of haustrations gives a smooth tubular colon, typical of chronic ulcerative colitis.
TB affects ileocecal junction, Crohn shows skip lesions, pseudomembranous colitis shows accordion sign.

QUESTION

| What is the diagnosis?



A Wolman disease

B **Chronic pancreatitis**

CORRECT

C Acute pancreatitis

D TB

RIGHT ANSWER

OK **B. Chronic pancreatitis**

WHY THIS IS RIGHT

Chronic pancreatitis shows pancreatic calcifications. Wolman disease affects adrenals, acute pancreatitis lacks calcification, TB rarely involves pancreas.

Key Radiological Features:

- Pancreatic calcifications
- Dilated irregular pancreatic duct ("chain of lakes")
- Gland atrophy
- Possible pseudocysts

Feature	Chronic Pancreatitis	Acute Pancreatitis	Wolman Disease	TB
Calcification	Present	Absent	Adrenal	Rare
Pancreas size	Atrophic	Enlarged	Normal	Variable
Duct	Dilated, irregular	Normal	Normal	Variable
Age	Adults	Any	Infants	Any
Key clue	Calcified pancreas	Edema	Adrenal calcification	Nodes/ascites

QUESTION

Identify the sign.



A Double ring sign

CORRECT

B String sign

C Bird beak sign

D Double bubble sign

RIGHT ANSWER

OK A. Double ring sign

WHY THIS IS RIGHT

Button battery shows concentric double ring on X-ray. String sign is Crohn's, bird beak is achalasia, double bubble is duodenal atresia.

The "Halo Within a Halo"

The double ring sign (also called the target sign) is a classic imaging appearance seen in: Intussusception (most commonly in children)

It represents bowel telescoping into itself, creating concentric rings.

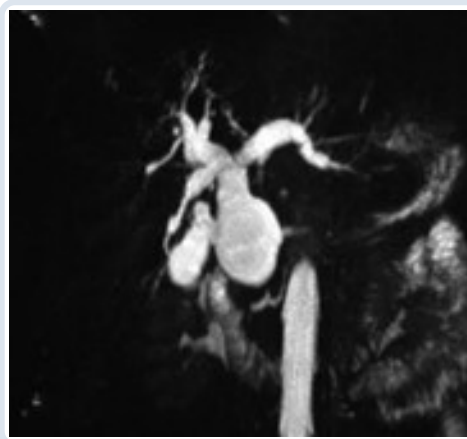
Key Radiological Features:

- Concentric rings ("target" or "donut" sign)
- Alternating hypoechoic and hyperechoic layers
- Seen best on ultrasound

Sign	Condition	Imaging Modality	Appearance
Double ring (target)	Intussusception	USG/CT	Concentric rings
String sign	Crohn / pyloric stenosis	Barium	Narrow lumen
Bird beak	Achalasia / volvulus	Barium	Tapered end
Double bubble	Duodenal atresia	X-ray	Two air bubbles

QUESTION

| What is the likely diagnosis based on the MRCP image?



A Choledochal cyst

CORRECT

B Cholangiocarcinoma

C Caroli disease

D Choledocholithiasis

RIGHT ANSWER

OK A. Choledochal cyst

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$19" here and does not include a written explanation for this item.

QUESTION

A 6-week-old child was brought to the emergency department with complaints of recurrent projectile vomiting. USG of the child is shown below. What is the likely diagnosis?



A Duodenal atresia

B Jejunal atresia

C CHPS (Congenital Hypertrophic Pyloric Stenosis)

CORRECT

D Midgut volvulus

RIGHT ANSWER

OK C. CHPS (Congenital Hypertrophic Pyloric Stenosis)

WHY THIS IS RIGHT

CHPS presents with projectile non-bilious vomiting and USG shows thickened pylorus (>4 mm, canal >16 mm). Atresias cause bilious vomiting, volvulus shows corkscrew sign.

Key USG Signs:

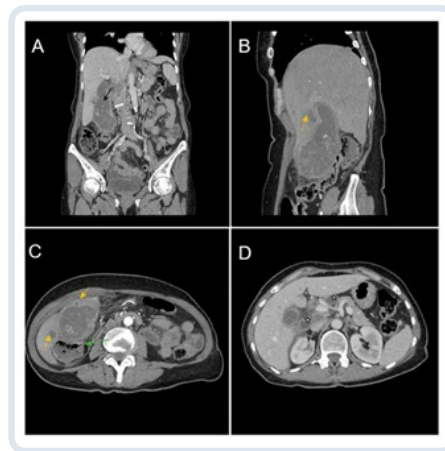
- "Target sign" / "Donut sign" (transverse view)
- Elongated pyloric canal (longitudinal view)
- Thickened pyloric muscle

Parameter	Cutoff
Muscle thickness	> 4 mm ☐
Pyloric canal length	> 16 mm ☐

Feature	CHPS	Duodenal Atresia	Jejunal Atresia	Volvulus
Age	2-8 weeks	Birth	Birth	Neonate
Vomiting	Projectile, non-bilious	Bilious	Bilious	Bilious
Imaging	USG	X-ray	X-ray	USG / contrast
Key sign	Target sign	Double bubble	Multiple levels	Whirlpool
Level of obstruction	Gastric outlet	Proximal	Mid bowel	Twisting

QUESTION

Based on the CT images provided, which of the following is the most likely diagnosis?



A Retroperitoneal tumor

B GB mass

CORRECT

C Right renal carcinoma

D HCC

RIGHT ANSWER

B. GB mass

WHY THIS IS RIGHT

Gallbladder carcinoma presents as a heterogeneous mass in the gallbladder fossa with direct liver invasion and loss of fat planes, distinguishable from other abdominal masses by its characteristic location and infiltrative growth pattern.

Key Imaging Clues:

- Mass in gallbladder fossa
- Irregular wall thickening or polypoidal lesion
- Loss of normal GB outline
- Direct liver invasion
- Possible biliary obstruction

Feature	GB Mass	HCC	RCC	Retroperitoneal Tumor
Origin	Gallbladder	Liver	Kidney	Retroperitoneum
Location	GB fossa	Intrahepatic	Renal	Posterior
Enhancement	Heterogeneous	Arterial + washout	Strong enhancement	Variable
Liver invasion	Common	Primary site	Rare	Displacement
Key clue	Replaces GB	Cirrhosis background	Renal mass	Organ displacement

QUESTION

An elderly man with dysphagia and halitosis for 7 months undergoes barium swallow. Most likely diagnosis?



- A** Esophageal neoplasia
- B** Achalasia
- C** **Zenker's diverticulum**
- D** Diffuse esophageal spasm

CORRECT

RIGHT ANSWER

- OK** **C. Zenker's diverticulum**

WHY THIS IS RIGHT

Zenker's diverticulum is a pharyngoesophageal pouch at Killian's dehiscence, presenting with dysphagia, regurgitation, and bad breath.

Hallmark Imaging Features:

- Posterior outpouching
- At pharyngoesophageal junction (Killian's dehiscence)
- Barium-filled sac
- May retain food -> explains halitosis

Cricopharyngeal dysfunction

↓

↑ Intraluminal pressure

↓

Weak area (Killian's dehiscence)

↓

Posterior mucosal herniation

↓

Zenker's diverticulum

↓

Food retention -> halitosis

Achalasia shows bird-beak, diffuse spasm shows corkscrew, neoplasia causes progressive obstruction.

| Condition | Key Feature | Imaging |

| ----- | ----- | ----- |

| Zenker's diverticulum | Halitosis | Posterior pouch |

| Achalasia | Bird beak | Distal narrowing |

| Esophageal cancer | Irregular narrowing | Shouldering |

| Diffuse spasm | Corkscrew esophagus | Multiple contractions |

QUESTION

| Which investigation is shown below?



A X ray Defecography

CORRECT

B MR Defecography

C Barium Swallow

D Barium meal follow through

RIGHT ANSWER

OK **A. X ray Defecography**

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1a" here and does not include a written explanation for this item.

QUESTION

| Most useful investigation for localizing a parathyroid adenoma?**A Sestamibi scan**

CORRECT

B USG**C** FDG PET**D** MRI

RIGHT ANSWER

OK **A. Sestamibi scan**

WHY THIS IS RIGHT

Tc-99m sestamibi scan with SPECT is best for parathyroid adenoma localization due to functional uptake and 3D accuracy.

Signature Imaging Features:

- Diffuse, continuous colonic wall thickening
- Loss of haustral folds -> smooth tube
- “Lead pipe” appearance
- Starts from rectum and extends proximally

Feature	Ulcerative Colitis	Crohn's Disease
-----	-----	-----
Pattern	Continuous	Skip lesions
Location	Colon only	Entire GI tract
Depth	Mucosa	Transmural
Imaging	Lead pipe colon	Cobblestone
Complications	Toxic megacolon	Fistula, strictures

USG and MRI are less sensitive, PET is not routine.

QUESTION

A 5-year-old child has recurrent urinary tract infections, a weak urinary stream, and intermittent incontinence. The radiological image demonstrates the characteristic findings. What is the most likely diagnosis?



A Ureterocele

CORRECT

B Duplicated collecting system

C Posterior urethral valves (PUV)

D Vesicoureteric reflux (VUR)

RIGHT ANSWER

OK

A. Ureterocele

WHY THIS IS RIGHT

The source quiz contains the placeholder “\$1b” here and does not include a written explanation for this item.

QUESTION

An imaging study was performed to assess the urinary tract. Which radiological modality is shown in the image?



CORRECT

A IVP**B** RGU**C** MCU**D** Plain X-ray

RIGHT ANSWER

OK

A. IVP

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1c" here and does not include a written explanation for this item.

QUESTION

A patient presented with abdominal pain and sterile pyuria, and the x-ray showed the following features. What is the likely diagnosis?



A Putty kidney

CORRECT

B Nephrocalcinosis

C Staghorn calculus

D Psoas calcification

RIGHT ANSWER

OK A. Putty kidney

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1d" here and does not include a written explanation for this item.

QUESTION

A lady presented with a pelvic mass which was hyperintense on T1-weighted image, hyperintense on T1-fat saturated image, and hypointense on T2-weighted image with T2 shading. What is the likely diagnosis?

- A** Teratoma
- B** Endometrioma
- C** Carcinoma ovary
- D** Dysgerminoma

CORRECT

RIGHT ANSWER

B. Endometrioma

WHY THIS IS RIGHT

The source quiz contains the placeholder “\$1e” here and does not include a written explanation for this item.

QUESTION

| What is the diagnosis based on the CT image?



A Renal cyst

B PUJO

CORRECT

C ADPKD

D Horseshoe kidney

RIGHT ANSWER

OK

B. PUJO

WHY THIS IS RIGHT

Pelviureteric junction obstruction causes massive pelvis dilatation with parenchymal thinning. ADPKD shows multiple cysts, renal cyst is solitary, horseshoe kidney is fused poles.

Key Radiological Features:

- Dilated renal pelvis + calyces
- Abrupt narrowing at PUJ
- Normal ureter (key differentiator!)
- Kidney may appear enlarged

Z

Feature	PUJO	Renal Cyst	ADPKD	Horseshoe Kidney
Pelvis	Dilated	Normal	Distorted	Normal
Ureter	Normal	Normal	Normal	Normal
Cysts	No	Single	Multiple bilateral	No
Shape	Ballooned pelvis	Round lesion	Enlarged kidneys	Fused kidneys
Key clue	Hydronephrosis only	Simple cyst	Many cysts	Fusion anomaly

QUESTION

A 65-year-old postmenopausal woman presents with vaginal bleeding. What is the most likely diagnosis based on the image provided?



CORRECT

A Adenomyosis**B** Intramural fibroid**C** Endometriosis**D** Endometrial hyperplasia

RIGHT ANSWER

OK A. Adenomyosis

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1f" here and does not include a written explanation for this item.

QUESTION

Which of the following statements is true regarding the investigation shown below?



- A** Invasive procedure
- B** Non-invasive and can diagnose pelviureteric junction obstruction CORRECT
- C** Gold standard for bladder cancer
- D** Done percutaneously

RIGHT ANSWER

- OK** **B. Non-invasive and can diagnose pelviureteric junction obstruction**

WHY THIS IS RIGHT

Intravenous pyelography (IVP) is a non-invasive radiographic examination that can effectively diagnose pelviureteric junction obstruction through visualization of contrast excretion by the kidneys.

PUJO:

Cystoscopy is the gold standard for bladder carcinoma, IVP may just show a filling defect.

There is no percutaneous component, only IV contrast needs to be injected.



QUESTION

A patient presents with ureteric colic. Examination is normal. What is the best imaging to diagnose?

- A MRI
- B Ureteroscopy

C NCCT KUB

CORRECT

D CECT KUB

RIGHT ANSWER

C. NCCT KUB

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$20" here and does not include a written explanation for this item.

QUESTION

| Best diagnostic investigation for suspected ureteric stone?**A NCCT KUB**

CORRECT

B USG KUB**C** CECT KUB**D** Ureteroscopy

RIGHT ANSWER

OK

A. NCCT KUB

WHY THIS IS RIGHT

Non-contrast CT KUB is gold standard for ureteric stones, detecting all types except indinavir.

What NCCT shows:

- Stone = hyperdense (bright white)
- Hydroureter / hydronephrosis
- Exact location + size
- Detects even radiolucent stones (e.g., uric acid)

| Modality | Role | Limitation |

| ----- | ---- | ----- |

| NCCT KUB | ☐ | Best diagnostic test | Radiation |

| USG KUB | Screening (pregnancy) | Misses ureteric stones |

| CECT KUB | Tumor evaluation | Masks stones |

| Ureteroscopy | Diagnostic + therapeutic | Invasive |

USG may miss stones, CECT obscures them, ureteroscopy is therapeutic not diagnostic.

QUESTION

A 50-year-old man presents with a chronic, non-productive cough, mild dyspnea, and fatigue. He has a long-standing occupational history as a construction laborer with significant exposure to dust and sand. A chest X-ray demonstrates characteristic changes, as shown in the image below. Which of the following is the most likely diagnosis?



A Tuberculosis

B Asbestosis

C Bagassosis

D Silicosis

CORRECT

RIGHT ANSWER

OK D. Silicosis

WHY THIS IS RIGHT

The source quiz contains the placeholder “\$21” here and does not include a written explanation for this item.

QUESTION

A 3-month-old infant is brought to the emergency department with complaints of cyanosis and difficulty breathing. A chest X-ray shows the findings given below. What is the most likely diagnosis?



- A** Atrial septal defect
- B** Ventricular septal defect
- C** Tetralogy of Fallot
- D** Transposition of the great arteries

CORRECT

RIGHT ANSWER

C. Tetralogy of Fallot

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$22" here and does not include a written explanation for this item.

QUESTION

A patient is brought to the casualty following a road traffic accident. On examination, the patient is conscious, BP is 90/60 mm Hg, respiratory rate is 40 breaths per minute, and pulse rate is 120 bpm. The X-ray is shown below. What is the next best step in management?



A Pericardiocentesis

B Thoracotomy

C Needle thoracostomy

CORRECT

D Chest tube insertion

RIGHT ANSWER

OK

C. Needle thoracostomy

WHY THIS IS RIGHT

The source quiz contains the placeholder “\$23” here and does not include a written explanation for this item.

QUESTION

A patient presents in OPD with a history of fever and cough for 5 days. On auscultation, crepts were heard on right side. Chest X-ray is given below. Mark the correct finding in this case?



A Apical segment of Right lower lobe consolidation

B Right middle lobe consolidation

CORRECT

C Posterior segment of right lower lobe consolidation

D Loculated pleural effusion

RIGHT ANSWER

OK B. Right middle lobe consolidation

WHY THIS IS RIGHT

Right middle lobe consolidation is suggested by the obscuration of the right heart border and the specific location of opacity on the chest X-ray, aligned with the patient's clinical presentation of respiratory symptoms.

Key Radiological Sign -> Silhouette Sign □

Right heart border is obscured

This is the giveaway because-

- Right middle lobe lies adjacent to right heart border
- When it consolidates -> the border disappears

| Lost Border | Diagnosis |

| ----- | ----- |

| Right heart border | Right middle lobe □ |

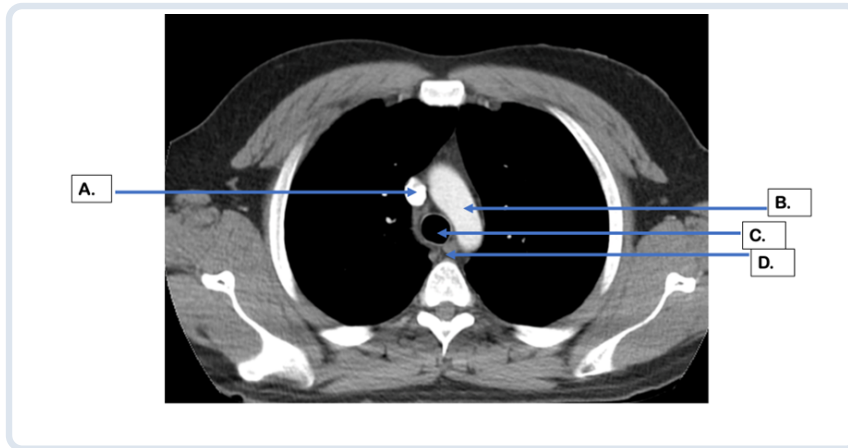
| Left heart border | Lingula |

| Right diaphragm | Right lower lobe |

| Left diaphragm | Left lower lobe |

QUESTION

Match the following: A-SVC, B-Aorta, C-Esophagus, D-Trachea



A A-SVC, B-Aorta, C-Esophagus, D-Trachea

B A-SVC, B-Aorta, C-Trachea, D-Esophagus

CORRECT

C A-Aorta, B-SVC, C-Esophagus, D-Trachea

D A-SVC, B-MPA, C-Esophagus, D-Trachea

RIGHT ANSWER

OK

B. A-SVC, B-Aorta, C-Trachea, D-Esophagus

WHY THIS IS RIGHT

SVC lies right, aorta is central arch, trachea is air-filled anterior, esophagus lies posterior. Correct match is A-SVC, B-Aorta, C-Trachea, D-Esophagus.

Structure	Position	Density	Key Clue
Trachea	Central	Air (black)	Round, lumen
Esophagus	Posterior to trachea	Soft tissue	Collapsed
SVC	Right	Soft tissue	Thin-walled vein
Aorta	Left	Soft tissue	Thick-walled artery

QUESTION

| What is the likely diagnosis?



A Lung Abscess

CORRECT

B TB

C Fungal pneumonia

D Hydropneumothorax

RIGHT ANSWER

OK A. Lung Abscess

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$24" here and does not include a written explanation for this item.

QUESTION

| What is the likely diagnosis?



A Labelling error

B **Kartagener syndrome**

CORRECT

C Pneumoperitoneum

D Cystic fibrosis

RIGHT ANSWER

OK

B. Kartagener syndrome

WHY THIS IS RIGHT

Kartagener syndrome triad: situs inversus, bronchiectasis, sinusitis. Cystic fibrosis has bronchiectasis but no situs inversus. Pneumoperitoneum shows free air, not dextrocardia.

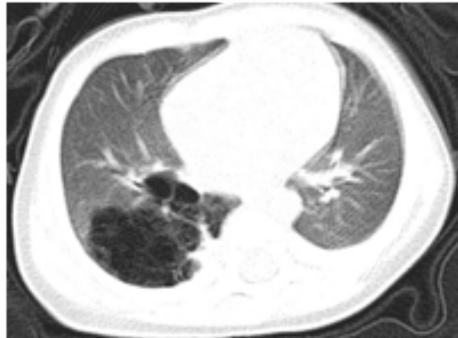
Key Imaging Clues:

- Dextrocardia (cardiac apex on right)
- Situs inversus totalis (organs reversed)
- Signs of bronchiectasis:
 - Dilated bronchi
 - "Tram-track" appearance

Feature	Kartagener	CF	Pneumoperitoneum	Labelling Error
Dextrocardia	□	□	□	False
Situs inversus	□	□	□	□
Bronchiectasis	□	□	□	□
Key cause	Ciliary defect	CFTR mutation	Perforation	Human error
Exam clue	Mirror organs	Thick mucus	Air under diaphragm	Inconsistent findings

QUESTION

A 6-year-old child presenting with recurrent respiratory infections. What is the likely diagnosis?



A Pyopneumothorax

B **CPAM**

CORRECT

C CDH

D Lung abscess

RIGHT ANSWER

OK

B. CPAM

WHY THIS IS RIGHT

Congenital pulmonary airway malformation shows multiple cystic air-filled spaces. Pyopneumothorax has pleural air-fluid, CDH shows bowel in chest, abscess is single cavity.

Key Radiological Features:

- Multiple cystic lucencies in lung
- Usually unilateral
- May have:
 - Air-filled cysts
 - Air-fluid levels (if infected)
 - Commonly involves lower lobes

| Feature | CPAM | Lung Abscess | CDH | Pyopneumothorax |

| ----- | --- | ----- | --- | ----- |

| Age | Child | Any | Neonate | Any |

| Number of lesions | Multiple cysts | Single | Multiple bowel loops | Single |

| Wall | Thin | Thick | Bowel wall | Pleural |

| Infection | Recurrent | Acute | Early distress | Severe |

| Key clue | Congenital cysts | Thick cavity | Bowel in chest | Pleural air-fluid |

QUESTION

Based on the image shown below, which of the following is the most likely diagnosis?



CORRECT

- A** Congenital Diaphragmatic Hernia
- B** Congenital Pulmonary Airway Malformation
- C** Bronchopulmonary Sequestration
- D** Pneumothorax

RIGHT ANSWER

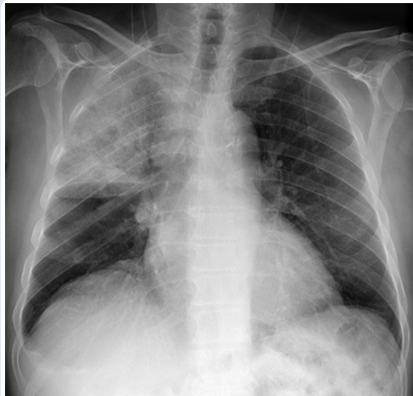
- OK** **A. Congenital Diaphragmatic Hernia**

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$25" here and does not include a written explanation for this item.

QUESTION

| What is the most probable diagnosis based on the image provided?



- A** RUL collapse
- B** RUL consolidation
- C** Bronchogenic carcinoma
- D** Lung abscess

CORRECT

RIGHT ANSWER

OK

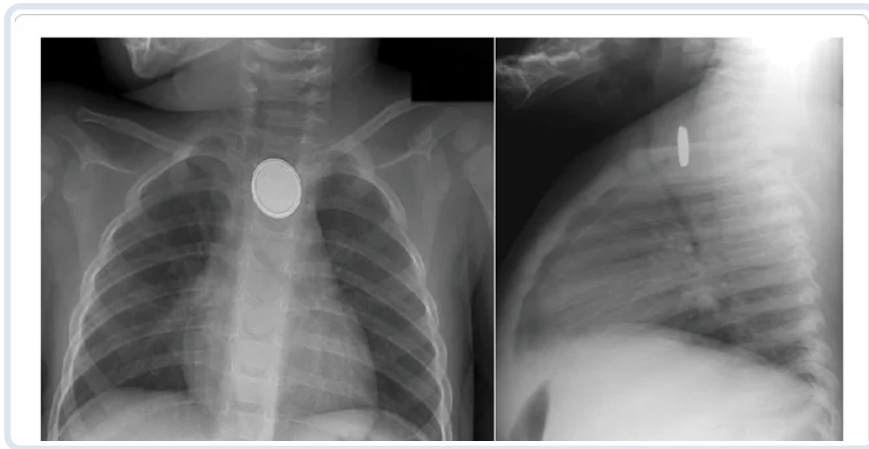
B. RUL consolidation

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$26" here and does not include a written explanation for this item.

QUESTION

A child presents with breathlessness. Chest X ray shows a radiopaque circular object with double rim. Identify?



CORRECT

A Button battery**B** Coin**C** Ball**D** Bottle cap

RIGHT ANSWER

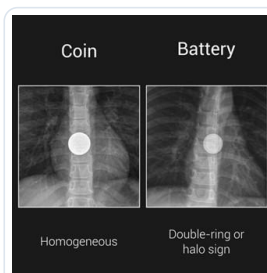
OK A. Button battery

WHY THIS IS RIGHT

Button batteries show a double rim/halo on X-ray, unlike coins or other objects. They are a medical emergency due to caustic leakage and electrical injury, requiring urgent removal.

Radiological Signs:

- Double rim / halo sign (two concentric circles)
- Usually lodged in esophagus
- On lateral view:
- Step-off sign (unequal edges)



QUESTION

A 35-year-old male presents to the trauma center after RTA with shortness of breath. The supine CXR is shown below. What is the likely diagnosis?



A Hemothorax

CORRECT

B Pneumothorax

C Pulmonary contusion

D Diaphragm injury

RIGHT ANSWER

OK A. Hemothorax

WHY THIS IS RIGHT

In a supine chest X-ray of a trauma patient, a hemothorax presents as a diffuse opacity throughout the affected hemithorax due to the gravitational spread of blood in the pleural space.

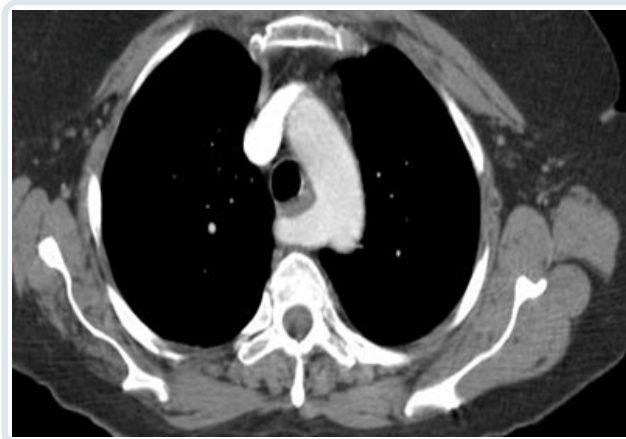
Key Radiological Clues:

- Diffuse haziness on one side (veiling opacity)
- No clear fluid level (because supine)
- Possible loss of diaphragmatic outline
- Lung may appear compressed

Condition	CXR Feature	Key Difference
Hemothorax	Diffuse haziness (supine)	Fluid
Pneumothorax	Deep sulcus sign	Air
Pulmonary contusion	Patchy opacities	Parenchymal
Diaphragm injury	Elevated/irregular diaphragm	Structural

QUESTION

What is the likely diagnosis based on the given image?



A Aberrant right subclavian artery

CORRECT

B Right sided aortic arch

C Tracheal diverticulum

D Esophageal duplication

RIGHT ANSWER

OK A. Aberrant right subclavian artery

WHY THIS IS RIGHT

An aberrant right subclavian artery is an anatomical variant where the artery arises as the fourth branch of the aortic arch and courses posterior to the esophagus, often leading to dysphagia lusoria due to esophageal compression.

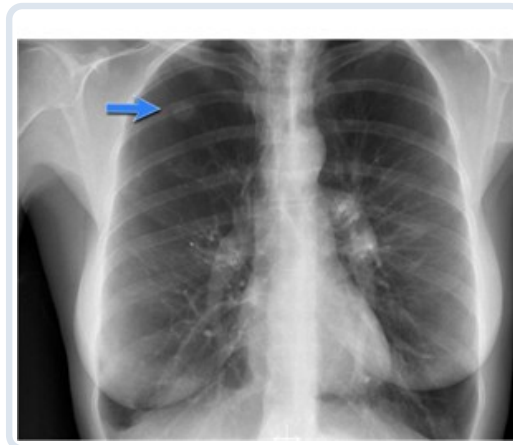
Signature Imaging Clues:

- Indentation on posterior wall of esophagus
- Vessel arising distally from aortic arch
- Courses behind the esophagus (retro-esophageal)

Condition	Imaging Feature	Key Difference
ARSA	Posterior esophageal indentation	Retro-esophageal vessel
Right-sided aortic arch	Right arch shadow	No posterior compression
Tracheal diverticulum	Air pouch near trachea	Not vascular
Esophageal duplication	Cystic mass	No vascular flow

QUESTION

Identify the marked structure:



CORRECT

A Posterior rib

B Anterior rib

C Costal cartilage

D Pulmonary artery

RIGHT ANSWER

OK A. Posterior rib

WHY THIS IS RIGHT

The posterior rib appears as a horizontal structure on a chest X-ray, distinguishing it from the more curved anterior ribs and other thoracic structures.

Feature	Posterior Ribs	Anterior Ribs
Orientation	Horizontal ☐	Oblique downward ☐
Visibility	More prominent	Less prominent
Density	Thicker	Thinner
Use	Count ribs (lung expansion)	Less useful



QUESTION

A 35 year old man presents to the emergency department with sudden onset shortness of breath. Below is the CT of the patient. What is the next best step in management?



A Needle thoracostomy

CORRECT

B Intercostal chest tube insertion

C Sputum microscopy and culture

D Thoracic ultrasound

RIGHT ANSWER

OK

A. Needle thoracostomy

WHY THIS IS RIGHT

CT shows tension pneumothorax.

Key Radiological Signs:

- Collapsed lung
- Air in pleural space (black area)
- Mediastinal shift to opposite side
- Compression of great vessels -> ↓ venous return

Air enters pleural space (one-way valve)

↓

Air accumulates -> pressure increases

↓

Lung collapses

↓

Mediastinum shifts

↓

↓ Venous return to heart

↓

Shock + death (if untreated)

Immediate needle thoracostomy in 5th ICS midaxillary line is lifesaving. Chest tube follows for definitive management.

Other options are not appropriate in emergency.

QUESTION

A 55 year old chronic smoker presents with drooping of the right eyelid, constricted pupil, and absence of sweating on the right side of the face. He also complains of shoulder pain and tingling sensation in the right arm. The chest x-ray of the patient is given below. Which of the following is the best investigation to confirm the diagnosis?



- A Sputum microscopy
- B CT scan-guided biopsy
- C Nerve conduction studies
- D Chest ultrasound

CORRECT

RIGHT ANSWER

- OK B. CT scan-guided biopsy

WHY THIS IS RIGHT

Pancoast Tumor:

- Tumor located at lung apex (superior sulcus)
- Usually non-small cell lung carcinoma (NSCLC)

It invades:

- Sympathetic chain -> Horner syndrome
- Brachial plexus -> arm pain/paresthesia
- Ribs/vertebrae -> bone pain

The clinical picture suggests Pancoast tumor with Horner's syndrome. CT-guided biopsy confirms diagnosis.

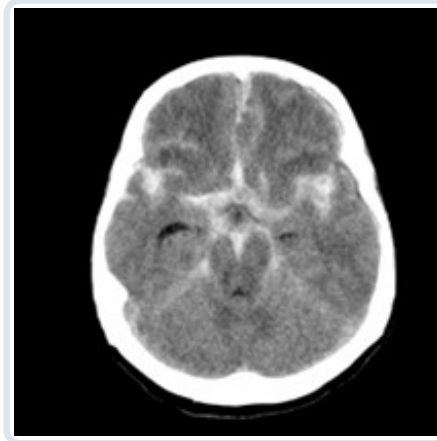
Classic Radiographic Findings:

- Apical opacity
- Rib destruction (sometimes)
- May be subtle -> often missed on X-ray

Sputum microscopy is for infection, nerve conduction for neuropathy, ultrasound is not definitive.

QUESTION

A 50-year-old patient presents with persistent headache, nausea, vomiting, and altered sensorium. A non-contrast CT (NCCT) brain scan shows hyperdense areas in the image given below. Which is the most likely diagnosis?



A Subarachnoid hemorrhage

CORRECT

B Pyogenic meningitis

C Encephalitis

D Cerebral abscess

RIGHT ANSWER

OK A. Subarachnoid hemorrhage

WHY THIS IS RIGHT

Acute subarachnoid hemorrhage appears as hyperdensity in basal cisterns and sulci on non-contrast CT, presenting clinically with sudden severe headache, nausea, vomiting, and altered sensorium.

- Hyperdensity in:
 - Basal cisterns (classic “star sign”)
 - Sylvian fissures
 - Interhemispheric fissure
- Blood follows CSF spaces, not brain parenchyma

Condition	CT Appearance	Key Location
SAH	Hyperdense in sulci/cisterns	Subarachnoid space
Epidural hematoma	Biconvex (lens-shaped)	Outside dura
Subdural hematoma	Crescent-shaped	Between dura & arachnoid
Intracerebral bleed	Focal hyperdense area	Brain parenchyma

QUESTION

A 2-month-old infant is brought to the OPD with a parietal swelling present since birth. An X-ray was ordered and is shown below. What is the likely diagnosis?



A Cephalhematoma

CORRECT

B Subgaleal hematoma

C Encephalocele

D Caput Succedaneum

RIGHT ANSWER

OK

A. Cephalhematoma

WHY THIS IS RIGHT

No explanation was provided in the source quiz.

	Cephalhematoma	Caput Succedaneum	Subgaleal hematoma	Encephalocele
Site	Sub-pericranial	Sub-cutaneous fluid collection	Between galea, aponeurosis and pericranium	Herniation of intracranial contents through defect in skull vault
Cause	Instrumental Delivery	Normal Vaginal delivery	Trauma during delivery, particularly with vacuum	Neural tube defects
Presentation	Focal swelling, limited by suture line	Focal swelling, not limited by suture line	Diffuse swelling	Neurological deficit symptoms
Prognosis	Observation, may resolve spontaneously by 2-3 months	Self-resolves within a few days to weeks	Transfusion if severe, monitoring for anemia, surgical drainage if necessary	Surgical repair, neurosurgical intervention as needed
Image				

QUESTION

What is the likely diagnosis?



A Acute EDH

B Chronic EDH

C Chronic SDH

CORRECT

D Acute SDH

RIGHT ANSWER

OK

C. Chronic SDH

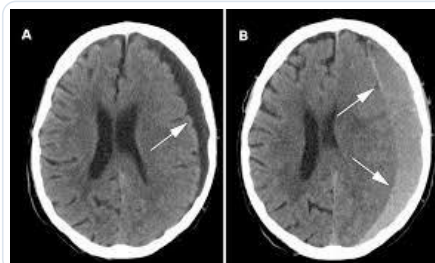
WHY THIS IS RIGHT

Chronic subdural hematoma is crescent-shaped and hypodense due to old blood. EDH is biconvex, acute SDH is hyperdense.

Key Radiological Features:

- Crescent-shaped collection
- Hypodense (dark) due to old blood
- Crosses suture lines
- Causes:
 - Mass effect
 - Midline shift

Feature	Chronic SDH	Acute SDH	EDH
Shape	Crescent	Crescent	Biconvex
Density	Hypodense	Hyperdense	Hyperdense
Cause	Venous	Venous	Arterial
Cross sutures	Yes	Yes	No
Onset	Slow	Rapid	Rapid



QUESTION

| What is the likely diagnosis?



A Dandy Walker malformation

B Chiari malformation

CORRECT

C Vein of Galen malformation

D Encephalocele

RIGHT ANSWER

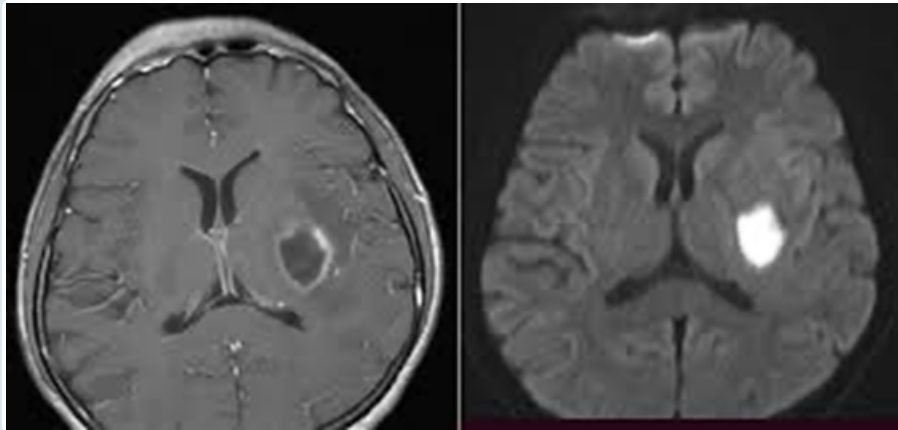
OK B. Chiari malformation

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$27" here and does not include a written explanation for this item.

QUESTION

What is the likely diagnosis?



A Abscess

CORRECT

B Tuberculomas

C Cryptococcomas

D Neurocysticercosis (NCC)

RIGHT ANSWER

OK A. Abscess

WHY THIS IS RIGHT

Brain abscess shows ring-enhancing lesion with diffusion restriction on DWI. Tuberculomas lack restriction, cryptococcomas show soap-bubble, NCC has scolex.

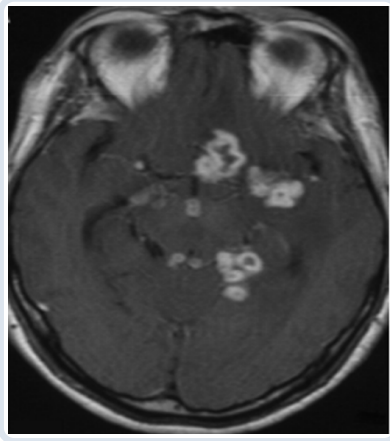
Key Imaging Features:

- Smooth, thin ring enhancement
- Central diffusion restriction
- Extensive perilesional edema
- Mass effect

Feature	Abscess	Tuberculoma	NCC	Cryptococcoma
Wall	Smooth	Irregular	Thin	Minimal
DWI	Restricted	No	No	No
Edema	Marked	Moderate	Mild	Minimal
Key sign	Pus cavity	Lipid peak	Scolex	Soap bubbles
Host	Any	TB endemic	Endemic	Immunocompromised

QUESTION

A 20-year-old male patient presented with a headache and altered sensorium. MRI was performed, which revealed multiple ring-enhancing lesions. What will be the next step to confirm the diagnosis?



A MR spectroscopy

CORRECT

B CBNAAT of CSF

C Biopsy

D SWI

RIGHT ANSWER

OK A. MR spectroscopy

WHY THIS IS RIGHT

MR spectroscopy detects lipid-lactate peak, distinguishing tuberculomas from NCC. CBNAAT is for meningitis, biopsy is invasive, SWI detects bleeds. MR Spectroscopy MRS analyzes metabolites inside the lesion, helping distinguish between different causes of ring lesions.

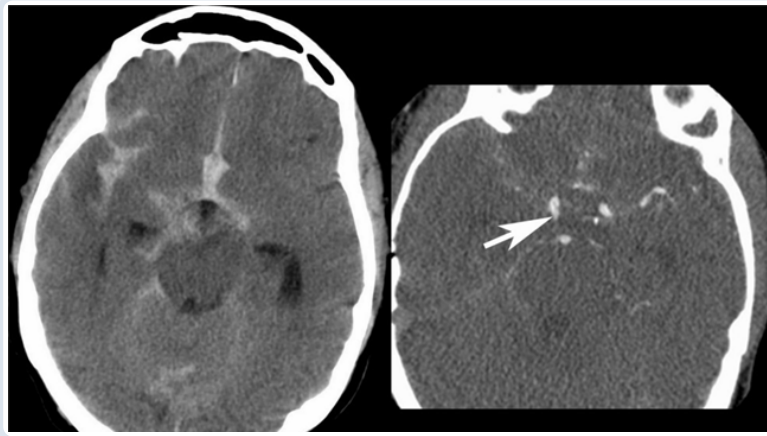
It is:

- Non-invasive
- Highly diagnostic
- Helps avoid biopsy in many cases

Feature	Tuberculoma	Abscess	NCC	Metastasis
Number	Multiple	Single/multiple	Multiple	Multiple
Enhancement	Ring	Ring	Ring	Ring
MRS	Lipid peak	Amino acids	Variable	↑ Choline
Edema	Moderate	Marked	Mild	Variable
Key clue	India, TB endemic	Infection signs	Scolex	Primary tumor

QUESTION

A 35-year-old lady presents with sudden severe headache. CT is shown below. What is the likely diagnosis?



A SAH

CORRECT

B SDH

C EDH

D Pneumocephalus

RIGHT ANSWER

OK A. SAH

WHY THIS IS RIGHT

Subarachnoid hemorrhage shows blood in cisterns, often from aneurysm rupture. SDH is crescent-shaped, EDH is biconvex, pneumocephalus shows air density.

Key Imaging Findings:

- Hyperdensity in basal cisterns
- Blood in:
 - Sylvian fissures
 - Interhemispheric fissure
- Classic "Star sign" (blood outlining cisterns)

Feature	SAH	SDH	EDH	Pneumocephalus
Location	Subarachnoid space	Subdural	Epidural	Intracranial air
Shape	Fills sulci/cisterns	Crescent	Biconvex	Black air
Density	Hyperdense	Hyper/hypo	Hyperdense	Hypodense
Key sign	Star sign	Crescent	Lens	Air pockets
Cause	Aneurysm rupture	Vein rupture	Artery rupture	Trauma/surgery

QUESTION

| What is the likely diagnosis?



A Anencephaly

CORRECT

B Cystic hygroma

C Encephalocele

D Dandy Walker malformation

RIGHT ANSWER

OK A. Anencephaly

WHY THIS IS RIGHT

Anencephaly shows absent cranial vault and forebrain with frog-eye sign. Cystic hygroma is neck cyst, encephalocele is herniation, Dandy Walker shows posterior fossa cyst.

Key Radiological Signs:

- Absent calvarium (no skull vault)
- "Frog-eye sign" (prominent orbits)
- Disorganized brain tissue
- Polyhydramnios may be present

Feature	Anencephaly	Cystic Hygroma	Encephalocele	Dandy-Walker
Skull vault	□ Absent	Present	Defect present	Present
Brain tissue	Absent/disorganized	Normal	Herniated	Abnormal cerebellum
Location	Whole cranial vault	Neck	Focal skull defect	Posterior fossa
Key sign	Frog-eye	Neck cyst	Sac-like protrusion	Enlarged 4th ventricle



QUESTION

A 25-year-old patient was involved in a road traffic accident. He was initially conscious, but later became unconscious and subsequently died. On postmortem examination, multiple petechial hemorrhages are observed in the corpus callosum. What is the most probable diagnosis?

A Diffuse vascular injury

B Diffuse axonal injury

CORRECT

C Subdural hematoma

D Ischemic injury

RIGHT ANSWER

OK

B. Diffuse axonal injury

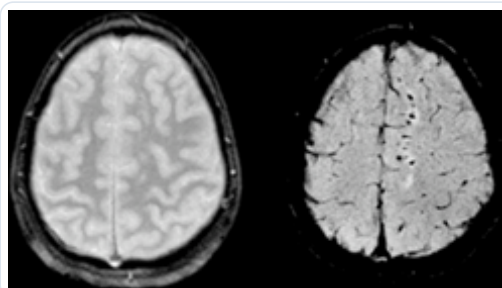
WHY THIS IS RIGHT

Diffuse axonal injury from rotational trauma presents with characteristic petechial hemorrhages in the corpus callosum, grey-white matter junctions, and brainstem, with clinical deterioration after initial consciousness.

Key Imaging Clues:

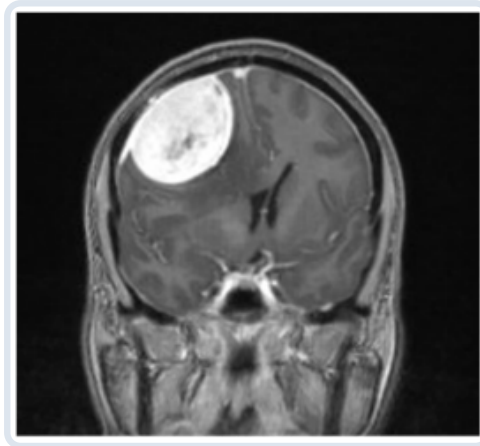
- Multiple small hemorrhagic foci
- Best seen on:
- MRI (GRE / SWI) -> blooming lesions
- CT may be:
- Normal or subtle early

Feature	DAI	Subdural Hematoma	Ischemic Injury
-----	---	-----	-----
Mechanism	Shearing	Venous bleed	Vascular occlusion
Location	Deep (CC, brainstem)	Extra-axial	Arterial territory
Imaging	Tiny hemorrhages	Crescent collection	Hypodensity
CT early	Often normal	Visible	Visible
Best modality	MRI (GRE/SWI)	CT	MRI (DWI)



QUESTION

A 30-year-old male presents for evaluation, and his MRI brain is shown below. What is the most likely diagnosis?



A Meningioma

CORRECT

B Glioma

C Ependymoma

D Pilocytic astrocytoma

RIGHT ANSWER

OK A. Meningioma

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$19" here and does not include a written explanation for this item.

QUESTION

The sign shown in the image below, is typically associated with which of the following conditions?



A Carotid body tumor

CORRECT

B Carotid aneurysm

C Branchial cleft cyst

D Jugular vein thrombosis

RIGHT ANSWER

OK A. Carotid body tumor

WHY THIS IS RIGHT

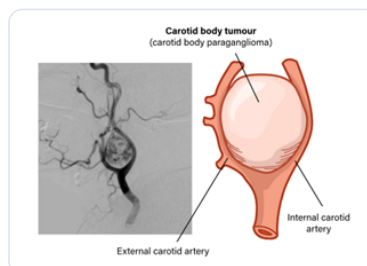
The Lyre sign, characterized by splaying of the internal and external carotid arteries at the bifurcation, is pathognomonic for carotid body tumor (paraganglioma).

Signature Imaging Feature:

- "Lyre sign"
- Tumor at carotid bifurcation
- Splits:
 - Internal carotid artery (ICA)
 - External carotid artery (ECA)

The vessels look like a lyre (string instrument)

Condition	Imaging Feature	Key Difference
Carotid body tumor	ICA & ECA splayed (Lyre sign)	Hypervascular
Carotid aneurysm	Dilated vessel	No splaying
Branchial cleft cyst	Cystic lesion	Non-vascular
Jugular vein thrombosis	Venous filling defect	Posterior location



QUESTION

In the given image, the white arrow is pointing to which of the following structures?



A Thyroid cartilage

B Epiglottis

C Vallecula

D Pyriform sinus

CORRECT

RIGHT ANSWER

OK

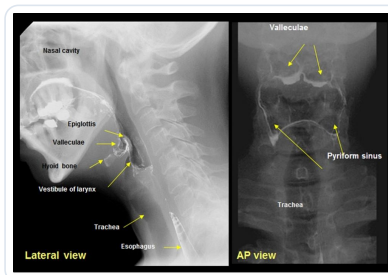
D. Pyriform sinus

WHY THIS IS RIGHT

The pyriform sinuses appear as paired lateral air-filled recesses of the hypopharynx on AP neck X-rays, serving as important landmarks for foreign body detection and swallowing assessment.

Signature Clues:

- Air-filled space
- Lateral to larynx (on both sides)
- Located in hypopharynx
- Appears as a triangular recess



QUESTION

Identify the CT image finding near the orbit.



A Orbital cellulitis

B Subperiosteal abscess

CORRECT

C Preseptal cellulitis

D Sinusitis only

RIGHT ANSWER

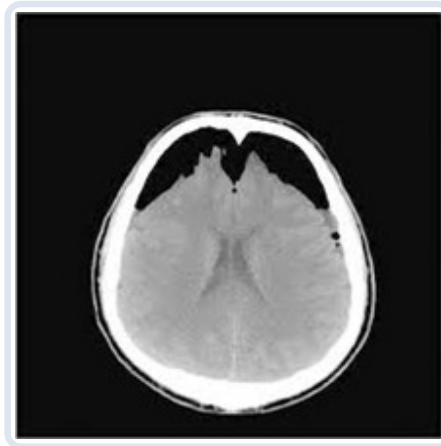
OK B. Subperiosteal abscess

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1a" here and does not include a written explanation for this item.

QUESTION

| Mt. Fuji sign is seen in:



CORRECT

A Pneumocephalus

B Pneumomediastinum

C Pneumoperitoneum

D Pneumothorax

RIGHT ANSWER

OK A. Pneumocephalus

WHY THIS IS RIGHT

The Mt. Fuji sign is indicative of tension pneumocephalus and is characterized by the peaking of the frontal lobes due to intracranial air pressure.

Key Imaging Features:

- Air in subdural space
- Frontal lobes pushed apart
- Shape resembles Mount Fuji peak
- Indicates tension (pressure effect)

| Sign | Diagnosis |

| --- | ----- |

| Mt. Fuji sign | Tension pneumocephalus |

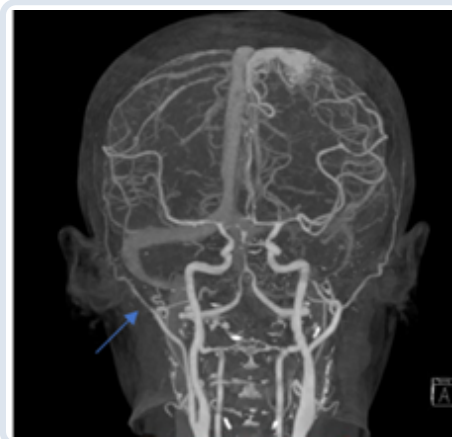
| Crescent sign | Subdural hematoma |

| Target sign | Schwannoma / lesions |

| Eye of tiger | PKAN |

QUESTION

Identify the artery marked with a blue arrow on MR angiography.



A Posterior auricular artery

B Middle meningeal artery

C Superficial temporal artery

CORRECT

D Occipital artery

RIGHT ANSWER

OK C. Superficial temporal artery

WHY THIS IS RIGHT

The superficial temporal artery is a terminal branch of the external carotid, running laterally at the temples. External carotid artery

↓

Terminal branches

↓

Superficial temporal artery

↓

Frontal + parietal branches

↓

Supplies scalp

Posterior auricular lies behind the ear, middle meningeal is intracranial, and occipital supplies the posterior scalp.

QUESTION

A child with seizures has CECT as shown below. Most likely diagnosis?



CORRECT

A Tuberculoma

B Neurocysticercosis

C Brain abscess

D Cerebral metastasis

RIGHT ANSWER

OK

B. Neurocysticercosis

WHY THIS IS RIGHT

The “scolex sign” (central dot within ring lesion) is pathognomonic for neurocysticercosis.

Signature Imaging Clues:

- Ring-enhancing lesion
- Eccentric hyperdense dot inside -> scolex (the parasite's head)
- Surrounding edema (varies by stage)
- Often small (<2 cm), sometimes multiple

Vesicular stage

(cyst + scolex, no edema)

↓

Colloidal stage □

(ring enhancement + edema)

↓

Granular nodular stage

(shrinking lesion)

↓

Calcified stage

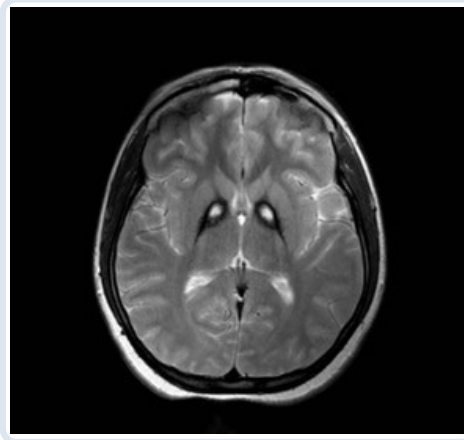
(no edema, seizures persist)

Tuberculoma and abscess lack scolex, metastases are rare in children.

Feature	NCC	Tuberculoma	Abscess	Metastasis
Size	Small	Larger	Variable	Variable
Number	Single/multiple	Often single	Single	Multiple
Scolex	□□ Present	□ Absent	□	□
Edema	Mild-moderate	Marked	Marked	Variable
Wall	Thin	Thick, irregular	Smooth	Irregular

QUESTION

Brain MRI of a patient with movement disorder is shown below. This is most suggestive of:



A Pantothenate kinase associated neurodegeneration

CORRECT

B Krabbe disease

C Wilson disease

D Huntington chorea

RIGHT ANSWER

OK **A. Pantothenate kinase associated neurodegeneration**

WHY THIS IS RIGHT

PKAN shows bilateral hypointensity in globus pallidus with central hyperintensity on T2 MRI, resembling a tiger's eye. It is due to iron deposition and gliosis.

Hallmark Finding:

"Eye of the Tiger" sign

- ☐ Central T2 hyperintensity (gliosis/necrosis)
- ☐ Surrounding hypointensity (iron deposition)
- Located in globus pallidus

| Condition | MRI Finding | Key Feature |

| ----- | ----- | ----- |

| PKAN | Eye of tiger sign | Iron in globus pallidus |

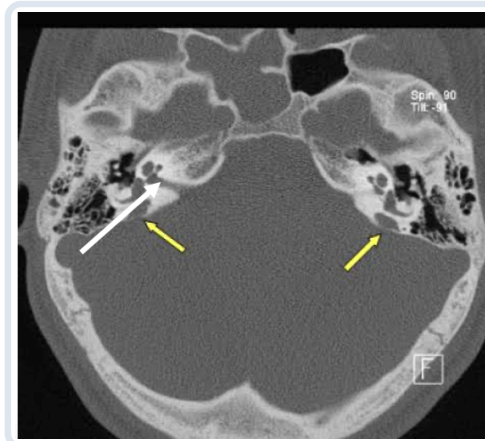
| Wilson disease | T2 hyperintensity in basal ganglia | Copper accumulation |

| Huntington | Caudate atrophy | Chorea |

| Krabbe disease | White matter changes | Demyelination |

QUESTION

Identify the structure marked with white arrow in the below image.



A External auditory meatus

B Internal auditory meatus

CORRECT

C Carotid canal

D Vestibular aqueduct

RIGHT ANSWER

OK B. Internal auditory meatus

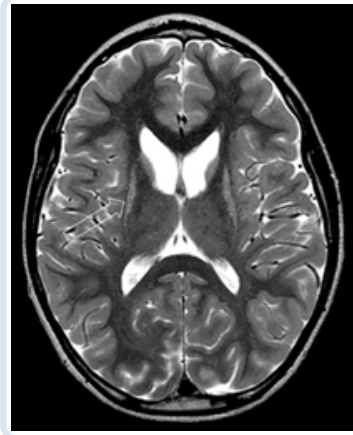
WHY THIS IS RIGHT

The internal auditory meatus transmits cranial nerves VII and VIII. External auditory meatus is outer canal, carotid canal transmits ICA, vestibular aqueduct houses endolymphatic duct (marked with yellow).

Structure	Location	Function	Key Feature
Internal auditory meatus	Petrous temporal (medial)	CN VII, VIII	Deep, intracranial
External auditory meatus	Lateral	Sound conduction	Leads to tympanic membrane
Carotid canal	Anterior petrous	Internal carotid artery	Vascular
Vestibular aqueduct	Posterior	Endolymphatic duct	Very thin canal

QUESTION

A 28-year-old man presents with purposeless involuntary, jerky movements of the face and limbs that have gradually worsened over the past year. His family reports personality changes, irritability and progressive forgetfulness. On examination, he has choreiform movements involving both upper and lower limbs and an unsteady gait. Which of the following is the most likely diagnosis?



A Tardive Dyskinesia

B Huntington's disease

CORRECT

C Sydenham's chorea

D Tourette syndrome

RIGHT ANSWER

OK

B. Huntington's disease

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$1b" here and does not include a written explanation for this item.

QUESTION

In radiation therapy, a Linear Accelerator is commonly used for treating cancer. Which type of energy does a linear accelerator generate to destroy malignant cells?

A Gamma rays

B Neutron

C Proton

D X-ray

CORRECT

RIGHT ANSWER

OK D. X-ray

WHY THIS IS RIGHT

Linear accelerators (LINAC) produce high-energy X-rays through bremsstrahlung when accelerated electrons strike a tungsten target, delivering megavoltage photon beams for cancer radiotherapy.

Modality	Source	Radiation Type	Use
-----	-----	-----	---
LINAC	Accelerated electrons	X-rays (photon beam)	Most common EBRT
Cobalt therapy	Radioisotope	Gamma rays	Older technique
Proton therapy	Cyclotron	Proton beam	Precision therapy
Neutron therapy	Nuclear reactions	Neutrons	Rare, specialized

QUESTION

In radiological physics, which of the following statement best describes eV?

- A** The speed of an electron in a magnetic field
- B** The force acting on an electron in an electric field
- C** The energy gained by an electron when accelerated through a potential difference of one volt CORRECT
- D** The kinetic energy of an electron at rest in a vacuum

RIGHT ANSWER

OK

C. The energy gained by an electron when accelerated through a potential difference of one volt

WHY THIS IS RIGHT

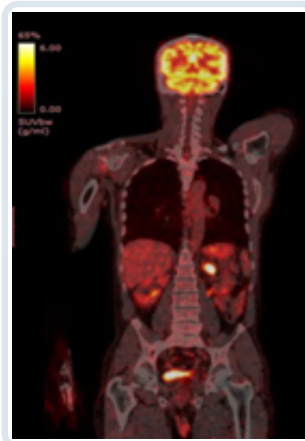
An electron volt (eV) is the energy gained by an electron accelerated through a potential difference of one volt, equal to 1.602×10^{-19} joules, fundamental for understanding X-ray production energies.

Quantity	Formula	Meaning
Energy	$E = eV$	Energy gained by charge
Electron charge	$e = 1.6 \times 10^{-19} \text{ C}$	Constant
Voltage	V	Potential difference

Option	Verdict	Why
A. Speed of electron in magnetic field	❌	Speed depends on energy, but eV itself is not speed
B. Force on electron in electric field	❌	Force = charge × field, not energy
C. Energy gained through 1 volt	✅	Exact definition of eV
D. Kinetic energy at rest	❌	Electron at rest has zero kinetic energy

QUESTION

Identify the imaging modality given below.



A Cerebral blood flow scan

B PET CT

CORRECT

C Sestamibi scan

D Full body MDCT

RIGHT ANSWER

OK

B. PET CT

WHY THIS IS RIGHT

PET CT combines metabolic imaging with CT anatomy, using FDG uptake to detect malignant cells. It works on the principle of coincidence detection and annihilation reaction. It is crucial in oncology for staging and monitoring tumors.

Key Imaging Features

- Color-coded metabolic activity
- Background CT anatomy visible
- Areas of high uptake = "hot spots"
- Usually uses:
- FDG (fluorodeoxyglucose)

Modality	Color	Functional Info	Anatomical Info	Scope
PET-CT	☐ Yes	☐ Metabolic	☐ CT	Whole body
CBF scan	☐	☐ Perfusion	☐ Brain	
Sestamibi	☐	☐ Functional	☐ Targeted	
MDCT	☐	☐	☐	Whole body

QUESTION

A woman has been diagnosed with endometrial carcinoma is undergoing radiotherapy. Choose the correct statement?

A Intensity is inversely proportional to the square of the distance from the source

CORRECT

B Small blood vessels are most radioresistant

C Rapidly proliferating cells are most radioresistant

D Small intestinal mucosa is most radio-resistant

RIGHT ANSWER

OK

A. Intensity is inversely proportional to the square of the distance from the source

WHY THIS IS RIGHT

The Inverse Square Law is critical to understanding radiation dosage and safety in radiotherapy, ensuring that radiation exposure is managed correctly to maximize the therapeutic effect while minimizing harm to healthy tissues. This principle helps in planning and delivering radiation treatments effectively.

QUESTION

| Most sensitive investigation for parathyroid tumor imaging?

A Tc Sestamibi scan

B Tc Sestamibi SPECT

CORRECT

C USG

D MRI

RIGHT ANSWER

OK B. Tc Sestamibi SPECT

WHY THIS IS RIGHT

Sestamibi SPECT combines nuclear imaging with CT, giving 3D localization and higher sensitivity than planar sestamibi.

Key Imaging Features:

- Focal persistent uptake on delayed images
- Usually inferior to thyroid
- SPECT adds 3D localization

Tc-99m sestamibi injected

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Early uptake (thyroid + parathyroid)

↓

Delayed phase

↓

Thyroid washes out

↓

Parathyroid retains tracer

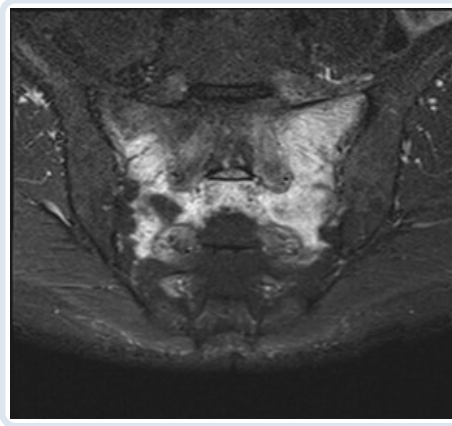
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SPECT -> precise 3D localization □

USG and MRI are less sensitive, PET is not routine.

QUESTION

| The finding shown in the MRI is most characteristic of which condition?



A Multiple myeloma

B Sacral insufficiency fracture

CORRECT

C Acute osteomyelitis

D Bone marrow edema

RIGHT ANSWER

OK

B. Sacral insufficiency fracture

WHY THIS IS RIGHT

The Honda sign is an H-shaped hyperintensity on sacral STIR MRI, pathognomonic for sacral insufficiency fracture. It represents bilateral sacral ala edema connected by a horizontal line.

Signature Pattern:

- H-shaped / Honda sign
- Vertical lines -> both sacral alae
- Horizontal line -> sacral body
- Hyperintense marrow edema on STIR/T2
- Often bilateral symmetric

It looks like a tiny scooter logo etched into the sacrum

Condition	MRI Pattern	Key Feature
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Sacral insufficiency fracture	H-shaped edema	Bilateral, symmetric
Multiple myeloma	Focal lesions	Lytic, punched-out
Osteomyelitis	Diffuse edema + abscess	Infection signs
Bone marrow edema (non-specific)	Patchy	No specific pattern

