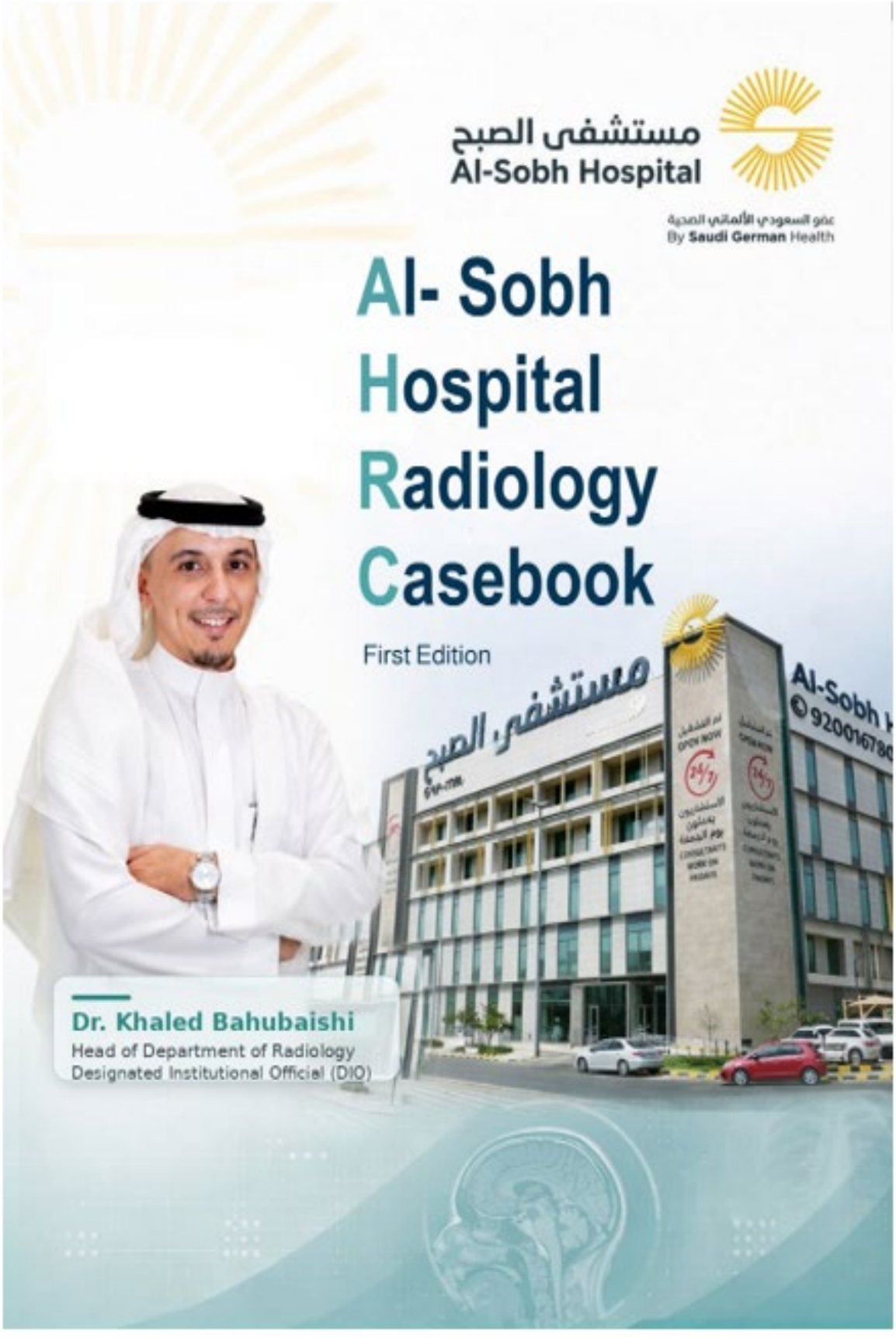

مستشفى الصبح
Al-Sobh Hospital
عفو السعودي الألماني الصحية
By Saudi German Health
Al- Sobh
Hospital
Radiology
Casebook
First Edition
Dr. Khaled Bahubaishi
Head of Department of Radiology
Designated Institutional Official (DIO)

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Dedication

To my beloved mother, whose love and guidance have shaped me into who I am today.

To my father, for his unwavering support, wisdom, and encouragement throughout my journey.

To my family, and especially my wife, for their endless encouragement, patience, and love, which have been my greatest inspiration.

To Dr. Ahmed Abduljabbar, for standing by me in my career and giving me invaluable advice, before I started my board.

journey, to save every case on a USB—advice that made this book possible.

To Mr. Attallah and Dr. Dima, for their trust, support, and for giving me this wonderful opportunity to work with them at Al-Sobh Hospital—it has been an inspiring experience I will always Cherish.

Contributors

We would like to acknowledge the invaluable contributions of the following Radiology Specialists, who performed and interpreted the imaging studies included in this book:

- Dr. Mohammed Sabri
- Dr. Amr Mansouri
- Abdullah Al-Qahtani
- Khaled Waheed
- Dalal Sami
- Afnan Al-Namri
- Danah Smeit
- Maryam Kurdi

Their expertise, precision, and dedication were essential in ensuring the quality and educational value of this case collection.

Additionally, we would also like to recognize the contributions of Ranad Mohammed Khashab and Maha Salem Bamatraf in the compilation and editing of this book.

Introduction

I am Dr. Khaled Bahubaishi, HOD of Radiology and Designated Institutional Official (DIO), and I am excited to present this collection of remarkable radiology cases. Each case has been carefully selected to challenge your diagnostic skills, spark curiosity, and deepen your understanding of imaging patterns.

From classic presentations to unusual findings, this book offers a hands-on learning experience, designed for physicians, residents, and radiology students who wish to explore, analyze, and master the art of radiologic interpretation.

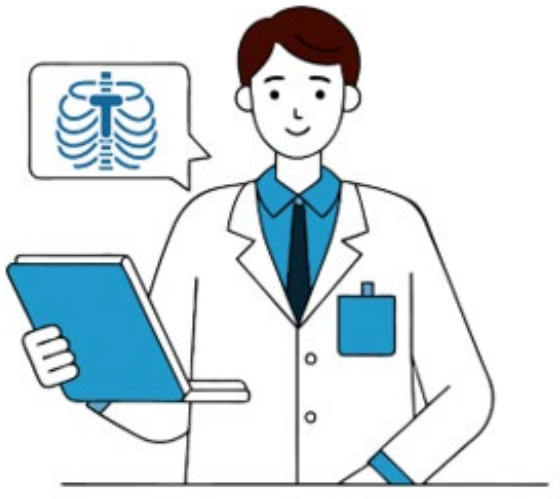
Quiz 1: 34-year-old male - Abdominal pain and fever



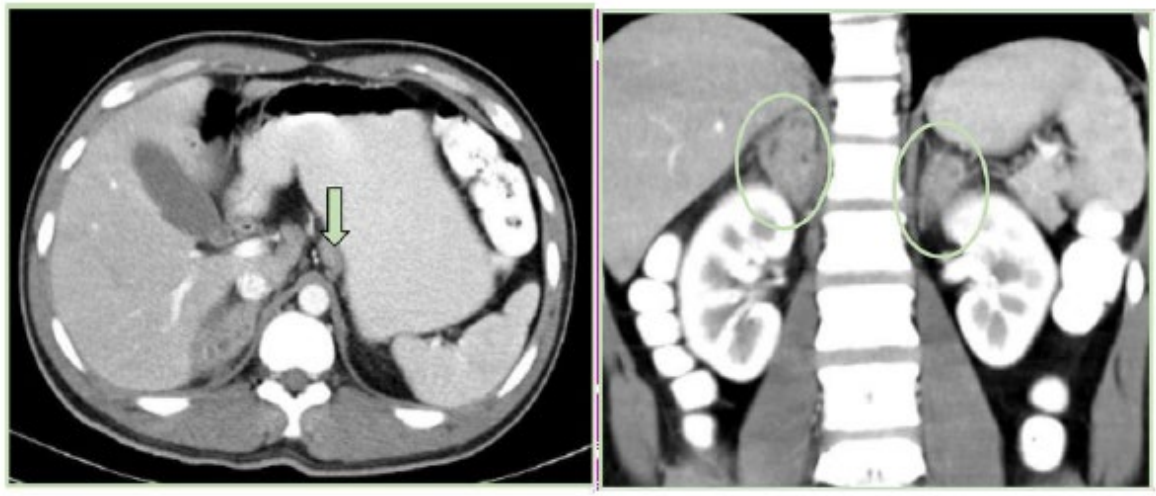
Are you sure about your diagnosis?

Hint

Look for bilateral involvement.



Diagnosis: Adrenal tuberculosis



Radiological findings

Enlargement of both adrenal glands, with necrotic centers and peripheral enhancing rims (circle). There is fat stranding surrounding bilateral adrenal glands. Large lymph node noted at paraaortic region (arrows).

Teaching point

Adrenal tuberculosis occurs more commonly in bilateral glands than in unilateral gland, and the occurrence of bilateral involvement is greater than 80%.

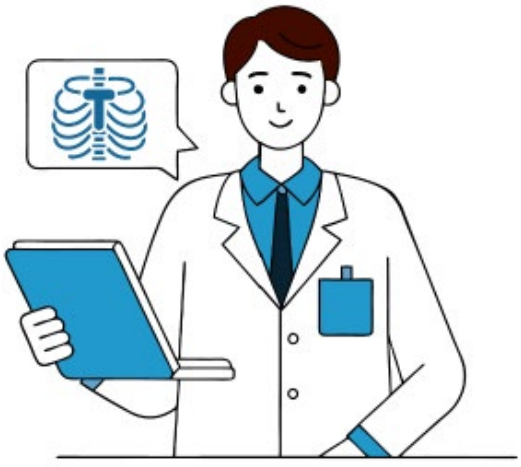
Quiz 2: 40-year-old male - Left flank pain



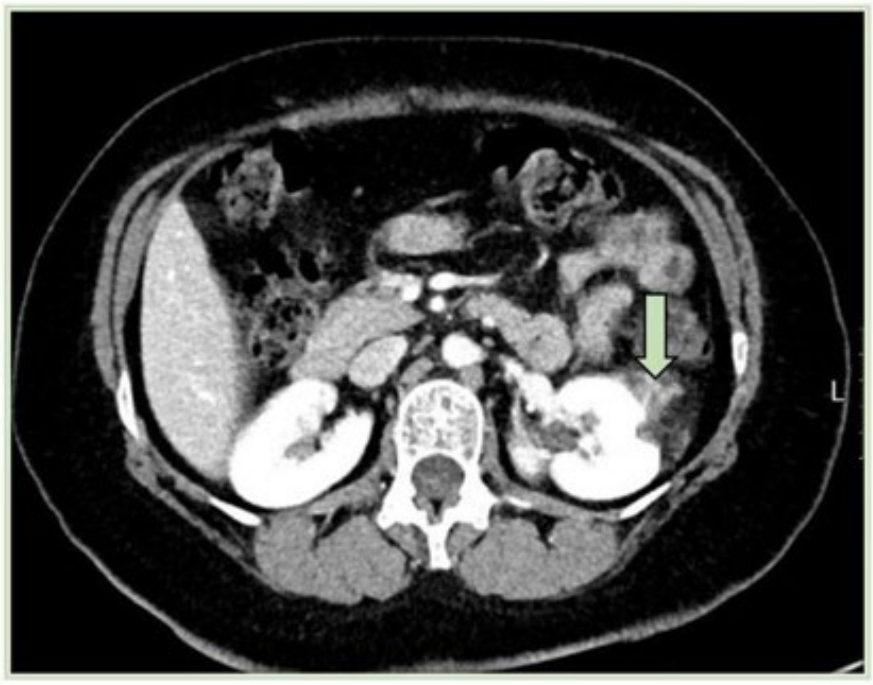
Don’t rush examine all the details!

Hint

Focus on the composition of the mass.



Diagnosis: Renal angiomyolipoma



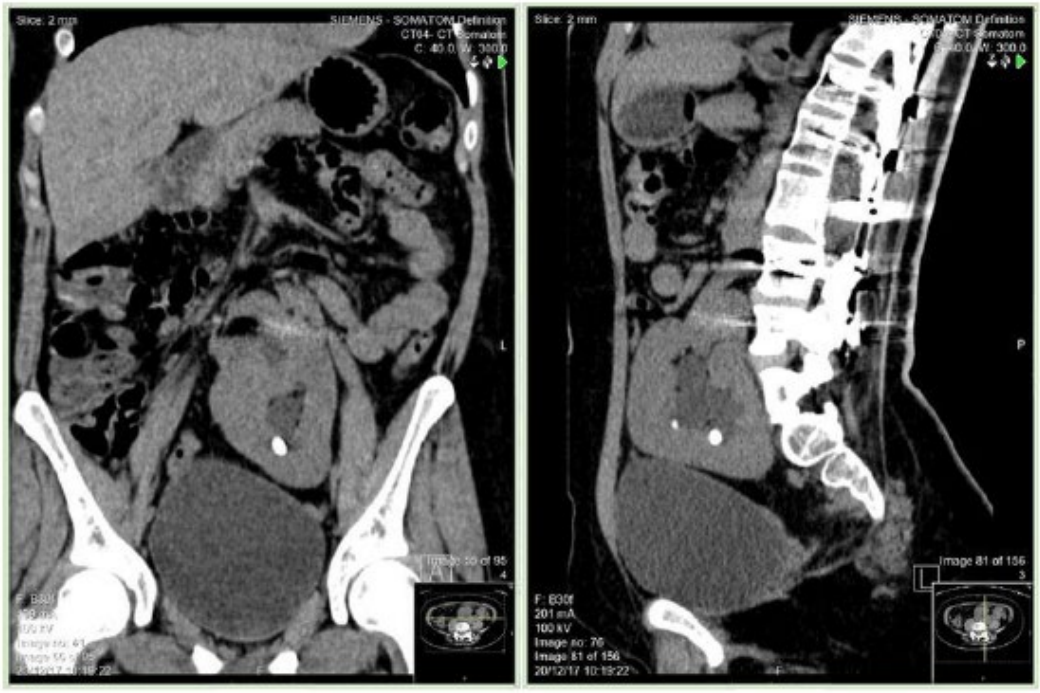
Radiological findings

There is a large exophytic heterogeneous well-defined left renal mass arising from its mid-lower pole (arrows). The mass is predominantly of fat attenuation with internal enhancing components in keeping with renal angiomyolipoma.

Teaching point

Angiomyolipoma carries a high risk of rupture if exceeding 4 cm in size.

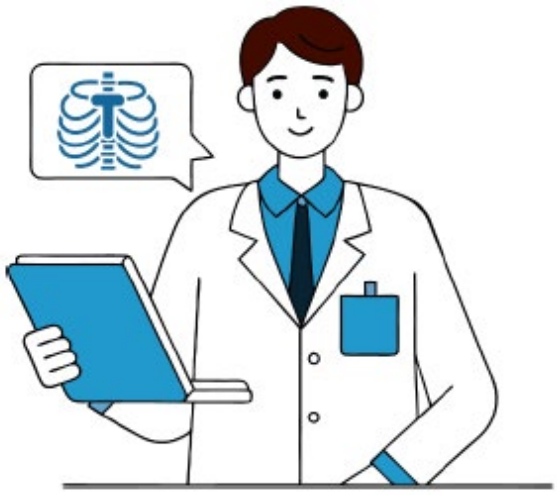
Quiz 3: 18-year-old female - Primary amenorrhea



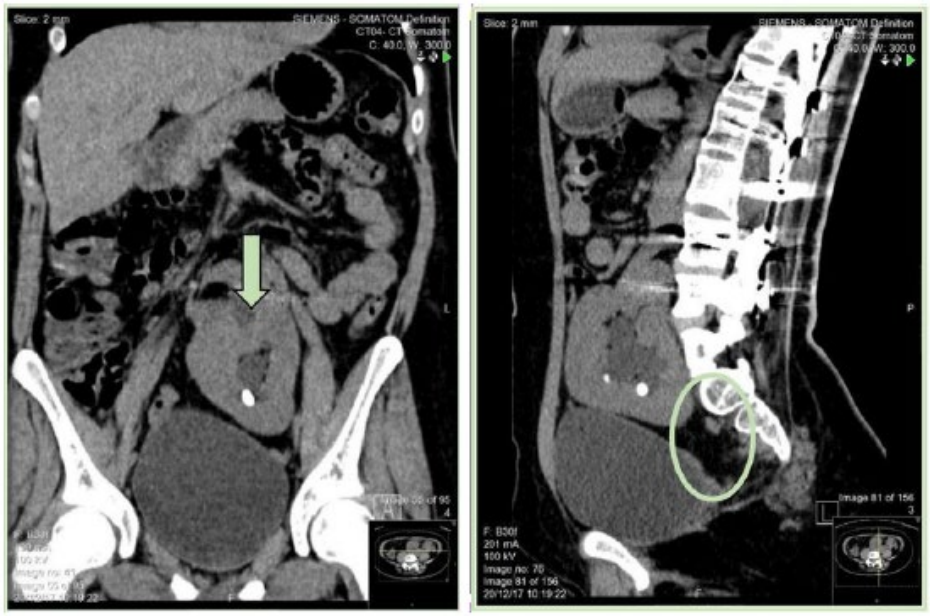
Take another look something will stand out

Hint

The pelvis is clean… a little too clean.



Diagnosis: Mayer-Rokitansky-Küster-Hauser syndrome



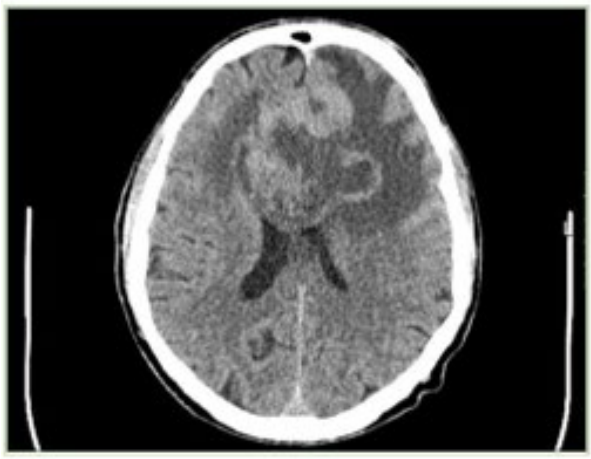
Radiological findings

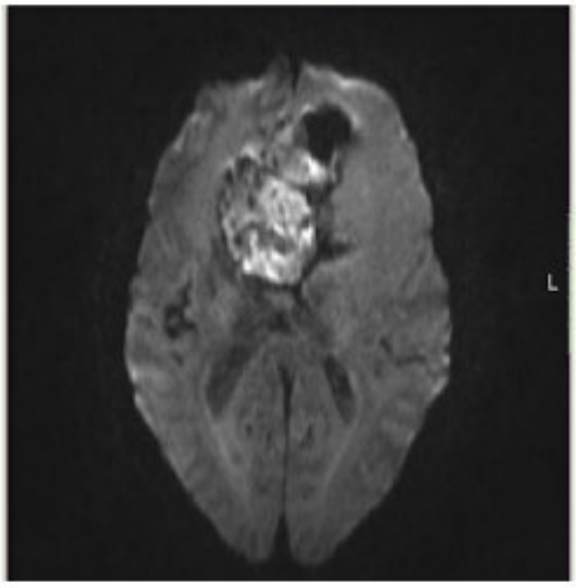
There is a solitary pelvic ectopic kidney with internal non-obstructive stone (arrow). The uterus is not visualized.

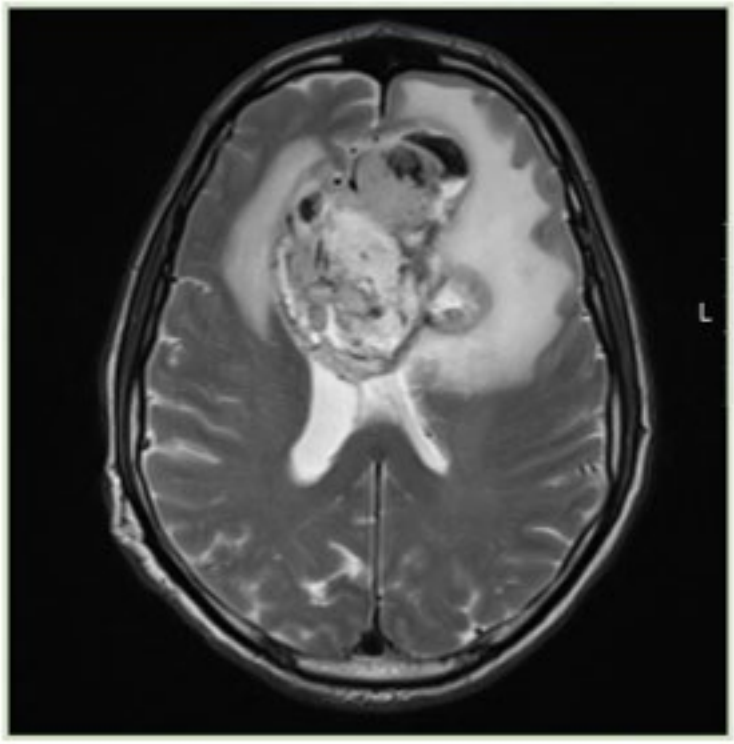
Teaching point

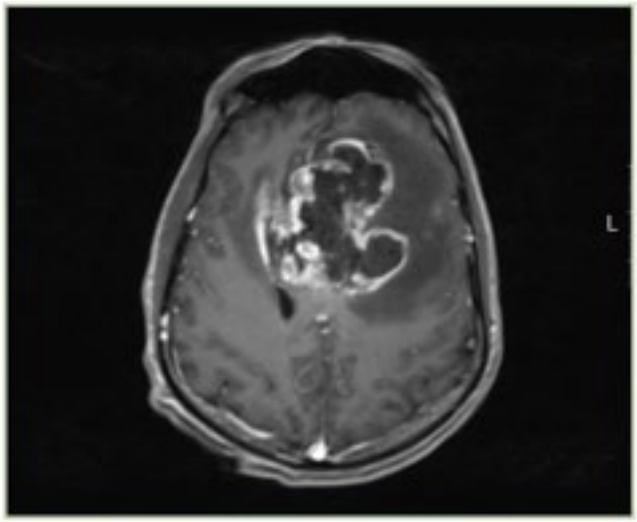
The syndrome is often associated with alterations in the urinary or skeletal system.

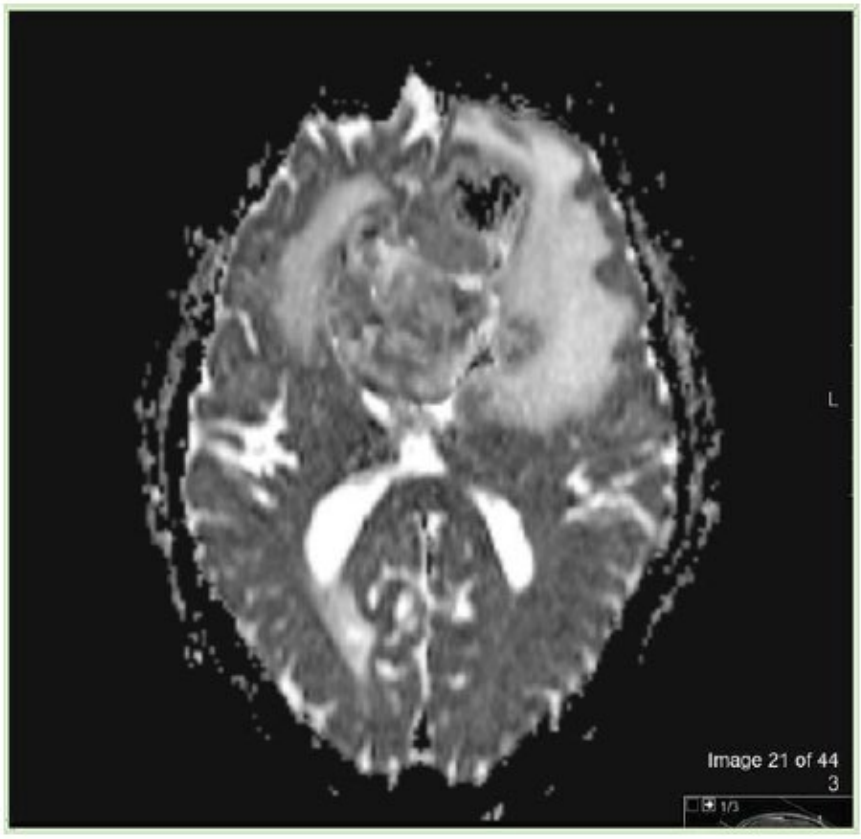
Quiz 4: 50-year-old female - Chronic headache






L

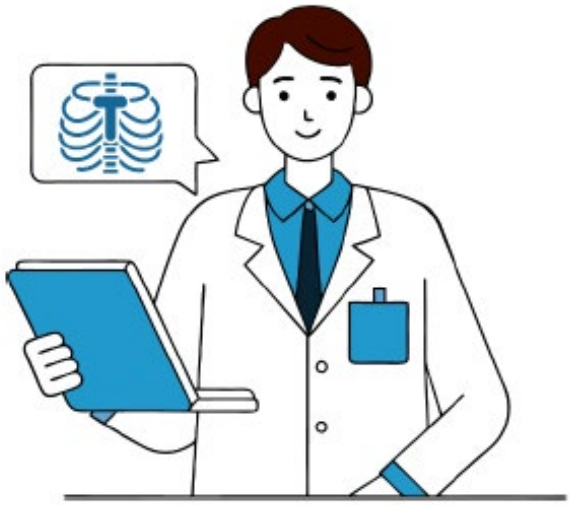

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Image 21 of 44
3

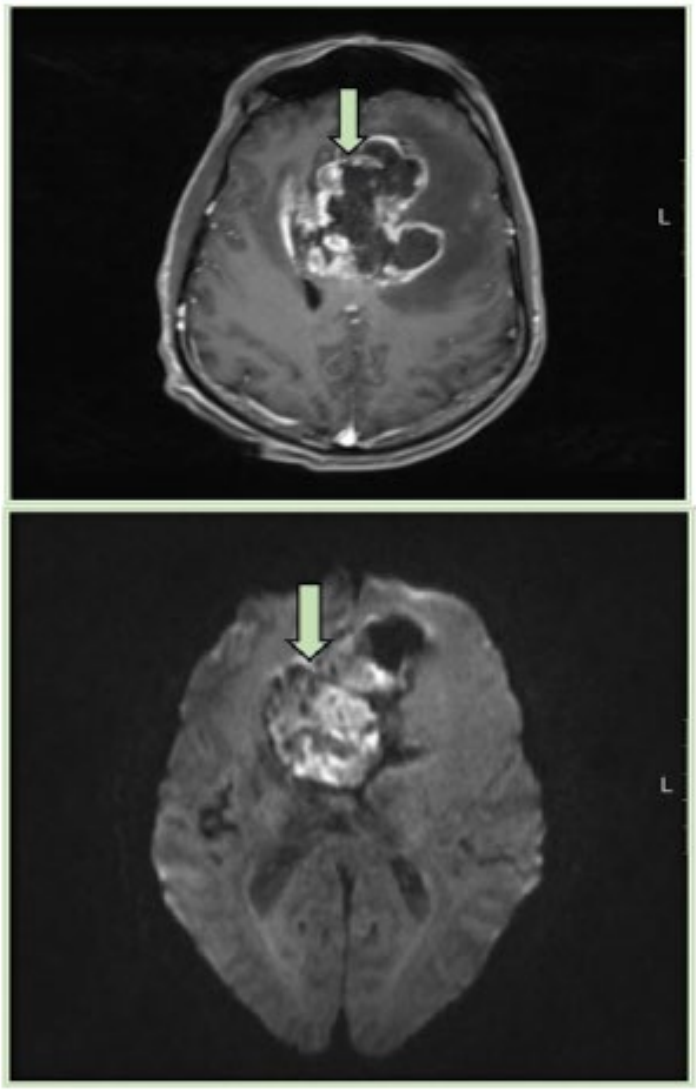
Think carefully about the imaging findings...



Pay attention to the mass location, enhancement pattern, and surrounding edema.



Diagnosis: Glioblastoma



Radiological findings

Non-enhanced CT brain shows central frontal heterogeneous lesion that crosses the corpus callosum (arrow) with bifrontal vasogenic edema. MRI shows large heterogeneous signal intensity mass centered in the genu of the corpus callosum (arrow), both frontal lobes more on the left side surrounded by area of vasogenic edema and causing midline shift to the right by about 1 cm. The mass shows peripheral irregular enhancement in post contrast studies and central area of restricted diffusion.

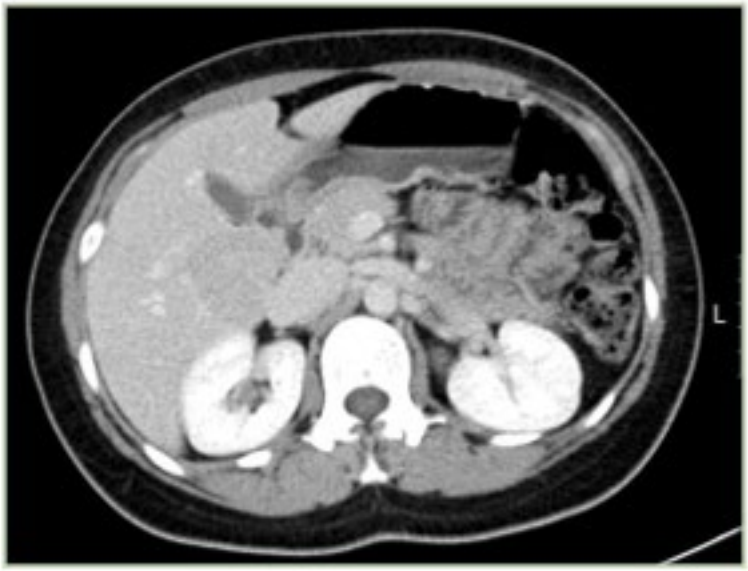
Teaching point

Glioblastoma is surrounded by vasogenic-type edema, which in fact usually contains infiltration by neoplastic cells.

Quiz 5: 35-year-old female - Abdominal pain



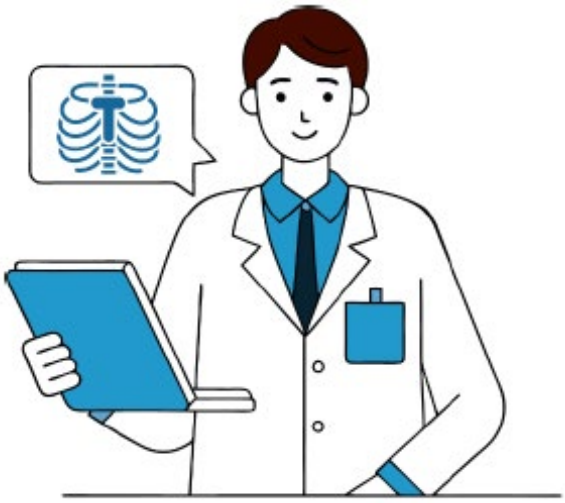




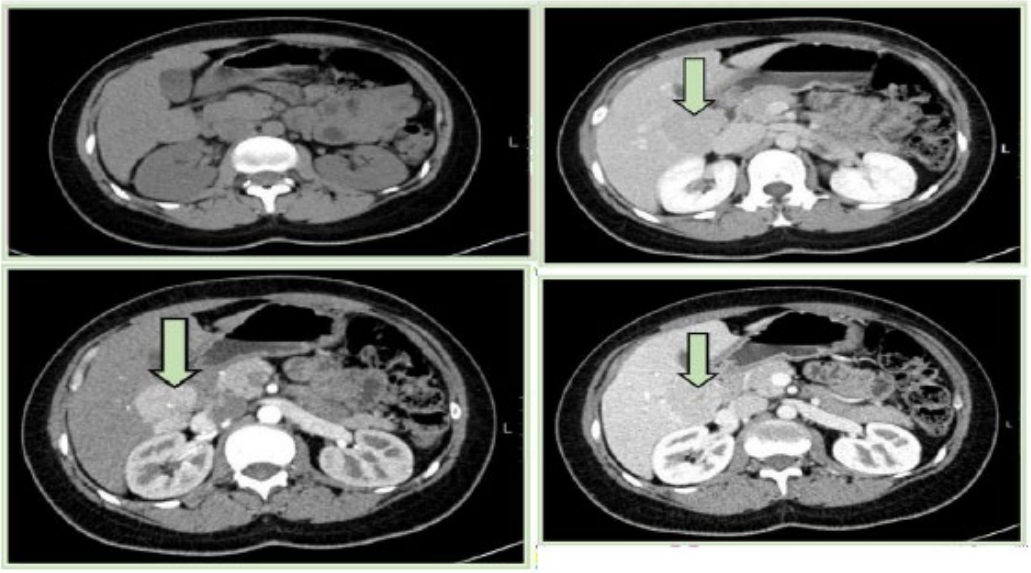
Trust the process… you'll see it



The center holds the answer.



Diagnosis: Focal nodular hyperplasia



Radiological findings

There is an isodense mass with lobulated margin noted at right hepatic lobe with bright contrast enhancement in the arterial phase (arrow). Features are most likely compatible with focal nodular hyperplasia.

Key teaching point

The main differential diagnosis for FNH is fibrolamellar HCC. Both FNH & FL-HCC commonly have a hypointense central scar. The FNH scar will be bright on T2.

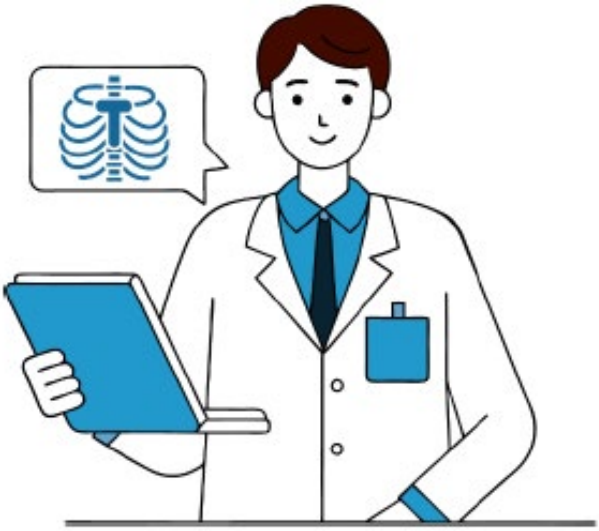
Quiz 6: 29-year-old female - Fever and abdominal pain



Pay close attention to the subtle signs...



The appendix area, but the appendix is innocent.



Diagnosis: Ileocecal tuberculosis



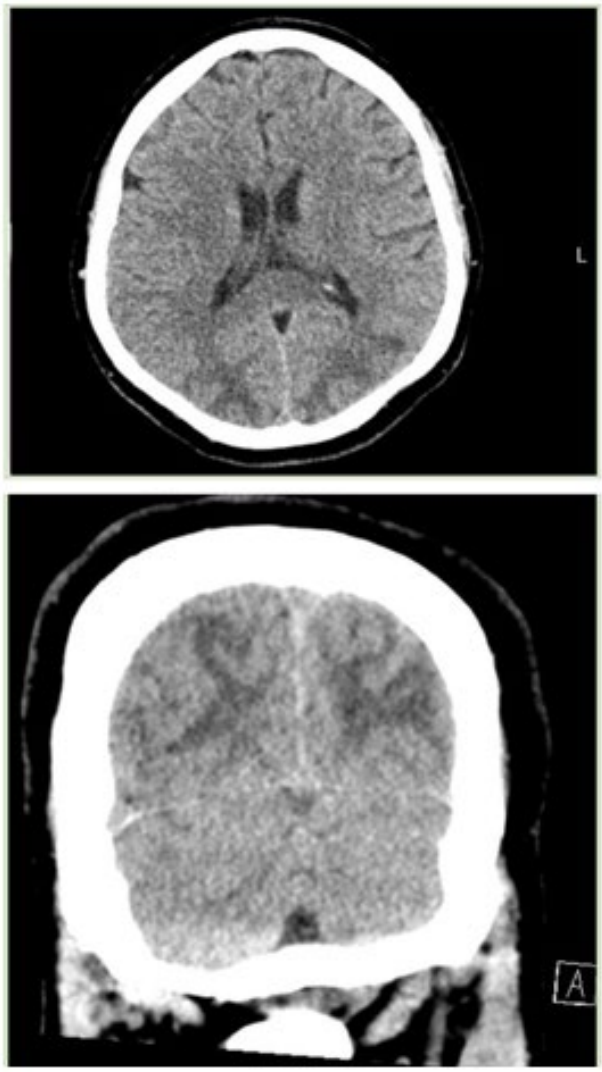
Radiological findings

There is circumferential wall thickening involving the terminal ileum, cecum and ascending colon associated (circle) with multiple mesenteric necrotic lymph nodes(arrows).

Teaching point

The ileocecal region is the most commonly affected site; however, it can involve any part of the gastrointestinal tract.

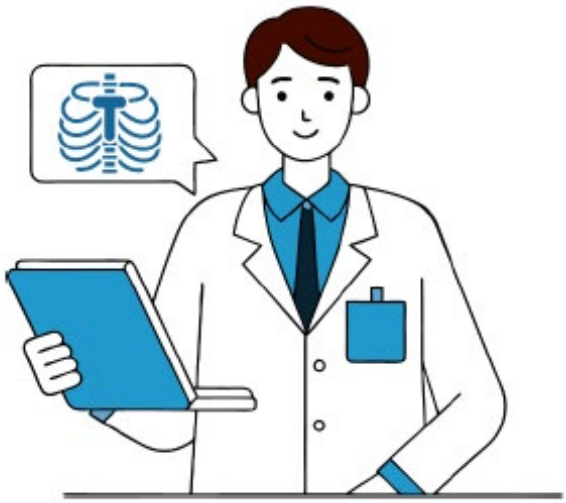
Quiz 7: 30-year-old female – Headache



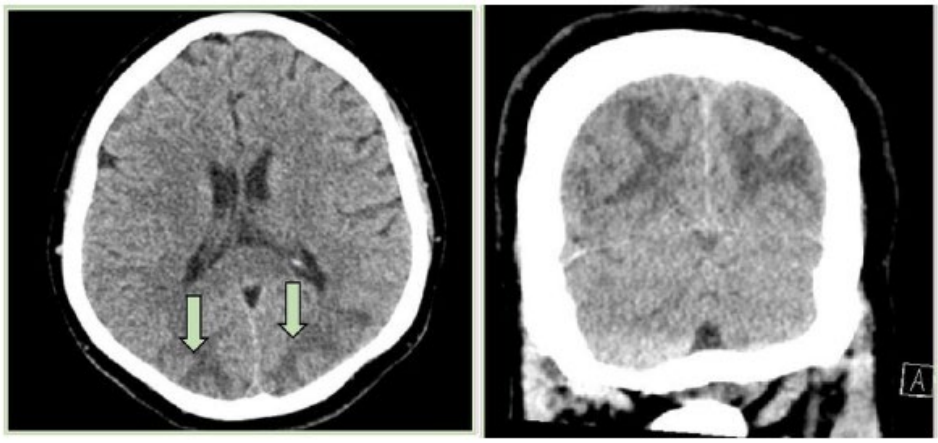
This one requires careful analysis…

Hint

Reversible… if you catch it before it gets dramatic.



Diagnosis: Posterior reversible encephalopathy syndrome



Radiological findings

There is bilateral symmetrical subcortical white matter vasogenic edema both occipital lobes (arrow). The remainder of the brain parenchyma is preserved.

Key reaching point

Posterior reversible encephalopathy syndrome is most commonly thought to occur secondary to marked hypertension.

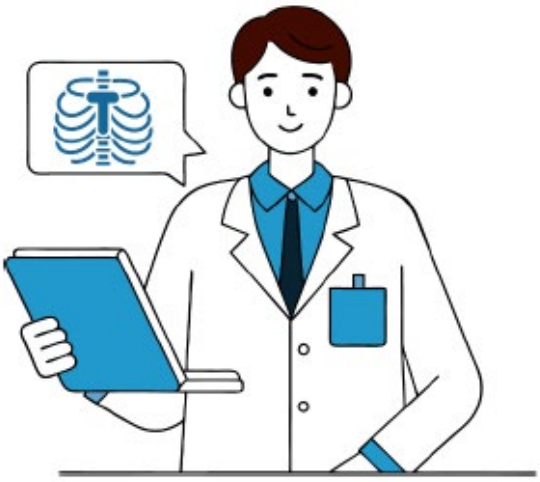
Quiz 8: Premature female neonate - Abdominal distention



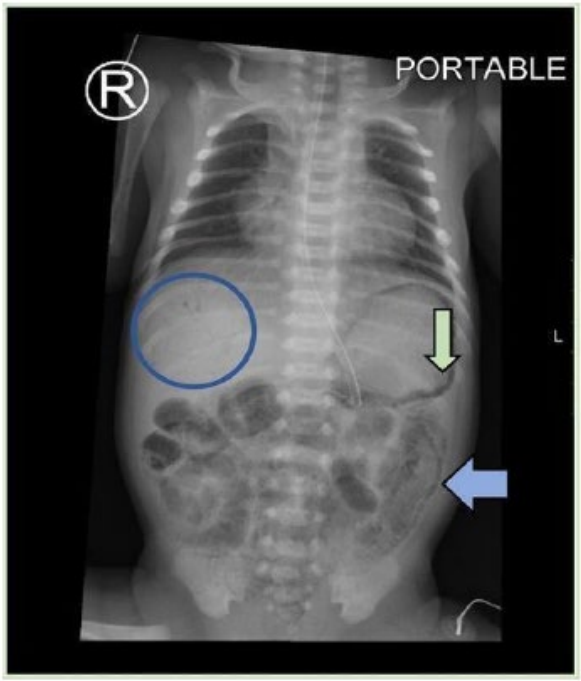
Are you sure about your diagnosis?

Hint

Air where only tissue should be.



Diagnosis: Necrotizing enterocolitis



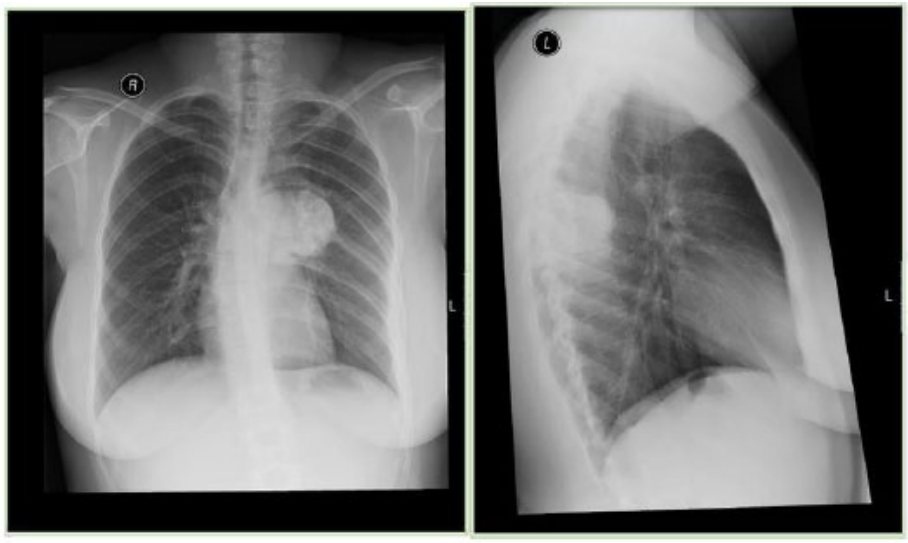
Radiological findings

Nasogastric tube is noted in satisfactory position. Pneumatosis portalis is seen (blue circle). There is diffuse pneumatosis intestinalis (blue arrow) associated with intramural air seen within the gastric wall (green arrow).

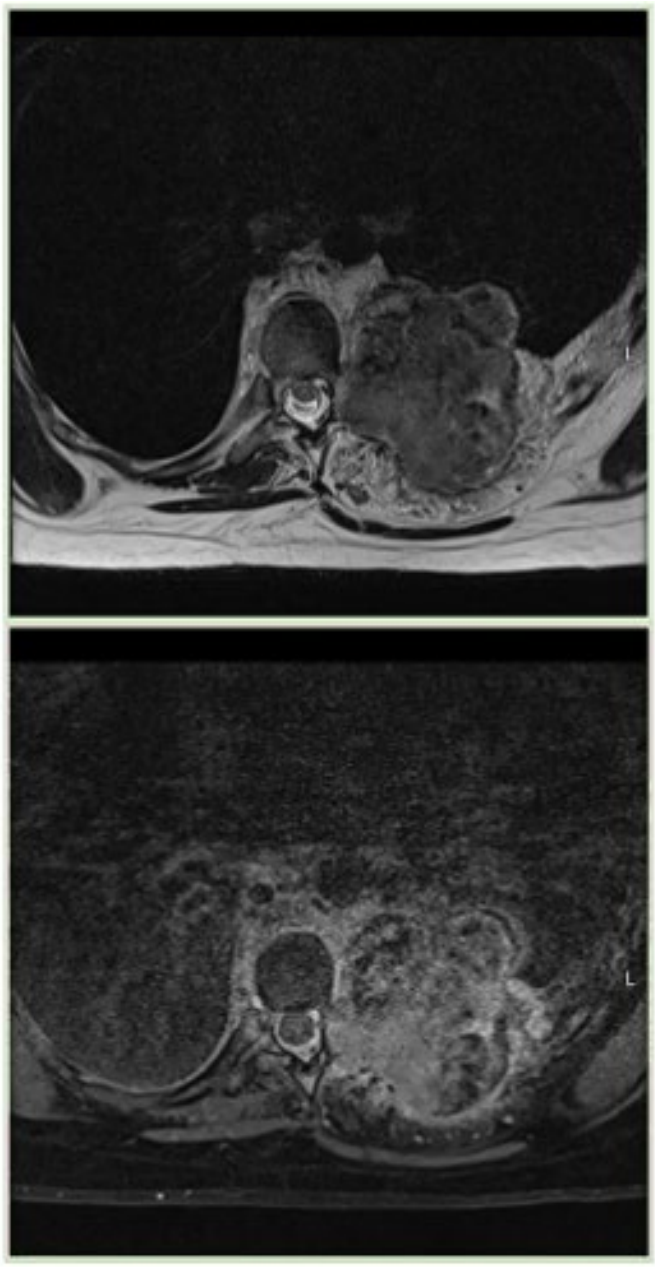
Key teaching point

Necrotizing enterocolitis is the most common gastrointestinal condition in premature neonates. It is potentially life-threatening with significant associated morbidity.

Quiz 9: 22-year-old male/female - Insidious onset of dull pain, worse at night,with minimal response to salicylates



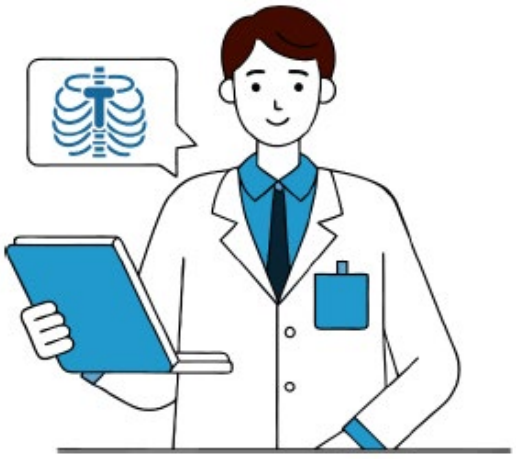




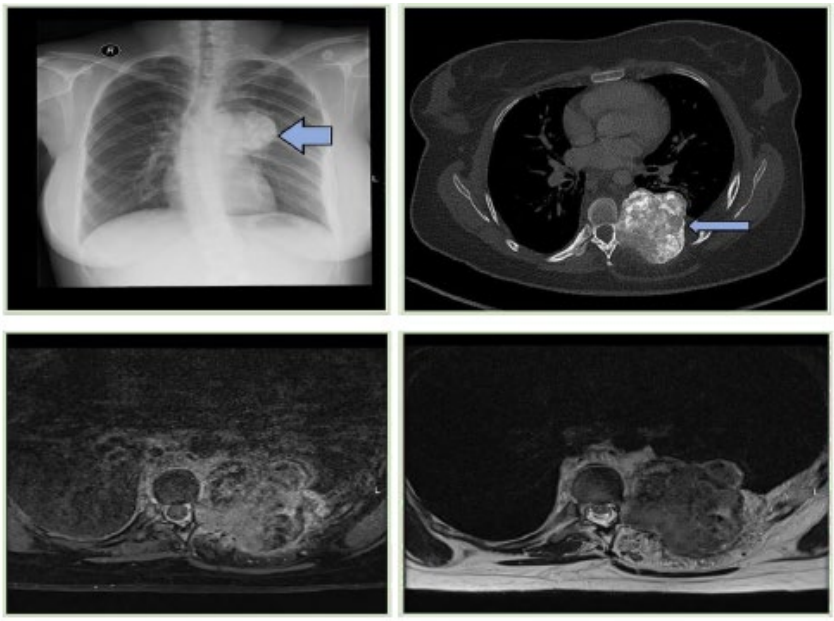
Can you spot the key finding?

Hint

Young patient, persistent pain… something’s growing.



Diagnosis: Osteoblastoma



Radiological findings

Chest x-ray shows an expansile lytic/sclerotic bone mass centered on the posterior mediastinum (arrow). The mass causing dextroscoliosis. CT reveals heterogenous expansile lytic lesion with internal sclerotic component mass centered on the left posterior element of thoracic vertebral body (arrow). The mass shows heterogenous enhancement on T1 post contrast image (arrow). The mass is separable from left exiting nerve root.

Key teaching point

The most common location of osteoblastoma is posterior element of spinal column.

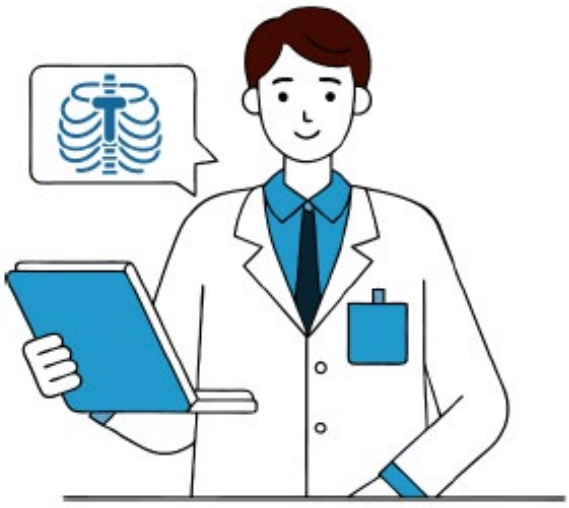
Quiz 10: 15-year-old female – Pain



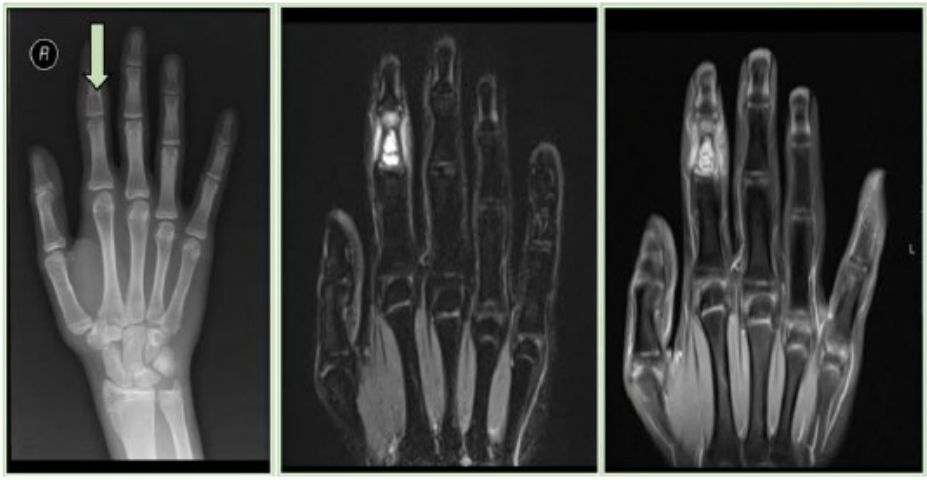
This is going to be a challenging one!



Focus on the composition of the mass.



Diagnosis: Enchondroma with pathological fracture



Radiological findings

Right hand X-ray demonstrates a fracture through an abnormality of the metaphyseal region of the second middle phalange characterized by a non-aggressive lytic lesion expanding the local bone. No periosteal reaction. Small rings and arcs calcifications within the lesion matrix are identified. MRI shows sharply-defined diaphyseal-metaphyseal lesion. It demonstrates high T2 signal intensity with enhancement on post contrast image. Surrounding edematous changes related to fracture are noted.

Key learning points

Enchondromas increase the risk of pathologic fractures and has chance of malignant transformation into chondrosarcoma.

Quiz 11: 50-year-old male - Chest pain

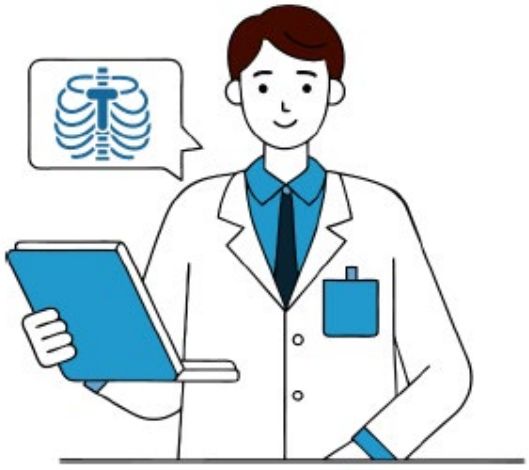



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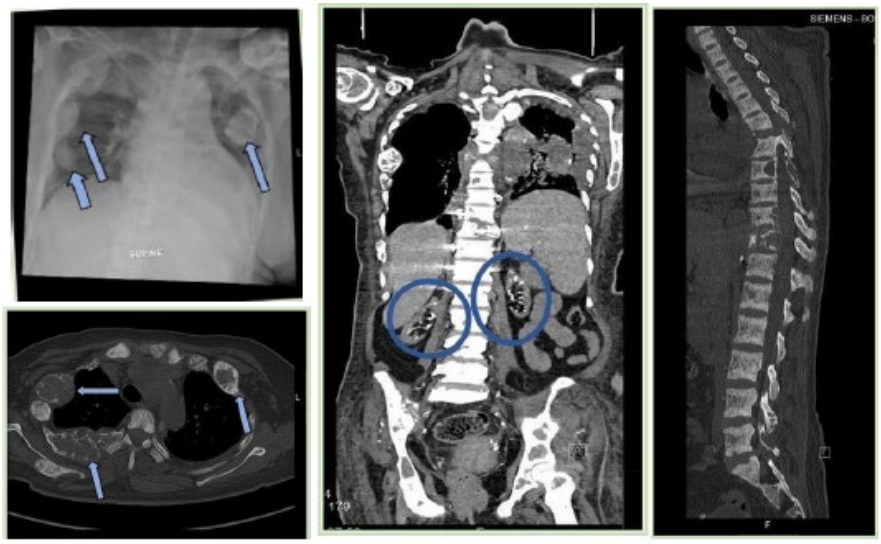
Ready for the answer?



Multiple sites one culprit.



Diagnosis: Brown tumor



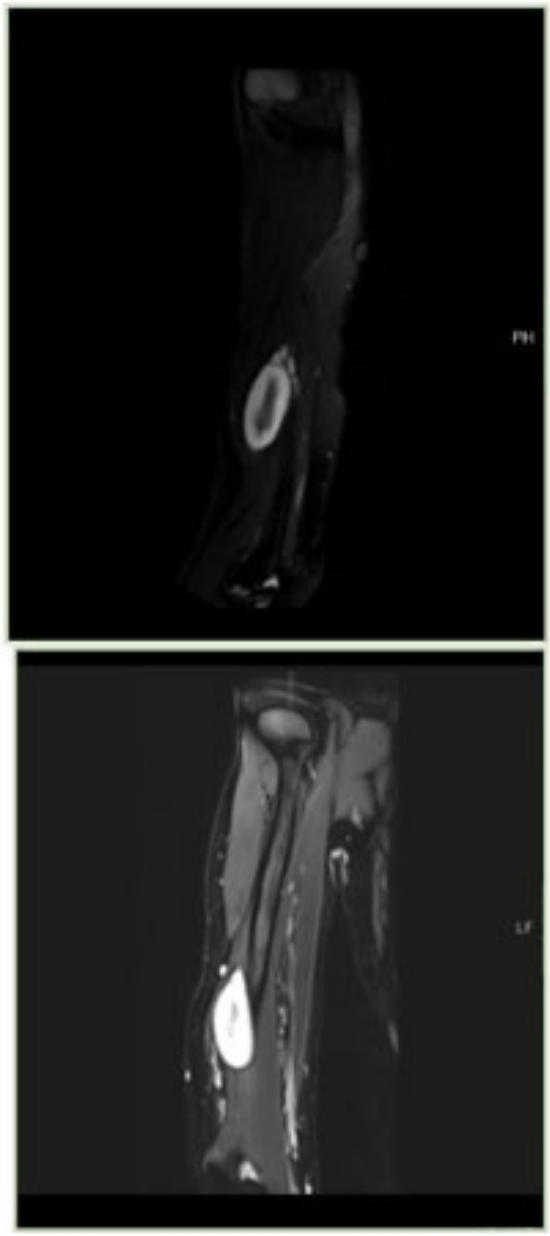
Radiological findings

Chest x-ray reveals multiple heterogenous predominantly lytic nonaggressive looking lesions with internal sclerotic components projecting over bilateral ribs and left clavicle (blue arrows). CT chest and bone window redemonstrated multiple bilateral nonaggressive looking heterogenous predominantly lytic with internal sclerotic components rib lesions with no periosteal reaction (blue arrows). Atrophic kidneys are noted (blue circles). The visualized spine shows rugger jersey appearance.

Key teaching point

Brown tumor is a benign lytic lesion seen in patients with hyperparathyroidism, caused by increased osteoclast activation.

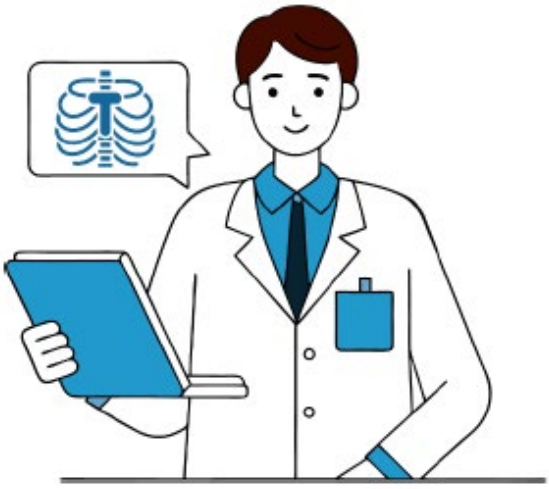
Quiz 12: 40-year-old male - Focal swelling seen on the right arm



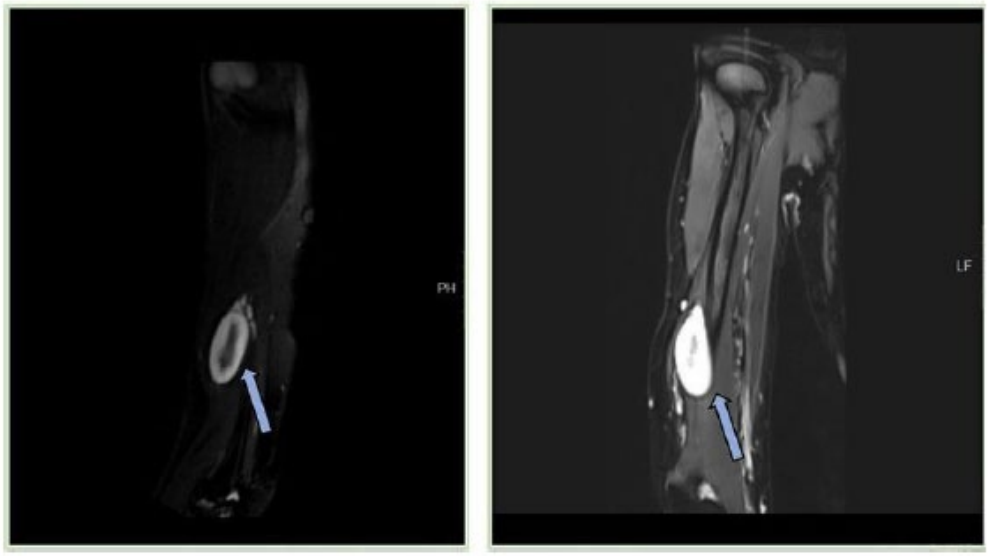
Trust the process… you'll see it



Are your nerves triggered yet?



Diagnosis: Neurofibroma



Radiological findings

There is well-demarcated heterogenous lesion seen at lateral mid portion of right arm (arrow). The lesion shows centrally low STIR and peripherally high stir signal intensity with heterogenous avid enhancement on postcontrast images. No invasive to adjacent structure.

Key learning points

The target sign of peripheral nerve sheath tumor is a lesional pattern of T2 signal on MRI consisting of a central area of low intensity surrounded by a T2 hyperintense rim. It is most commonly associated with localized neurofibroma.

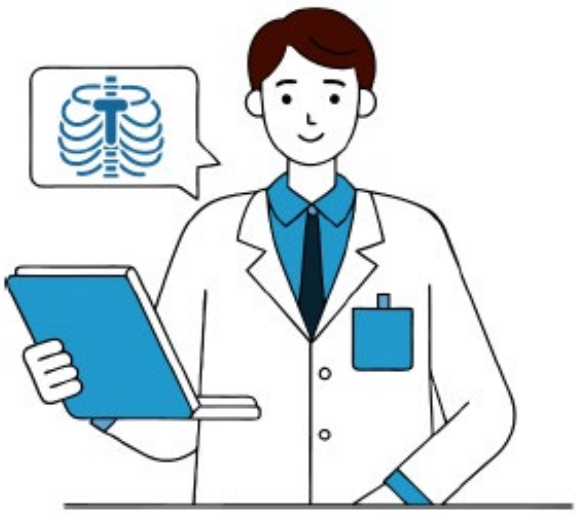
Quiz 13: 40-year-old female - Low back pain



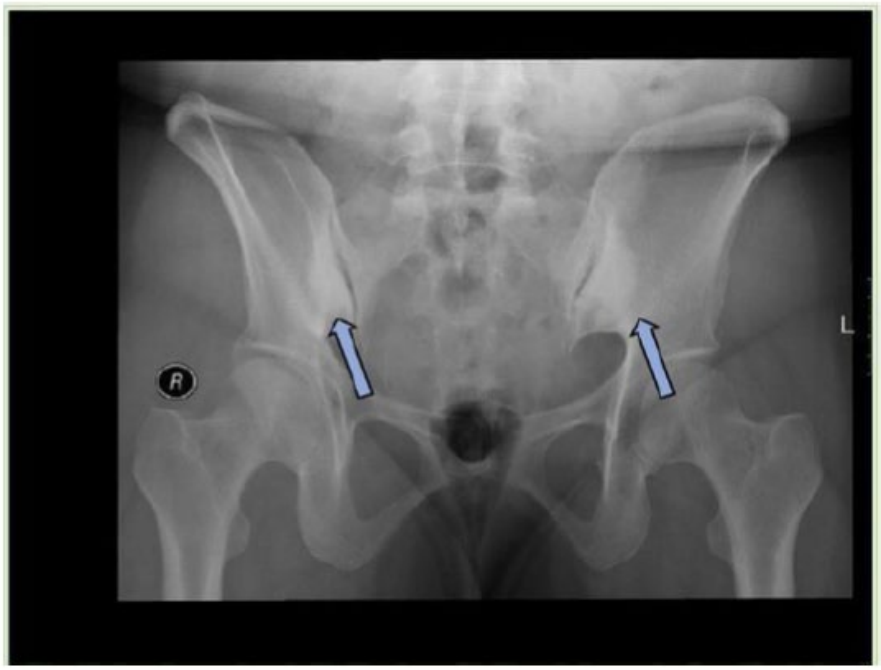
Take your time...

Hint

Finding that loves both sides equally A.



Diagnosis: Osteitis condensans ilii



Radiological findings

The iliac side of bilateral sacroiliac joints demonstrate well demarcated symmetrical triangular sclerosis (arrow).

Teaching point

Lack of sacral involvement or joint space narrowing is considered diagnostic and may obviate the need for further imaging.

Quiz 14: 14-year-old female - Lower abdominal pain

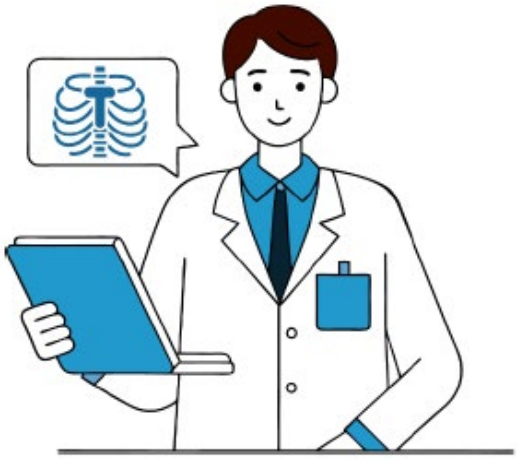




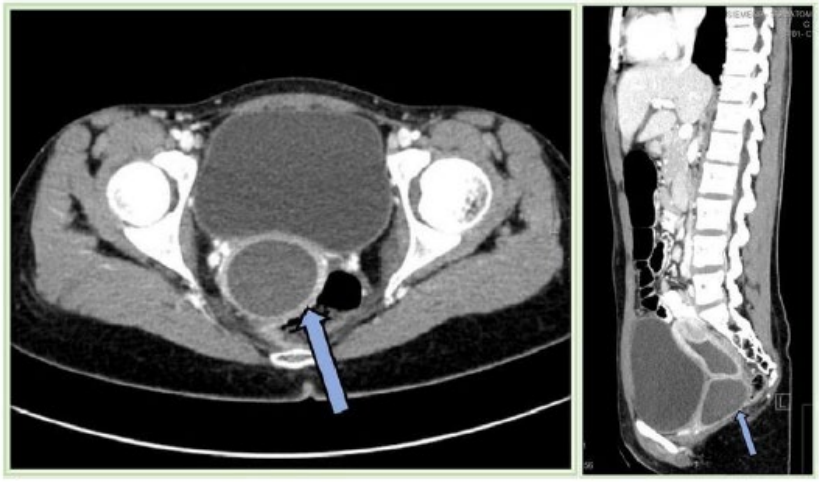
Do you know the answer?



Something is building up…



Diagnosis: Hematometrocolpos



Radiological findings

There is a fluid-filled uterus and cervical cavity (arrow). No obstructing mass.

Key learning points

Hematometrocolpos refers to a blood-filled distended uterus and vagina usually due to an anatomical mechanical obstruction precluding the evacuation of the menstrual blood.

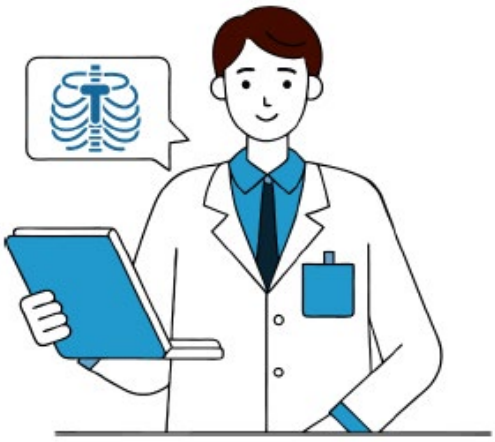
Quiz 15: 22-year-old male – Pain



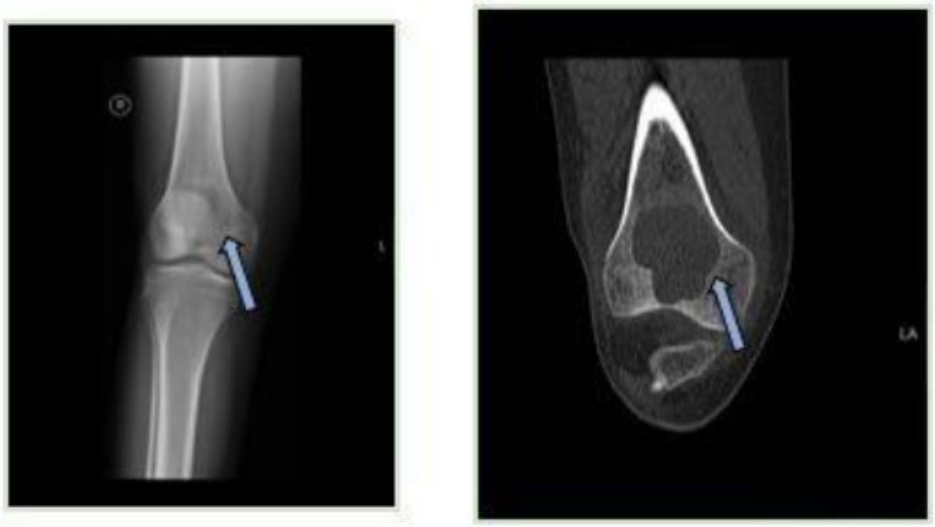
Pay close attention to the subtle signs...



The margins are telling you something.



Diagnosis: Giant cell tumor



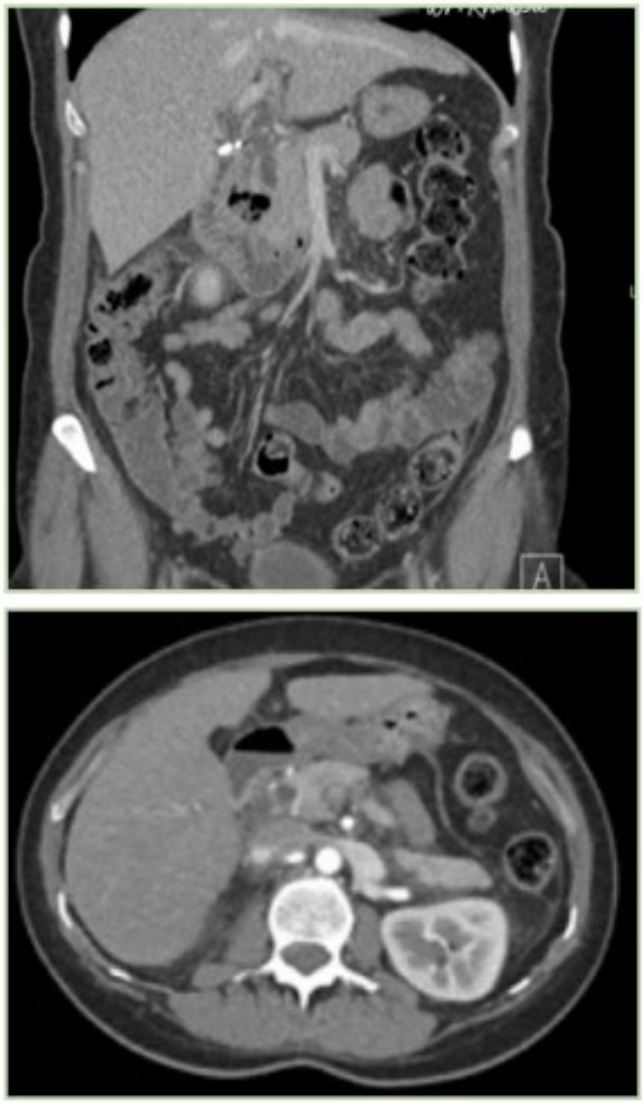
Radiological findings

There is well-demarcated lytic lesion with nonsclerotic margin involving the distal metaphysis extending to the epiphysis of right femur (arrow). No periosteal reaction or cortical breakthrough. The growth plate is closed.

Teaching point

Malignant transformation occurs in <10%.

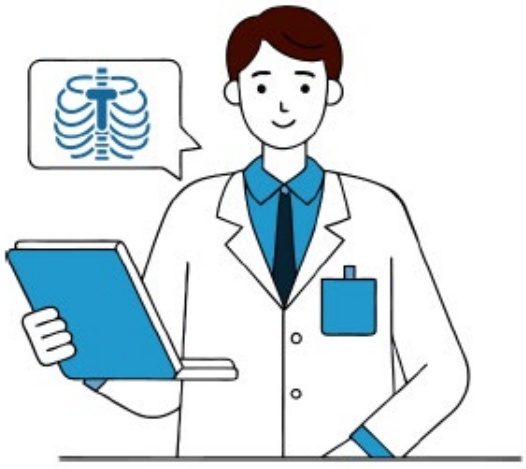
Quiz 16: 50-year-old female - Epigastric pain



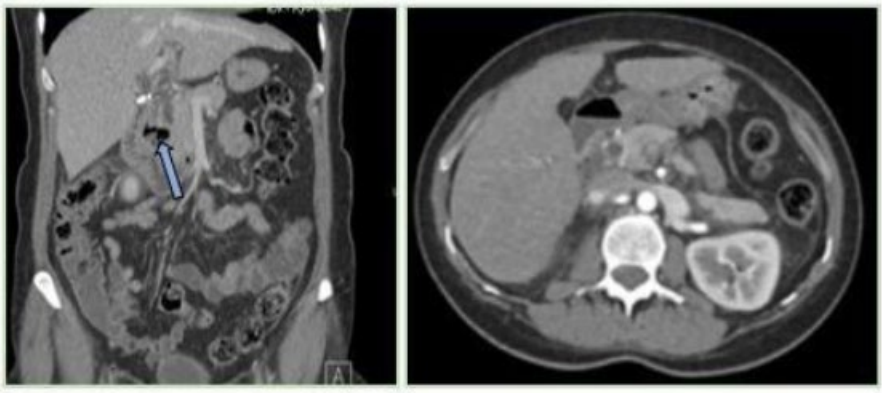
Ready for the answer?



Obstruction without a stone to blame.



Diagnosis: Lemmel syndrome



Radiological findings

There is large periampullary diverticulum (arrow) exerting dilatation of common bile duct and peripancreatic fat stranding.

Teaching point

Lemmel syndrome is defined as obstructive jaundice caused by a periampullary duodenal diverticulum compressing the intrapancreatic common bile duct with resultant bile duct dilatation.

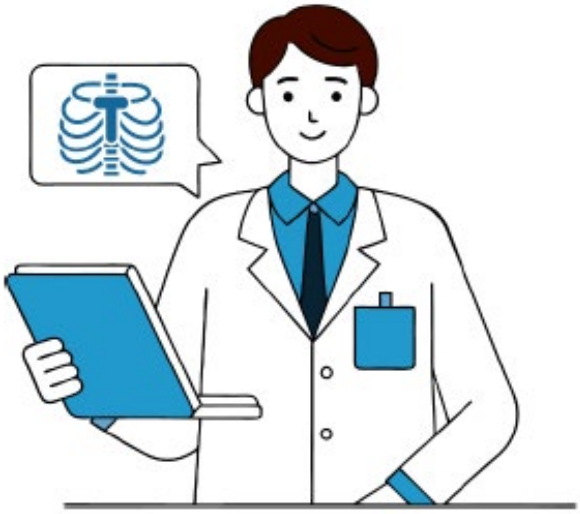
Quiz 17: 16-year-old male – Cough



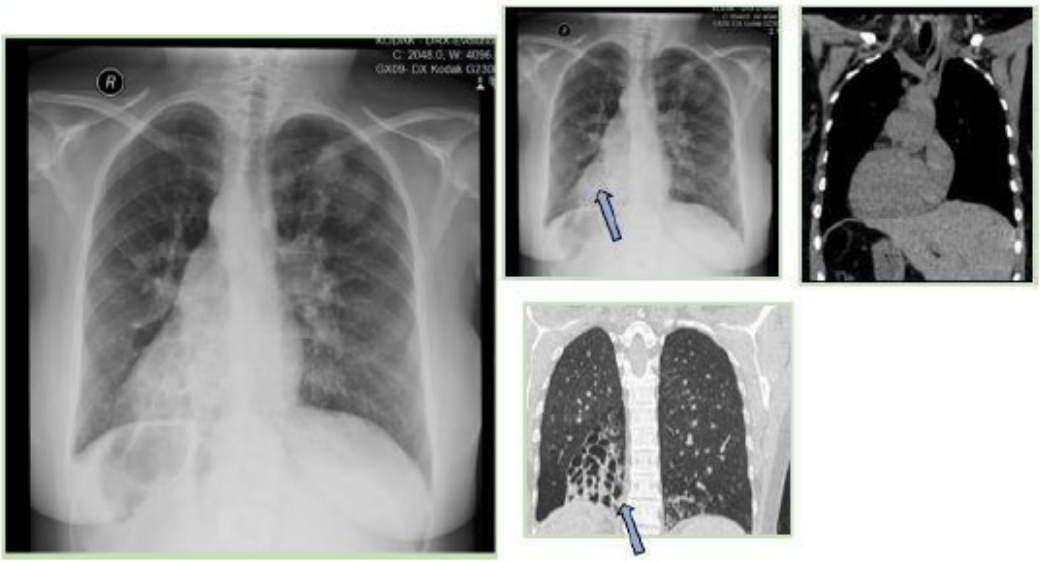
Let’s see if you got it right...



Things aren’t exactly where you expect them…



Diagnosis: Kartagener syndrome



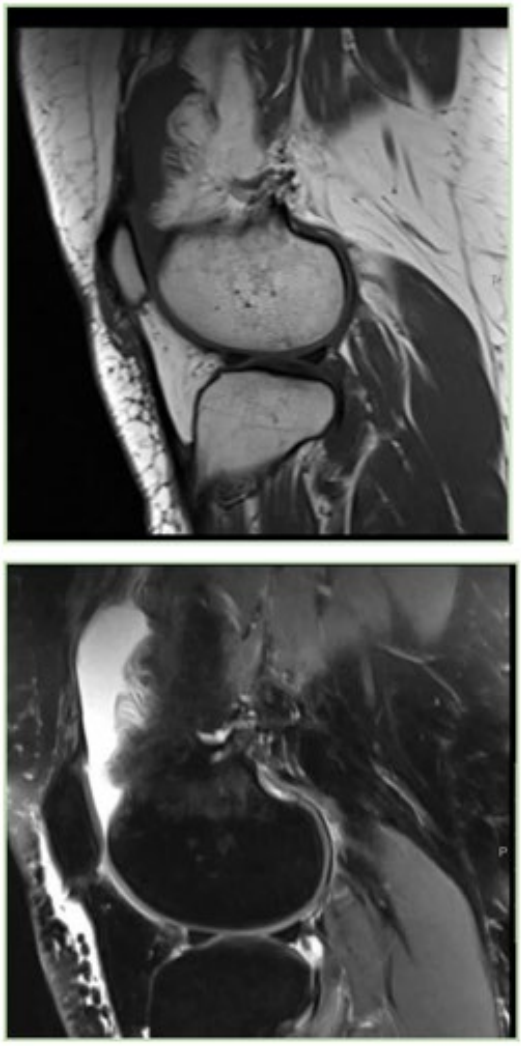
Radiological findings

Chest X-rays shows situs inversus totalis with right lower lobe bronchiectasis (arrow).

Teaching point

Kartagener syndrome is characterized by the clinical triad of situs inversus, bronchiectasis, chronic sinusitis and/or nasal polyposis.

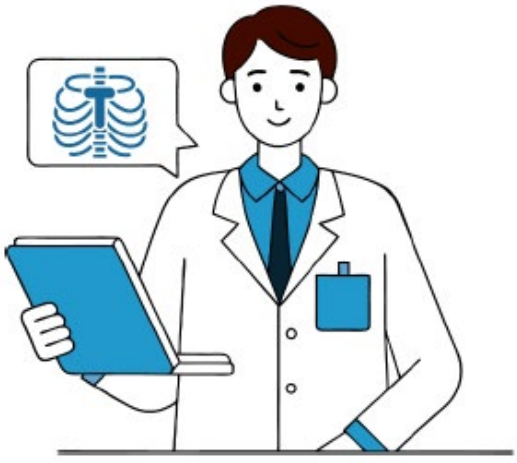
Quiz 18: 55-year-old male - Joint swelling with variable arthralgia



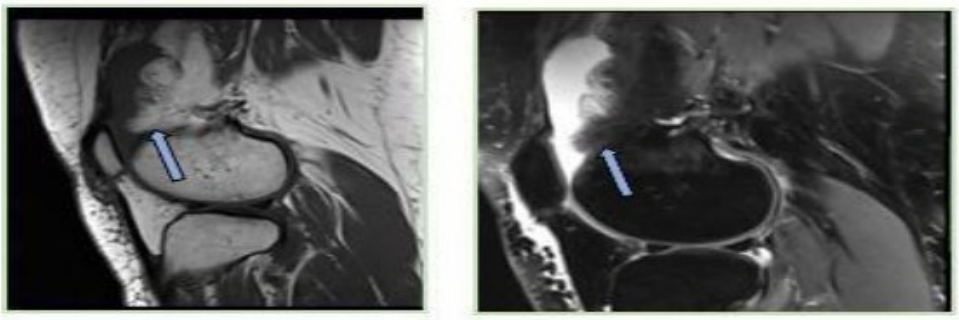
Are you sure about your diagnosis?



Not everything in the joint is fluid.



Diagnosis: Lipoma arborescens



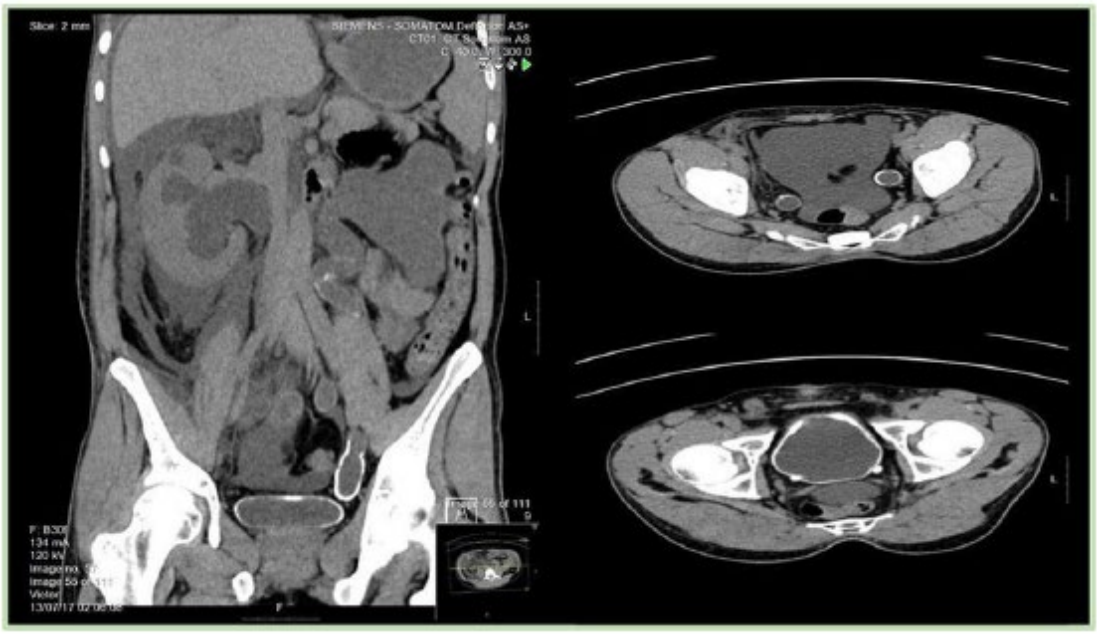
Radiological findings

Fat containing frond like projection noted in the suprapatellar bursa (arrow) associated with joint effusion.

Teaching point

The knee is the commonest affected joint (particularly at the suprapatellar bursa), and involvement is usually unilateral.

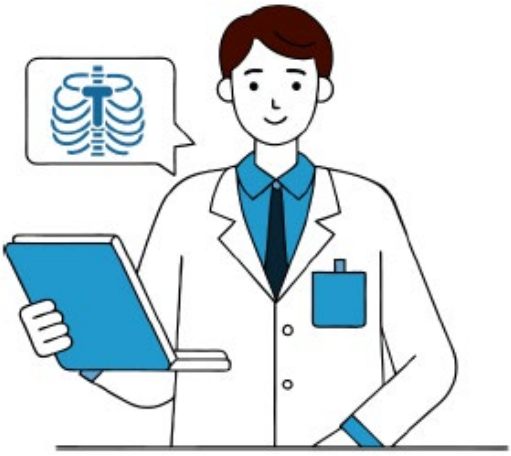
Quiz 19: 40-year-old male - Bilateral flank pain



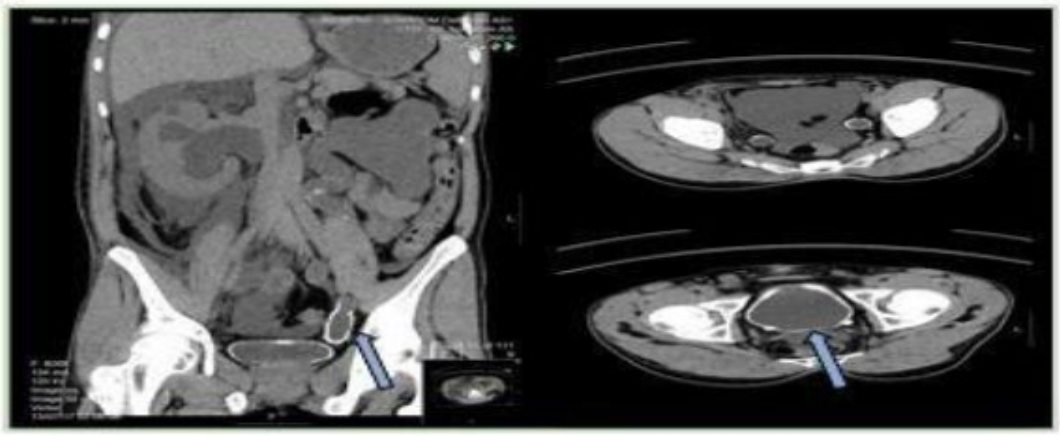
Don’t rush—examine all the details!



A parasite leaves its signature.



Diagnosis: Schistosomiasis



Radiological findings

There is circumferential curvilinear wall thickening of the urinary bladder and both ureters (arrow) associated with marked hydro-ureteronephrosis worsening on the left side.

Teaching point

Imaging findings mirror the pathologic course. In the acute phase, nodular bladder wall thickening is observed at urography or cross-sectional imaging. The chronic phase is characterized by a contracted, fibrotic, thick-walled bladder with calcifications.

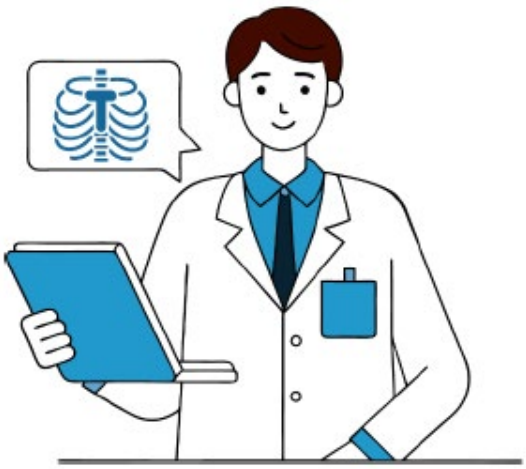
Quiz 20: 34-year-old male - Episode of hypertension crisis with left flank pain



Think carefully about the imaging findings...

Hint

The bladder wall isn’t just thick… look closer.



Diagnosis: Paraganglioma of urinary bladder



Radiological findings

Intramural irregular solid well-demarcated mass in the left posterolateral urinary bladder wall (blue arrow). The mass shows avid enhancement and exerting significant left hydroureteronephrosis. There is enlarging/enhancing left external iliac lymph node (green arrow).

Teaching point

Urinary bladder paragangliomas represent 1% of paragangliomas and less than 0. 05% of all bladder tumors.

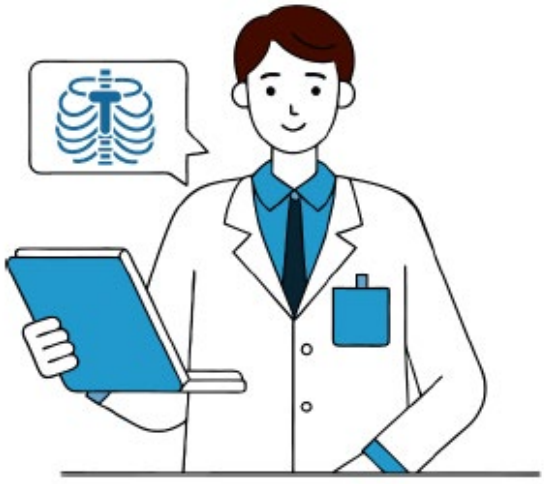
Quiz 21: 71-year-old male presented with weakness of both lower limbs and weight loss



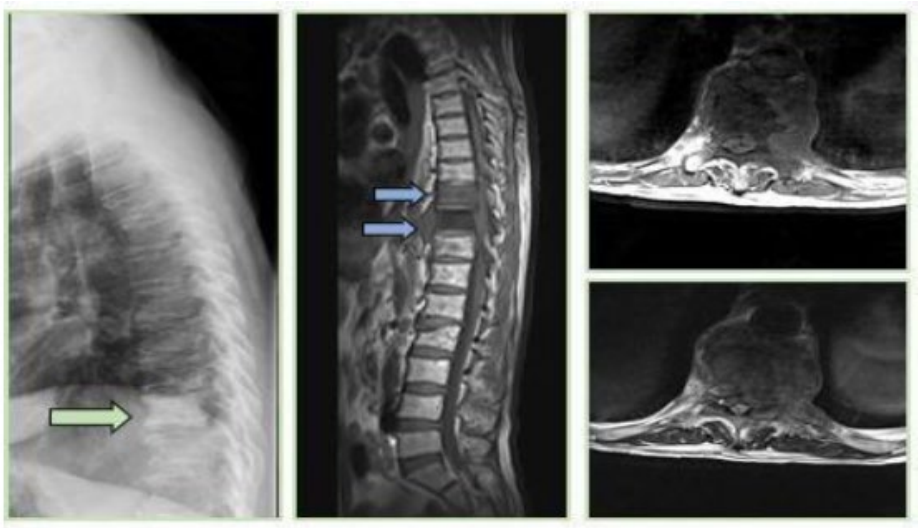
Don’t rush… the answer isn’t going anywhere



Not a simple bone lesion anymore.



Diagnosis: Metastasis



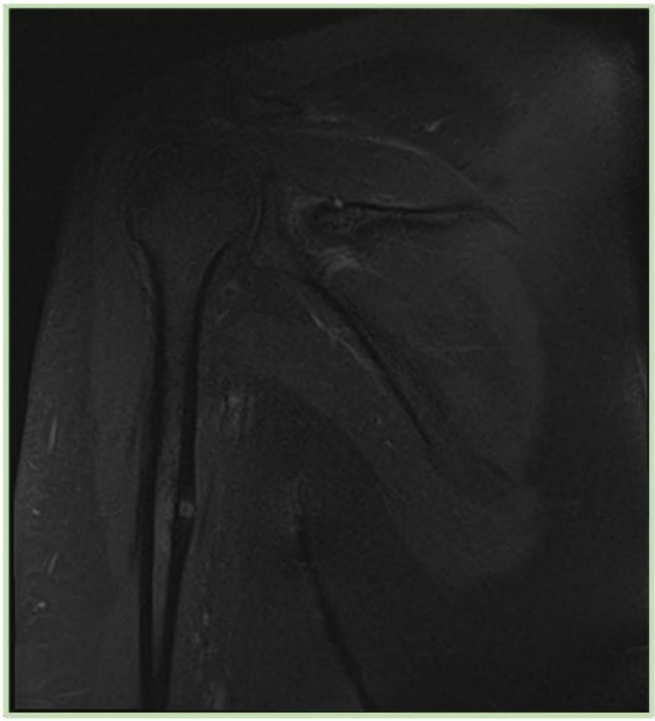
Radiological findings

Lateral radiograph of the spine demonstrates diffuse sclerotic change of the T10 vertebral body as depicted by the green arrow. Sagittal T1 of the thoracolumbar spine demonstrates T1 hypointense changes noted involving the T9 and T10 vertebral body as depicted by the blue arrows. Axial T1 and T2-weighted images demonstrate the presence of large paravertebral soft tissue mass.

Teaching point

Sclerotic metastatic changes are most commonly seen with prostatic carcinoma in males and breast cancer in females. The other differential diagnosis for this appearance could also be seen with lymphoma.

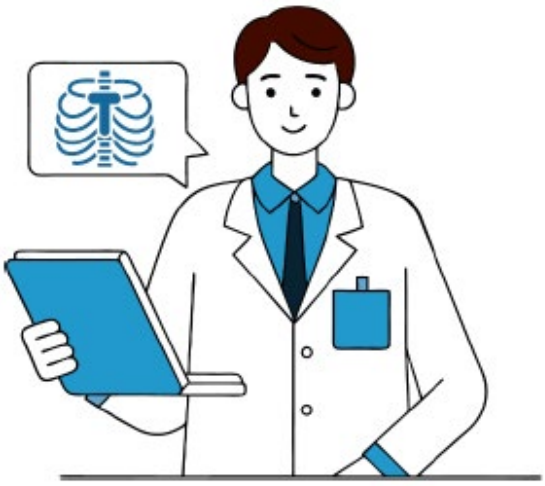
Quiz 22: 35-year-old-female with right arm pain



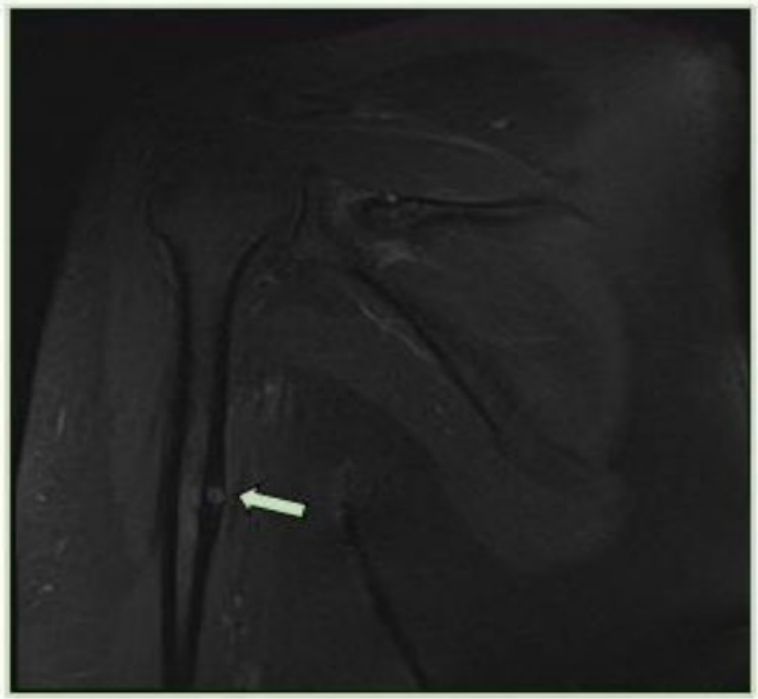
Don’t rush—examine all the details!

Hint

Small focus… big reaction.



Diagnosis: Osteoid osteoma



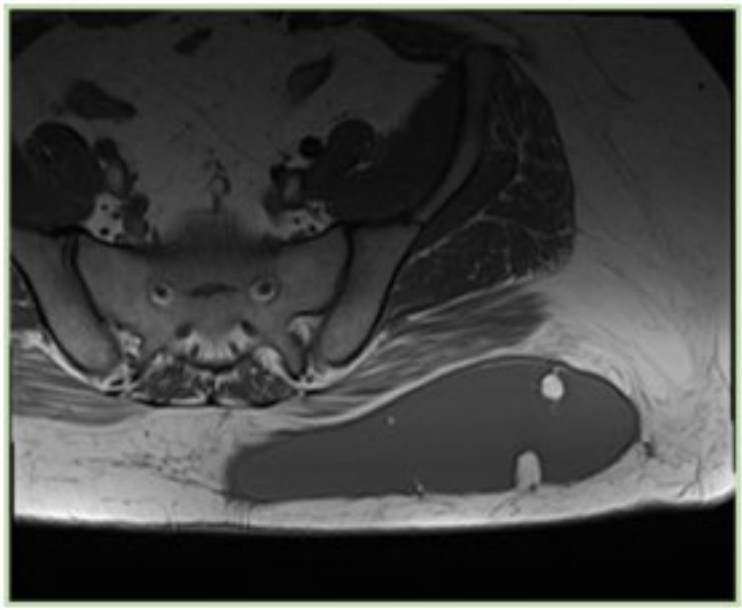
Radiological findings

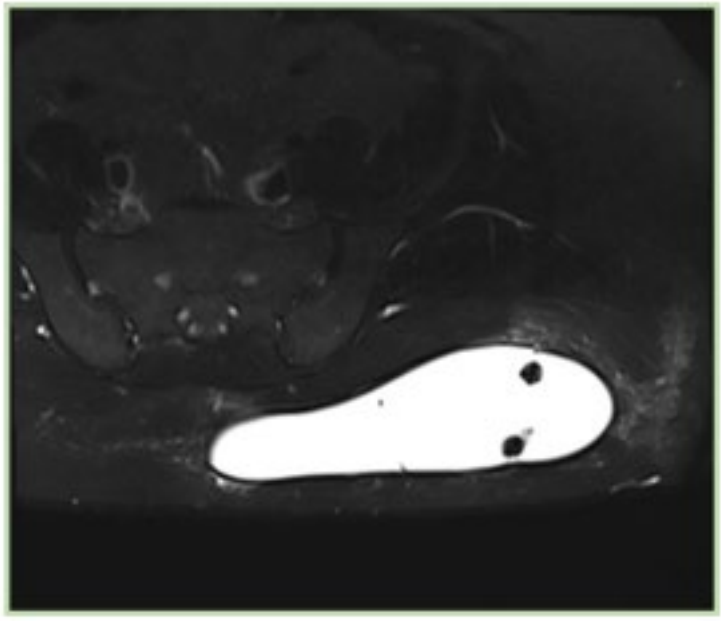
Coronal T1 fat-sat sequence demonstrates the presence of an intracortical rounded nidus within the medial cortex of the mid shaft of the humerus with marked periosteal reaction (green arrow). The findings are consistent with an osteoid osteoma.

Teaching point

Osteoid osteoma is a benign lesion which presents usually with night pain that is relieved with NSAIDs.

Quiz 23: 43-year-old male with left lower back swelling after a remote history of fall on the back

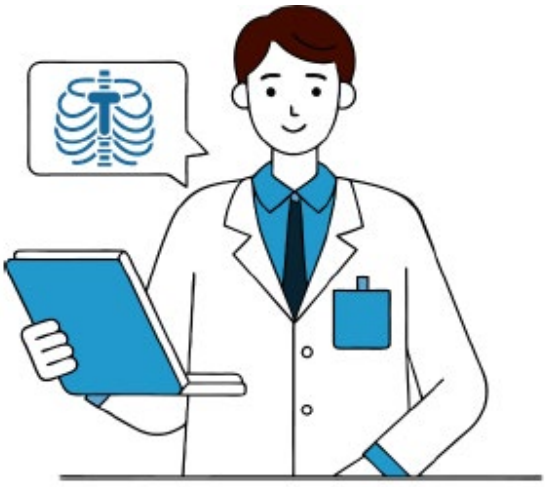




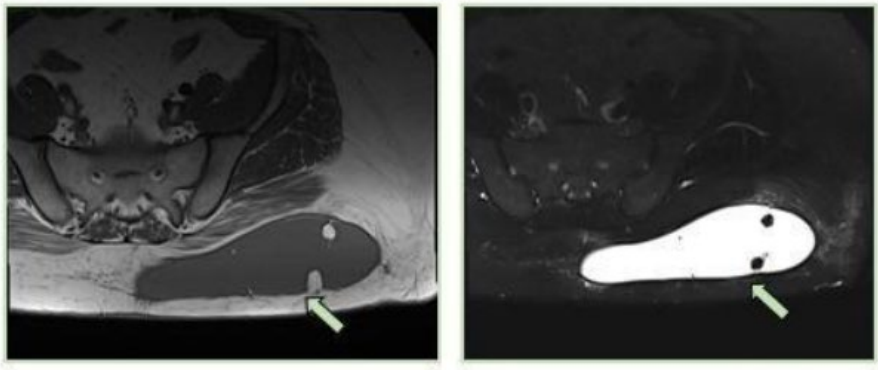
Pause. Think. You got this



A space where tissue should have been.



Diagnosis: Morel Lavallee lesion



Radiological findings

Axial T1 (left side) and axial T2 fat-sat (right side) demonstrating the presence of an encapsulated well defined subcutaneous soft tissue mass in the left gluteal region (green arrows) demonstrating T1 hypointense signal and T2 hyperintense signal containing globules of fat. The findings are most consistent with a Morel Lavallee lesion.

Teaching point

Morel Lavallee lesions are hemolymphatic collections caused by a degloving injury of the subcutaneous tissues.

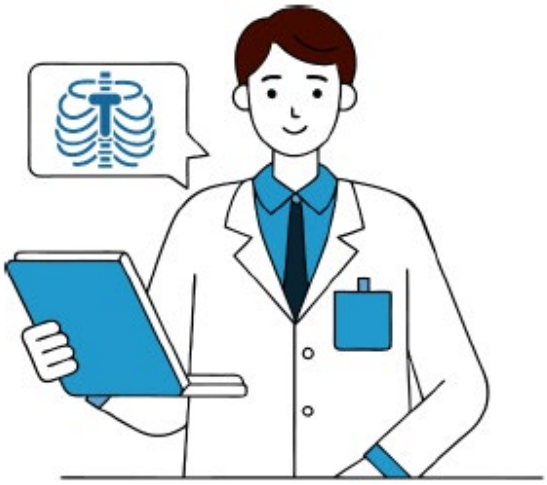
Quiz 24: A 37 Years old male has bilateral hip pain especially in left side



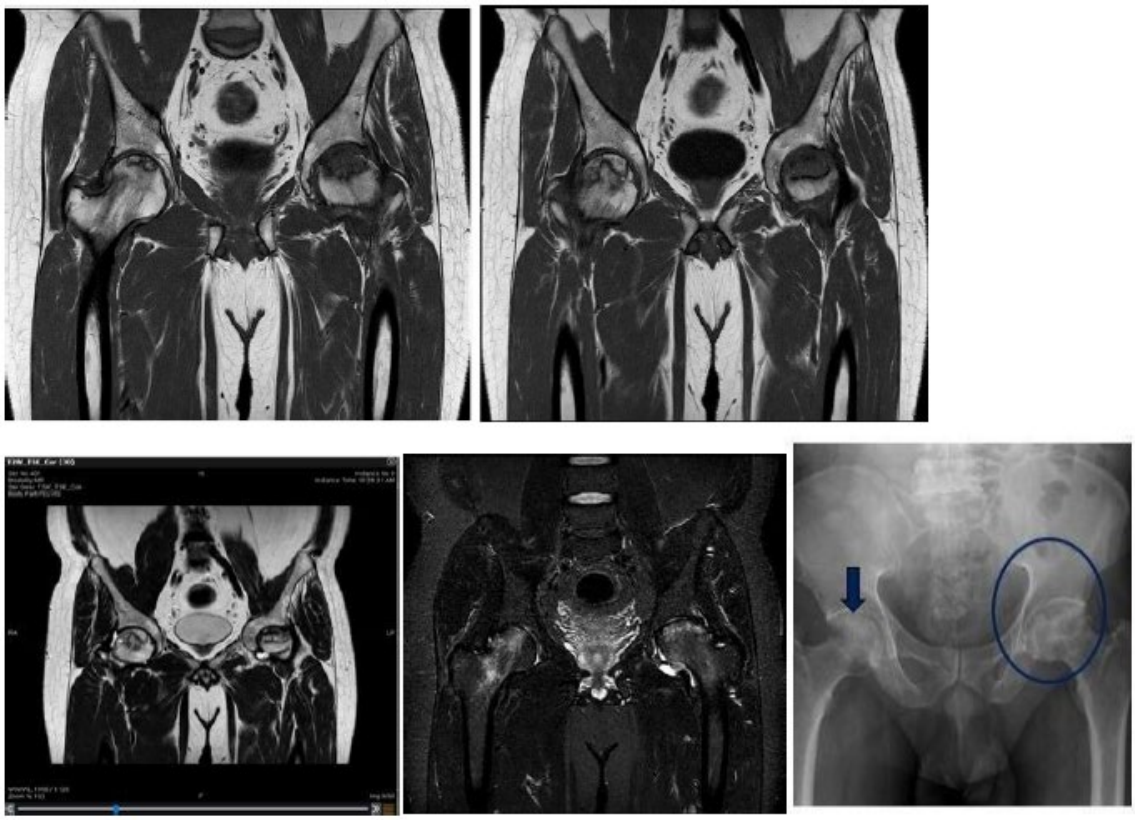
Pay close attention to the subtle signs...



Look again… this cyst has a story.



Diagnosis: Avascular necrosis



Radiological findings

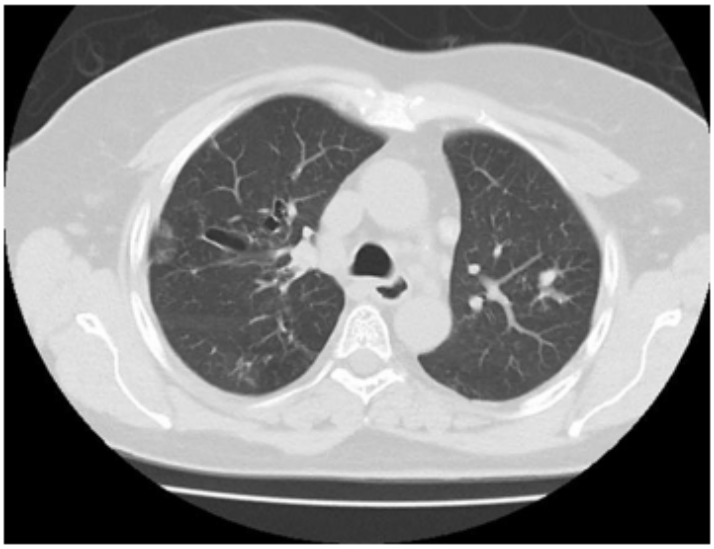
The left femoral head demonstrates collapse, joint space narrowing, subchondral sclerosis, and secondary osteoarthritis, in keeping with Grade 4 AVN (circle). The right femoral head demonstrates mild flattening, subtle joint space narrowing, and early subchondral sclerosis, in keeping with Grade 2-3 AVN (arrow).

Key learning points:

AVN grading (1-4):

- Grade 1: Normal X-ray; MRI shows early changes.
- Grade 2: Sclerosis and cysts; no collapse.
- Grade 3: Subchondral collapse; early joint space narrowing.
- Grade 4: Flattened femoral head; joint space narrowing and secondary osteoarthritis.

Quiz 25: 43-year-old male with SOB



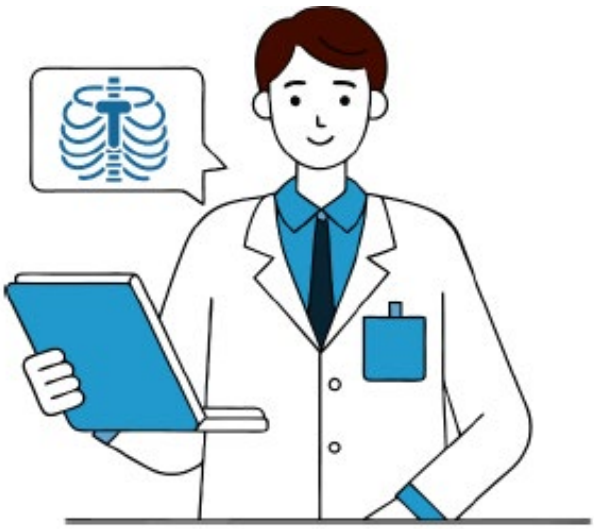




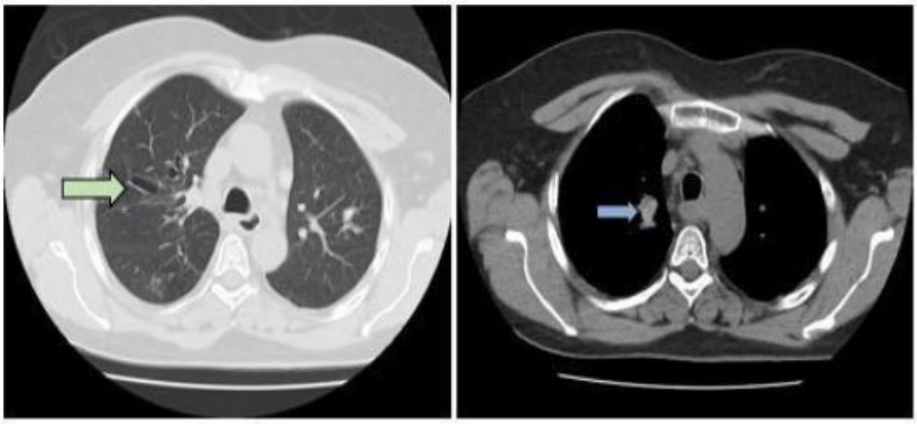
This is going to be a challenging one!

Hint

Too much mucus… too centrally placed.



Diagnosis: Allergic bronchopulmonary aspergillosis



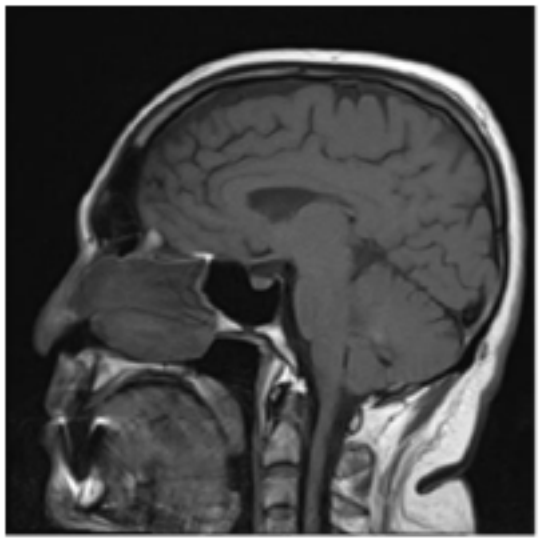
Radiological findings

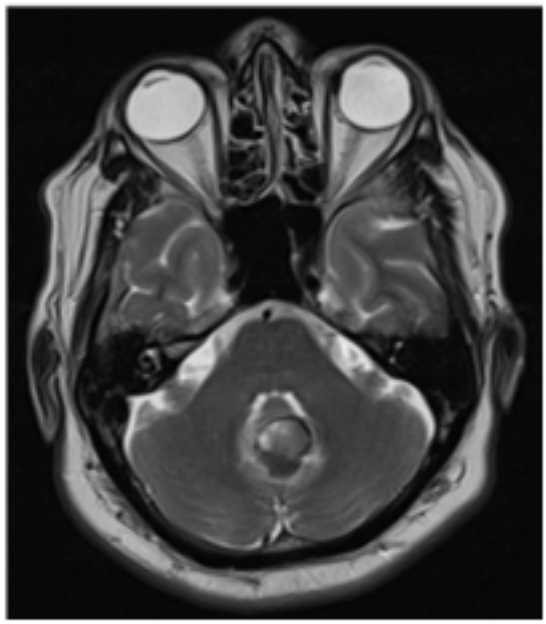
Axial CT scan of the chest in lung window shows right upper lobe bronchiectasis (blue arrow). Unenhanced soft tissue window demonstrates mucoid impaction of high attenuation (blue arrow).

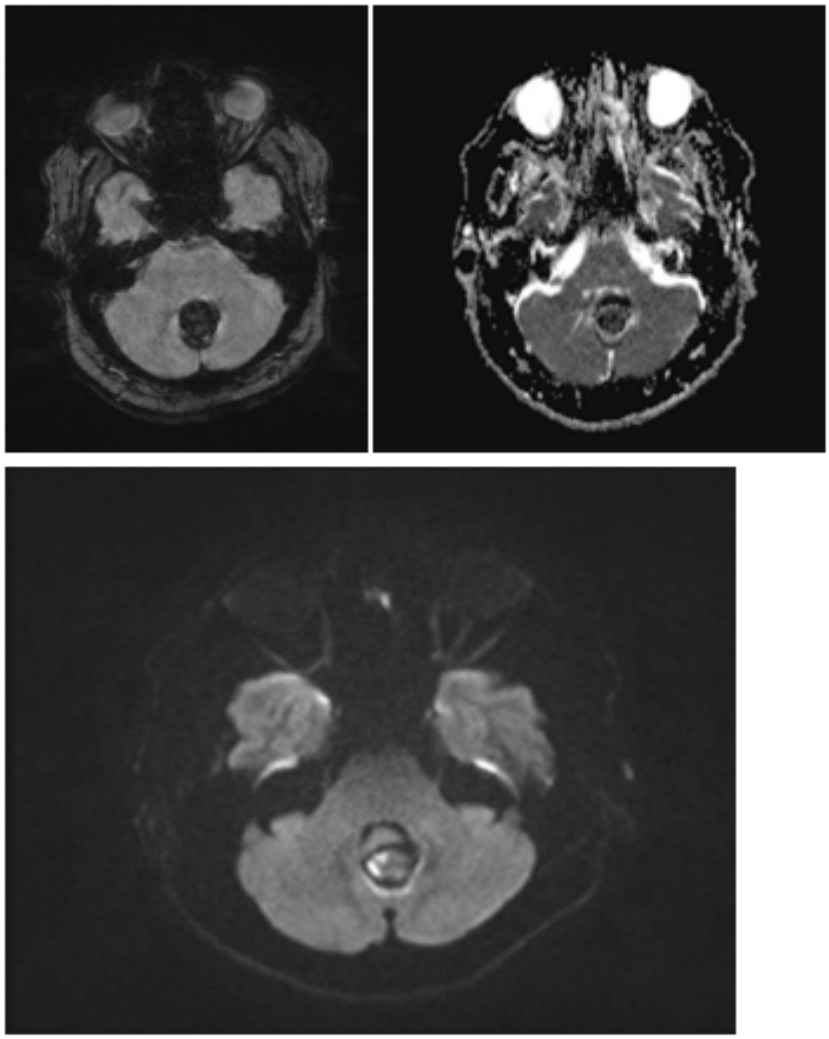
Teaching point

Allergic bronchopulmonary aspergillosis is commonly seen in asthmatic patients.

Quiz 26: 43-year-old male with headache



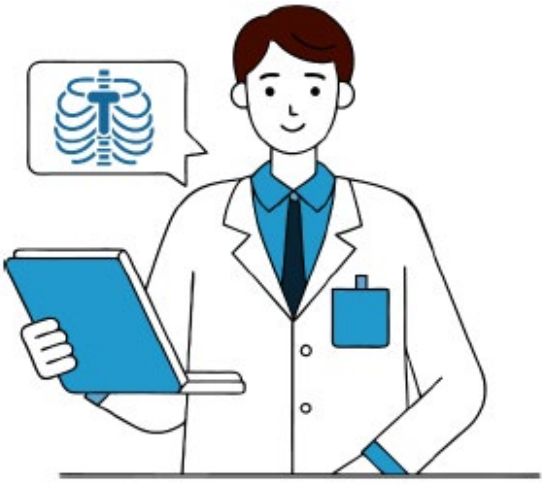




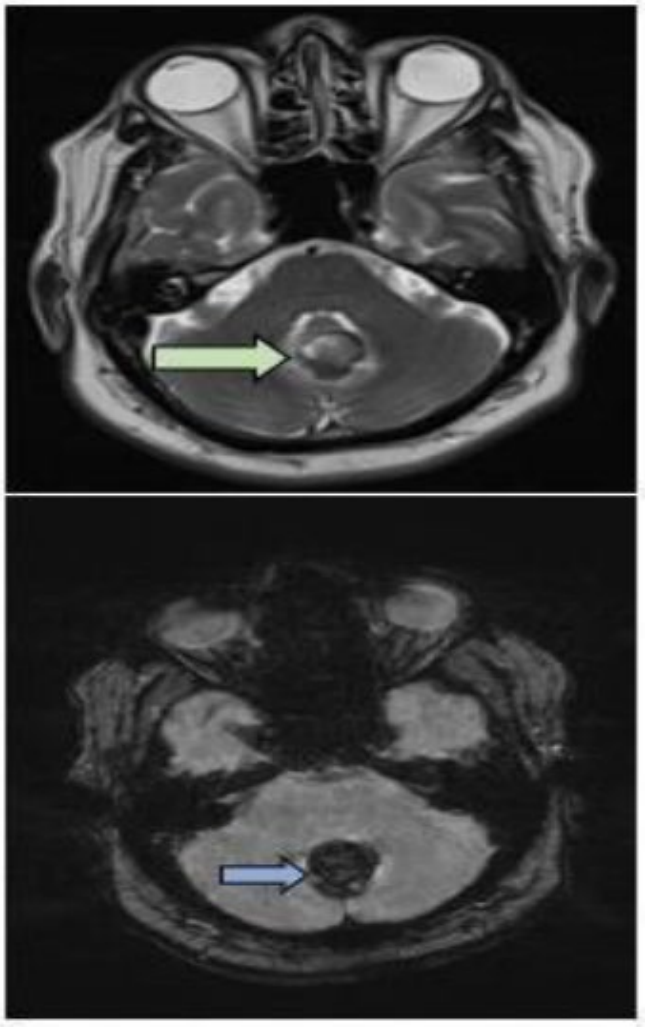
Time for a level up!



Layers that bloom.



Diagnosis: Cavernoma



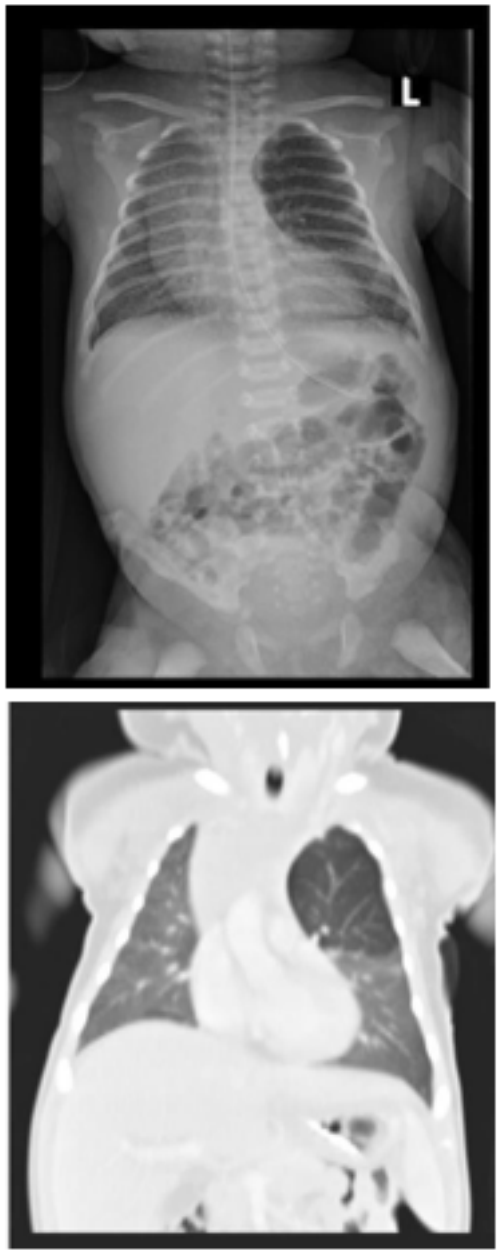
Radiological findings

MR images of the posterior fossa show a small well defined intra-axial lesion involving the cerebellum of heterogenous signal centrally giving the so-called popcorn appearance, with a thin T2 hypointense rim (green arrow). SWI sequence demonstrates significant blooming artifact (blue arrow).

Teaching point

Multiple lesions can be seen in familial multiple cavernous malformation syndrome.

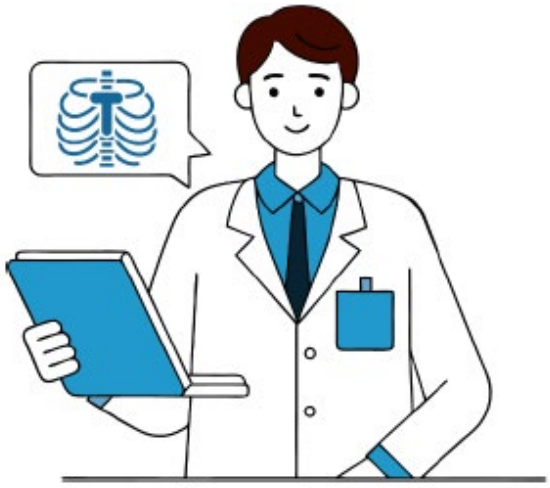
Quiz 27: 5-year-old male with SOB



Ready for the answer?

Hint

One lobe is stealing the spotlight.



Diagnosis: Congenital lobar emphysema



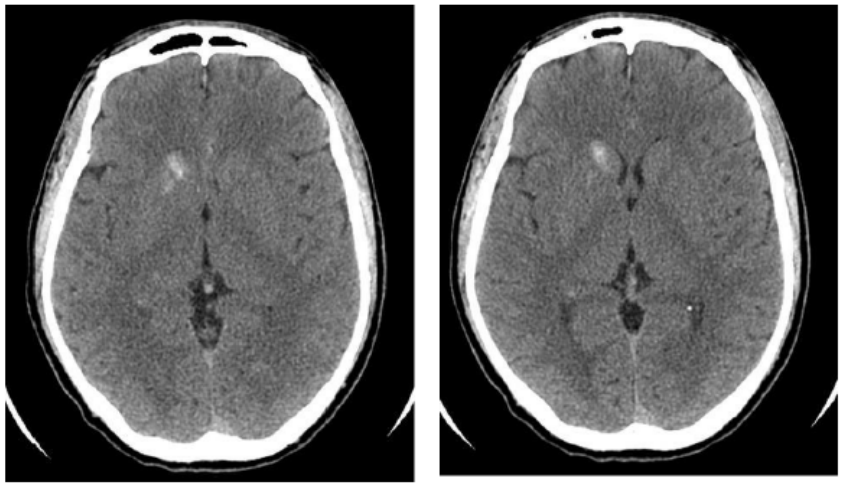
Radiological findings

Frontal chest radiograph shows focal lucency of the left upper lobe (green arrow) associated with contralateral mediastinal shift. Coronal CT scan of the chest in lung window demonstrates the same findings along with attenuated vascularity (blue arrow).

Teaching point

The immediate postpartum appearance is that of a focal opacity. Congenital lobar emphysema most commonly affects the left upper lobe.

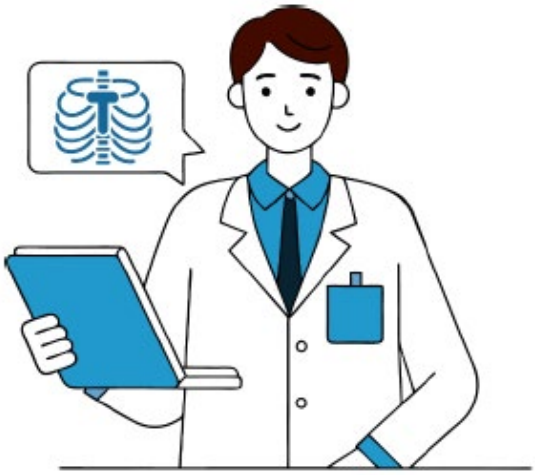
Quiz 28: 44-year-old male with headache



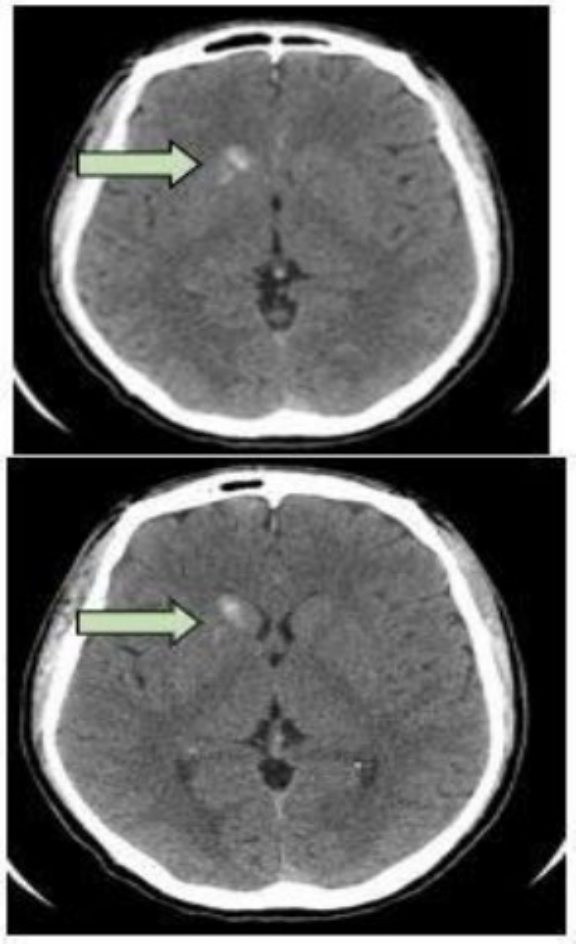
Are you sure about your diagnosis?

Hint

Not every bright basal ganglia is a bleed.



Diagnosis: Non-ketotic hyperglycemic hemichorea



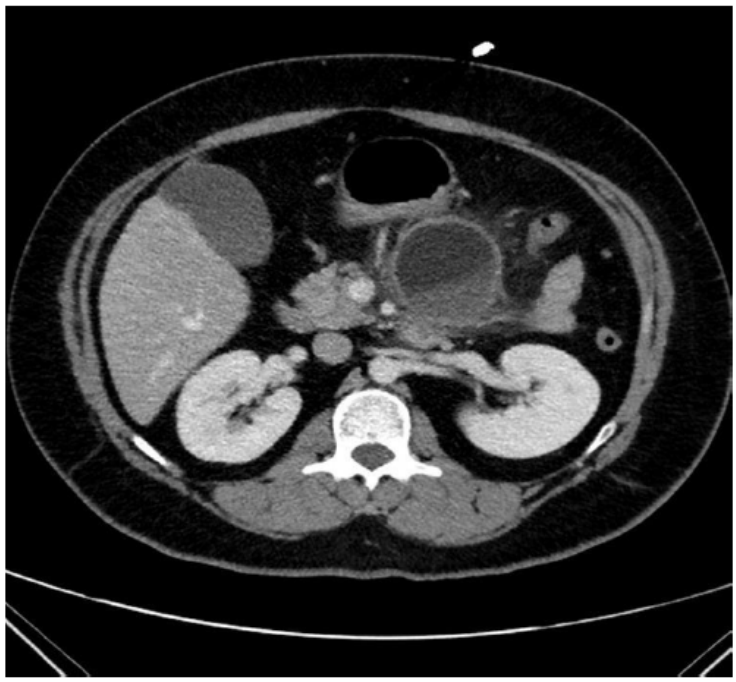
Radiological findings

Focal asymmetric hyper density is seen in the right striatum (green arrow), with no evidence of adjacent edema or mass effect.

Teaching point

Non-ketotic hyperglycemic hemichorea presents as striatal hyperdensity without edema or mass effect, and should not be mistaken for hemorrhage, as it is reversible with glycemic control.

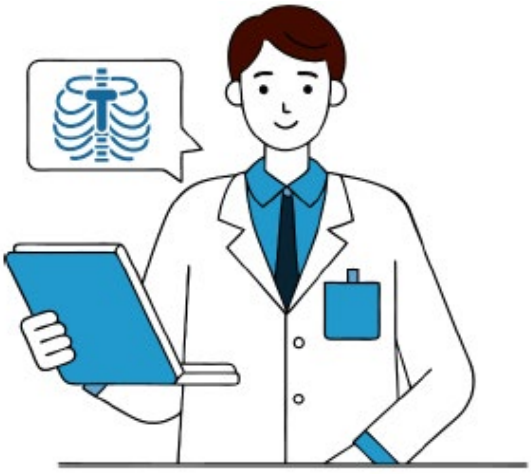
Quiz 29: 39-year-old male with pain



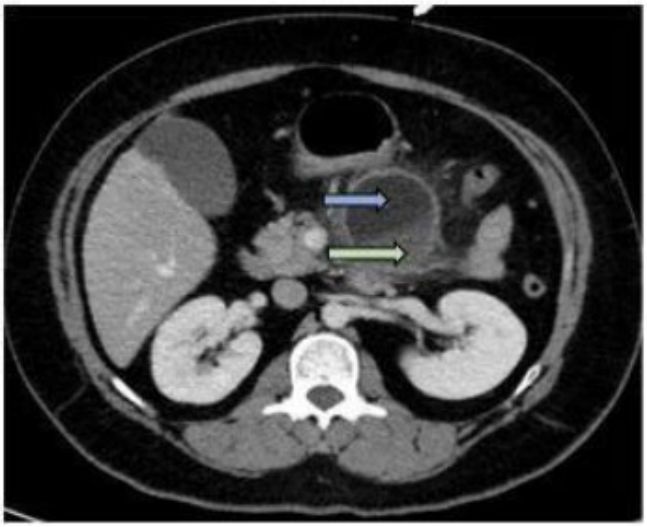
Pay close attention to the subtle signs...



Look again… this cyst has a story.



Diagnosis: Infected chylolymphatic mesenteric cyst



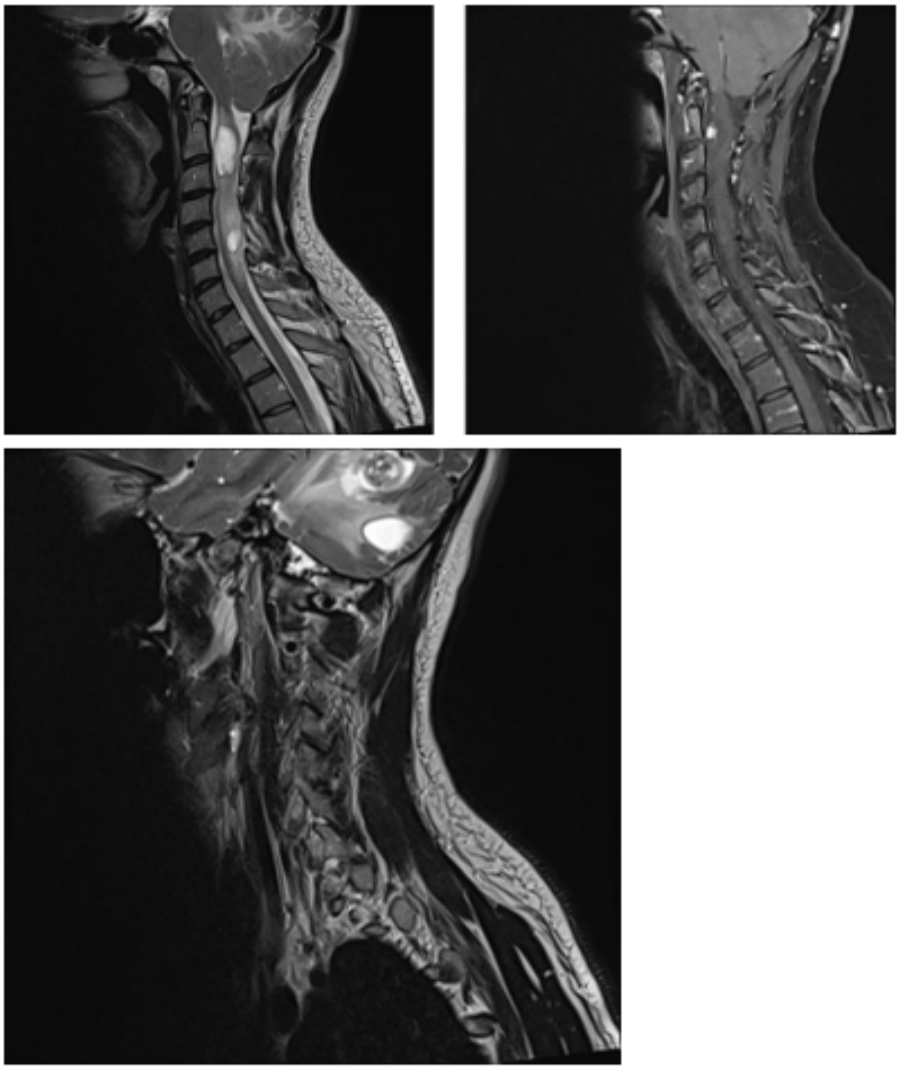
Radiological findings

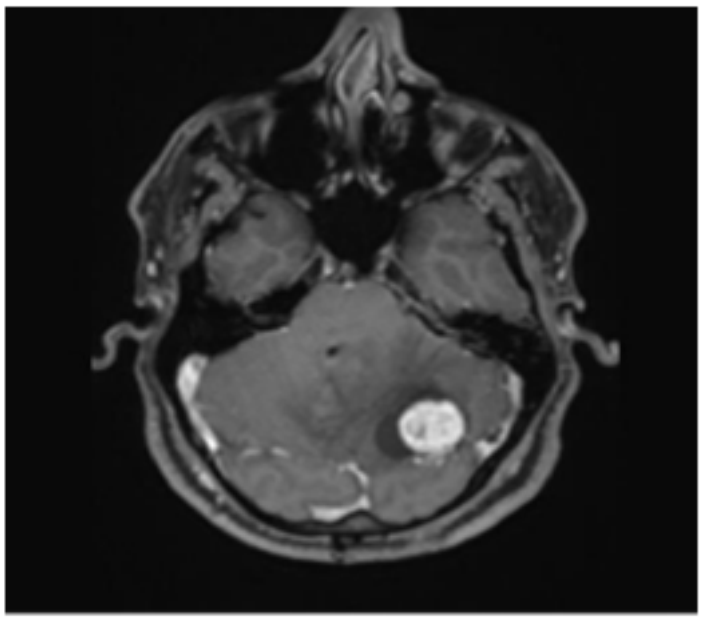
Axial contrast-enhanced CT demonstrates a well-defined mesenteric cystic lesion showing a distinct fat-fluid level, with a dependent fluid component (green arrow), and nondependent fat attenuation layer (blue arrow). The lesion has thickened walls with surrounding inflammatory changes, in keeping with superimposed infection.

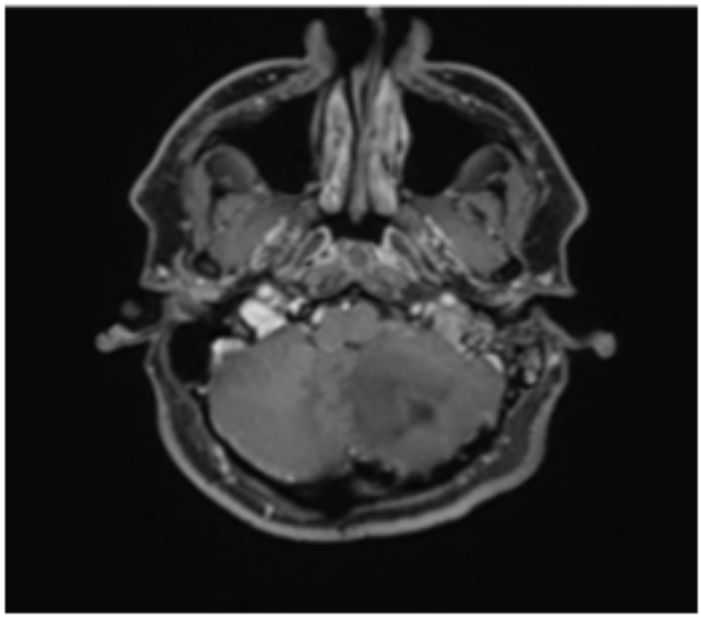
Teaching point

The presence of a fat-fluid level within a mesenteric cyst is highly suggestive of a chylolymphatic origin, and associated wall thickening or inflammatory changes indicate superimposed infection.

Quiz 30: 29-year-old male with SOB



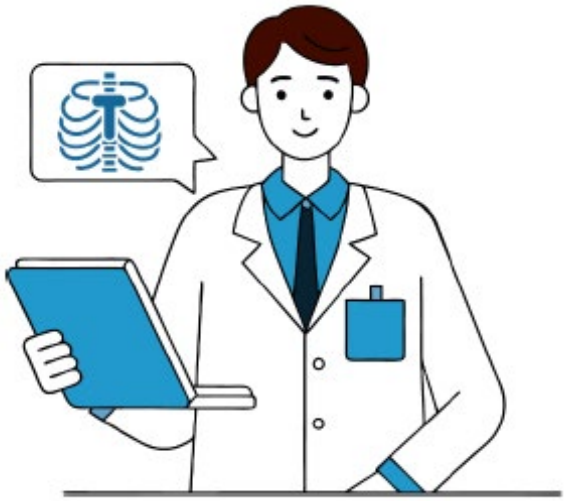




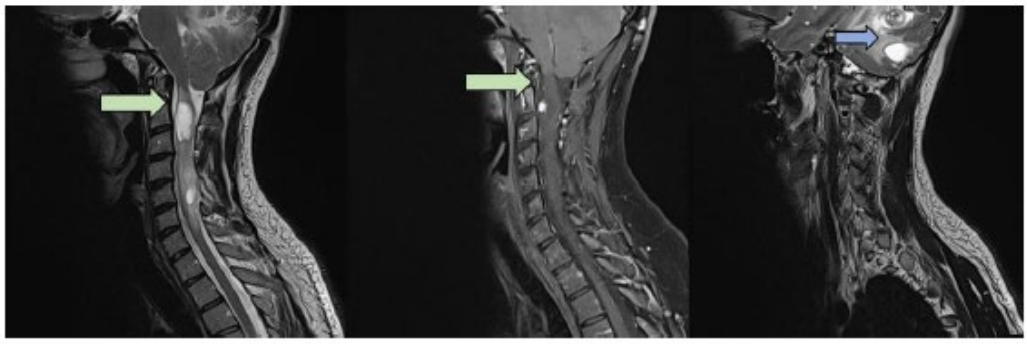
This is going to be a challenging one!



Zoom out… what ties them together.



Diagnosis: Multiple hemangioblastomas and Von Hippel-Lindau (VHL)



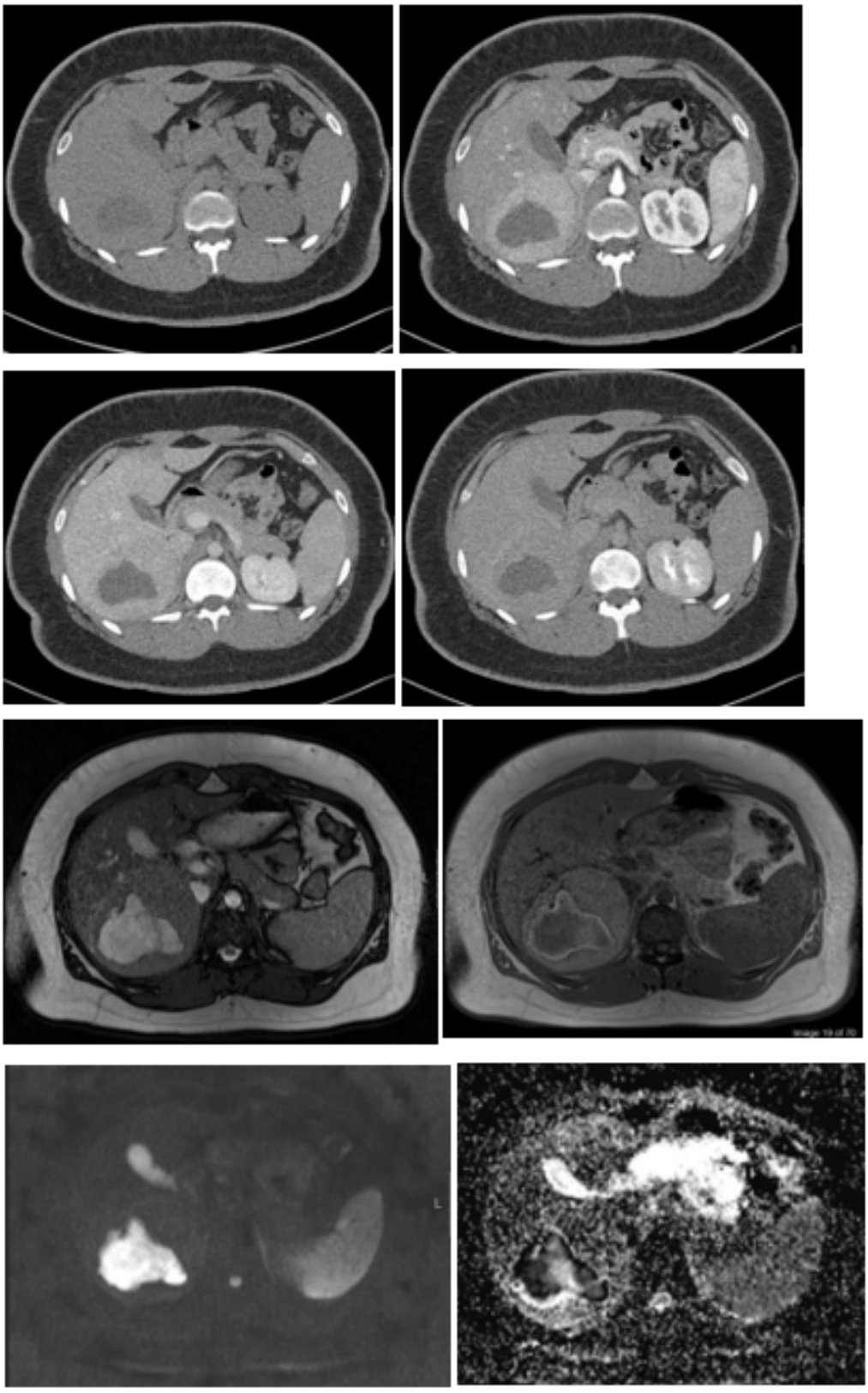
Radiological findings

Sagittal MR images of the cervical spine demonstrate multiple intramedullary cystic lesions with an avidly enhancing mural nodule (green arrows). Similar findings are also seen in the imaged cerebellum (blue arrow).

Teaching point

Features of VHL include Hemangioblastoma, renal cysts and RCC, pheochromocytoma, pancreatic cysts cystadenoma/ carcinoma and neuroendocrine tumors, endolymphatic sac tumor, and liver cysts

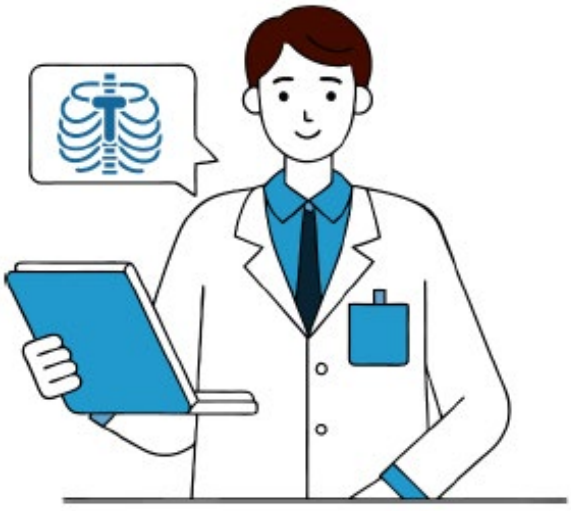
Quiz 31: 29-year-old male with SOB



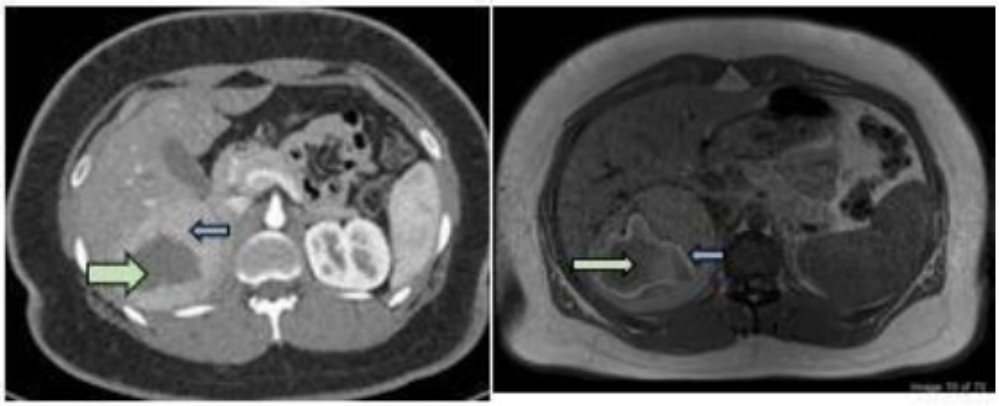
Are you sure about your diagnosis?



Heterogeneity without clear aggression.



Diagnosis: Hepatic adenoma



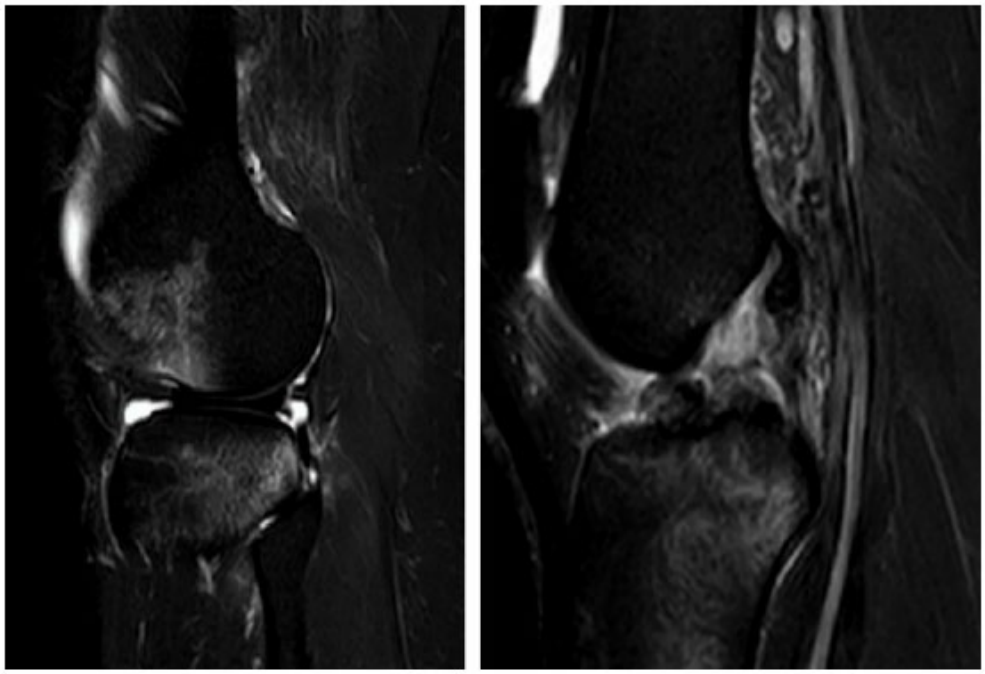
Radiological findings

On multiphase CT, a right hepatic lobe lesion demonstrates peripheral arterial hyperenhancement (blue arrow) with a persistent non-enhancing central fluid-density component (green arrow); the peripheral component becomes isodense on subsequent phases. MRI shows layered internal signal on T1-weighted images, with an outer hyperintense rim (blue arrow) and inner hypointense component (green arrow), associated with restricted diffusion, consistent with intralesional hemorrhage of different ages.

Teaching point

Intralesional hemorrhage with T1 hyperintensity and diffusion restriction within a hypervascular hepatic lesion is an important clue to the diagnosis of hepatic adenoma rather than focal nodular hyperplasia.

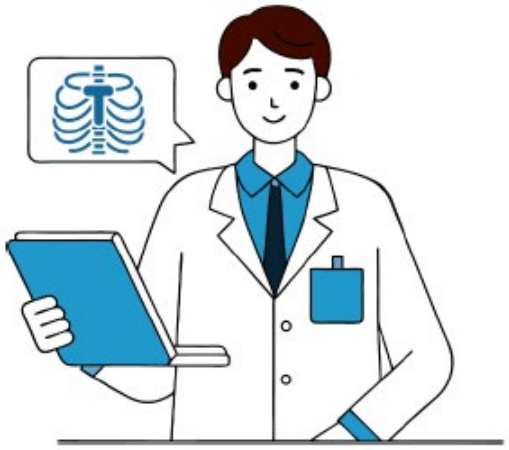
Quiz 32: 31-year-old female with knee twisting



Take your time...



Some problems are best seen indirectly.



Diagnosis: ACL tear



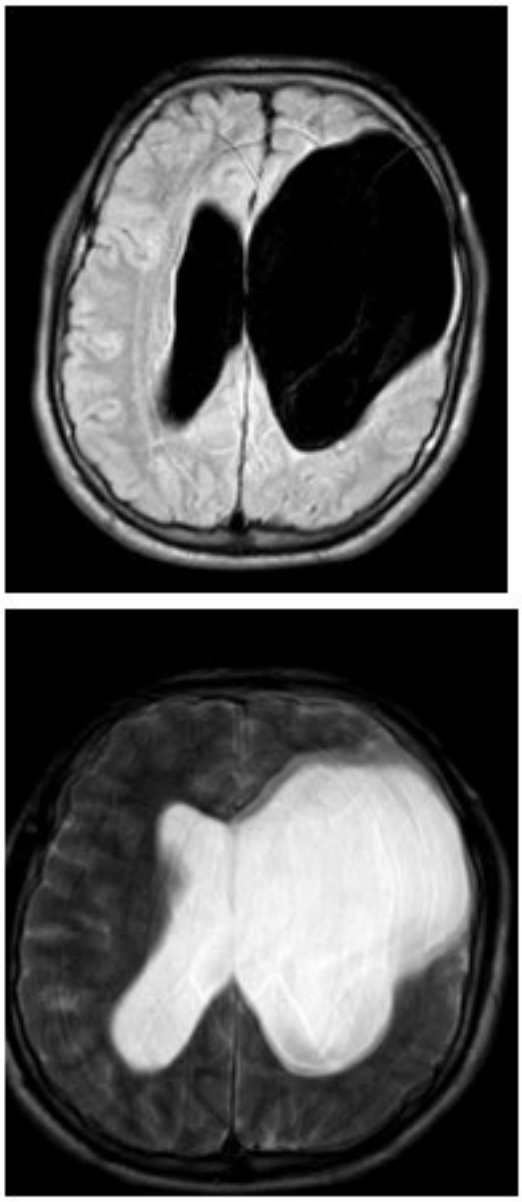
Radiological findings

On sagittal fluid-sensitive MRI sequences, bone marrow edema is seen involving the anterolateral aspect of the lateral femoral condyle and the posterolateral tibial plateau (blue arrow). There is anterior cruciate ligament (ACL) tear (blue circle).

Teaching point

The presence of a kissing contusion pattern—characterized by bone marrow edema in the anterolateral femoral condyle and the posterolateral tibial plateau—is a classic MRI finding of a pivot-shift injury mechanism and is highly suggestive of an associated anterior cruciate ligament (ACL) tear, even when the ligament disruption is subtle.

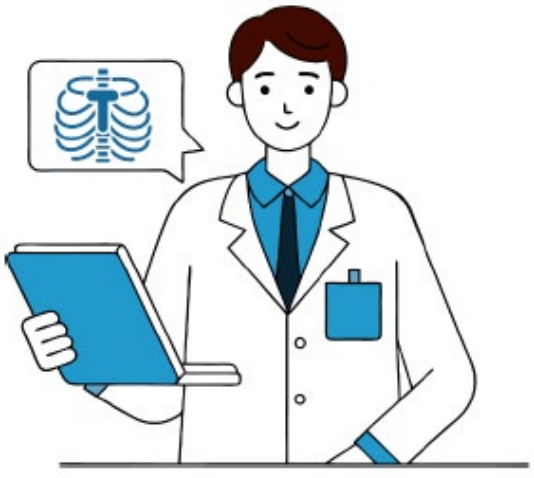
Quiz 33: 13-year-old male with headache



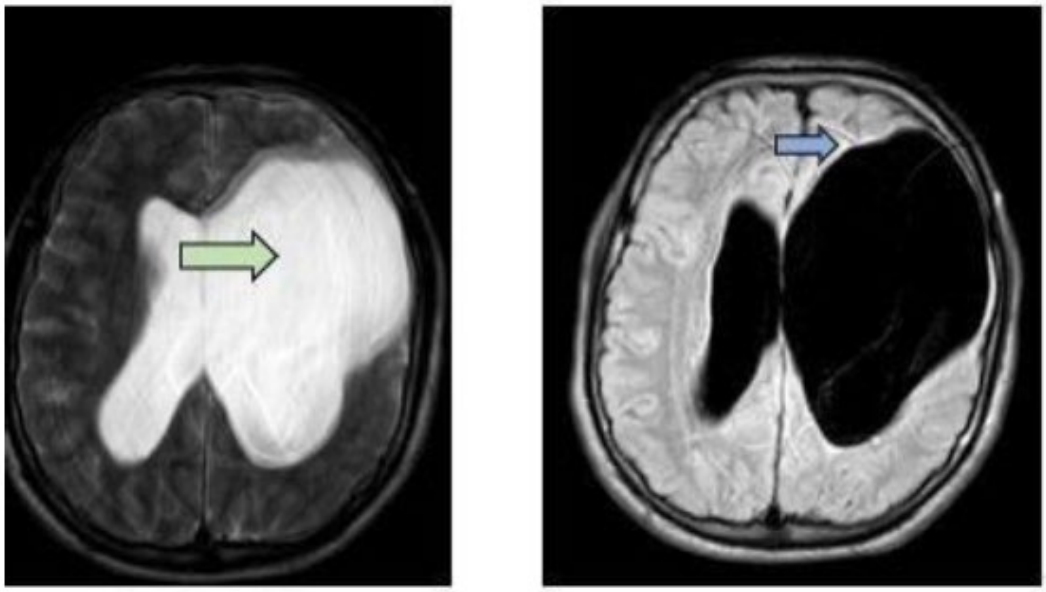
Pause. Think. You got this



A space where tissue should have been.



Diagnosis: Porencephaly



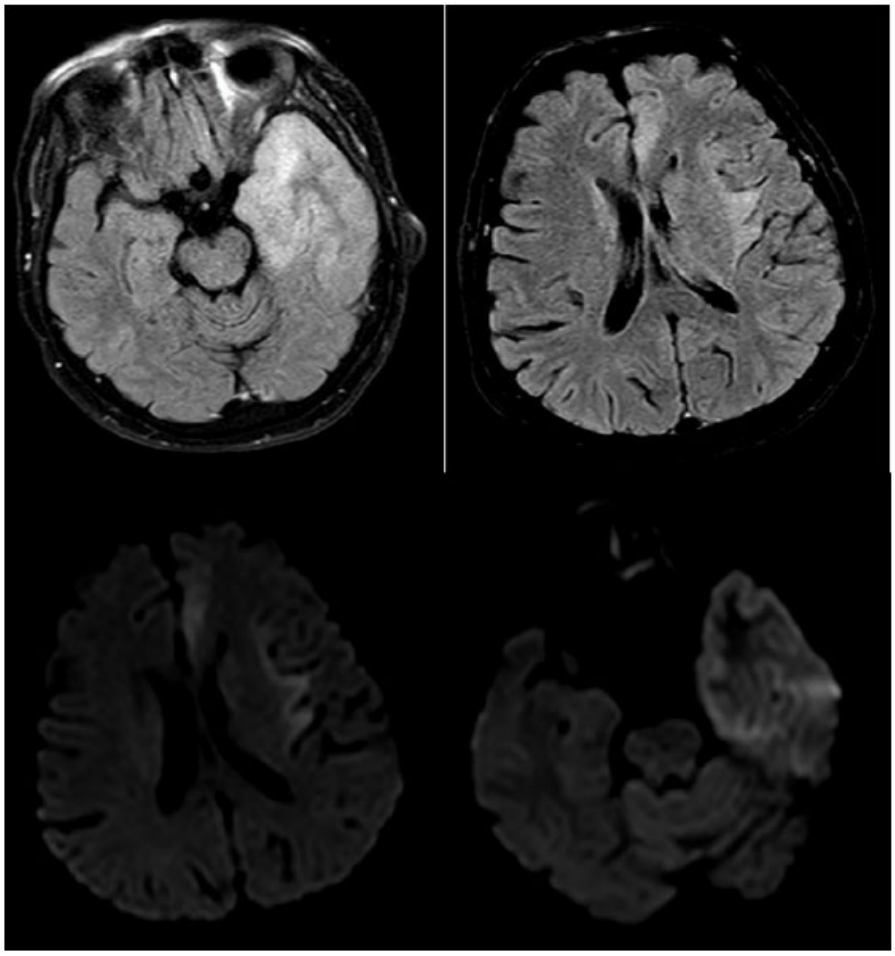
Radiological findings

Axial MR images of the brain demonstrate a large left frontal cyst of CSF signal communicating with the left lateral ventricle (green arrow), lined by white matter and subtle gliotic changes (blue arrow).

Teaching point

The main differential considerations include schizencephaly (lined by grey matter) and neuroglial cyst (does not communicate with the ventricles).

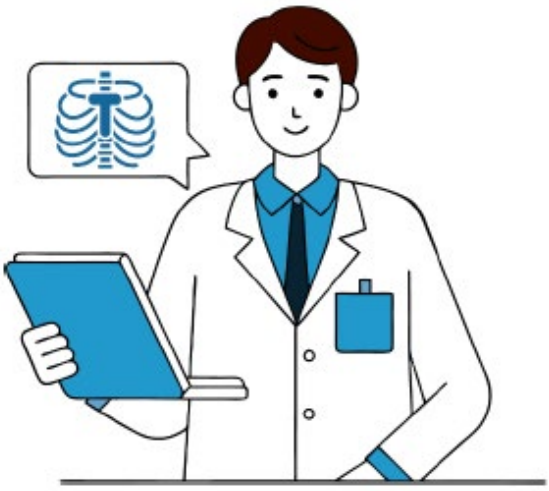
Quiz 34: 65-year-old female with headache and fever



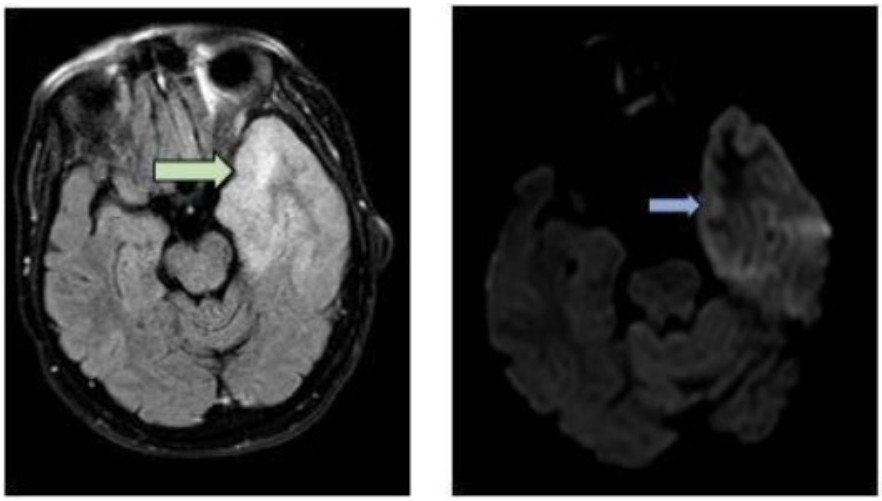
Take your time...



Edema in a very particular location.



Diagnosis: Herpes simplex encephalitis



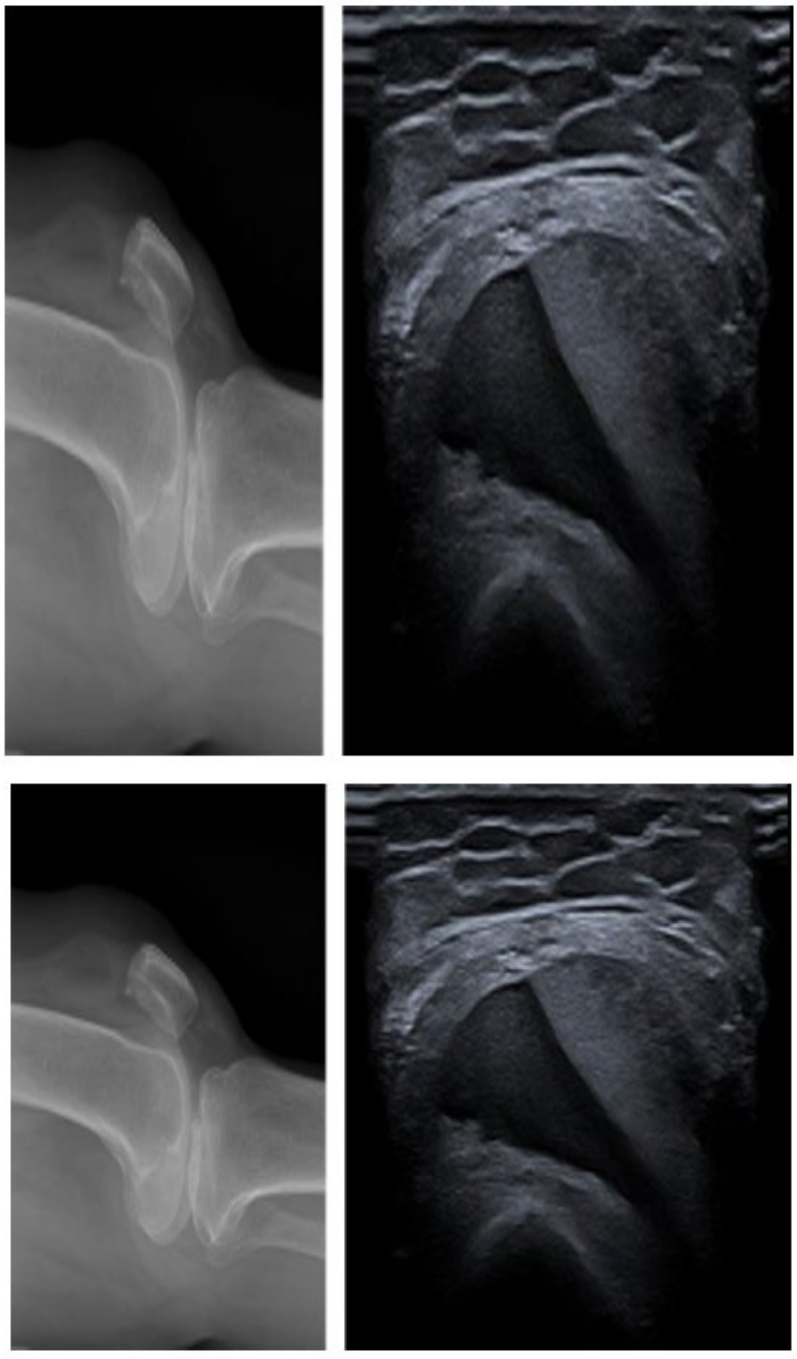
Radiological findings

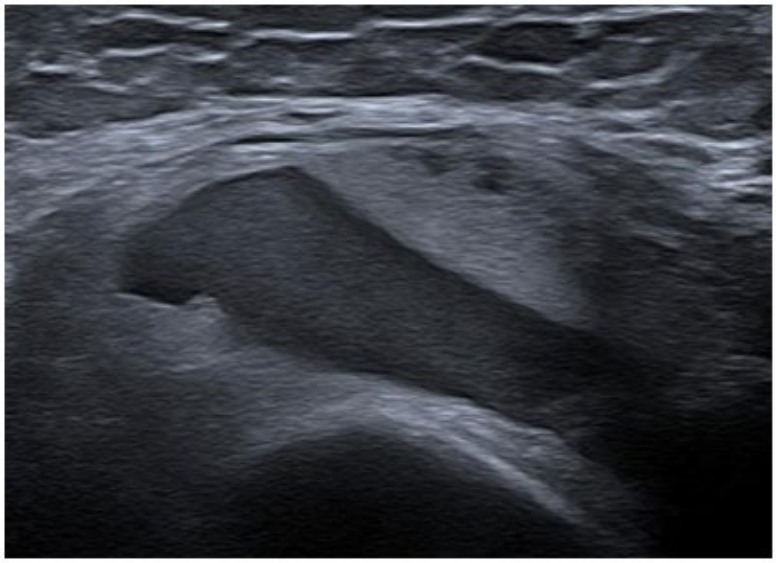
Axial MRI of the brain shows high FLAIR signal and cortical swelling of the left temporal lobe (green arrow), with corresponding diffusion restriction (blue arrow).

Teaching point

HSV encephalitis usually affects the limbic system, medial temporal lobes, insular cortex, and inferolateral frontal lobes. Basal ganglia are usually spared.

Quiz 35: 50-year-old female with history of trauma

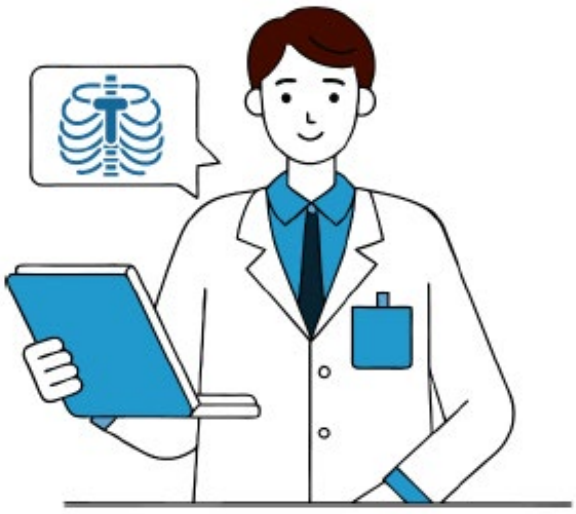




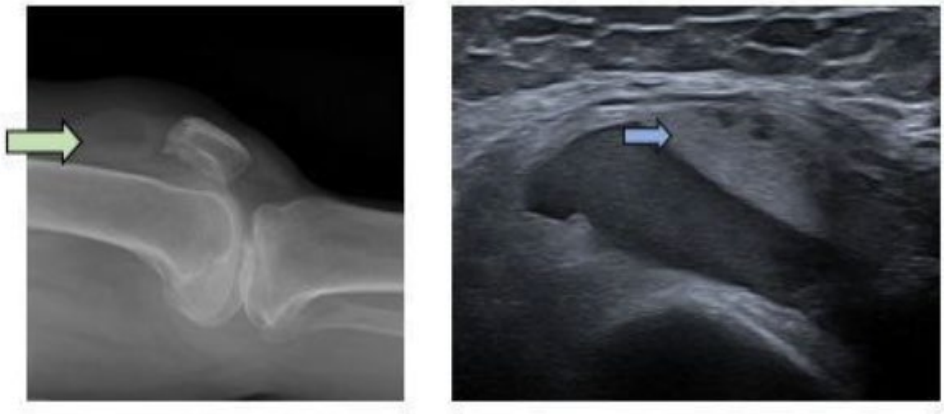
This one requires careful analysis...



A separation within what should be uniform.



Diagnosis: Lipohemarthrosis



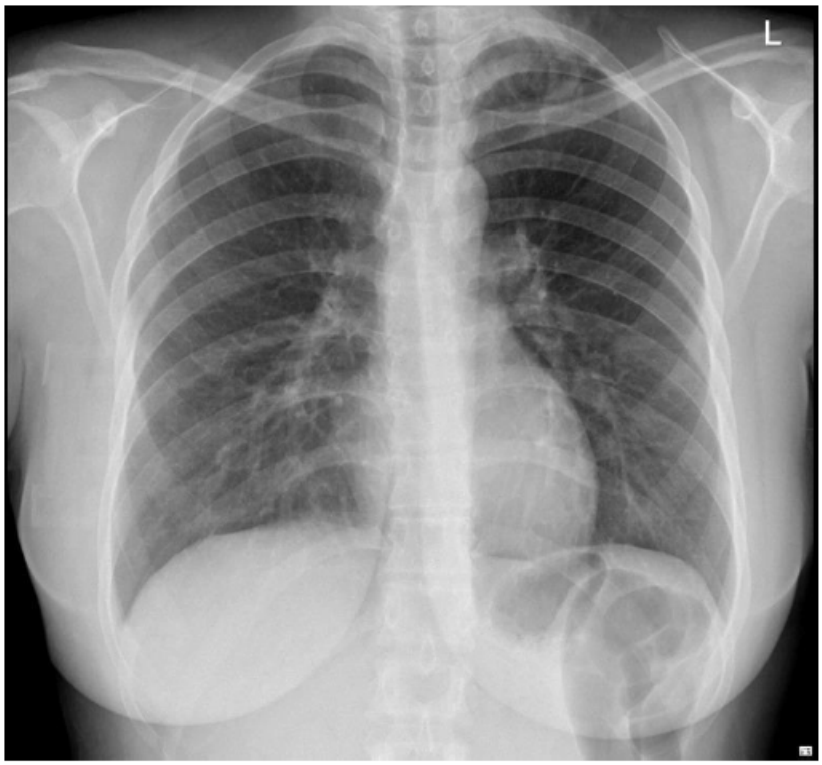
Radiological findings

Crosstable horizontal lateral knee radiograph demonstrates joint effusion with fat-fluid level (green arrow). Ultrasound image shows an echogenic component (blue arrow) above the hypoechoic joint fluid/blood.

Teaching point

Lipohemarthrosis is seen as joint effusion with a horizontal line of fat-fluid level.

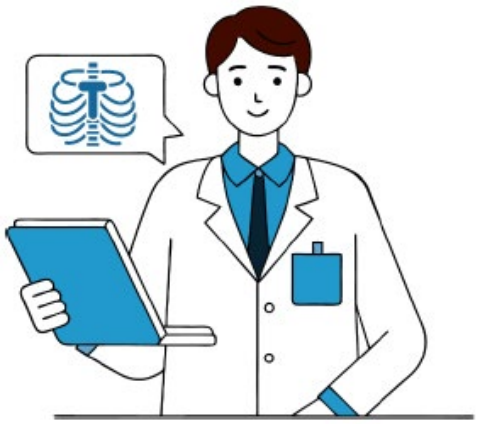
Quiz 36: 30-year-old female with pre-employment check up



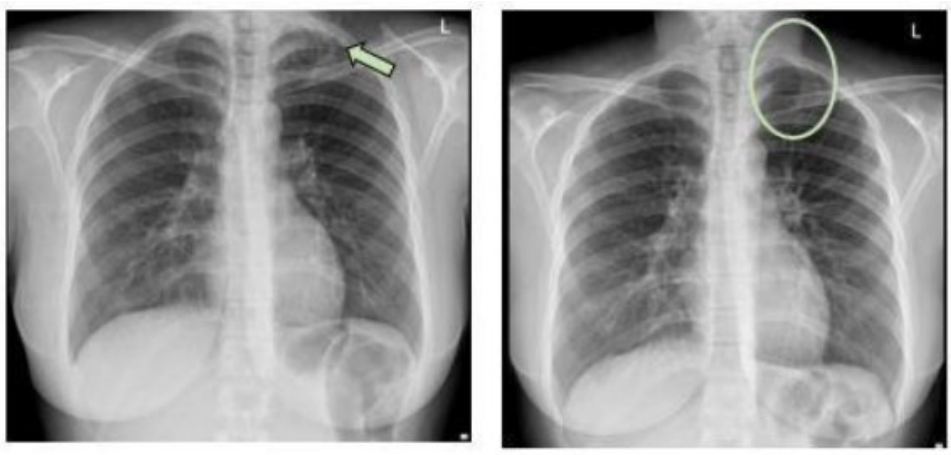
Focus on the details

Hint

Appearances can be deceiving.



Diagnosis: Hair artifact



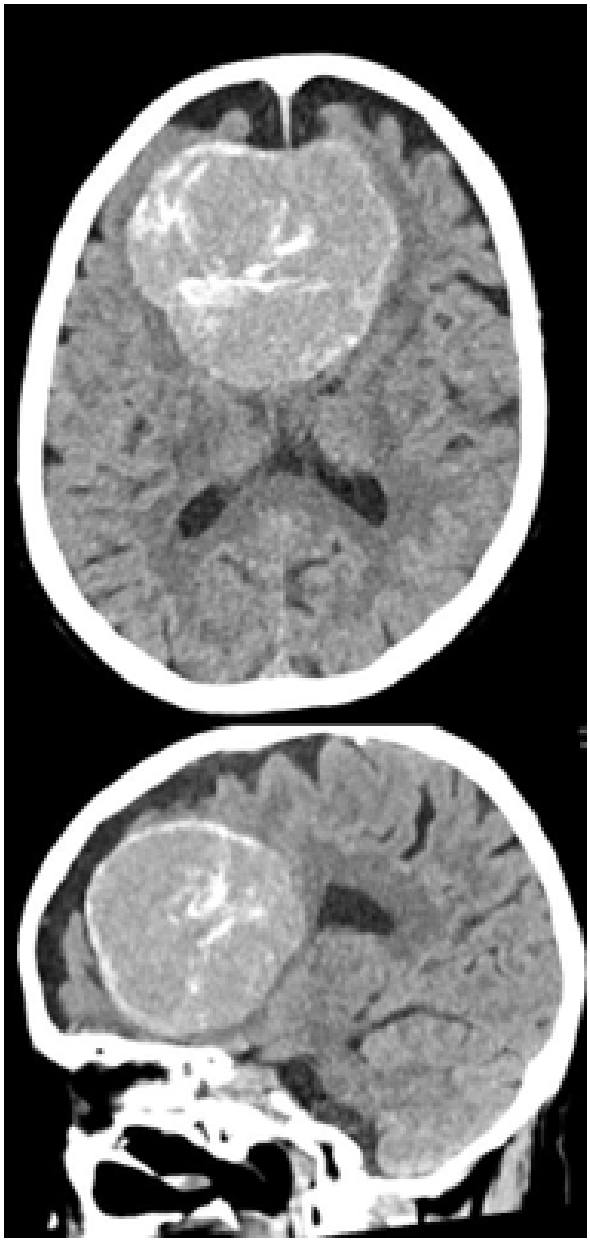
Radiological findings

The initial chest radiograph demonstrated a linear opacity over the left upper lung zone, extending into the soft tissues of the neck (arrows), with an atypical non-anatomical configuration, suspicious for an external artifact. A follow-up chest radiograph obtained the next day showed complete resolution of the finding (circle), confirming its artifactual nature.

Teaching point

Hair artifacts on chest radiographs may simulate pulmonary opacities, particularly in the upper lung zones. Awareness of this pitfall and correlation with repeat imaging can prevent misdiagnosis and unnecessary further workup.

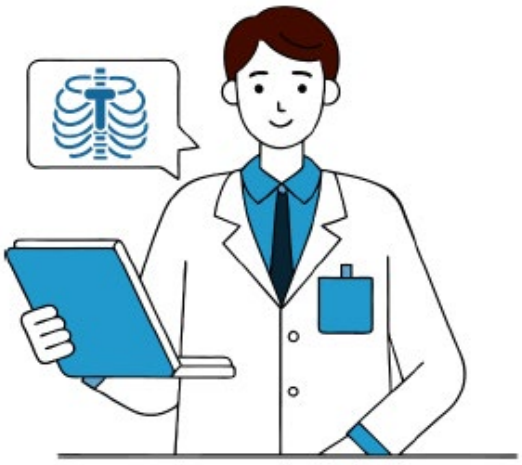
Quiz 37: 100-year-old female with loss of consciousness



Time for a level up!



Well circumscribed yet locally persuasive.



Diagnosis: Planum sphenoidale meningioma



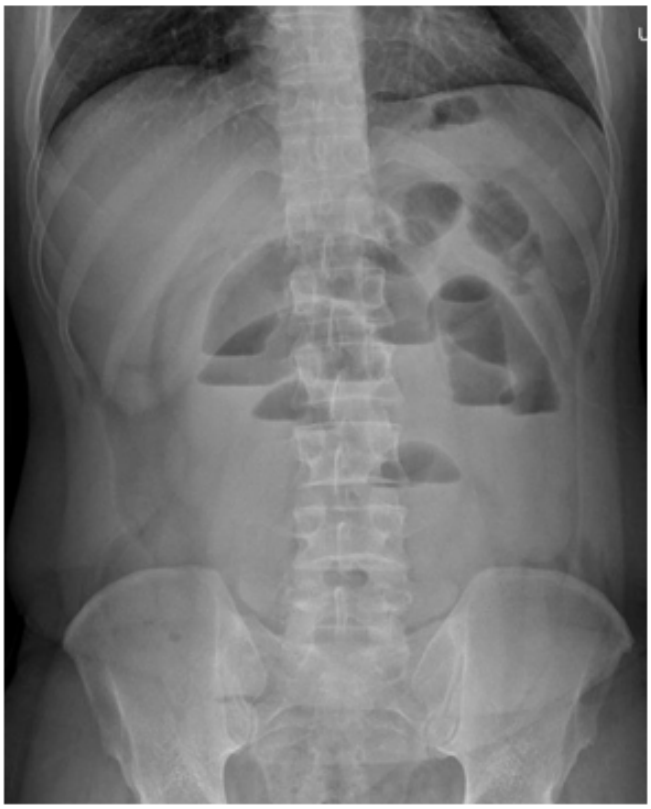
Radiological findings

Well-defined, extra-axial hyperdense mass centered on the planum sphenoidale with internal calcifications (blue arrow), causing mild mass effect on adjacent frontal lobes. No significant surrounding edema.

Teaching point

Meningiomas are always extra-axial, usually hyperdense on CT, and often show calcifications.

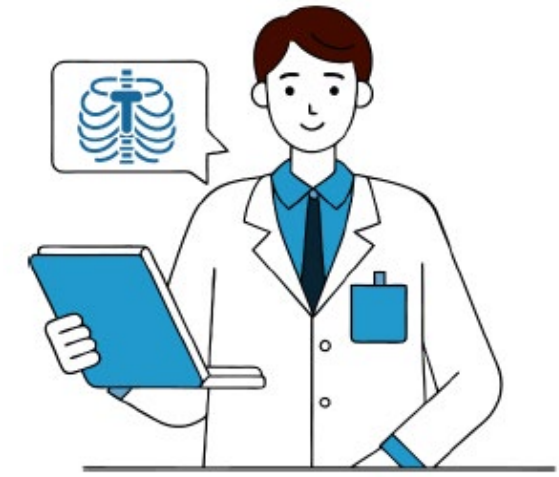
Quiz 38: 40-year-old male with vomiting



You got this



Air fluid levels that prefer to line up.



Diagnosis: Small bowel obstruction



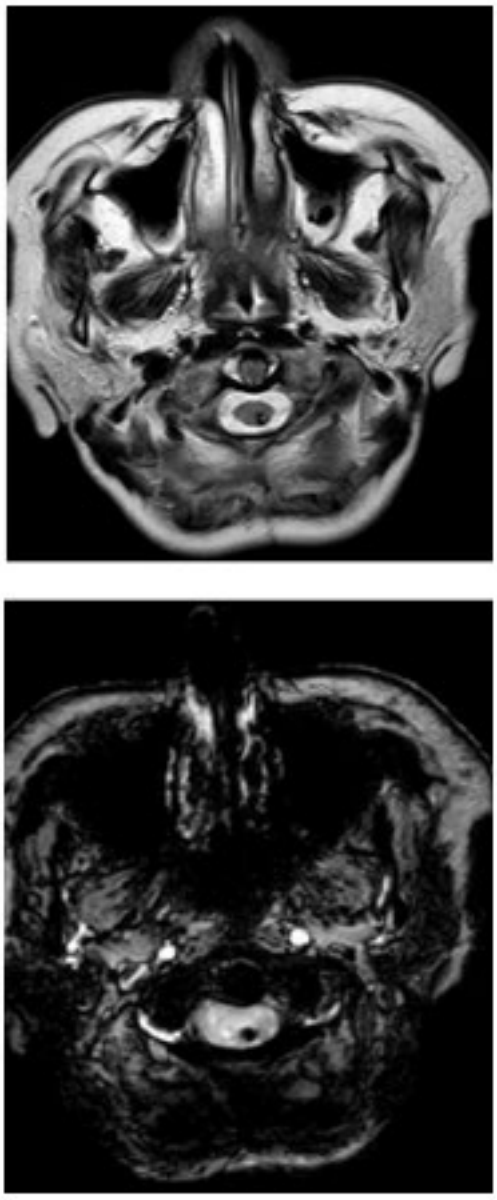
Radiological findings

AXR shows dilated central small bowel loops with multiple air-fluid levels (blue arrow), and little to no colonic gas. CT shows multiple dilated small bowel loops. A fecal-like material is present in distal ileal loops (green arrow).

Teaching point

Small Bowel Feces Sign: Fecal-like material in dilated small bowel loops proximal to the obstruction, indicating stasis and helping localize mechanical SBO.

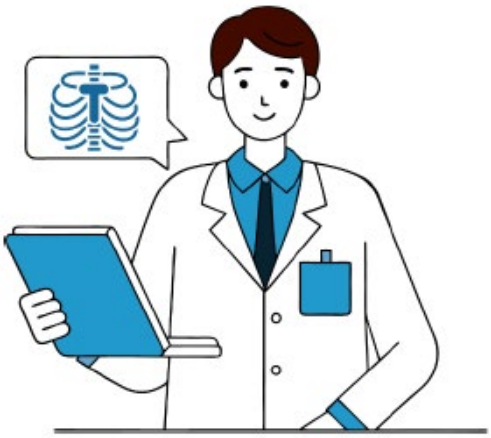
Quiz 39: 30-year-old male with seizure



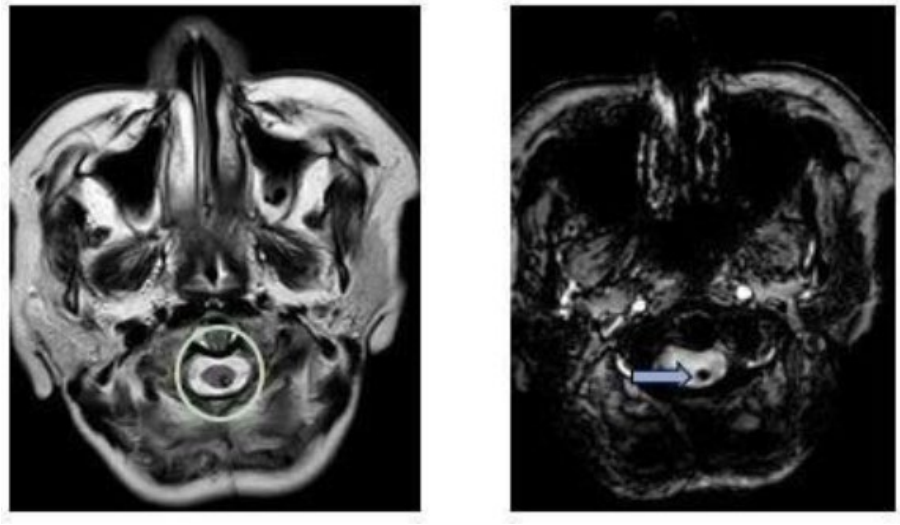
Take your time...



Maybe even get a bucket of popcorn.



Diagnosis: Cavernoma



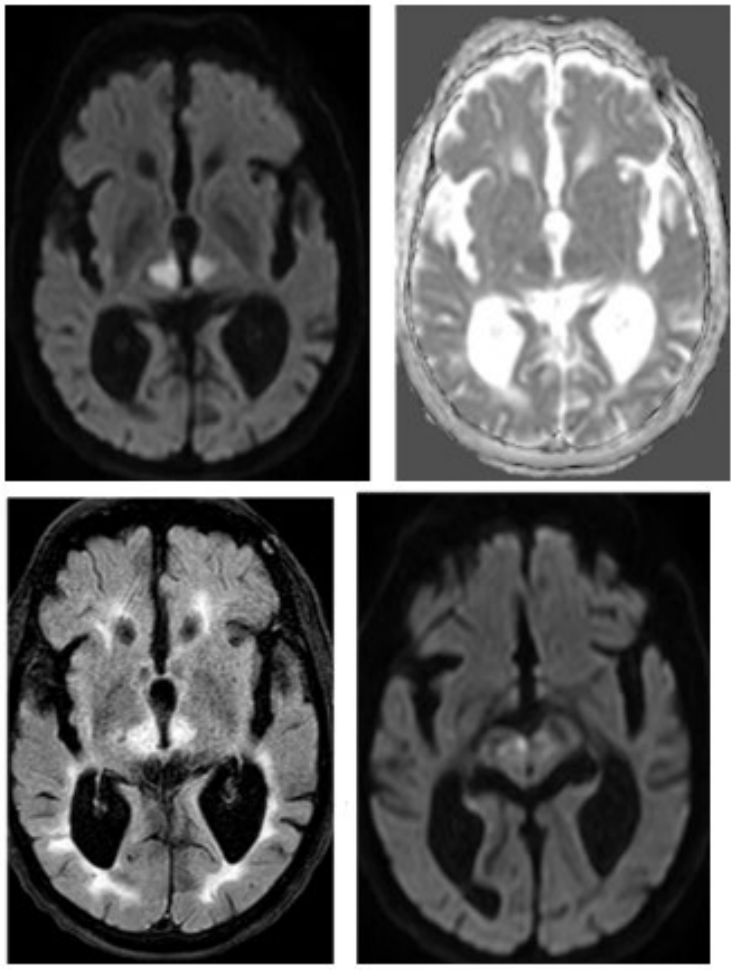
Radiological findings

Well-defined intramedullary lesion with heterogeneous “popcorn-like” signal on T2, peripheral hypointense hemosiderin rim (green arrow), blooming on GRE/SWI (blue arrow). No cord edema.

Teaching point

Cervical intramedullary cavernomas may be small but symptomatic; look for popcorn core and hemosiderin rim on T2 for confident MRI diagnosis.

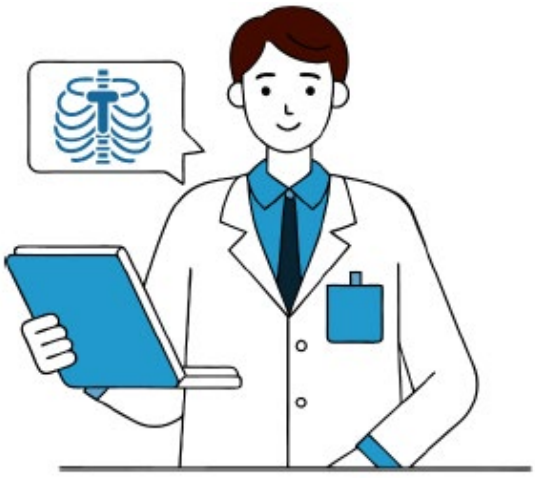
Quiz 40: 70-year-old male with bilateral lower limb weakness and deep coma



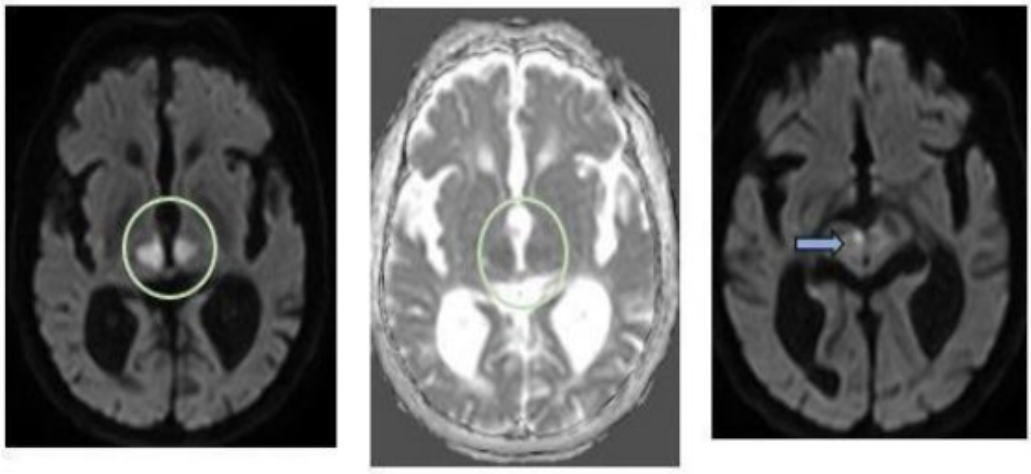
It’s not what you might think



Think of differentials of bilateral thalamic lesions.



Diagnosis: Artery of Percheron territory recent infarct



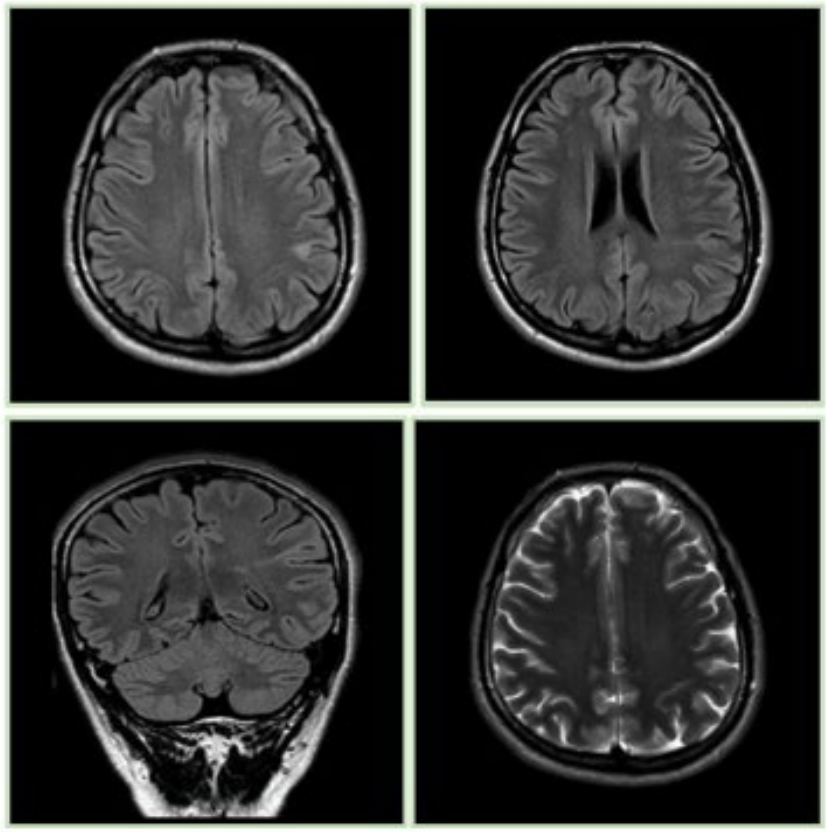
Radiological findings

MRI demonstrates diffusion restriction in the bilateral paramedian thalami extending to the midbrain, with corresponding hyperintense signal on FLAIR sequence.

Teaching point

Bilateral diffusion restriction involving the paramedian thalami, particularly when associated with rostral midbrain involvement, is highly suggestive of Artery of Percheron infarction. Recognition of this characteristic pattern is essential, as vascular imaging may appear unremarkable and early diagnosis relies primarily on MRI findings.

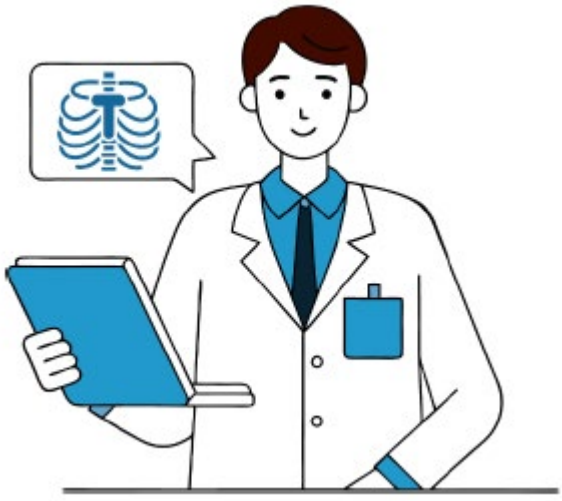
Quiz 41: 34-year-old male seizures



Almost there look closely



A line where there shouldn’t be a continuity.



Diagnosis: Fibrocortical dysplasia (Type 2)



Radiological findings

There is a left parietal cortical focus of FLAIR high signal intensity focus of high signal (circle). A thin linear FLAIR high signal intensity traverses the white matter from the cortical abnormalities towards the ventricular border (arrows), representing the trans-mantle sign!

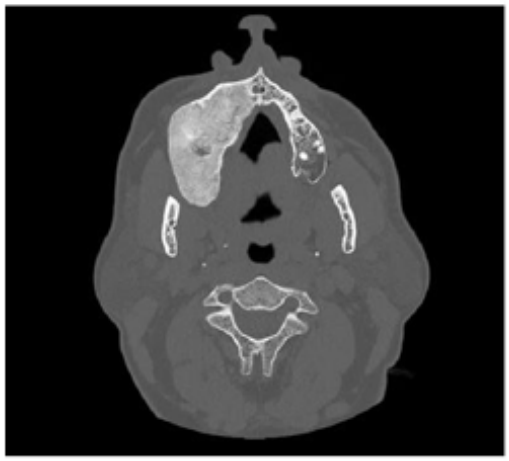
Note that the abnormality is difficult to appreciate on the T2-weighted sequence (unannotated image).

Teaching point

The transmantle or sign is useful in confirming the diagnosis of focal cortical dysplasia but is not seen in all types (seen in type 2 FCD).

Quiz 42: 22-year-old male - Facial swelling

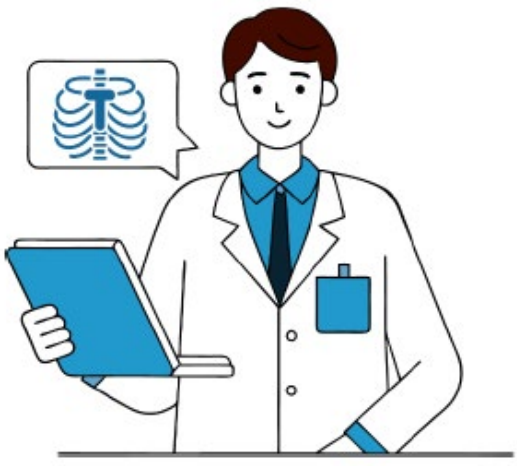




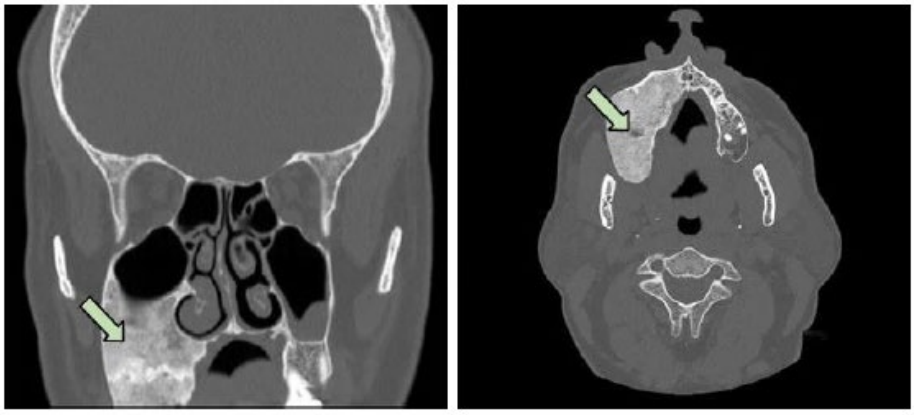
This one requires careful analysis...



Firm swelling that doesn’t respect normal contours.



Diagnosis: Maxillary fibrous dysplasia



Radiological findings

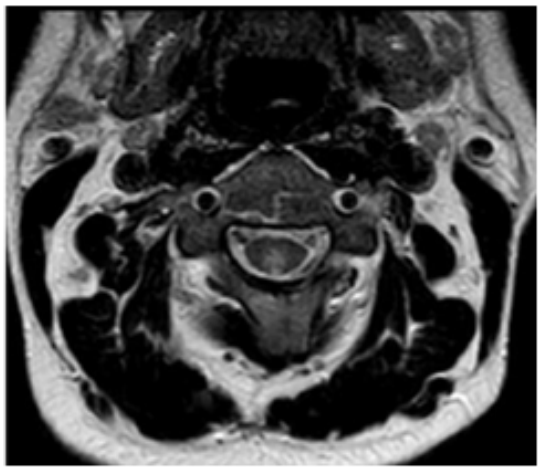
Right maxillary bone focal expansion, with ground-glass matrix, no cystic changes, and intact cortex (arrows).

Teaching point

Non-aggressive ground-glass osseous expansion is a classic appearance of fibrous dysplasia, although cystic or densely sclerotic variants can also occur.

Quiz 43: 47-year-old female - Upper limb sensation loss

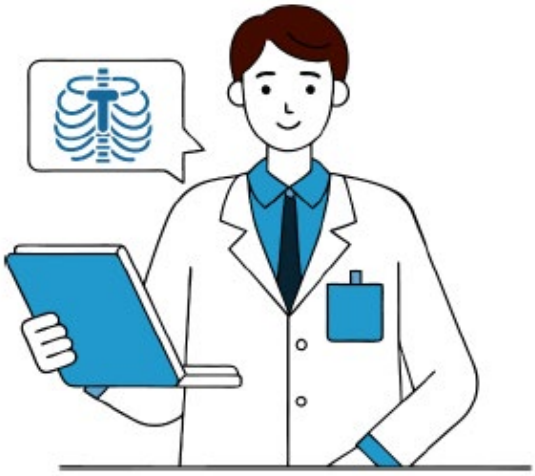




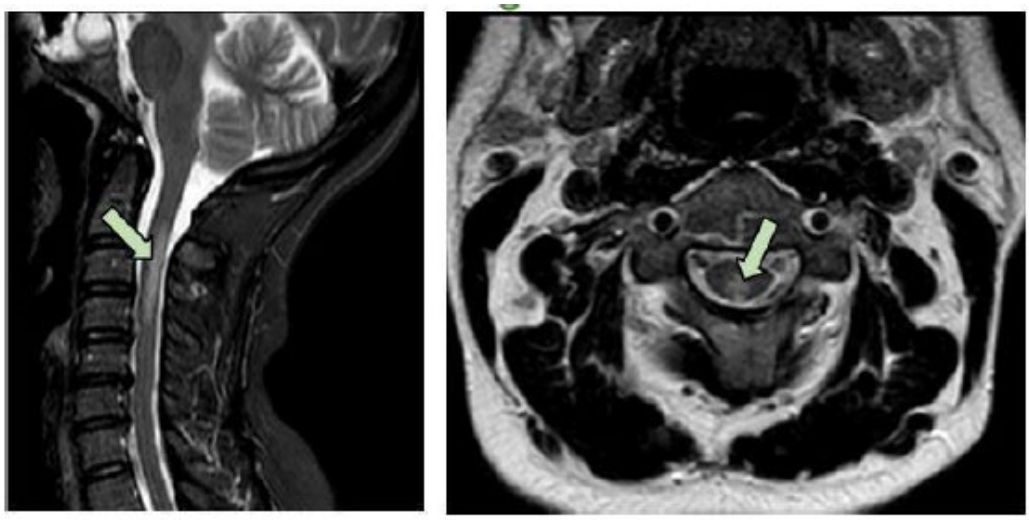
Think long and hard about this one



Look for abnormality in the cervical cord.



Diagnosis: Subacute combined degeneration of the cord



Radiological findings

Long segment patchy T2 high signal intensity involving the posterior aspect of the cervical spinal cord (arrows).

Teaching point

Subacute combined degeneration of the cord, caused by vitamin B12 deficiency, typically involves a long segment of the dorsal cord, classically differentiating it from multiple sclerosis (typically short-segment involvement) and transverse myelitis (not usually confined to the posterior cord).

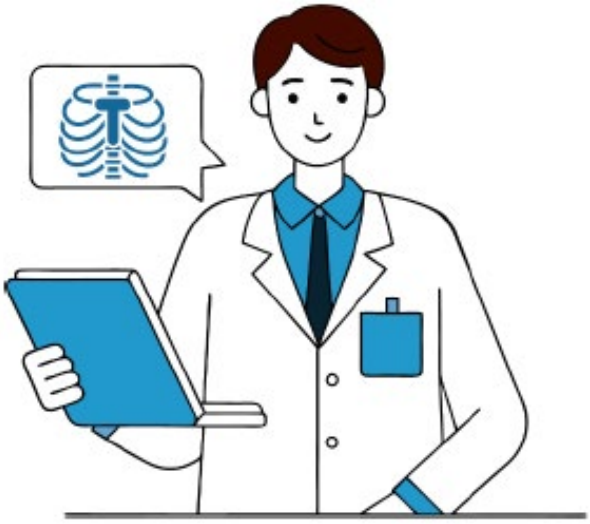
Quiz 44: 12-year-old male - Recurrent cough



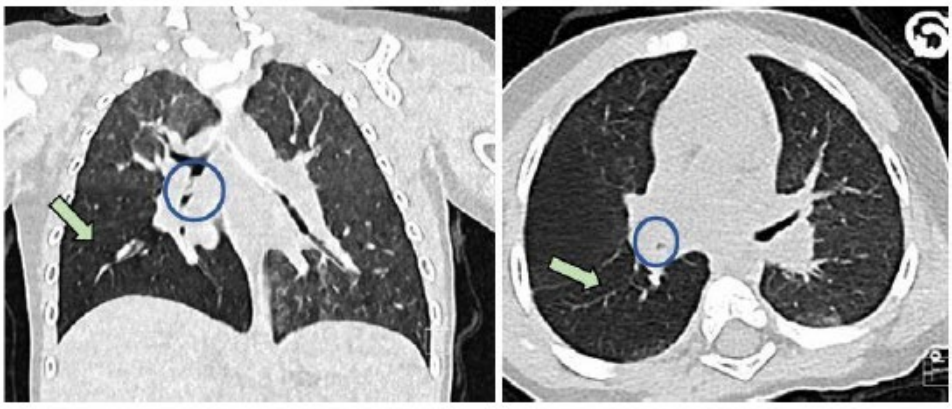
Take your time...



Look in between the lines for the key clue.



Diagnosis: Bronchus intermedius foreign body



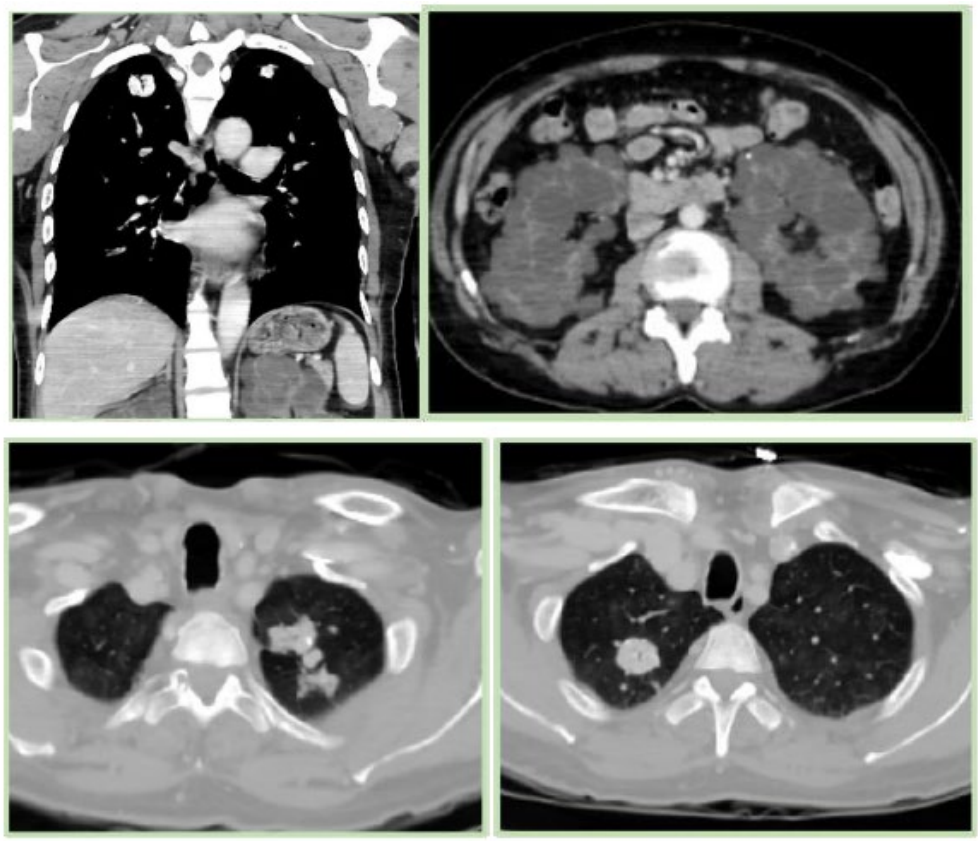
Radiological findings

Foreign body in bronchus intermedius (circles) with lucency of the right middle and lower lobes due to secondary focal hyperinflation (arrows).

Teaching point

In children, unilateral air trapping or focal hyperinflation should prompt careful evaluation for an aspirated foreign body and may be accentuated on expiratory imaging.

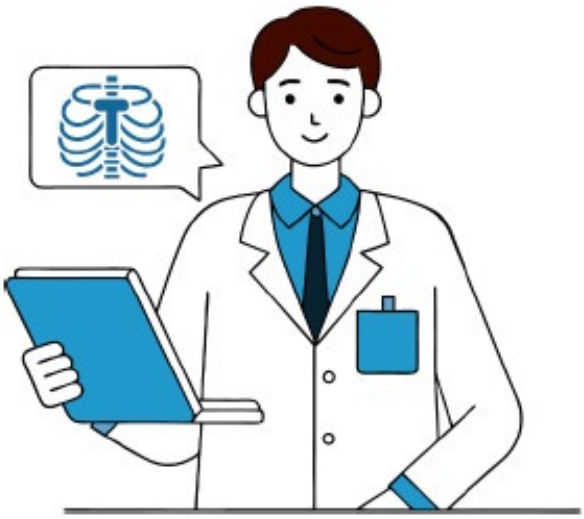
Quiz 45: 62-year-old male - X-ray detected lesions



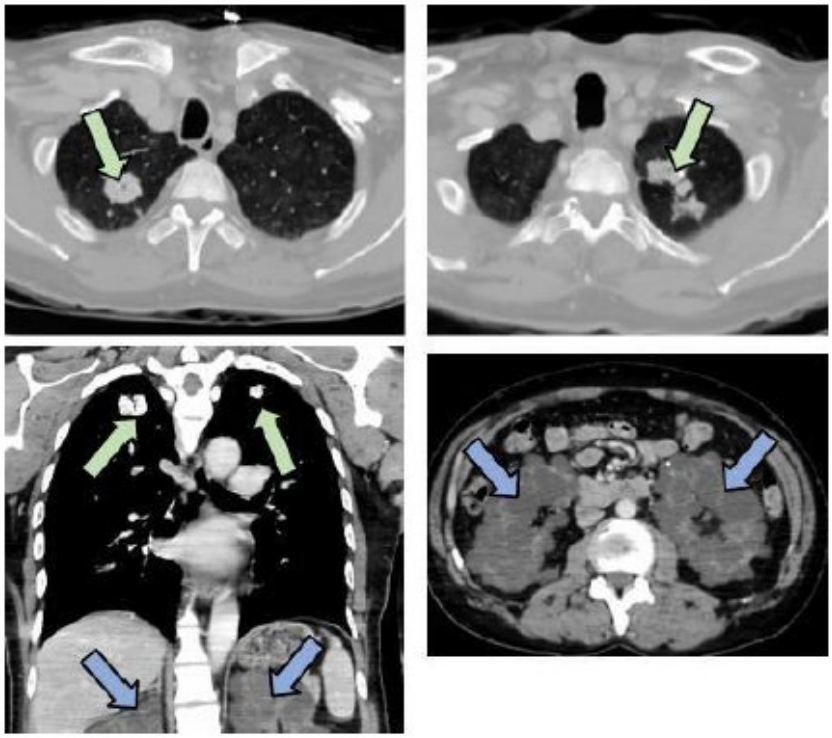
Time for a level up!



Partially calcified bilateral apical lesions with abnormal kidneys should shift you away from tumor.



Diagnosis: Metastatic calcifications in chronic renal failure



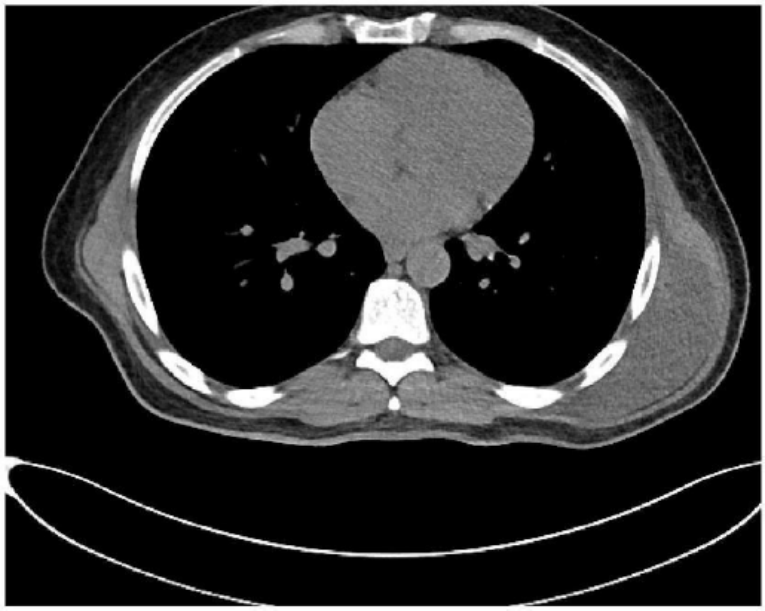
Radiological findings

Bilateral irregular mass-like apical lesions, with at least partial calcific densities (green arrows). Note the bilateral multicystic kidneys (blue arrows).

Teaching point

Pulmonary metastatic calcifications can be confused for neoplastic masses on imaging but are differentiated by typically appearing as bilateral apical calcific abnormalities in a patient known for chronic renal disease.

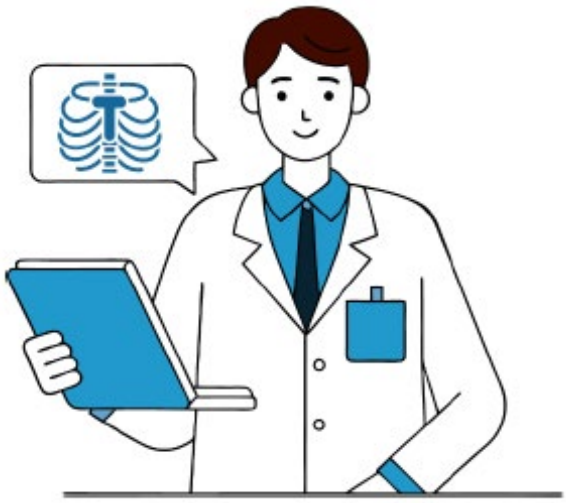
Quiz 46: 44-year-old male - Left scapular swelling



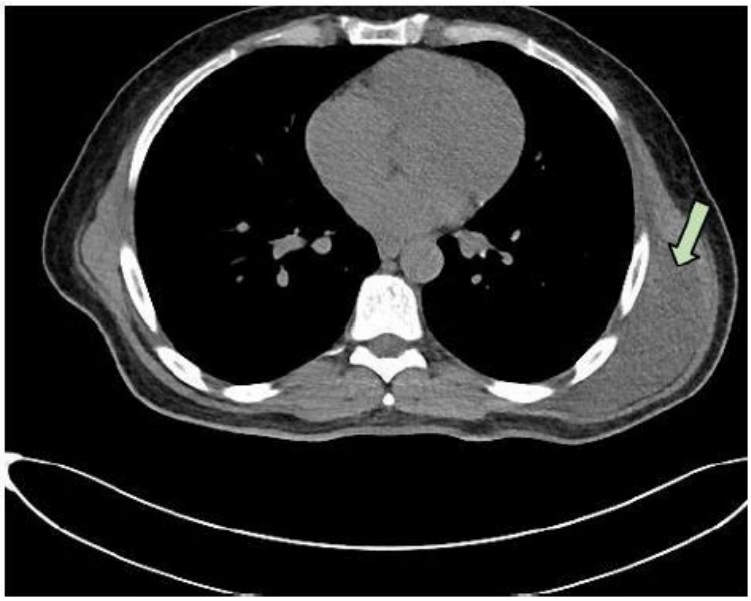
Think about the diagnosis



Think of a soft-tissue mass whose density resembles adjacent muscle.



Diagnosis: Elastofibroma dorsi



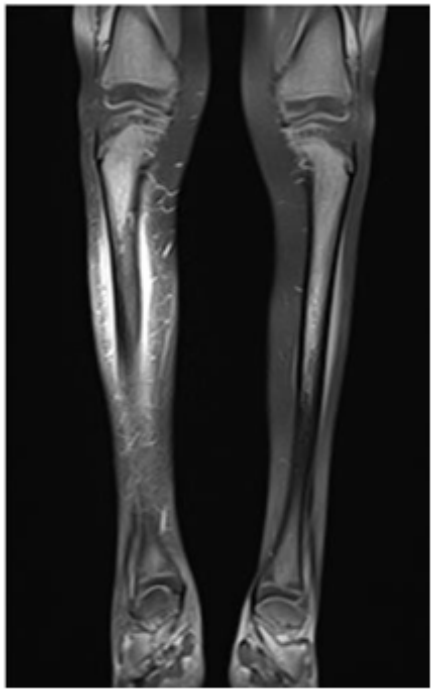
Radiological findings

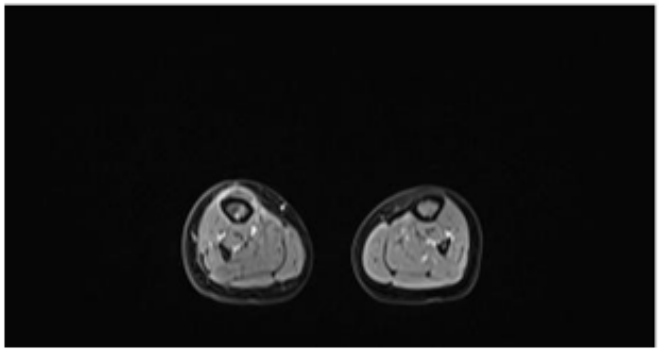
An ovoid shaped soft tissue mass is seen in the infrascapular region with attenuation similar to that of the adjacent skeletal muscle as depicted by the arrows. The mass is seen deep to the serratus anterior muscle.

Teaching point

Elastofibroma dorsi often occurs in the infrascapular region and may be bilateral, with a reported female predilection.

Quiz 47: Patient with warmth and tenderness

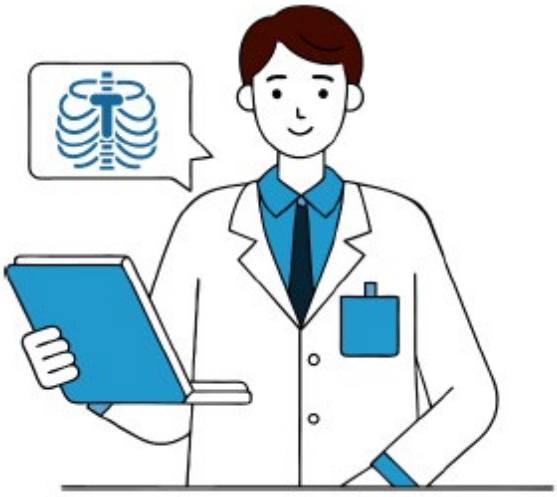




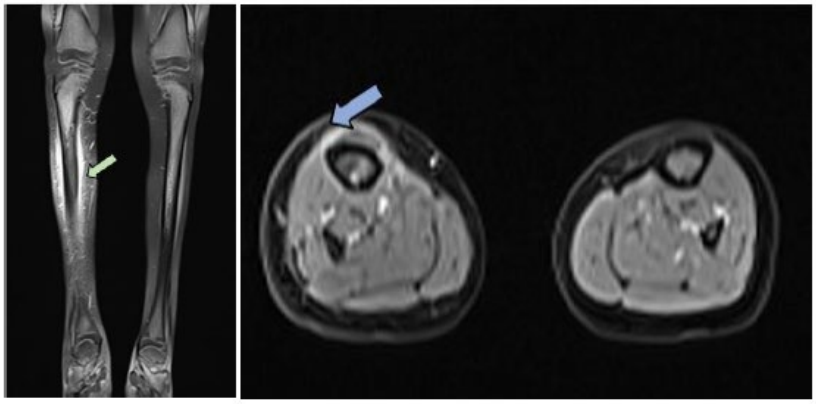
You got this

Hint

The decisive finding is a collection.



Diagnosis: Osteomyelitis



Radiological findings

Coronal STIR sequence demonstrates diffuse heterogeneity of the bone marrow. Subperiosteal collection is seen involving the midshaft of Teaching Point the tibia as depicted by the green arrow. Axial T1 fat-sat with contrast demonstrates a rim enhancing subperiosteal collection at the anterior aspect of the tibia consistent with periosteal abscess formation as depicted by the blue arrow. These findings are consistent with osteomyelitis with periosteal abscess formation.

Teaching point

Detecting osteomyelitis in sickle-cell anemia can be quite challenging given the marrow signal changes. Relying on other factors such as formation of subperiosteal collection formation is very important

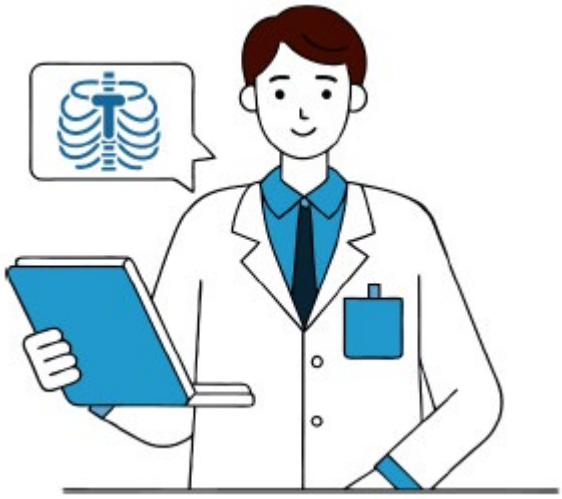
Quiz 48: 7-year-old female - Fell on an outstretched hand



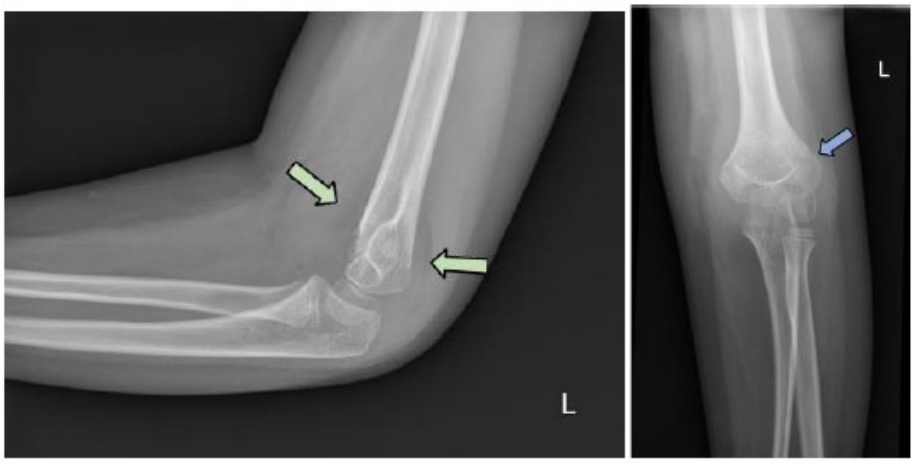
Common is common...

Hint

Look at the fat pads.



Diagnosis: Supracondylar fracture



Radiological findings

On the lateral radiograph of the elbow, the green arrows demonstrate the anterior and posterior fat pad signs which indicate the presence of an effusion in the elbow. A subtle cortical disruption is also noted within the anterior aspect of the distal humerus depicting a supracondylar fracture. The frontal radiograph of the elbow also demonstrates a transverse linear lucency at the distal humerus showing the supracondylar fracture (blue arrow).

Teaching point

Anterior and posterior fat pad signs are valuable indirect indicators of an occult supracondylar fracture in pediatric patients.

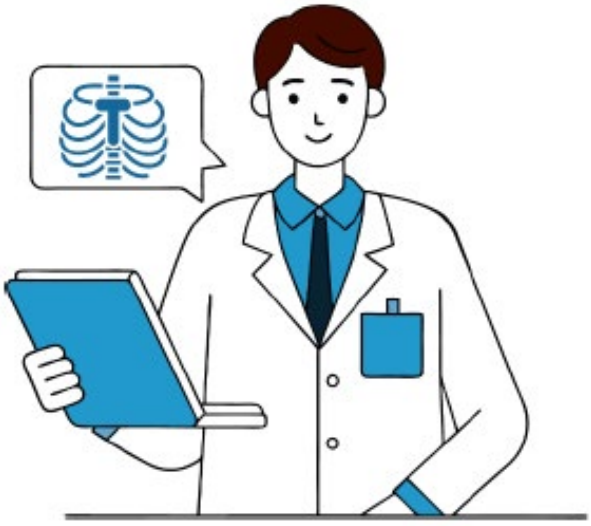
Quiz 49: Patient with weakness



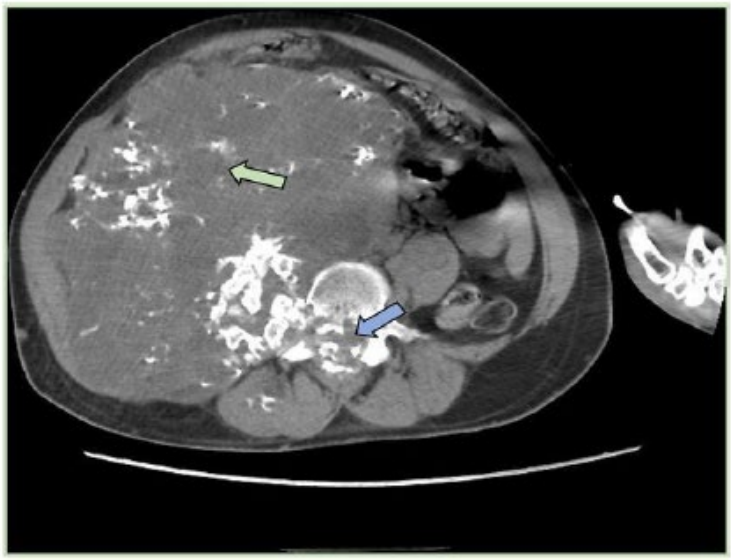
Think carefully....

Hint

Rings no one desires.



Diagnosis: Osteochondroma with malignant transformation



Radiological findings

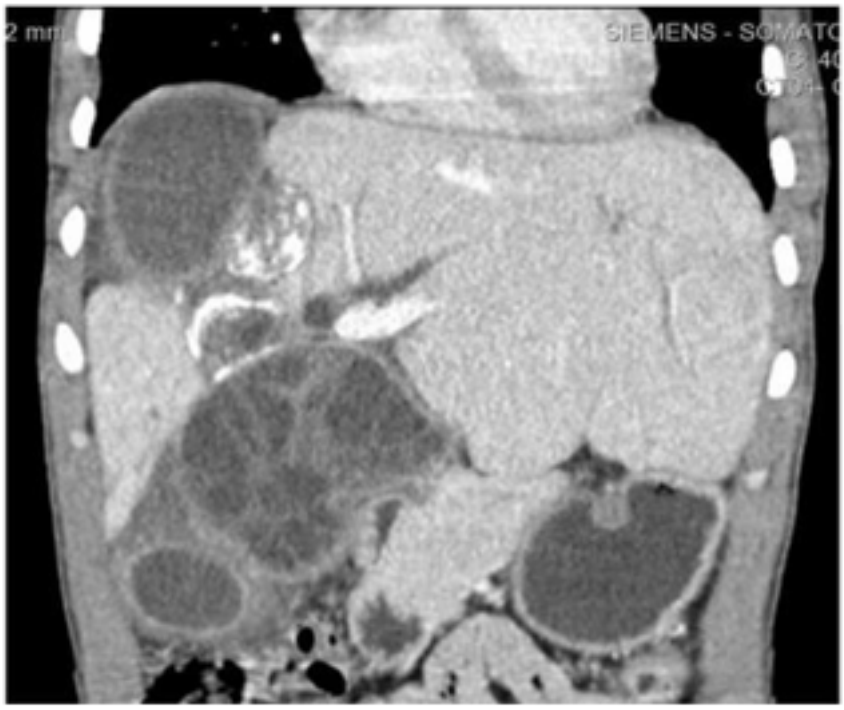
Non-contrast CT scan of the abdomen demonstrates the presence of a large retroperitoneal soft tissue mass with diffuse calcifications. The calcifications demonstrate a ring and arc pattern (green arrow) with intraspinal extension (blue arrow). The findings are most consistent with a known osteochondroma with malignant transformation.

Teaching point

Ring-and-arc calcification is typical of chondroid matrix and, when accompanied by aggressive soft-tissue extension, should raise concern for malignant transformation.

Quiz 50: 34-year-old male - Cough, chest pain, and shortness of breath

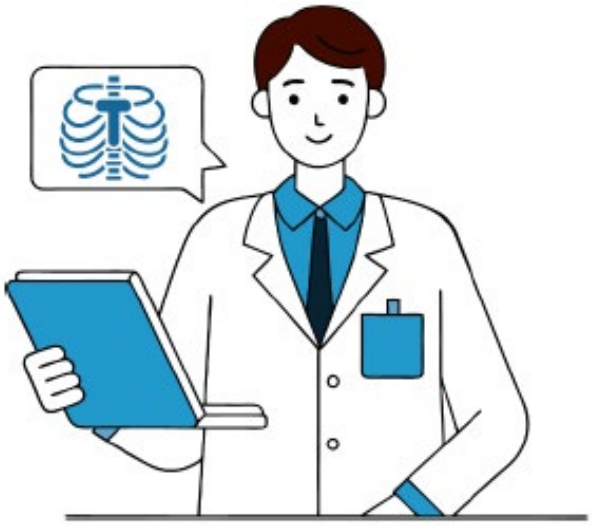




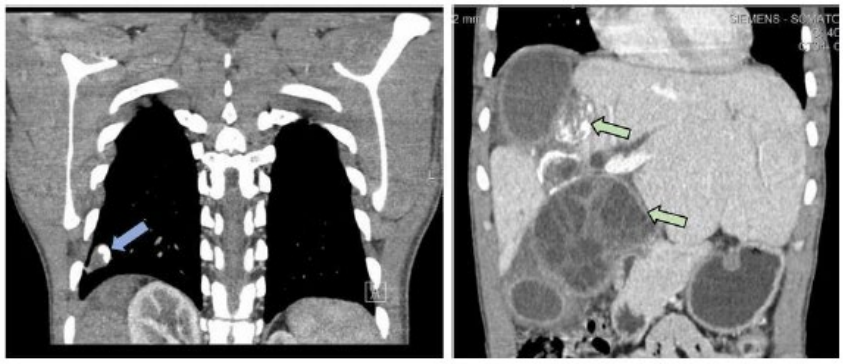
Take your time, you’re almost there

Hint

It has many daughters.



Diagnosis: Hydatid cyst



Radiological findings

A well-defined cystic lesion with peripheral rim calcification is present in the right lower lobe, and multiple hepatic cystic lesions are also seen, including a daughter cyst.

Teaching point

Hydatid disease should be considered when a cystic pulmonary lesion coexists with hepatic cysts, particularly when daughter cysts or peripheral calcification are present.

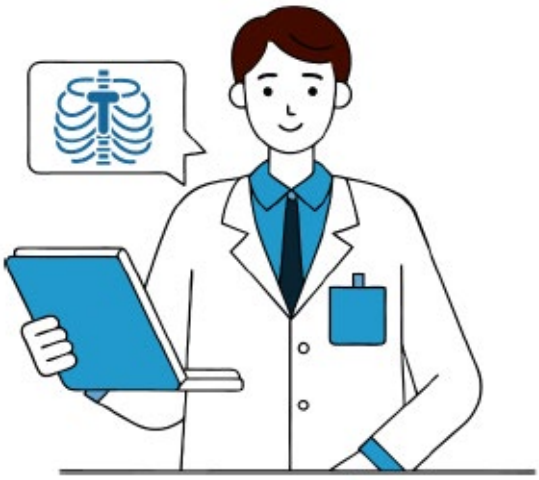
Quiz 51: 10-month-old male - Macrocephaly and developmental delay



Ready for the answer?



Look for the posterior fossa cystic malformation.



Diagnosis: Dandy-Walker malformation and left transverse sinus thrombosis



Radiological findings

CT brain demonstrates cystic dilatation of the fourth ventricle, hypoplasia of the cerebellar vermis, and enlargement of the posterior fossa (green arrow). There is associated hydrocephalus. Additionally, hyperdensity is noted within the left transverse sinus (blue arrow).

Teaching point

Dandy-Walker malformation is characterized by vermian hypoplasia, a posterior fossa cyst, and frequent hydrocephalus; associated venous sinus thrombosis may also be detected on imaging.

Conclusion

In closing, this collection of radiology cases represents not only a compilation of images and findings but also a learning journey for all who aspire to excel in the field of radiology. Each case is intended to challenge your observation, sharpen your analytical skills, and inspire a deeper understanding of diagnostic imaging. I hope this book serves as a practical reference and a source of inspiration, encouraging continuous learning, collaboration, and clinical excellence. May it guide you in your daily practice and help you uncover the fascinating stories behind every image.

Al Sobh Hospital is a modern healthcare facility offering both comprehensive general medical services and specialized psychiatric and addiction treatment in one location. We are committed to delivering compassionate, patient-centered care with complete privacy, advanced medical technology, high standards of quality and safety, comfortable healing environments, and seamless digital services, ensuring exceptional care for every patient.

Complete wellness.. in one place