Mimics of Malignancies: The Great Pretenders

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Learning objectives

- To present a series of cases from various organ systems in the torso that show imaging features of malignancies, subsequently proven to represent benign disease.
- To review the literature on these conditions highlighting potential pitfalls and current limitations of imaging modalities
- To point out learning points from each of those cases, and to review subtle features that point to the correct diagnosis in each of the conditions
Background

- A wide variety of pathologic conditions that mimic malignant tumours have been described in the literature. As the management between malignancies and benign disease can be drastically different, accurate and timely diagnosis by imaging is important.
We present cases for various organ systems, including the liver, lung, gallbladder, pancreas, kidney, peritoneum, urinary bladder and ovaries. These cases are highly unusual manifestations of benign conditions, and initially thought to represent malignancies. Subtle features that on retrospect provide clues to the correct diagnoses are elucidated, along with a concise review of the literature on imaging diagnoses of these conditions.

**TB chest**

- **Lymphadenopathy** (fig.1) is a common manifestation of primary pulmonary tuberculosis. The presence of hilar and mediastinal lymphadenopathy may distinguish primary from postprimary tuberculosis, because lymphadenopathy is conspicuously absent in postprimary tuberculosis except in patients with HIV/acquired immunodeficiency syndrome (AIDS) infection.
- Lymphadenopathy without a parenchymal opacity may occur as the only manifestation of primary pulmonary tuberculosis. The presence of calcified lymph node and a granuloma represents the Ranke complex. It is also frequently present in human immunodeficiency virus (HIV) infected patients.
- In adults with HIV infection, adenopathy is common. This may be a manifestation of the disease itself or as part of immune restoration inflammatory syndrome (IRIS), following initiation of HAART. Lymphadenopathy is most common in the ipsilateral hilar region. Hilar lymphadenopathy is seen in approximately 60% of children with primary tuberculosis, paratracheal adenopathy is seen in 40%, and subcarinal lymphadenopathy is seen in 80%.
- With an appropriate immune response or with adequate chemotherapy, enlarged necrotic lymph nodes may diminish in size and commonly calcify.
- On ultrasound, lymph nodes may be anechoic or hypoechoic, with or without septations, and often surrounded by a thick capsule. Rim-enhancing nodal lesions with central low attenuation on CT are characteristic for tuberculosis. However, these findings are not pathognomonic, and one should always consider lymphoma as possible differential diagnoses. In the chest, the pattern of lymphadenopathy is indistinguishable from that of sarcoid or lymphoma. Biopsy usually provides a definitive diagnosis.
- **Differentials** include lymphoma, TB, sarcoid, metastases, histoplasmosis

**Learning point**: Imaging findings can be non-specific and clinical history, laboratory investigations together with histology is important for diagnosis.
**Wegener’s Granulomatosis**

- Wegener’s granulomatosis (WG) is a systemic granulomatous inflammatory process with variable clinical expression. It classically involves the respiratory tract. Characteristic findings of WG include necrotizing granulomata of the respiratory tract, necrotizing vasculitis affecting medium to small pulmonary arteries and veins, and a focal glomerulonephritis. A limited form has also been described in which the disease is primarily confined to the lung.
- Presentation is usually non-specific with systemic complaints such as weight loss, fever, malaise and arthralgia. Upper and lower respiratory tract symptoms with rhinitis often the first symptom. Other symptoms include mucosal ulcerations, epistaxis, cough, haemoptysis and dyspnoea.
- The most common radiological manifestation of pulmonary WG consists of multiple nodules ranging from 0.3 to 10 cm in diameter. These nodules are usually bilateral and be smooth or spiculated. As the disease progresses, the nodules tend to increase in size and number. However, these nodules may wax and wane over time. Airspace opacities are a second manifestation of WG.
- Predominant CT manifestations are pulmonary nodules with or without cavitation and airspace consolidation. Cavitation usually occurs in nodules > 2cm in diameter and can occur in as many of 50% of patients.
- Airspace consolidation or ground glass opacities are common with several patterns of distribution, including diffuse, wedge-shaped pleural based, peribronchial, and patchy attenuation, usually reflecting diffuse pulmonary haemorrhage. These can be seen in isolation or in association with pulmonary nodules.
- Other imaging findings on CT include interlobular septal thickening, parenchymal bands, and bronchial wall thickening.
- In this patient, the prior chest radiograph taken a few months earlier was normal. This current chest radiograph shows pulmonary nodules and mass like opacities seen at both lower zones (fig. 2). CECT of the thorax showed wedge shaped masses of low attenuation (fig 3,4,5).
- Differential includes infection and malignancy, rheumatoid nodules, infarction, septic pulmonary emboli.

**Learning point**: WG can manifest as large pulmonary masses, though these usually cavitate. Correlation with clinical history such as sinusitis and renal impairment, as well as temporal course of disease progression is important.

**Cholecystitis**

- Acute cholecystitis represents inflammation of the gallbladder wall and is caused in most instances by obstruction of the cystic duct. Typical
presentation is that of right upper quadrant pain and tenderness which can be associated with anorexia, nausea and vomiting.

- Ultrasound features of cholecystitis are non-specific and include gallbladder wall thickening, presence of calculi, a positive ultrasonographic Murphy sign and pericholecystic fluid.
- CT findings in cholecystitis are that of gallstones within the gallbladder, the cystic duct, or both; focal or diffuse gallbladder wall thickening in the noncontracted state; an indistinct liver-gallbladder interface; gallbladder fossa in the absence of ascites; enlargement of the gallbladder (transverse diameter measuring more than 5 cm); infiltration of the surrounding fat; increased bile attenuation, caused by biliary sludge; and GB mucosal sloughing. Low attenuation ring around the gallbladder may indicate oedema in the outer wall of the gallbladder or fluid in the gallbladder fossa.
- Patients with carcinoma are more likely to present with weight loss, anorexia, palpable mass and jaundice.
- In gallbladder carcinoma, imaging studies may reveal a mass replacing the normal gallbladder, diffuse or focal thickening of the gallbladder wall, or a polypoid mass within the gallbladder lumen. Adjacent organ invasion is typically present at diagnosis.
- The most helpful specific CT signs in distinguishing gallbladder carcinoma from complicated cholecystitis were focal mass, biliary obstruction at the level of the porta hepatitis, invasion with protrusion of the anterior surface of the liver, and nodal metastases.
- The CT sign most useful in supporting a diagnosis of complicated cholecystitis without malignancy was the presence of a well defined curvilinear low-attenuation band (“halo”) surrounding the gallbladder. This halo corresponds to the mural edema found at sectioning of the gallbladder, or in more advanced cases to pericholecystic fluid collections seen at surgery. Several CT signs evaluated were found to be nonspecific. Diffuse thickening of the gallbladder wall and thickening of the hepatoduodenal ligament was not found to be helpful in distinguishing gallbladder carcinoma from complicated cholecystitis. The presence of calcified gallstones, a large mass in the gallbladder fossa, or streaky soft-tissue densities in the pericholecystic fat were not helpful in making this distinction, since they were frequent findings in both groups of patients. Involvement of the transverse colon was also nonspecific. In this series, low-density intrahepatic lesions were often due to malignancy; however, intrahepatic abscess can also produce a low-density intrahepatic lesion, as occurred in one case of cholecystitis.

Learning point: awareness of specific and nonspecific CT features should be of value in distinguishing complicated cholecystitis from gallbladder carcinoma.

Angiomyolipoma (AML) of the kidney

Learning point: awareness of specific and nonspecific CT features should be of value in distinguishing complicated cholecystitis from gallbladder carcinoma.
Angiomyolipomas (AMLs) are benign neoplasms containing varying amounts of adipose tissue, smooth muscle and blood vessels. Incidence of AMLs has been found to be 0.1% in males and 0.2% of females in the general population without tuberous sclerosis.

Hallmark finding of an angiomyolipoma on MRI is T1 hyperintense adipose tissue. Angiomyolipomas with macroscopic fat typically show "Indian-ink" artefact on opposed phase dual echo images. AMLS with minimal fat are difficult to differentiate from renal cell carcinomas (RCC) as both lesions show contrast enhancement.

In this case, the CT demonstrated a well-circumscribed lobulated enhancing mass with a central stellate scar with calcification (fig. 12,13,14) Total nephrectomy was performed and histology showed a spindle cell tumour compatible with smooth muscle, predominantly angiomyolipoma with central degenerative changes and focal ossification.

One review of the different reported cases of renal tumours containing fat and calcification suggested that when the fat component is pre-eminent the diagnosis of AML is more likely. On the other hand when the fatty component is subtle and the calcifications bigger than the fatty part the diagnosis of renal cell carcinoma is more likely.

Differential diagnosis : renal cell carcinoma as RCC can contain fat.

**Learning point**: Solid enhancing renal masses containing calcification are deemed malignant until proven otherwise. AMLs may be lipid poor and in rare cases can calcify.

**Focal Pyelonephritis**

- Renal infection confined to a single lobe is called focal pyelonephritis. It is more common in diabetic patients as well immunocompromised individuals.
- Patients typically present with flank pain, fever with chills, and pyuria. Ultrasound features are that of either a hypoechoic or hyperechoic lesion in the renal cortex extending from the renal medulla to the renal capsule, with decreased perfusion on color-flow Doppler imaging. CT findings are that of a focal wedge shaped area of low attenuation without a well defined wall around it, and without an overlying bulge on the renal surface, which distinguishes it from renal cell carcinoma. Striations may also be observed in the nephrogram.
- Extension of the acute inflammatory process into the perirenal soft tissues may give the appearance of a renal malignancy. Some infiltrative renal tumors (particularly medullary renal carcinoma) can appear similar to that of focal pyelonephritis. In such cases, clinical information can be helpful in making a diagnosis.
- In this case, a solid hypoechoic region at the interpolar region of the left kidney seen on ultrasound (fig. 15). CECT delayed images show a focal area of reduced attenuation at the left interpolar region with focal area of swelling and associated mild perinephric stranding (fig.16).
• Confirmatory tests with renal cortical scintigraphy using 99mTc-labelled glucoheptonate or dimercaptosuccinic acid (DMSA) is more sensitive and specific for focal pyelonephritis than any other imaging technique and shows a focal cortical defect in the kidney.
• Differentials: prominent column of Bertin, renal tumour, focal pyelonephritis
• Follow up ultrasound demonstrates resolving changes in the interpolar region of the left kidney (fig. 17). This correlated with resolution of the patient’s symptoms.

Learning point: Correlation with clinical history and a high index of suspicion for renal pseudotumors may help avoid unnecessary invasive assessment such as percutaneous biopsy.

Intrapancreatic Accessory Spleen

• Accessory spleens are present in 10% population with 80% seen at the splenic hilum. One-sixth of accessory spleens are found in the pancreatic tail. Symptoms rare, but patients can present with pain and nausea.
• An intrapancreatic accessory spleen (IPAS) will appear as a solid enhancing neoplasm on cross-sectional imaging, though it is rarely recognized radiologically. It can mimic intrapancreatic neoplasm, sharing signal characteristics with that of spleen on MRI, and may even be resected by mistake. On CT and MRI, a diagnosis of accessory spleen may be suggested from the characteristic location and appearance of the observed mass. Lesions appear similar to the spleen on unenhanced and contrast-enhanced images as well as having identical signal intensity to that of spleen on multiple MR pulse sequences.
• In this case, a small round lesion is seen at the tail of the pancreas of low signal intensity surrounded by the higher signal intensity pancreas. The signal intensity of this lesion is of same signal intensity as the adjacent spleen on different sequences (fig. 18,19)
• Further investigation with Tc-99m sulfur colloid, HDRBC, indium 111-labelled autologous platelets scintigraphy could be performed as confirmatory tests
• Differential diagnosis: pancreatic islet cell tumour, metastasis

Learning point: Compare the signal intensity of the lesion with adjacent structures. Non-invasive confirmatory tests may be performed. A multimodality approach helps obviate surgery and percutaneous biopsy, especially when malignancy is being considered.

Gastric diverticulum mimicking an adrenal mass

• Gastric diverticulum mimicking an adrenal mass
• In this case, there is an apparent mass adjacent to gastric fundus on CT close to the left adrenal gland (fig. 20).
• Static images acquired during study, hence limitation
• Subsequent CT performed at a later date demonstrates gas filled diverticulum with gas fluid level (fig. 21)
• Various adrenal pseudotumours have been previously described on CT with arising from adjacent organs such as duodenum, colon, gastric diverticulum, hepatic tumour, renal mass, pancreatic mass, and periadrenal varices. It is usually possible to distinguish adrenal pseudotumours from true adrenal tumours through meticulous CT technique, together with multiplanar reconstruction.

**Learning point:** Adjacent anatomical structures and may produce images suggesting adrenal pathology where none actually exists. If a gastric diverticulum is suspected, evaluation with barium meal or scanning in the prone position may allow for characterisation.

**Erdheim Chester Disease**

• Erdheim Chester disease is a rare multisystem disease in which there is progressive xanthogranulomatous infiltration of several tissues. It has no sex predilection and is usually diagnosed on the basis of the nearly pathognomonic radiographic features showing bilateral symmetrical osteosclerosis of the long bones, almost always sparing the epiphyses together with histology. Extraskeletal manifestations include orbits, hypothalamus-pituitary axis, lung, heart, retroperitoneum, skin, liver and kidneys.
• Histologically, Erdheim-Chester disease is characterized by the presence of infiltrating lipid-laden histiocytes that commonly involve the retroperitoneum, orbits, skin, pericardium, lungs, and long bones.
• Clinical presentation is non specific and include fever, weight loss, weakness, exophthalmos, diabetes insipidus, dysuria, abdominal pain, and obstructive renal impairment as a result of retroperitoneal involvement. Retroperitoneal involvement in ECD is secondary to infiltration of the fat and surrounding structures by histiocytes and associated fibrosis. CT findings range from fat stranding in the retroperitoneum to soft tissue masses in the retroperitoneum. This may result in hydronephrosis leading to renal failure and hypertension. Periaortic fibrosis has been described and has been shown to involve the entire aorta and its branches causing lower extremity claudications. Neurological manifestations include ataxia, paresis, and diabetes insipidus. Bone changes typically present as heterogeneous osteosclerosis of the diaphysis of the long bones, and may demonstrate increased osteoblastic activity on scintigraphy. The prognosis depends on the extent and distribution of the extraskeletal manifestations. Respiratory
distress, extensive pulmonary fibrosis, and cardiac failure are the most common causes of death.

- In this case, the CT images demonstrate prominent soft tissue seen throughout the entire retroperitoneum encasing retroperitoneal structures (fig. 22, 23).
- Differential include: lymphoma, sarcoma, pancreatic carcinomas, metastatic malignancies (breast, lung, colon, stomach, kidney), peri-aortic haematoma, amyloidosis

**Learning point:** Imaging findings alone in this rare condition are non-specific. Correlation with history and histology is important!

**Caecal Diverticulitis**

- CT typically demonstrates a discrete soft-tissue mass that narrows the colonic lumen in colon cancer. This can be associated stranding of the mesenteric fat, in keeping with tumour extension. Large masses may undergo central necrosis and may resemble that of an abscess.
- The presence of pericolonic lymph nodes in patients with suspected diverticulitis should raise the suspicion of colon cancer. When there are no pericolonic lymph nodes adjacent to a segment of colonic wall thickening, with pericolonic inflammatory changes, the most likely diagnosis is diverticulitis. When pericolonic lymph nodes are present, with or without pericolonic edema, the most likely diagnosis is colon cancer.
- To differentiate between diverticulitis and colon cancer, several points of overlap include wall thickening of more than 1 cm, associated soft-tissue mass, wall thickening with luminal narrowing, wall thickening without pericolonic inflammation, and short segment of wall thickening.
- For the diagnosis of diverticulitis, the most specific findings are pericolonic stranding and length of the involved segment of more than 10 cm.
- For colon cancer, the most specific findings were the presence of pericolonic lymph nodes and luminal mass.
- Definitive diagnosis is by colonoscopy and biopsy.

**Learning point:** Caecal diverticulitis can mimic a colonic mass. Careful attention to pattern of mucosal enhancement may provide subtle clues to the diagnosis. Associated findings of lymphadenopathy and pericolonic stranding are helpful but not specific. Colonoscopic biopsy provides definitive diagnosis.

**Rectal Schwannoma**

- Gastrointestinal tract (GIT) schwannomas are benign lesions most commonly found in the stomach (60%) with rectal location being a rare site.
• Few MRI features of GIT schwannomas have been reported; two cases of colorectal schwannomas appeared T1-weighted hypointense and T2-weighted hyperintense relative to muscle. Restricted diffusion reflects high cellularity, and can be seen in both malignant and benign lesions. DWI also does not differentiate between benign and malignant small pelvic lymph nodes with underlying malignancy.

• GIT schwannomas are homogeneously attenuating, well-defined, mural masses on CT. The lack of low-attenuation hemorrhage, necrosis, and degeneration within the tumor may help distinguish these tumors from gastrointestinal stromal tumors on CT.

• In this case, an intramural nodule was seen at the rectosigmoid junctions on both CT and MRI. Diffusion weighted images showed restricted diffusion within the mass and prominent perirectal lymph nodes (fig30,31).

• Subsequent histology after low anterior resection confirmed rectal schwannoma.

**Learning point:** DWI and enhancement patterns may not be useful in differentiating rectal schwannoma from malignancy, since both lymph nodes and the primary tumor can show restricted diffusion and variable enhancement. Careful evaluation for submucosal location of the tumor may permit for differentiation from the more commonly encountered adenocarcinoma.

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**Xanthogranulomatous Cystitis**

• Xanthogranulomatous cystitis (XC), first described in 1932, is a rare benign chronic inflammatory disease of unclear aetiology.

• Location of XC is mainly at the dome of the bladder. Multiple theories about its etiology have been proposed, including chronic irritation of the urachal remnant, chronic bacterial infection, immunological disorders, and abnormal lipid metabolism.

• This patient presented with difficulty in passing urine and haematuria for 6 months. He also gave a history of suprapubic abdominal discomfort for 6 weeks, usually whilst passing urine.

• Ultrasound performed demonstrates irregular thickening of the bladder wall (fig. 32).

• CT performed showed irregular bladder wall thickening and a large tumour like mass at the dome of the bladder suspicious for malignancy (fig. 33, 34).

• Partial cystectomy was performed. Histology demonstrated inflammatory lesion favouring xanthogranulomatous cystitis with involvement of urachal remnant.

• Differential: bladder tumour, chronic cystitis, malakoplakia.

• Definitive diagnosis is histological with exclusion of similar processes such as malacoplakia.
Learning point: Tumour-like masses in the bladder with wall thickening are not always malignant! Consider other possibilities, albeit rare as in this case, such as xanthogranulomatous cystitis. Rarely, chronic infections such as actinomycosis may also present as such.

TB Peritoneum

• TB in the peritoneum is present in 5% of patients with TB and is usually associated with widespread abdominal disease involving the lymph nodes or bowel. There are three main types of tuberculous peritoneal involvement, wet, fibrotic-fixed and dryplastic, of which the fibrotic fixed type most resembles malignancy, in particular, peritoneal carcinomatosis. This manifests as large omental masses, matted loops of bowel and nodular thickening of the mesentery.
• Differentials include peritoneal carcinomatosis, infection such as TB, disseminated metastatic disease. In females, differential includes advanced ovarian carcinoma.
• In this case, CT findings are of omental stranding and nodularity with presence of intraperitoneal fluid.
• Definitive diagnosis is by tissue or fluid analysis and culture. Laboratory assessment with CA-123 antigen may not be helpful as it may be elevated in infectious or inflammatory conditions involving the peritoneum.

Learning point: TB peritoneum manifests with omental nodules and caking, ascites and peritoneal thickening, a mimicker of peritoneal carcinomatosis. Correlation with the clinical presentation and knowledge of the geographic distribution of the endemic areas for TB may aid diagnosis. Ultimately, peritoneal fluid analysis may be necessary to confirm the diagnosis.

TB granuloma in the liver

• Diagnosis of extrapulmonary TB is difficult, especially when there are no pulmonary manifestations. Tuberculous infection in the liver is most likely secondary to haematogenous dissemination of the primary form of the disease. Disease manifestation in the liver is generally either micronodular (miliary) or macronodular (tuberculoma).
• The micronodular form usually occurs in association with miliary pulmonary tuberculosis and on CT, multiple low-attenuation foci may be seen. The macronodular form is rare and usually manifests as 1-3 cm hypoattenuating lesion or as a single mass in a diffusely enlarged liver or spleen. MR images show hypointense and minimally enhancing honeycomb-like lesions on T1-weighted images. On T2 weighted images, the lesions appear hyperintense with a less intense rim relative to the surrounding liver.
In this case, the patient presented with a epigastric pain. An ultrasound was performed which demonstrated intrahepatic gas. CT was subsequently performed for further evaluation and revealed a lobulated hypodense lesion causing mild splaying of the middle and left hepatic veins with irregular rim enhancement in segment 4A of the liver. It was thought to be an infected collection, however, in view of the enhancement pattern, malignancy could not be excluded (fig. 37, 38).

On subsequent imaging with MRI, the lobulated lesion appeared T1 hypointense to adjacent liver on unenhanced images and demonstrated irregular peripheral enhancement in the arterial and early portal venous phase. The central hypointense area showed progressive enhancement (fig 39-41), suggesting fibrosis, which can be seen in chronic inflammatory disease, e.g. tuberculosis. PET scan (not shown) was also performed and demonstrated hypermetabolic tumour in segment 4A of the liver. Avid small lymph nodes were also seen at the right hilum and right paratracheal regions which were thought to be either reactive or due to metabolic disease.

This lesion was thought to be malignant and the patient underwent a segmentectomy. Histology subsequently demonstrated this to be a granulomatous lesion and the patient was treated with 6 months of anti-tuberculous therapy.

Differentials for the macronodular form include metastases, primary malignant tumour (cholangiocarcinoma) or pyogenic abscess.

Learning point: Not all liver lesions are malignant. Imaging findings, together with the clinical history and ultimately, histology is useful in reaching a diagnosis.
Fig. 0: Contrast enhanced CT (CECT) of the thorax in the axial plane demonstrates multiple enlarged lymph nodes in the mediastinum and right axilla. Tree-in-bud appearance in the apex of right lung, in keeping with endobronchial spread of infection.

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Fig. 0: Chest radiograph demonstrates pulmonary nodules and mass-like opacities in both lower zones. Prior chest radiograph performed a few months earlier was normal.

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Fig. 0: CECT of the thorax in the axial plane in lung window show several wedge shaped masses. Smaller nodules seen peripherally. Given that the patient has a past medical history of WG and rapid appearance of clinical findings, CT changes are likely inflammatory to represent giant granulomas.

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**Fig. 0:** Coronal reformatted image of the thorax in the same patient in lung window show several wedge shaped masses. Smaller nodules seen peripherally. Given that the patient has a past medical history of WG and rapid appearance of clinical findings, CT changes are likely inflammatory to represent giant granulomas.

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**Fig. 0**: Coronal reformatted CECT of the thorax show several wedge shaped masses of low attenuation. Smaller nodules seen peripherally. Given that the patient has a past medical history of WG and rapid appearance of clinical findings, CT changes are likely inflammatory to represent giant granulomas.

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Fig. 0: Cholecystitis. Ultrasound image of the gallbladder in longitudinal section demonstrates a markedly distended and thickened gallbladder with areas of calcification and soft tissue density.

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Fig. 0: Cholecystitis. Ultrasound image of the gallbladder in the same patient in transverse section again demonstrates a markedly distended and thickened gallbladder with areas of calcification and soft tissue density.

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**Fig. 0:** Cholecystitis. Axial CECT image shows a distended gallbladder with multiple calculi and sludge. The walls of the gallbladder are diffusely thickened and heterogeneous in appearance with hypodense, loculated areas of fluid/necrosis.

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**Fig. 0:** Cholecystitis. Axial CECT image shows a distended gallbladder with multiple calculi and sludge. The walls of the gallbladder are diffusely thickened and heterogeneous in appearance with hypodense, loculated areas of fluid/necrosis.

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Fig. 0: Cholecystitis. Axial CECT image in another patient shows a contracted gallbladder with calculus within. The fundus appears ill-defined with suggestion of a mass lesion and is inseparable from the adjacent liver which has a heterogeneous hypodense appearance. An MRI was performed for further evaluation. (see fig. 11)

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**Fig. 0:** Cholecystitis. Axial post contrast multiphase LAVA sequence in portovenous phase shows a collapsed gallbladder with calculi within. An apparent focal mass is seen in the region of the fundus with infiltration into the adjacent liver.

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**Fig. 0:** AML Kidney. Pre and post contrast enhanced CT demonstrates a well-circumscribed lobulated enhancing mass with a central stellate scar with calcification

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Fig. 0: Focal pyelonephritis

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**Fig. 0:** Intrapancreatic accessory spleen. Axial single shot fast spin echo. Note the intrapancreatic lesion demonstrating identical signal intensity to that of adjacent spleen.

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**Fig. 0:** Intrapancreatic accessory spleen. Axial dual echo image. Note the intrapancreatic lesion demonstrating identical signal intensity to that of adjacent spleen.

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Fig. 0: CECT demonstrates an apparent mass adjacent to gastric fundus close to the left adrenal gland

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**Fig. 0:** Subsequent CT performed at a later date demonstrates gas filled diverticulum with gas-fluid level

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**Fig. 0:** Erdheim Chester. CECT demonstrates prominent soft tissue seen throughout the entire retroperitoneum encasing retroperitoneal structures.

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Fig. 0: Caecal diverticulitis. Axial CECT image demonstrates concentric wall thickening with suggestion of luminal mass and surrounding inflammatory changes.

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**Fig. 0:** Caecal diverticulitis. Coronal CECT image in the same patient demonstrates a luminal mass and surrounding inflammatory changes.

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Fig. 0: Rectal schwannoma. Axial CT with rectal contrast demonstrates a well defined polypoidal mass arising from the left wall of the distal sigmoid.

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Fig. 0: Rectal schwannoma. Coronal T2 oblique demonstrates a well defined polyp at the rectosigmoid junction.

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Fig. 0: Rectal schwannoma. Axial T2 oblique image demonstrates a well defined polyp at the rectosigmoid junction.

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Fig. 0: Rectal schwannoma. Sagittal T2 images demonstrate the polyp at the rectosigmoid junction.

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**Fig. 0:** Rectal schwannoma. Diffusion weighted images demonstrate focal areas of restricted diffusion, in the polyp and adjacent lymph nodes.

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Fig. 0: Rectal schwannoma. Diffusion weighted images demonstrate focal areas of restricted diffusion, in the polyp and adjacent lymph nodes.

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Fig. 0: Xanthogranulomatous cystitis. This ultrasound image demonstrates irregular thickening of the bladder wall.

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**Fig. 0:** Xanthogranulomatous cystitis. CECT shows irregular bladder wall thickening and a large tumour like mass at the dome of the bladder suspicious for malignancy.

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Fig. 0: TB peritoneum. Coronal CT image again demonstrates omental caking and nodularity with presence of intraperitoneal fluid.

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Fig. 0: Contrast enhanced CT performed showed a lobulated hypodense lesion causing mild splaying of the middle and left hepatic veins with irregular rim enhancement in segment 4A of the liver.
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**Fig. 0:** MRI liver. Axial SPGR pre-gadolinium shows the liver lesion appearing hypointense to adjacent liver parenchyma

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**Fig. 0:** MRI liver. Axial SPGR post gadolinium at 30 seconds shows the liver lesion demonstrating irregular peripheral enhancement.

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**Fig. 0**: MRI liver. Axial SPGR post gadolinium at 1 minute shows enhancement of the the central hypointense area seen on earlier picture (fig. 40) Progressive enhancement on subsequent delayed image suggests fibrosis seen in chronic inflammatory disease eg tuberculosis.

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Conclusion

- Anatomic imaging of certain benign conditions can at times lead the radiologist down the wrong path. Knowledge of these "great pretenders" can avoid misdiagnosis and unnecessary distress.
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