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PROVISIONAL ANSWER KEY (CBRT)

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Instructions / સૂચના

Candidate must ensure compliance to the instructions mentioned below, else objections shall not be considered: -

- (1) All the suggestion should be submitted in prescribed format of suggestion sheet Physically.
- (2) Question wise suggestion to be submitted in the prescribed format (Suggestion Sheet) published on the website.
- (3) All suggestions are to be submitted with reference to the Master Question Paper with provisional answer key (Master Question Paper), published herewith on the website. Objections should be sent referring to the Question, Question No. & options of the Master Question Paper.
- (4) Suggestions regarding question nos. and options other than provisional answer key (Master Question Paper) shall not be considered.
- (5) Objections and answers suggested by the candidate should be in compliance with the responses given by him in his answer sheet. Objections shall not be considered, in case, if responses given in the answer sheet /response sheet and submitted suggestions are differed.
- (6) Objection for each question shall be made on separate sheet. Objection for more than one question in single sheet shall not be considered & treated as cancelled.

ઉમેદવારે નીચેની સૂચનાઓનું પાલન કરવાની તકેદારી રાખવી, અન્યથા વાંધા-સૂચન અંગે કરેલ રજૂઆતો ધ્યાને લેવાશે નહીં

- (1) ઉમેદવારે વાંધા-સૂચનો નિયત કરવામાં આવેલ વાંધા-સૂચન પત્રકથી રજૂ કરવાના રહેશે.
- (2) ઉમેદવારે પ્રશ્નપ્રમાણે વાંધા-સૂચનો રજૂ કરવા વેબસાઈટ પર પ્રસિધ્ધ થયેલ નિયત વાંધા-સૂચન પત્રકના નમૂનાનો જ ઉપયોગ કરવો.
- (3) ઉમેદવારે પોતાને પરીક્ષામાં મળેલ પ્રશ્નપુસ્તિકામાં છપાયેલ પ્રશ્નક્રમાંક મુજબ વાંધા-સૂચનો રજૂ ન કરતા તમામ વાંધા-સૂચનો વેબસાઈટ પર પ્રસિધ્ધ થયેલ પ્રોવિઝનલ આન્સર કી (માસ્ટર પ્રશ્નપત્ર)ના પ્રશ્ન ક્રમાંક મુજબ અને તે સંદર્ભમાં રજૂ કરવા.
- (4) માસ્ટર પ્રશ્નપત્ર માં નિર્દિષ્ટ પ્રશ્ન અને વિકલ્પ સિવાયના વાંધા-સૂચન ધ્યાને લેવામાં આવશે નહીં.
- (5) ઉમેદવારે જે પ્રશ્નના વિકલ્પ પર વાંધો રજૂ કરેલ છે અને વિકલ્પ રૂપે જે જવાબ સૂચવેલ છે એ જવાબ ઉમેદવારે પોતાની ઉત્તરવહીમાં આપેલ હોવો જોઈએ. ઉમેદવારે સૂચવેલ જવાબ અને ઉત્તરવહીની જવાબ ભિન્ન હશે તો ઉમેદવારે રજૂ કરેલ વાંધા-સૂચન ધ્યાનમાં લેવાશે નહીં.
- (6) એક પ્રશ્ન માટે એક જ વાંધા-સૂચન પત્રક વાપરવું. એક જ વાંધા-સૂચન પત્રકમાં એકથી વધારે પ્રશ્નોની રજૂઆત કરેલ હશે તો તે અંગેના વાંધા-સૂચનો ધ્યાને લેવાશે નહીં.

001. A 45-year-old male smoker has a 6-month history of gradually increasing shortness of breath and cough. Chest Radiograph shows a mild increase in interstitial markings in the mid and upper zones. A high-resolution CT (HRCT) of chest is requested for clarification and this demonstrates ill-defined centrilobular ground-glass nodules, more pronounced in the mid and upper zones. There is no traction bronchiectasis or honeycombing. What is the most likely diagnosis?
- (A) Desquamative interstitial pneumonia (DIP).
 (B) Usual interstitial pneumonia (UIP).
 (C) Respiratory bronchiolitis interstitial lung disease (RBILD).
 (D) Non-specific interstitial pneumonia (NSIP).
002. A 50-year-old woman presents with gradually increasing shortness of breath. A Chest Radiograph and HRCT of chest show subpleural reticulation, more marked in the lower zones. Which of the following further findings on HRCT is most likely to support the diagnosis of NSIP?
- (A) Centrilobular nodules. (B) Air-trapping.
 (C) GGO. (D) Cystic changes.
003. A 65-year-old man has kept pigeons for over 20 years. He is complaining of gradually worsening shortness of breath. A CXR shows increased interstitial markings, with reduction in lung volumes. A subsequent HRCT of chest shows quite marked pulmonary fibrosis with areas of honeycomb formation. Which part of the lung is likely to be relatively spared by the fibrotic process?
- (A) Upper zones. (B) Mid zones.
 (C) Posterior costophrenic sulci. (D) Central peribronchovascular regions.
004. A 70-year-old male undergoes endovascular stent graft repair of an infrarenal abdominal aortic aneurysm. A follow-up CT at 1 year demonstrates increasing aneurysm sac diameter without any evidence of endoleak. What is the diagnosis?
- (A) Type IV endoleak. (B) Type V endoleak.
 (C) Type III endoleak. (D) Type II endoleak.
005. A 34-year-old woman presents with a 4-month history of gradually increasing dyspnea and cough. A Chest Radiograph and subsequent CT scan show multiple cavitating lung lesions. On the CT scan, some of these lesions are noted to have surrounding ground-glass attenuation. No other abnormality is seen. Which of the following diagnoses are the findings most compatible with?
- (A) Rheumatoid lung. (B) Lung abscesses.
 (C) Eosinophilic granuloma. (D) Melanoma metastases.
006. A 40-year-old male presents with a history of severe epigastric pain and raised amylase. CT demonstrates acute pancreatitis complicated by a 2.5 cm pseudoaneurysm of the gastroduodenal artery (GDA). Embolization of the GDA is requested. What is the accepted method of embolization?
- (A) Coil embolization proximal to the pseudoaneurysm.
 (B) Coil embolization distal and proximal to the pseudoaneurysm.
 (C) Embolization with polyvinyl alcohol (PVA) particles.
 (D) Amplatzer plug occlusion of common hepatic artery.

007. A 28-year-old Asian male immigrant presents with low-grade fever, weight loss and productive cough. There is no history of immunosuppression. Which of the following Chest Radiograph finding is most in keeping with post-primary TB?
- (A) Unilateral hilar lymphadenopathy.
 (B) Cavitating parenchymal opacity.
 (C) Pleural effusion.
 (D) Multiple bilateral non-calcified nodules <3 mm diameter.
008. A 30-year-old caucasian man, recently treated with bone marrow transplantation for acute myeloid leukaemia, presents with fever and cough. HRCT chest demonstrates multiple, small centrilobular nodules of soft tissue attenuation connected to linear branching opacities. What is the most likely cause of this finding?
- (A) Endobronchial tuberculosis. (B) Primary pulmonary lymphoma.
 (C) Invasive aspergillosis. (D) Obliterative bronchiolitis.
009. A 56-year-old woman with a history of Sjogren's syndrome complains of gradually increasing shortness of breath. A Chest Radiograph has identified a mild generalized interstitial pattern, with maintained lung volumes. A subsequent HRCT of chest demonstrates a few scattered well-defined, regular lung cysts. Within the lung parenchyma there is also noted patchy ground glass change and mild centrilobular nodularity. Mild mediastinal and hilar lymphadenopathy is present. What is the most likely diagnosis?
- (A) Langerhans cell histiocytosis.
 (B) Desquamative interstitial pneumonia.
 (C) Lymphangioleiomyomatosis.
 (D) Lymphocytic interstitial pneumonia.
010. A specialty trainee from the medical ward shows you a Chest Radiograph of a breathless patient. You observe splaying of the carina and a 'double right heart border'. What is the most likely underlying diagnosis?
- (A) Mitral stenosis. (B) Aortic stenosis.
 (C) Tricuspid incompetence. (D) Left ventricular aneurysm.
011. A 64-year-old man with a history of alcoholism presents with acute onset fever and productive cough. What feature on his admission Chest Radiograph would be in keeping with *Klebsiella* pneumonia as opposed to pneumococcal pneumonia?
- (A) Lobar consolidation. (B) Parapneumonic effusion.
 (C) Reticulonodular opacity. (D) Bulging interlobar fissure.
012. A 35-year-old male smoker presents with a history of progressive dyspnea and rapidly deteriorating lung function. Chest Radiograph shows hyperinflated lungs and decreased pulmonary vascular markings. High-resolution CT of chest shows well-defined foci of reduced lung attenuation without definable wall, decreased pulmonary vascular markings and bullae with basilar predominance. What is the likely diagnosis?
- (A) Centrilobular emphysema. (B) Paraseptal emphysema.
 (C) Alpha-1 antitrypsin deficiency. (D) Congenital lobar emphysema.
013. A 63-year-old male has a complex past medical history including testicular carcinoma, cardiac disease, rheumatoid arthritis (RA) and diabetes mellitus. He presents with shortness of breath and is referred for a CT chest. This reveals multiple areas of ground-glass attenuation, crazy-paving and consolidation in both lungs. You also notice that the spleen and liver are of increased attenuation. What is the most likely explanation for these findings?
- (A) RA-related lung disease. (B) Cardiac failure.
 (C) Amiodarone. (D) Bleomycin.

014. A 28-year-old HIV-positive IV drug user presents with progressive exertional dyspnoea, fever and non-productive cough. Chest Radiograph demonstrates bilateral parahilar fine reticular opacities. There is no appreciable lymphadenopathy. What is the most likely diagnosis?
- (A) *Mycobacterium avium-intracellulare*. (B) *Pneumocystis jirovecii* (formerly *P. carinii*).
 (C) Toxoplasmosis. (D) Coccidioidomycosis.
015. A 50-year-old man has developed graft vs host disease following a bone marrow transplant. He develops some breathlessness and has pulmonary function tests showing irreversible obstruction. Constrictive (obliterative) bronchiolitis is suspected. Which of the following findings on HRCT is likely to be most helpful in making this diagnosis?
- (A) 'Tree in bud' opacities. (B) Bronchiolectasis.
 (C) Air-trapping. (D) Centrilobular nodules.
016. A 50-year-old female is found to have a solitary pulmonary nodule on CT imaging. Which of the following features suggests that it is benign?
- (A) Irregular, spiculated margin.
 (B) Central 'popcorn' calcification.
 (C) Doubling time of 180 days.
 (D) Contrast enhancement of 25 Hounsfield units (HU).
017. A 42-year-old male presents with chest pain, dyspnoea and palpitations. He undergoes cardiac MRI, which reveals extensive scattered delayed enhancement in the anterior, lateral and inferior wall and apex of the left ventricle. This enhancement occurs in the midwall with relative sparing of the subendocardial region. T2WI is unremarkable. What is the most likely diagnosis?
- (A) Acute myocardial infarction. (B) Sarcoidosis.
 (C) Myocarditis. (D) Hypertrophic cardiomyopathy.
018. A 34-year-old man presents with chest pain and palpitations. An electrocardiogram (ECG) reveals a ventricular tachycardia with left bundle branch block (LBBB). A T1WI sequence shows transmural high signal and thinning of the myocardium of the right ventricle, with dilatation of the right ventricle and right ventricular outflow tract. What is the most likely diagnosis?
- (A) Tricuspid stenosis. (B) Uhl's anomaly.
 (C) Pericardial effusion. (D) Arrhythmogenic right ventricular dysplasia.
019. An 18-year-old woman with Poland syndrome is being assessed by plastic surgery for reconstruction. As part of her pre-operative work-up a CT chest is requested. What is the classic finding in this disorder?
- (A) Absence of the sternal head of pectoralis major.
 (B) Hypoplastic clavicles.
 (C) Anterior protrusion of the ribs.
 (D) Bilateral breast aplasia.
020. A 25-year-old baseball player presents with a history of worsening pain, diffuse oedema and discolouration of the right upper limb following a game. Doppler ultrasound demonstrates occlusion of the axillary and subclavian veins. He undergoes catheter-directed thrombolysis successfully. Check venogram demonstrates external compression from scalenus muscle. What is the diagnosis?
- (A) May-Thurner syndrome. (B) Nutcracker syndrome.
 (C) Paget-Schroetter syndrome. (D) Trousseau syndrome.

021. A 30-year-old male mechanic presents with digital ischaemia. Catheter angiogram demonstrates occlusion of the distal ulnar artery and abrupt occlusion of some of the digital arteries. The radial artery is patent and there is filling of the superficial palmar arch via deep palmar arch collaterals. What is the diagnosis?
- (A) Hypothenar hammer syndrome. (B) Peripheral embolic disease.
(C) Raynaud's disease. (D) Thoracic outlet syndrome.
022. A 4-year-old with a history of asthma is admitted with an acute exacerbation. A post-admission Chest Radiograph shows evidence of pneumomediastinum. Which one of the following is a recognized sign of pneumomediastinum?
- (A) Spinnaker/thymic sail sign. (B) Air-crescent sign.
(C) Deep sulcus sign. (D) Inverted V sign.
023. A patient is referred for cardiac MRI. Which of the following is a definite contraindication?
- (A) Cardiac pacemaker.
(B) Loop recorder.
(C) Coronary artery bypass grafting 2 months ago.
(D) None of the above.
024. A 24-year-old woman who is 28 weeks pregnant is admitted with suspected pulmonary embolism. As the on-call radiologist, her obstetrician contacts you seeking advice regarding further management. An admission Chest Radiograph is normal. What investigation do you advise initially?
- (A) Venous ultrasound. (B) Low-dose CTPA.
(C) Reduced dose lung scintigraphy. (D) MRA.
025. A 28-year-old male presents with soft tissue swelling, pain, and reduction of motion in the small joints of his hands. Plain Radiographs of the hands show erosions at the metacarpophalangeal (MCP) joints and distal interphalangeal joints with periosteal reaction and enthesophytes. What is the most likely diagnosis?
- (A) Psoriatic arthropathy. (B) RA.
(C) SLE. (D) Haemochromatosis.
026. A 34-year-old female presents to the Emergency medicine department after falling on an outstretched hand. Examination reveals tenderness at the anatomic snuff box. A scaphoid radiograph series confirms scaphoid fracture. Which of the following features is most associated with a poor prognosis?
- (A) Fracture of the distal third. (B) Fracture of the middle third.
(C) Fracture of the proximal third. (D) Horizontal oblique fracture orientation.
027. A 24-year-old male presents to the Emergency medicine department with pain and swelling of his right thumb after landing against his ski pole while practicing at the local dry ski-slope. An avulsion fracture at the base of the proximal phalanx is noted on a radiograph of the thumb. What underlying soft tissue structure has been injured to result in this fracture?
- (A) Ulnar collateral ligament. (B) Radial collateral ligament.
(C) Joint capsule. (D) Flexor pollicis longus tendon.

028. A 75-year-old male with a history of backache undergoes plain radiographs of the lumbar spine, which demonstrate diffuse bone sclerosis. An MRI demonstrates diffuse low signal intensity of bone marrow on all sequences with no architectural distortion. The MRI planning sequence demonstrate splenomegaly. What is the diagnosis?
- (A) Sickle-cell anemia. (B) Lymphoma.
 (C) Osteoblastic metastasis. (D) Myelofibrosis.
029. An 18-year-old motorcyclist is involved in an RTA in which he was dragged by the colliding car. He is noted to have pain in his right shoulder and neck with associated paraesthesia. An MRI is requested, suspecting brachial plexus injury. What finding is most suggestive of nerve root avulsion?
- (A) Pseudomeningocele.
 (B) Intradural nerve root enhancement.
 (C) Spinal cord T2WI hyperintensity.
 (D) T2WI hyperintensity within the paraspinal muscles.
030. A 17-year-old female is admitted with multiple penetrating injuries to her arms after shielding her face from a nearby bomb blast while walking in the city centre. For which type of penetrating foreign body is ultrasound most superior for detection?
- (A) Gravel. (B) Wood.
 (C) Plastic. (D) Windshield glass.
031. A 30-year-old female runner presents with a history of pain in the legs on running. Plain radiographs are unremarkable. An isotope bone scan reveals subtle, longitudinal, linear uptake on the delayed bone scan images, with normal angiogram and blood pool images. What is the diagnosis?
- (A) Stress fracture. (B) Shin splints.
 (C) Osteoid osteoma. (D) Osteomyelitis.
032. A 25-year-old man presents with a painful knee. A plain radiograph reveals a lucent area with a wide zone of transition in the distal femoral metaphysis. MRI reveals fluid–fluid levels. What is the most likely diagnosis?
- (A) Aneurysmal bone cyst. (B) GCT.
 (C) Osteosarcoma. (D) Chondroblastoma.
033. A 21-year-old rugby player presents to the Emergency medicine department with right shoulder pain and decreased range of movement following a tackle. There is obvious contour deformity on examination. Plain radiographs confirm anterior dislocation. Which additional radiographic finding is in keeping with a Hill–Sachs deformity?
- (A) Intra-articular loose body. (B) Greater tuberosity fracture.
 (C) Anterior glenoid rim fracture. (D) Posterior humeral head indentation.
034. A 15-year-old boy presents with a history of knee pain. Plain radiographs demonstrate calcification at the patellar tendon attachment to the inferior pole of the patella. MRI of the knee demonstrates oedema at the patellar attachment of the patellar tendon. What is the diagnosis?
- (A) Osgood–Schlatter disease. (B) Patellar sleeve avulsion.
 (C) Sinding–Larsen–Johansson syndrome. (D) Complete rupture of patellar tendon.

042. An 18-year-old male with fingernail dysplasia and a family history of renal failure is investigated for possible nail-patella syndrome. Which of the following radiographic findings is considered pathognomonic for this disorder?
- (A) Patellar hypoplasia. (B) Lateral elbow hypoplasia.
(C) Posterior iliac horns. (D) Calcaneo-valgus feet.
043. A 10-year-old male involved in an RTA is brought to the Emergency medicine department with a history of severe right thigh pain. Plain radiograph demonstrates transverse fracture in the mid-diaphysis of the femur. Incidental note is made of bone osteopenia and undertubulation of the femur with metaphyseal flaring producing Erlenmeyer flask deformity and coxa magna related to previous avascular necrosis of the femoral head. What is the underlying bone disease?
- (A) Pyle's disease. (B) Osteopetrosis.
(C) Gaucher's disease. (D) Fibrous dysplasia.
044. A 62-year-old male with a known diagnosis of bronchogenic carcinoma presents with pain and swelling of his wrists. What radiographic features are consistent with hypertrophic pulmonary osteoarthropathy?
- (A) Metaphyseal lamellar periosteal reaction.
(B) Irregular epiphyseal periosteal proliferation.
(C) Asymmetrical, thick 'feathery' periosteal reaction.
(D) Cortical thickening and trabecular coarsening.
045. A 5-year-old boy presents with a history of walking difficulty. On examination he is noted to have an antalgic gait and lower limb length discrepancy, with the right limb being shorter than the left. Plain radiographs of the right leg show lobular ossific masses arising from the distal femoral epiphysis and the talus, which resemble osteochondromas. What is the most likely underlying diagnosis?
- (A) Dysplasia epiphysealis hemimelica (Trevor disease).
(B) Multiple epiphyseal dysplasia.
(C) Diaphyseal aclasis.
(D) Dyschondrosteosis (Leri-Weil disease).
046. A 22-year-old patient presents to casualty with a reduced GCS and hypotension. He is visiting the UK from abroad and fellow backpackers in a local youth hostel state that he was complaining of abdominal pain earlier that day. A CT abdomen reveals sclerosis in both femoral heads and H-shaped vertebrae. The spleen is small and calcified. What is the patient's most likely underlying diagnosis?
- (A) Scheuermann's disease. (B) Hereditary spherocytosis.
(C) Gaucher disease. (D) Sickle-cell disease.
047. A 41-year-old male presents to the Emergency medicine department with knee pain following a fall at work. Plain radiography does not demonstrate any fracture, but note is made of continuous, irregular cortical hyperostosis along the lateral margin of the femur. What is the most likely diagnosis?
- (A) Osteopoikilosis. (B) Fibrous dysplasia.
(C) Engelmann disease. (D) Melorheostosis.

048. A radiologist is reporting a ^{99m}Tc bone scan and describes it as a 'superscan'. He can say this because of reduced uptake in the:
- (A) Brain (B) Skeleton
 (C) Kidneys (D) Bowel
049. A 35-year-old man presents with pain, swelling, and reduced movement of his knee. A plain Radiograph reveals a joint effusion, well-defined erosions with preservation of joint space, and normal bone mineralization. An MRI reveals, in addition, a mass in the region of the femoro-tibial joint space with low signal on T1WI and T2WI, and blooming artefact on GRE imaging. What is the most likely diagnosis?
- (A) Synovial cell sarcoma. (B) Regional migratory osteoporosis.
 (C) Gout. (D) PVNS.
050. A small bowel series is requested for a patient who has a history of systemic sclerosis. Which of the following is a feature of small bowel systemic sclerosis?
- (A) Stacked coin appearance due to infiltration of small bowel loops.
 (B) Pseudo-diverticula affecting the anti-mesenteric side of the bowel.
 (C) Decreased intestinal transit time.
 (D) Pneumatosis intestinalis.
051. A lesion is noted in the liver on CT and ultrasound. It is inferior, anterior, and to the left of the right hepatic vein, but to the right of the middle hepatic vein. It is inferior of the confluence of the right and left portal veins. According to the Couinaud system, what segment of the liver is the lesion in?
- (A) Segment 4b. (B) Segment 5.
 (C) Segment 6. (D) Segment 7.
052. A 56-year-old male patient is referred for an ultrasound of abdomen prior to undergoing an anterior resection for a proximal rectal carcinoma. The ultrasound reveals a 2cm lesion in the right lobe of the liver, which is hyperechoic centrally with a hypoechoic rim. Which one of the following cannot be considered in the differential for this lesion?
- (A) Metastases. (B) Haemangioma.
 (C) Sarcoid. (D) Candidiasis.
053. A patient is undergoing a barium meal. What is the best position to place the patient in to see an *en face* view of the lesser curve?
- (A) Left lateral. (B) Left anterior oblique (LAO).
 (C) Supine. (D) Right anterior oblique (RAO).
054. A patient is being worked up for a pancreatic neoplasm to assess potential resectability. Which one of the following does not rule out surgery?
- (A) Extension of the tumour beyond the margins of the pancreas into duodenum.
 (B) Tumour involvement of adjacent organs.
 (C) Enlarged peripancreatic lymph nodes (>15 mm).
 (D) Encasement or obstruction of superior mesenteric vessels.

055. A 40-year-old female undergoes MRI of the liver, which demonstrates a 5-cm lesion that is isointense to liver on T1WI and slightly hyperintense on T2WI. It has a central scar that is hypointense on T1WI and hyperintense on T2WI. On contrast-enhanced dynamic MRI, the lesion is hyperintense in the arterial phase, and isointense to liver in the portal venous phase with delayed filling in of the central scar. What is the diagnosis?
- (A) Hepatic adenoma. (B) Fibrolamellar hepatoma.
 (C) Hypervascular metastasis. (D) Focal nodular hyperplasia (FNH).
056. A 45-year-old female is suspected to have focal areas of fat infiltration on ultrasound of the liver. An MRI of the liver is requested for further assessment. What sequences are most useful in confirming the diagnosis of focal fat infiltration?
- (A) T1WI pre and post gadolinium. (B) T1WI and T2WI.
 (C) T1WI and fat-saturated T2WI. (D) Dual GE T1WI in phase and out of phase.
057. A 45-year-old male presents with a history of jaundice and RUQ pain. An ultrasound of the abdomen demonstrates an impacted calculus in the gallbladder neck with dilatation of the intrahepatic ducts. An MRCP is requested to exclude Mirizzi syndrome. What additional features on MRCP confirm the diagnosis of Mirizzi syndrome?
- (A) Dilated common hepatic duct.
 (B) Dilated common hepatic and common bile ducts.
 (C) Dilated common hepatic duct with normal common bile duct.
 (D) Double duct sign.
058. A 60-year-old diabetic male presents with a history of fever and right upper quadrant pain. Ultrasound of the abdomen demonstrates curvilinear high-amplitude echoes in the gallbladder wall with reverberation artefact and multiple high-amplitude echoes in the gallbladder lumen. What is the diagnosis?
- (A) Acute cholecystitis. (B) Emphysematous cholecystitis.
 (C) Adenomyomatosis. (D) Chronic cholecystitis.
059. A 55-year-old female with cirrhosis undergoes MRI of the liver, which demonstrates multiple small nodules that are hypointense on T2WI and enhance following administration of gadolinium in the arterial and portal venous phase. The nodules demonstrate uptake of hepatocellular agent and super paramagnetic iron oxide (SPIO) particles. What is your diagnosis?
- (A) Multifocal hepatocellular carcinoma (HCC).
 (B) Siderotic nodules.
 (C) Dysplastic nodules.
 (D) Regenerative nodules.
060. A 62-year-old male with acute myocardial infarction develops abdominal discomfort and deranged liver function tests. A CT scan of the abdomen demonstrates heterogeneous liver enhancement, poor enhancement of the hepatic veins and inferior vena cava (IVC), ascites and bi basal pleural effusions. What additional feature would favour a diagnosis of passive hepatic congestion instead of acute Budd–Chiari syndrome?
- (A) Flip-flip enhancement pattern of the liver.
 (B) Absent flow in hepatic veins.
 (C) Dilated hepatic veins and IVC.
 (D) Enlarged caudate lobe.

061. A 47-year-old male patient undergoes an MRI examination for further characterization of an adrenal lesion. Axial gradient T1 in- and out-of-phase sequences confirm the benign nature of the adrenal lesion. Incidentally, the liver and pancreas demonstrate a signal drop on the in-phase images compared to out-of-phase images. What is your diagnosis and what additional sequence would confirm the diagnosis?
- (A) Diffuse fatty infiltration. GE T2WI. (B) Diffuse fatty infiltration. SE T2WI.
 (C) Haemochromatosis. SE T2WI. (D) Haemochromatosis. GE T2WI.
062. A 35-year-old female undergoes an MRI of abdomen that shows multiple cystic lesions in the pancreas. Each lesion consists of a cluster of small cysts with central scar. Multiple cysts and solid lesions are also noted in both kidneys. What further investigation/s would you recommend?
- (A) Ophthalmology referral.
 (B) MRI of the brain.
 (C) Molecular genetic testing and genetic counselling.
 (D) All of the above.
063. A 55-year-old man presents with dysphagia. He gives no history of weight loss and investigations reveal a normal full blood picture. He is referred for a barium swallow, which reveals a long stricture (several centimetres) in the mid to distal oesophagus with a fine reticular pattern adjacent to the distal aspect of the stricture and distal oesophageal widening. What is the most likely diagnosis?
- (A) Reflux oesophagitis. (B) Candidiasis.
 (C) Barrett's oesophagus. (D) Oesophageal adenocarcinoma.
064. A 74-year-old female patient undergoes a barium swallow and meal as part of investigation of anaemia, as she refuses endoscopy. She denies any weight loss, dysphagia, or odynophagia. The swallow reveals multiple rounded plaques and nodules in the mid oesophagus. What is the most likely diagnosis?
- (A) Oesophageal candidiasis. (B) Herpes oesophagitis.
 (C) HIV oesophagitis. (D) Glycogenic acanthosis.
065. A 50-year-old male undergoes MRI of the liver for further characterization of a suspected haemangioma on ultrasound. In addition to the haemangioma, a peripheral wedge-shaped area of enhancement is seen in the arterial phase but no abnormality is seen in the corresponding area in the non-contrast or portal venous phases. What is the diagnosis?
- (A) Hepatocellular carcinoma.
 (B) Hepatic infarct.
 (C) Transient hepatic intensity difference (THID).
 (D) Hypervascular metastasis.
066. A 50-year-old woman presents with dysphagia. At barium swallow, contrast passes sluggishly into the oropharynx. No peristaltic waves are seen in the upper oesophagus. After swallowing, the lumen of the hypopharynx and upper oesophagus remain patent and distended. The lower oesophagus outlines normally. What is the most likely diagnosis?
- (A) Achalasia. (B) Scleroderma.
 (C) Polymyositis. (D) Chagas disease.

067. A 45-year-old man presents with acute abdominal pain. He has pyrexia and his inflammatory markers are raised. The surgical team request a CT scan of abdomen for ? “perforation”. The CT reveals inflammatory change in the anterior pararenal space. Which of the following is least likely to be the underlying cause for the CT finding?
 (A) Acute pancreatitis. (B) Gastric ulceration.
 (C) Diverticulitis of the descending colon. (D) Duodenal perforation.
068. A 30-year-old man undergoes CT of the abdomen following a high-velocity collision during an RTA. The scan reveals peripancreatic fat stranding and a superficial laceration in the tail of the pancreas, which extends to less than 50% of the pancreatic thickness. What is the next most appropriate step?
 (A) Laparotomy. (B) ERCP.
 (C) Supportive therapy. (D) Ultrasound to assess the pancreatic duct.
069. A 42-year-old man is referred for a CT scan by an upper GI surgeon. He has a long history of recurrent upper abdominal pain, with more recent episodic vomiting. CT shows excess soft-tissue thickening between the head of pancreas and duodenum. Small cystic lesions are seen along the medial wall of the duodenum. There is also mild dilatation of the common bile duct and distension of the stomach and proximal duodenum. What is the most likely diagnosis?
 (A) Autoimmune pancreatitis.
 (B) Groove pancreatitis.
 (C) Pancreatitis related to ectopic or heterotopic pancreatic tissue.
 (D) Hereditary pancreatitis.
070. An overweight 42-year-old man decides to join a gym as a New Year’s resolution. During a vigorous work-out, he develops acute left lower quadrant pain and tenderness. An initial ultrasound demonstrates a small, 2-cm solid hyperechoic, non-compressible oval mass at the site of maximal tenderness. Further investigation via CT shows a pericolic pedunculated mass with fat attenuation and a hyperattenuating peripheral rim with adjacent fat-stranding abutting the anterior sigmoid colon. What is the most likely diagnosis?
 (A) Diverticulitis. (B) Appendicitis.
 (C) Epiploic appendagitis. (D) Omental infarction.
071. A 50-year-old male patient is admitted with congestive cardiac failure and undergoes a CT scan of the abdomen, which shows tortuous and prominent intrahepatic and extrahepatic arterial branches with early filling of dilated hepatic veins and IVC. The arterial phase scan shows mosaic perfusion with multiple enhancing foci. In the portal venous phase there is homogenous enhancement of the liver, with the prominent hepatic veins and IVC noted. What is the diagnosis?
 (A) Passive hepatic congestion.
 (B) Budd–Chiari syndrome.
 (C) Osler–Weber–Rendu syndrome.
 (D) Multifocal transient hepatic attenuation differences.
072. A 65-year-old man, being investigated for iron deficiency anaemia, altered bowel habit, and weight loss, is diagnosed with colon cancer. A staging CT demonstrates irregularity to the outer bowel wall at the site of tumour, a cluster of three lymph nodes with the largest individual node measuring 0.9cm, and no evidence of distant metastases. What is the most likely TNM stage?
 (A) T2, N0, M0. (B) T2, N1, M0.
 (C) T3, N0, M0. (D) T3, N1, M0.

073. A 41-year-old female with a background of arthralgia, chronic abdominal pain, and diarrhoea is investigated via a small bowel series. Findings include a prolonged transit time, and dilated loops of small bowel with normal appearing valvulae and pseudodiverticula. What is the most likely diagnosis?
- (A) GI scleroderma. (B) Behcet's disease.
(C) Whipple disease. (D) Small bowel lymphoma.
074. A 45-year-old man, with a history of AIDS, has a 3-month history of abdominal pain and weight loss. A CT scan of abdomen is performed which shows ascites with peritoneal thickening, several areas of mural thickening in the small bowel, and multiple low attenuation lymph nodes. Which one of the following infections is most likely?
- (A) CMV infection. (B) TB.
(C) Cryptosporidiosis. (D) Amoebiasis.
075. A patient with a known history of malignancy undergoes a CT scan of the chest, abdomen, and pelvis for staging purposes. This examination identifies a solitary hypodense lesion in the spleen measuring 4 cm in diameter, but no other evidence of metastatic disease. A PET-CT is considered as a possible mechanism for determining whether or not this is a metastasis, but is considered not likely to be helpful. Which malignancy is the patient most likely to have?
- (A) Melanoma. (B) Lung carcinoma.
(C) Lymphoma. (D) Renal cell carcinoma.
076. A 54-year-old man has a CT scan of renal tracts for suspected right renal colic. The right renal tract is normal, but an incidental 6-cm well-defined cyst is noted within the spleen. There is no past medical history of note. What is the most likely etiology of the splenic cyst?
- (A) Previous trauma. (B) Echinococcal infection.
(C) Congenital cyst. (D) Liquefied infarct.
077. A 70-year-old woman presents with a history of high dysphagia. Barium swallow reveals a barium-filled sac extending postero-inferior from the C5/6 level to the left of the upper oesophagus. What is the most likely diagnosis?
- (A) Pulsion diverticulum. (B) Traction diverticulum.
(C) Zenker diverticulum. (D) Early intramural diverticulosis.
078. A 26-year-old man, with a previous history of a pan procto-colectomy for Gardner's syndrome, presents with vague abdominal discomfort and a CT scan is requested to ascertain the cause. He is found to have a well-defined mass of homogenous density, which you suspect may be a desmoid tumour, given the previous clinical history. Where in the abdomen is this most likely to be located?
- (A) Abdominal wall. (B) Retroperitoneum.
(C) Small bowel mesentery. (D) Pelvis.
079. A 75-year-old man is undergoing a CT colonography examination for investigation of a change in bowel habit. He has difficulty retaining the CO₂ for adequate bowel distension. Which of the following segments of colon is likely to be better distended on the prone scan?
- (A) Caecum. (B) Transverse colon.
(C) Rectosigmoid. (D) Ascending colon.

080. A 20-year-old male with a recent history of medulloblastoma now presents with vague abdominal pain, PR bleeding, and weight loss. Innumerable colonic polyps are demonstrated on colonoscopy. What is the most likely unifying diagnosis?
- (A) Familial adenomatous polyposis. (B) Turcot syndrome.
(C) Gardner syndrome. (D) Lynch syndrome.
081. A 45-year-old women presents with menorrhagia and dysmenorrhea. She has had three successful pregnancies and one therapeutic abortion in the past. She undergoes an MRI of the pelvis 14 days after the start of her last menstrual period. It reveals a junctional zone which measures 13 mm throughout, with hyperintense T2WI foci within it. With what conditions are these findings most consistent?
- (A) Endometrial hyperplasia. (B) Endometrial carcinoma stage 1A.
(C) Pseudothickening. (D) Adenomyosis.
082. A 62-year-old woman presents with recurrent urinary tract infections (UTIs) and a pelvic and renal ultrasound is performed. This demonstrates normal kidneys and bladder, but there is a 5-cm solid, hypoechoic mass seen arising from the right ovary. There is acoustic shadowing caused by the mass, but a subsequent CT scan does not show any calcification within the mass or any metastatic disease. What is the most likely cause of the ovarian mass?
- (A) Sertoli–Leydig cell tumour of the ovary.
(B) Cystadenocarcinoma of the ovary.
(C) Fibrothecoma of the ovary.
(D) Granulosa cell tumour of the ovary.
083. A 25-year-old female undergoes a hysterosalpingogram (HSG) that reveals a unicornuate uterus. This is confirmed on MRI, which also demonstrates a non-functioning rudimentary contralateral horn. What further investigation is indicated?
- (A) Laparoscopy.
(B) Renal imaging.
(C) Pelvic ultrasound.
(D) Laparotomy and resection of rudimentary horn.
084. A 56-year-old asymptomatic woman undergoes routine screening mammography. Which of the following forms of calcification raises greatest suspicion of ductal carcinoma *in situ* (DCIS)?
- (A) Egg-shell. (B) Sedimented.
(C) Tubular. (D) Dot-dash.
085. A 2-day-old male infant with cryptorchidism and an antenatal diagnosis of dilated bladder and ureters is referred for a micturating cystourethrogram (MCUG). MCUG reveals a dilated bladder, tortuous and dilated ureters, dilated posterior urethra, and renal cortical thinning. Note is also made of bulging flanks. What is the diagnosis?
- (A) Posterior urethral valve. (B) Congenital megacystis and megaureter.
(C) Bilateral vesicoureteric reflex. (D) Eagle Barrett syndrome.

086. A previously well 70-year-old woman is investigated via CT Pulmonary Angiography for acute left-sided chest pain and hypoxia. The test is negative for Pulmonary embolism, but an incidental 1.7×1.2 cm retro-areolar lesion is noted in the right breast by the reporting registrar. Which of the following features, if any, would be suggestive of breast malignancy?
- (A) Ill-defined margin. (B) Spiculated margin.
(C) Calcification. (D) Multiple lesions.
087. A 67-year-old male patient presents with an 8-week history of left loin pain. A renal CT is obtained and this shows a 6-cm enhancing left renal lesion that has a fibrotic central scar. What is the most likely diagnosis?
- (A) Renal leiomyoma. (B) Renal oncocytoma.
(C) Renal metanephric adenoma. (D) Renal haemangioma (giant).
088. A 32-year-old asymptomatic woman who is BRCA 1 positive undergoes breast cancer surveillance via MRI. A lesion within the left breast is identified. Which of the following MRI features is the most predictive for malignancy?
- (A) Irregular margin.
(B) T2WI signal hyperintensity.
(C) Progressive enhancement curve on dynamic T1WI post contrast.
(D) Plateau enhancement curve on dynamic T1WI post contrast.
089. A 23-year-old woman is referred for an MRI of pelvis because of dyspareunia and pelvic pain. The ovaries are normal, but a 6-mm rounded area of high signal on T1WI and T2WI sequences is demonstrated in the left posterolateral aspect of the distal vagina. What is the most likely diagnosis?
- (A) Squamous cell carcinoma of the vagina.
(B) Urethral diverticulum.
(C) Nabothian cyst.
(D) Bartholin's gland cyst.
090. A 50-year-old male with thyroid swelling undergoes ultrasound of the thyroid that shows a solitary hypoechoic nodule with punctate calcification and increased vascularity. An ultrasound guided fine needle aspiration is carried out and is reported as benign. What would you do next?
- (A) Repeat fine needle aspiration. (B) Follow-up ultrasound in 6 months.
(C) No further follow-up. (D) Staging CT.
091. You are asked to perform an antenatal ultrasound examination and note that the placenta has an unusual morphology. You see an additional lobule, which is separate from the main bulk of the placenta. What is this variant of laceral morphology known as?
- (A) Circumvallate placenta. (B) Bilobed placenta.
(C) Placenta membranacea. (D) Succenturiate placenta.
092. A 36-year-old male patient presents with abdominal pain. He has a history of hypertension and obesity. A CT of abdomen reveals a 6-cm right adrenal mass, which shows heterogenous but peripheral enhancement, necrosis, and some calcification. There is early invasion of the IVC. The left adrenal gland is atrophied. What is the most likely diagnosis?
- (A) Neuroblastoma. (B) Adrenal cortical carcinoma.
(C) Myelolipoma. (D) Adrenal adenoma.

093. A 40-year-old male with a history of haematuria undergoes CT urography. Initial non-contrast scan demonstrates right-sided medullary nephrocalcinosis. Following intravenous contrast administration, a striated 'paintbrush' appearance of the renal medulla is noted. The left kidney is unremarkable. What is the diagnosis?
- (A) Hyperparathyroidism. (B) Renal tubular acidosis.
 (C) Medullary sponge kidney. (D) Sarcoidosis.
094. A 54-year-old female patient presents with anaemia and haematuria. A CT of abdomen confirms renal cell carcinoma of the right kidney, but there is also enlargement of the right adrenal gland. Which of the following CT characteristics is most consistent with a benign adrenal adenoma?
- (A) A pre-contrast attenuation of 50.
 (B) An immediate post-contrast attenuation of 50.
 (C) A relative percentage washout (RPW) of 60%.
 (D) Lesion size of 50 mm.
095. A 35-year-old female presents with a history of menorrhagia. MRI of pelvis demonstrates a fibroid uterus for which treatment with high-intensity focused ultrasound (HIFU) is proposed. What is the principle mechanism of action of HIFU?
- (A) Coagulation necrosis. (B) Apoptosis.
 (C) Cavitation. (D) Microstreaming.
096. A 60-year-old woman presents with a palpable lump in her right breast. Her recent screening mammogram 6 months previously was negative. Clinical examination reveals a subtle mass in the right lower quadrant. Which of the following mammographic findings is the most common in invasive lobular carcinoma (ILC)?
- (A) Spiculated mass. (B) Architectural distortion.
 (C) Microcalcification. (D) Nipple retraction.
097. A 46-year-old female with pressure symptoms related to uterine fibroids is referred for fibroid embolization. Which of the following complications is the patient at increased risk of?
- (A) Uterine sepsis. (B) Fibroid passage.
 (C) Fibroid regrowth. (D) Ovarian dysfunction.
098. A 28-year-old primiparous woman has been breastfeeding for the past 3 months. She is admitted surgically complaining of warmth and pain in her right breast associated with swinging fever. A 3 × 2 cm inhomogenous, hypoechoic abscess within the right lower inner quadrant is identified on ultrasound. How should this patient be managed?
- (A) 6 weeks' antibiotic therapy followed by repeat ultrasound.
 (B) Ultrasound guided needle aspiration.
 (C) Ultrasound guided catheter drainage.
 (D) Surgical incision and drainage.

099. A 24-year-old male patient presents to the A&E department with a history of severe episodic right-sided loin pain, radiating to the groin. He has no history of previous renal calculi. A low-dose non-contrast CT of the renal tracts shows a calculus in the distal right ureter, adjacent to the vesicoureteric junction. The calculus measures 7 mm in diameter. The patient has a horseshoe kidney. There is stranding in the peri-nephric fat and around the right ureter. The density of the calculus is measured to be 1500 HU. Which of these observations is least likely to have relevance to this patient's treatment?
- (A) Site of the calculus.
 (B) Size of the calculus.
 (C) Perinephric and periureteric stranding.
 (D) Density of the calculus.
100. A 60-year-old woman presents with pelvic pain. An MRI reveals multiple large areas of well-circumscribed, predominantly homogenous low T2WI and low/intermediate T1WI signal within the myometrium. There are also a number of peritoneal nodules demonstrated. What is the most likely diagnosis?
- (A) Endometriosis. (B) Adenomyosis.
 (C) Uterine leiomyomas. (D) Endometrial carcinoma.
101. A 2-day-old male neonate with a right-sided abdominal mass is referred for ultrasound of abdomen. Ultrasound demonstrates an enlarged right kidney containing multiple non-communicating cysts of varying size with little normal parenchyma. What is the most common associated abnormality of the contra-lateral kidney?
- (A) Ectopic ureter. (B) Pelvi-ureteric junction obstruction.
 (C) Vesico-ureteric reflux. (D) Renal hypoplasia.
102. A 36-year-old labourer working on a building site falls 15 feet from scaffolding on his back onto a wheelbarrow. He is catheterized in the resuscitation room and is noted to have gross haematuria. Which of the following CT findings are consistent with a grade 4 renal injury?
- (A) Renal artery avulsion.
 (B) Shattered kidney.
 (C) Deep laceration to the collecting system.
 (D) Subcapsular haematoma.
103. A 54-year-old woman with no history of major illness is incidentally discovered to have a small, solid enhancing lesion on CT at the lower pole of the right kidney. The CT has been performed pre and post intravenous contrast. The lesion measures 9 mm in size. What is the most appropriate management for this lesion?
- (A) Nephron sparing surgery. (B) Percutaneous biopsy.
 (C) Repeat CT in 3-6 months. (D) Right nephrectomy.
104. A 12-month-old infant with a history of aniridia and nephroblastomatosis undergoes a follow-up CT of abdomen that demonstrates bilateral enlarged kidneys with a thick rind of homogenous, non-enhancing, hypodense tissue bilaterally. A focal heterogenous enhancing mass with cystic change is noted on one side. What is the diagnosis?
- (A) Neuroblastoma. (B) Wilms tumour.
 (C) Lymphoma. (D) Renal cell carcinoma.

105. An 18-year-old mountain bike enthusiast is suspected of sustaining a renal injury after attempting a front wheel touch-up manoeuvre. A laceration to the right kidney is noted on CT, which demonstrates contrast enhancement during the pyelographic phase of the examination. What is the significance of this finding?
- (A) Pre-existing angiomyolipoma. (B) Active haemorrhage.
 (C) Devascularization. (D) Urine leak.
106. A 45-year-old man has a complex cyst identified in the right kidney on an ultrasound scan performed to assess non-specific epigastric pain. He subsequently has a CT scan of kidneys carried out pre and post administration of intravenous contrast. You classify the complex cyst as II F (II requiring follow-up) according to the Bosniak classification. Which of the following features is most likely seen at CT imaging?
- (A) Presence of calcification. (B) Thickened smooth wall with enhancement.
 (C) Multiple thin non-enhancing septa. (D) Hyperattenuating cyst <3 cm in size.
107. A 30-year-old female patient with a history of infertility is referred for an HSG. She has a past history of pelvic inflammatory disease. HSG reveals multiple small outpouchings from the uterine cavity. What is the diagnosis?
- (A) Salpingitis isthmica nodosa. (B) Asherman syndrome.
 (C) Adenomyosis. (D) Endometritis.
108. A 14-year-old female presents with a history of cyclic pelvic pain. Speculum vaginal examination reveals a bulging vaginal mass. An MRI of the pelvis demonstrates divergent uterine horns with a deep midline fundal cleft, two separate uterine cavities, two separate cervixes, and a unilateral hemivaginal septum causing hematometrocolpos. There is associated renal agenesis on the side of the hemivaginal septum. What is the primary uterine anomaly?
- (A) Uterus didelphys. (B) Uterine bicornuate bicollis.
 (C) Septate uterus. (D) Arcuate uterus.
109. An 18-year-old male fractures his pelvis following a motorcycle accident. He is suspected of sustaining a bladder injury and undergoes CT cystography. This reveals ill-defined contrast medium within the peri-vesical space with a 'molar-tooth' appearance. What is the significance of this finding?
- (A) Interstitial bladder injury.
 (B) Intraperitoneal rupture.
 (C) Extraperitoneal rupture.
 (D) Combined intra- and extraperitoneal rupture.
110. A baby boy is born prematurely at 30 weeks gestation. Cranial ultrasound demonstrates bilateral multiseptate cystic lesions within the frontal lobe white matter with associated ex vacuo dilatation of the ventricles. Which of the following is the most likely diagnosis?
- (A) Periventricular leucomalacia. (B) Porencephaly.
 (C) Supratentorial arachnoid cysts. (D) Vein of Galen malformation.
111. A 4-month-old infant presents with shortness of breath. A Chest Radiograph is performed and this shows evidence of cardiac failure. The liver is noted to be enlarged and slightly irregular on examination. Ultrasound demonstrates multiple mixed echogenicity masses. A subsequent dynamic contrast enhanced CT shows multiple lesions that show progressive centripetal enhancement. What is the most likely diagnosis?
- (A) Hepatoblastoma. (B) Multifocal hepatoma.
 (C) Mesenchymal hamartoma. (D) Infantile haemangioendothelioma.

112. You are attending a paediatric cardiac MRI list. The next patient is a 4-year old girl who has undergone previous surgical correction of tetralogy of Fallot. Which of the following is the part of the report of most interest to the referring clinical team?
- (A) Pulmonary valve function.
 (B) Left ventricular function.
 (C) Presence of thrombus in the graft between IVC and pulmonary artery.
 (D) Situs position.
113. A 2-year-old girl is investigated for slow motor development via MRI. Which of the following radiological features would suggest a diagnosis of Dandy–Walker malformation, as opposed to Dandy–Walker variant?
- (A) Cerebellar dysgenesis. (B) Enlargement of the posterior fossa.
 (C) Agenesis of the corpus callosum. (D) Holoprosencephaly.
114. A 5-year-old boy is admitted for investigation of headache and vomiting. Unenhanced CT demonstrates a hyperdense mass centred on the cerebellar vermis and effacing the fourth ventricle. Homogenous enhancement is demonstrated on contrast administration. What is the most likely diagnosis?
- (A) Ependymoma. (B) Pilocytic astrocytoma.
 (C) Haemangioblastoma. (D) Medulloblastoma
115. A 15-year-old female undergoes a pelvic MRI on which incidental note is made of a 1.5-cm lesion antero-lateral to the vagina and above the level of the inferior margin of the pubic symphysis. The lesion is hypointense on T1WI and hyperintense on T2WI. There is no displacement of or communication with the urethra. What is the likely diagnosis?
- (A) Urethral diverticulum. (B) Gartner duct cyst.
 (C) Bartholin gland cyst. (D) Skene duct cyst.
116. A 14-month-old girl is brought to Emergency medicine with a head injury following a fall at home. Clinical examination reveals that the child is unkempt and has multiple bruising. Which of the following potential findings on CT raises the greatest suspicion for non-accidental injury (NAI)?
- (A) Parietal skull fracture.
 (B) Temporal lobe extradural haematoma.
 (C) Inter-hemispheric subdural haematoma.
 (D) Bilateral frontal enlargement of the subarachnoid space.
117. A child is diagnosed with neuroblastoma. He is referred for staging and you are asked to advise on the standard radiological investigation of bony metastases. What do you advise?
- (A) Whole body MRI.
 (B) Whole body 18-FDG PET-CT.
 (C) 123I-metaiodobenzylguanidine (MIBG) scan.
 (D) 99mTc methylene-diphosphonate (MDP) isotope bone scan.
118. A 15-year-old boy is homozygous for the delta F 508 mutation for Cystic Fibrosis. He has poor weight gain and is diagnosed as having pancreatic insufficiency. What is the most likely imaging finding in his pancreas?
- (A) Diffuse pancreatic swelling.
 (B) Diffuse fatty infiltration and fibrosis.
 (C) Diffuse scattered microcysts (less than a few millimetres in size) within the pancreas.
 (D) Complete replacement of the pancreas with macrocysts.

119. A cardiac MRI is being carried out on an infant for a conotruncal rotational abnormality. It is clear that this infant has 150 clockwise rotation of the great vessels. What conotruncal rotation abnormality does this infant have?
- (A) Normal rotation. (B) Situs inversus.
(C) L-transposition. (D) D-transposition.
120. A 12-year-old boy is investigated via MRI brain for headache, nystagmus, and ataxia. Which of the following radiological findings would suggest a diagnosis of Chiari I malformation as opposed to Chiari II?
- (A) Lacunar skull.
(B) Myelomeningocele.
(C) Elongation of the fourth ventricle.
(D) Caudal displacement of the cerebellar tonsils.
121. A 12-year-old who is a keen athlete presents with left groin pain. A plain film of the pelvis reveals avulsion of the apophysis of the left ischial tuberosity. Which muscle attachment has he injured?
- (A) Sartorius. (B) Hamstrings.
(C) Adductors. (D) Rectus femoris.
122. An infant with ambiguous genitalia is referred for ultrasound of pelvis. This shows a normal uterus and ovaries, suggesting female pseudohermaphroditism. There is elevated 17-hydroxy-progesterone. What further investigation is recommended?
- (A) Ultrasound of adrenal glands. (B) MRI of pelvis.
(C) Fluoroscopic genitography. (D) Laparoscopy.
123. A 6-day-old neonate presents with persistent vomiting. A plain x-ray of abdomen shows a dilated stomach and proximal duodenum, suggesting a high-grade duodenal obstruction. A subsequent upper GI contrast study confirms obstruction in the second part of the duodenum with a 'windsock' type deformity evident. What is the most likely diagnosis?
- (A) Duodenal atresia. (B) Midgut volvulus.
(C) Annular pancreas. (D) Duodenal web.
124. A male neonate born at 38 weeks gestation develops acute respiratory distress within 36 hours of delivery. Clinical examination reveals coarse breath sounds. Serial Chest Radiographs carried out in the Special Care Baby Unit (SCBU) reveal reduced lung volumes and widespread granular opacities. There is reduced transradiancy in the right hemithorax and an ultrasound reveals that this is secondary to a mild-moderate pleural effusion. What is the most likely diagnosis?
- (A) Surfactant deficiency. (B) Meconium aspiration.
(C) Bronchopulmonary dysplasia (BPD). (D) Beta haemolytic streptococcal pneumonia.
125. A 6-year-old child attends Emergency medicine with neck pain and tenderness after landing badly whilst trampolining in a neighbour's back garden. Which of the following findings is most concerning?
- (A) C2/3 subluxation.
(B) Overhang of the lateral masses of C1 on C2 of 6 mm.
(C) An atlanto-dens interval (ADI) of 6 mm.
(D) Prevertebral soft tissue of 6 mm at C3.

126. A 6-week-old infant presents with a history of failure to thrive. Plain abdominal radiograph demonstrates punctate calcification in the region of the adrenal glands. Which of the following findings on CT of abdomen is most specific for Wolman disease?
- (A) Hepatosplenomegaly.
 (B) Enlarged retroperitoneal lymph nodes.
 (C) Diffuse fatty infiltration of the liver.
 (D) Enlarged calcified adrenals that maintain their normal triangular configuration.
127. A 4-week-old neonate presents with persistent jaundice. The hyperbilirubinaemia is conjugated. An ultrasound scan of liver and gallbladder does not reveal a significant abnormality. A subsequent Hepatobiliary Iminodiacetic Acid (HIDA) scan shows decreased parenchymal extraction and clearance of radioisotope from the bloodstream, but tracer does eventually reach the gut. What is the jaundice is most likely to be due to?
- (A) Biliary atresia. (B) Caroli's disease.
 (C) Neonatal hepatitis. (D) Physiological jaundice of the newborn.
128. A 14-year-old boy is having a follow-up MRI brain for a known seizure disorder. Axial T2WI demonstrates gyriform low signal in the left occipital and temporal lobes with corresponding volume loss. Leptomeningeal enhancement is present on the axial T1WI post contrast. A right-sided developmental venous anomaly (DVA) is also present. What is the most likely diagnosis?
- (A) Neurofibromatosis type 1. (B) Neurofibromatosis type 2.
 (C) Sturge Weber syndrome. (D) Tuberous sclerosis.
129. A child presents after trauma to the elbow. Which configuration of the following ossification centres is most suspicious for significant injury?
- (A) Capitellum present before radial head.
 (B) Radial head present before trochlea.
 (C) Trochlea present before internal epicondyle.
 (D) Internal epicondyle present before olecranon.
130. A 5-year-old girl with a history of precocious puberty and increased serum inhibin levels is referred for ultrasound of the pelvis. On ultrasound, there is a complex solid/cystic mass in the adnexa. MRI of the pelvis confirms a solid/cystic ovarian mass with a 'sponge-like appearance' on T2WI. What is the likely diagnosis?
- (A) Sertoli-Leydi cell tumour. (B) Juvenile granulosa cell tumour.
 (C) Mature cystic teratoma. (D) Fibroma.
131. A 12-year-old boy presents with a painless neck mass which recently increased in size after an upper respiratory tract infection. Which of the following radiological findings are in keeping with a second branchial cleft cyst?
- (A) Anechoic cystic mass posterior to sternocleidomastoid in the posterior triangle.
 (B) Lateral echogenic mass with hypoechoic vascular channels.
 (C) Anechoic cystic mass anterior to sternocleidomastoid near the angle of the mandible.
 (D) Anechoic cystic mass in an infrahyoid midline location.

132. A 12-year-old boy injures his ankle whilst playing football. The plain film reveals a lucent line through the distal metaphysis of the tibia and touching, but not crossing, the physis into the epiphysis. This represents a:
- (A) Salter–Harris type 1 injury. (B) Salter–Harris type 2 injury.
 (C) Salter–Harris type 3 injury. (D) Salter–Harris type 4 injury.
133. An antenatal ultrasound of foetus at 20 weeks gestation reveals an occipital encephalocele. Foetal MRI demonstrates bilateral enlarged kidneys with cystic dysplasia and polydactyly. What is the diagnosis?
- (A) Autosomal recessive polycystic kidney disease.
 (B) Bardet–Biedl syndrome.
 (C) Meckel Gruber syndrome.
 (D) Tuberous sclerosis.
134. An 18-month-old girl presents with increasing incoordination and developmental regression. T2WI demonstrates confluent high signal within the periventricular white matter and centrum semiovale, with radiating linear low signal intensity, giving a ‘tigroid’ pattern. Sparing of subcortical U fibres is also noted. What is the most likely diagnosis?
- (A) Krabbe disease. (B) Metachromatic leucodystrophy.
 (C) X-linked adrenoleucodystrophy. (D) Alexander disease.
135. A 10-year-old boy presents with left hip pain. Which of the following radiographic features makes the diagnosis of Perthes’ disease more likely than slipped upper femoral epiphysis (SUFE)?
- (A) Failure of intersection of the superior femoral epiphysis by the line of Klein.
 (B) Widening of the physis.
 (C) Irregularity of the physis.
 (D) Widening of the joint space.
136. A 10-year-old girl presents with right hip pain. Which of the following radiographic features makes the diagnosis of SUFE more likely than Perthes’ disease?
- (A) Reduction in size of the proximal femoral epiphysis.
 (B) Loss of overlap between the medial femoral metaphysis and acetabulum.
 (C) Regional femoral demineralization.
 (D) A crescent of subcortical lucency in the femoral head
137. A full-term infant with unilateral cryptorchidism is referred for ultrasound assessment. Which is the most common location of a cryptorchid testis?
- (A) Inguinal canal. (B) Superficial inguinal ring.
 (C) Deep inguinal ring. (D) Femoral triangle.
138. A premature baby girl is noted to have a skull deformity consistent with scaphocephaly. Fusion of which vault suture or sutures gives rise to this craniosynostosis?
- (A) Coronal suture. (B) Sagittal suture.
 (C) Lambdoid suture. (D) Metopic suture.

139. A 10-year-old boy of Japanese origin presents with episodes of right transient hemiparesis and declining intellect. MRI brain is performed. Which of the following are the most likely radiological findings?
- (A) Multiple flow voids within the basal ganglia bilaterally.
 (B) Irregular beading of the left extracranial internal carotid artery.
 (C) Hypoplasia of the left internal carotid artery.
 (D) Distal left middle cerebral artery aneurysm.
140. A 13-year-old boy presents with activity-related knee pain and locking. A plain Radiograph is unremarkable. An MRI reveals a defect in the lateral aspect of the medial femoral condyle. There is increased signal in the adjacent bone marrow on T2WI. What is the most likely diagnosis?
- (A) Distal femoral cortical irregularity. (B) Osteochondritis dissecans.
 (C) Sinding–Larsen–Johanssen disease. (D) Osgood–Schlatter disease.
141. An 18-month-old boy is referred for CT after presenting with a right-sided white eye reflex (leucocoria). Which radiological feature is most in keeping with a diagnosis of retinoblastoma, as opposed to non-neoplastic causes of leucocoria (pseudoretinoblastoma)?
- (A) Contrast enhancement. (B) Calcification.
 (C) Microphthalmia. (D) Mass extension into the vitreous.
142. A 15-year-old male undergoes a pelvic MRI on which an incidental note is made of absent bilateral seminal vesicles. Which of the following is commonly associated with bilateral seminal vesicle agenesis?
- (A) Renal agenesis. (B) CF.
 (C) Calcified vas deferens. (D) Ectopic ureter.
143. A neonate is born at 34 weeks gestation. During the first week of life it presents with bloody diarrhoea and abdominal distension. You wonder about the possibility of necrotising enterocolitis. Which one of the following radiological investigations is unlikely to be helpful in the acute setting?
- (A) Supine Abdominal Radiograph.
 (B) Left lateral decubitus Abdominal Radiograph.
 (C) Water-soluble contrast enema.
 (D) Ultrasound of abdomen.
144. A 14-year-old boy presents with a slow-growing painless mass at the angle of the mandible on the left. Ultrasound demonstrates a hypoechoic left parotid mass containing echogenic calcific foci. On follow-up contrast enhanced MRI, the mass demonstrates mild increased enhancement. Which of the following is the most likely diagnosis?
- (A) Warthin tumour. (B) Primary lymphoma.
 (C) Parotitis. (D) Pleomorphic adenoma.
145. A 5-year-old boy with bilateral wrist pain undergoes a plain radiograph which reveals several pedunculated bony outgrowths from the metaphyses of both radii, which point away from the adjacent joints. What is the most likely diagnosis?
- (A) Ollier disease. (B) Maffucci syndrome.
 (C) Morquio syndrome. (D) Diaphyseal aclasia.

146. A 15-year-old female undergoes an ultrasound of pelvis that demonstrates uterine abnormality with a differential diagnosis of bicornuate or septate uterus. An MRI of the pelvis is requested for further assessment. Which of the following findings on MRI is suggestive of a bicornuate uterus?
- (A) Two uterine cavities.
 (B) Fundal concavity of less than 1 cm.
 (C) Intercornual distance of more than 4 cm.
 (D) Convex external fundal contour.
147. A 2-year-old boy presents with abdominal pain and clinical signs of GI bleeding. The clinical team wish to exclude a Meckel's diverticulum and request a radionuclide 'Meckel's scan'. What ectopic tissue is required in the Meckel's diverticulum for the scan to be successful?
- (A) Colonic tissue. (B) Gastric mucosa.
 (C) Exocrine pancreatic tissue. (D) Pancreatic islet cells.
148. A 6-year-old girl is brought to your local paediatric outpatients with a history of night sweats, tiredness, and new onset wheeze not responding to bronchodilators. A Chest Radiograph is done which shows increased mediastinal soft tissue noted superiorly. The paravertebral lines are maintained. The aortic knuckle is not visible. A lateral Chest Radiograph has been carried out at the request of the paediatrician, which shows increased soft tissue displacing the trachea posteriorly, causing mild narrowing. What is the most likely diagnosis?
- (A) Tuberculosis. (B) Lymphangioma.
 (C) Bronchogenic cyst. (D) Thymic/nodal malignant infiltration.
149. Follow-up MRI is performed on a foetus of 26 weeks gestational age after ultrasound raised the suspicion of agenesis of the corpus callosum (ACC). This subsequently confirms that the callosum is absent. What is the most likely additional radiological finding?
- (A) None, isolated abnormality. (B) Parenchymal T2WI signal hypointensity.
 (C) Periventricular nodular heterotopia. (D) Delayed sulcation.
150. An infant is of short stature and undergoes a skeletal survey. This reveals markedly shortened femora and humeri, although the other long bones are also greatly affected. The vertebral bodies are moderately flattened and there is a reduction in the interpedicular distance in a caudal direction in the spine. What is the diagnosis?
- (A) Thanatophoric dysplasia. (B) Achondroplasia.
 (C) Chondrodysplasia punctata. (D) Jeune syndrome.
151. A 14-year-old girl presents with sudden onset of severe right-sided lower abdominal pain, nausea, and vomiting. An ultrasound of the pelvis is requested with a suspected diagnosis of ovarian torsion. Which of the following is the most constant ultrasound finding in ovarian torsion?
- (A) Enlarged ovary. (B) Absent ovarian blood flow.
 (C) Pelvic free fluid. (D) Twisted ovarian pedicle.
152. A 15-year-old boy presents with severe abdominal pain. He has a known history of a 'polyposis' syndrome. A plain Abdominal Radiograph shows small bowel obstruction. A subsequent CT scan of abdomen indicates that this is due to a small bowel intussusception. Which 'polyposis' syndrome does he most probably have?
- (A) Cronkhite-Canada syndrome. (B) Familial adenomatous polyposis syndrome.
 (C) Cowden disease. (D) Peutz-Jehger's syndrome.

153. With appropriate clinical suspicion, which of the following radiologically depicted injuries would most raise suspicion of NAI?
- (A) Posterior rib fracture. (B) Vertebral compression fracture.
(C) Duodenal haematoma. (D) Spiral fracture of long bone.
154. A patient presents with recent onset neurological symptoms suspicious of an acute presentation of multiple sclerosis (MS). Which of the following anatomical sites of plaque involvement is least consistent with this?
- (A) Corpus callosum.
(B) Spine involvement in the absence of brain involvement.
(C) Cerebral cortex.
(D) Symmetrical involvement of cerebral white matter.
155. A patient is referred to your neuro-interventional team for embolization of a meningioma prior to surgical resection. The lesion is based on the tentorium. What is the likely feeding vessel (parent vessel is named in brackets)?
- (A) Anterior meningeal artery (vertebral).
(B) Middle meningeal artery (external carotid artery (ECA)).
(C) Posterior meningeal artery (variable).
(D) Bernasconi–Casanari artery (Internal carotid artery (ICA)).
156. A patient is having an MRI scan carried out to investigate a possible right frontal astrocytoma, incidentally detected on CT following a head injury. The MRI features are typical of an astrocytoma, with no evidence of necrosis or callosal involvement to indicate glioblastoma multiforme (GBM). MRS has been carried out to help assess the grade of this tumour. What MRS features would indicate a high grade lesion?
- (A) Elevated choline, reduced N-acetyl aspartate (NAA), choline/creatine (Cho/Cr) ratio of 1.
(B) Elevated choline, reduced NAA, Cho/Cr ratio of 2.
(C) Normal choline, elevated NAA.
(D) Reduced choline, reduced NAA, Cho/Cr ratio of 1.2.
157. Which one of the following orbital pathologies typically arises from the intraconal compartment?
- (A) Cavernous haemangioma. (B) Adenocystic carcinoma.
(C) Rhabdomyosarcoma. (D) Dermoid.
158. A 35-year-old man presents with tinnitus and hearing loss in the right ear. Investigations include an MRI of the internal auditory meati. This demonstrates an expansile lesion in the right petrous apex, without bone destruction. The lesion is of increased signal on T1WI, increased signal on T2WI, and non-enhancing. What is the most likely diagnosis?
- (A) Cholesteatoma. (B) Petrous apex cephalocele.
(C) Mucocele. (D) Cholesterol granuloma.
159. A 45-year-old woman presents with a several month history of neck pain and gradually progressive weakness and paraesthesia in the upper limbs. An MRI scan of the cervical spine is performed and this shows a well-defined central intramedullary mass in the mid-cervical spinal cord. The mass is generally slightly hyperintense on T2WI, but also has a few low signal peripheral areas. It enhances homogeneously with gadolinium. What is the most likely diagnosis?
- (A) Astrocytoma. (B) Metastasis.
(C) Haemangioblastoma. (D) Ependymoma.

160. A 30-year-old male patient attends Emergency Medicine Department 30 minutes after a head injury. He has consumed alcohol. You are contacted by the Emergency Medicine doctor, who requests a CT brain. At this time, which of the following is a correct indication for immediate scanning?
- (A) Two episodes of vomiting. (B) GCS 13.
(C) Loss of consciousness. (D) Amnesia for 20 minutes before accident.
161. A 27-year-old female patient undergoes urgent neuroimaging following loss of consciousness as a result of an RTA. CT is unremarkable. MRI reveals multiple small areas of increased signal on T2WI in the white matter near the grey–white matter junction within the frontal and temporal lobes. In the same locations, DWI reveals areas of increased signal on the B1000 image and reduced signal on the ADC map. What is the most likely diagnosis?
- (A) Subarachnoid haemorrhage. (B) Extradural haematoma.
(C) Subdural haematoma. (D) Diffuse axonal injury.
162. A 34-year-old man undergoes MRI of brain after admission for head trauma. Which of the following sequences is most sensitive for subarachnoid haemorrhage?
- (A) T1WI. (B) T1WI with fat saturation.
(C) T2WI. (D) FLAIR.
163. A 58-year-old patient is found at home with a reduced GCS. CT brain reveals atrophy only. MRI brain reveals hyperintensity in the tegmentum (except for the red nucleus) and hypointensity of the superior colliculus on T2WI, as well as hyperintensity in the basal ganglia. What is the most likely cause?
- (A) Cocaine abuse. (B) Methanol poisoning.
(C) Primary basal ganglia haemorrhage. (D) Wilson’s disease.
164. A 27-year-old man suffers a head injury. A CT brain is performed. Which of the following features favours a subdural haematoma (SDH) over an extradural haematoma (EDH)?
- (A) The haematoma measures 50 HU.
(B) The presence of a temporal skull fracture.
(C) The haematoma crosses the midline over the falx.
(D) The haematoma crosses sutures.
165. A 65-year-old woman with a history of previous subarachnoid haemorrhage presents with slowly progressive cognitive decline and worsening gait. A CT brain reveals ventricular dilatation with rounded frontal horns and periventricular hypodensity. What is the most likely diagnosis?
- (A) Heavy metal toxicity secondary to aneurysm clip.
(B) Parkinson’s disease.
(C) Alzheimer’s disease.
(D) Normal pressure hydrocephalus.
166. A 34-year-old liver transplant recipient presents to hospital with confusion and seizures. A CT brain reveals low attenuation in the deep and subcortical white matter of the occipital and parietal lobes bilaterally. There is no abnormal enhancement post IV contrast administration. As the reporting radiologist, you advise that the clinical team first:
- (A) measure blood glucose (B) measure serum alpha-feta protein
(C) measure blood pressure (D) send coagulation screen

167. A 34-year-old female presents with neurological symptoms suggestive of Multiple sclerosis (MS) and is referred for an MRI of brain by the neurology team. Which of the following sequences is most useful for determining if there are plaques of differing ages (i.e. dissemination in time)?
- (A) FLAIR. (B) T2WI.
 (C) Pre- and post-contrast T1WI. (D) Proton density.
168. A 34-year-old woman presents with a seizure. She has a history of migraine and low mood over the preceding year, and reported occasional episodes of confusion. On examination there is slight left-sided motor weakness. An MRI of brain reveals small multifocal frontal and parietal subcortical white matter T2WI hyperintensities, and a few areas of restricted diffusion in the right cerebral hemisphere on DWI. What is the most likely diagnosis?
- (A) Multiple sclerosis (MS). (B) SLE.
 (C) Small vessel ischaemia. (D) Susac syndrome.
169. A 73-year-old has been referred for assessment of cognitive decline. A CT brain reveals cerebral atrophy and a dementia specialist refers her for PET-CT brain. Which of the following findings is most consistent with early Alzheimer's disease?
- (A) Diffuse reduced activity.
 (B) Reduced activity in the precuneus and posterior cingulate gyrus.
 (C) Reduced activity in the frontotemporal regions.
 (D) Reduced activity in the caudate and lentiform nuclei.
170. A 15-year-old male presents with a history of recurrent epistaxis and nasal obstruction. MRI demonstrates a lesion centred at the sphenopalatine foramen, which is hypointense on T1WI and heterogeneously intermediate signal on T2WI. Intense lesional enhancement and multiple flow voids are noted on post-gadolinium T1WI. What is the diagnosis?
- (A) Ludwig angina. (B) Nasopharyngeal carcinoma.
 (C) Inverted papilloma. (D) Juvenile angiofibroma.
171. A 45-year-old female patient presents with recurrent frontal sinusitis following functional endoscopic sinus surgery (FESS). Which of the following CT findings is not commonly associated with postoperative frontal recess stenosis?
- (A) Inadequate removal of the agger nasi and frontal recess cells.
 (B) Retained superior portion of the uncinate process.
 (C) Medialization of middle turbinate.
 (D) Osteoneogenesis due to chronic inflammation or mucosal stripping.
172. A 12-year-old male with a history of gelastic seizures is referred for MRI of the brain. Which of the following statements regarding hamartomas of the tuber cinereum is true?
- (A) No change in size, shape, or signal intensity on follow-up MRI.
 (B) Demonstrate homogenous contrast enhancement.
 (C) Calcification is a common finding.
 (D) Hyperintense on T1WI and T2WI, and hypointense on fat suppressed sequences.
173. You are reporting a CT scan of neck in a patient with a head and neck cancer. You see an enlarged necrotic jugulo-digastric lymph node on the right side and wish to describe the appropriate level of this lymph node in your report. What is the correct level?
- (A) I. (B) II.
 (C) III. (D) IV.

174. A 4-week-old infant with a history of breech delivery is brought to the Emergency Medicine department with a history of swelling in the left side of the neck and torticollis. An ultrasound of the neck demonstrates a non-tender, focal fusiform enlargement of the lower half of the left sternocleidomastoid muscle. No other abnormality is identified. What is the diagnosis?
- (A) Fibromatosis colli. (B) Lymphoma.
(C) Rhabdomyosarcoma. (D) Cystic hygroma.
175. A 60-year-old female presents with a history of facial pain and diplopia. Clinical examination reveals palsies of the III, IV, and VI cranial nerves, Horner's syndrome, and facial sensory loss in the distribution of the ophthalmic and maxillary divisions of the trigeminal (V) cranial nerve. Where is the causative abnormality located?
- (A) Dorello's canal. (B) Cavernous sinus.
(C) Superior orbital fissure. (D) Inferior orbital fissure.
176. A 50-year-old male undergoes an MR carotid angiogram on which an incidental soft-tissue mass is noted in right parapharyngeal soft tissue. The mass displaces the right parapharyngeal space anteromedially. What is the location of the soft-tissue mass?
- (A) Masticator space. (B) Carotid space.
(C) Retropharyngeal space. (D) Parotid space.
177. A 60-year-old woman presents with a painless, slowly growing mass in the lateral aspect of the neck. The patient is referred for imaging with a clinical diagnosis of carotid body paraganglioma. Which of the following is a distinctive feature of carotid body paraganglioma on imaging?
- (A) Soft-tissue mass in the carotid space.
(B) Intense enhancement after IV contrast administration.
(C) High signal on T2WI.
(D) Splaying of the internal and external carotid arteries.
178. A 22-year-old woman presents with upper and lower limb neurological symptoms and signs. She is subsequently discovered on MRI to have a mass in the cervical spinal cord. Which of the following features on MRI is going to point more towards a diagnosis of spinal cord astrocytoma, rather than ependymoma?
- (A) Predominant T2WI high signal.
(B) Homogeneous enhancement post gadolinium.
(C) Short segment of cord involvement.
(D) Eccentrically placed lesion in the cord.
179. A 52-year-old woman presents with gradually increasing gait disturbance and lower limb sensory symptoms. An MRI of her spine is performed and this shows an anteriorly placed intradural, but extramedullary spinal mass. It is fairly markedly low signal on T1WI and T2WI, and shows only minimal patchy enhancement post administration of intravenous gadolinium. What is the most likely diagnosis?
- (A) Neurofibroma. (B) Schwannoma.
(C) Lymphoma. (D) Meningioma.

180. You are asked to protocol an MRI scan that is specifically being performed to look for vertebral metastatic disease. The radiographer complains that you have asked for too many sequences. Which of the following sagittal sequences is likely to be least helpful for the purposes of your examination?
- (A) STIR. (B) T2 fast SE with fat saturation.
 (C) T2 fast SE. (D) T1 fast SE.
181. Electromagnetic radiation
- (A) Travels in straight line if uninterrupted
 (B) Has only wave like property
 (C) Has energy that is usually expressed in joules in diagnostic radiology
 (D) Includes beta radiation
182. Deterministic effects of radiation include
- (A) Cataract (B) Epilation
 (D) All of the above
 (C) Erythema
183. Equivalent dose
- (A) is absorbed dose multiplied by tissue weighting factor
 (B) is measured in seiverts
 (C) is averaged all over the body
 (D) is the same as absorbed dose for neutrons
184. Flourine 18
- (A) is most commonly used PET radionuclide
 (B) has half life of 6 hours
 (C) is produced in nuclear reactor
 (D) None of the above
185. Half lives of radionucleides
- (A) Krypton -81 m has a life of 13 minutes
 (B) Flourine 18 has a life of 110 minutes
 (C) Tc-99 m has a life of 6 days
 (D) Tc-99 has a life of 200 days
186. Doppler shift frequency is directly proportional to
- (A) Angle of ultrasound beam (B) Speed of target material
 (D) Frequency of ultrasound beam
 (C) Size of target material
187. A young woman presents to the Emergency Medicine following a scuffle on a night out. On examination, there is a suspected fifth metacarpal fracture of her right hand. A plain radiograph is subsequently organised. This does not demonstrate a fracture, but it is noted that the patient has relatively short fourth metacarpal bones. Old chest films show bilateral inferior rib notching involving the third to sixth ribs bilaterally. What is the likely diagnosis?
- (A) Noonan syndrome (B) Turner syndrome
 (C) Pseudohypoparathyroidism (D) Marfan syndrome

195. A 76-year-old woman with a recent episode of right-arm weakness is being followed up with an MRI a week after her presentation to the Emergency Medicine department. The current MRI shows changes on T1W images, which were identified as cortical laminar necrosis at the stroke meeting. Which of the following statements regarding cortical laminar necrosis is false?
- (A) Laminar necrosis is seen as serpiginous high signal on T1W MRI.
 (B) It is thought to be due to lipid-laden macrophages.
 (C) It can be seen 3-5 days after stroke.
 (D) It is never seen beyond 2 weeks.
196. Regarding Chiari II malformations, which of the following is true?
- (A) Supratentorial abnormalities are uncommon.
 (B) The tentorial attachment is usually normal.
 (C) It is nearly always associated with failure of neural tube closure.
 (D) The severity of hydrocephalus nearly always improves after repair of the meningocele.
197. A 42-year-old man presents with a high-grade fever, splenomegaly and abdominal pain. CT chest and abdomen done to look for a source of sepsis show multiple small cavitating lesions in both lungs with areas of hypo-attenuation in the spleen and kidneys. Which of the following is the most likely diagnosis?
- (A) Sarcoidosis (B) Carcinoid heart disease
 (C) Amyloidosis (D) Infective endocarditis
198. A 50-year-old woman has a CT abdomen and pelvis for non-specific abdominal pain. The scan shows a 7-cm low-density lesion in segment VII of the liver with heterogeneous enhancement in arterial and portal venous phase. An MRI liver is performed for further characterisation and shows a large lobulated mass with low signal on T1W and intermediate to high signal on T2W. On the dynamic post-contrast T1 scans, it shows enhancement in the arterial phase with a non-enhancing central scar, which later enhances in the delayed phase. What is the most likely diagnosis?
- (A) Focal nodular hyperplasia (B) Fibrolamellar HCC
 (C) Adenoma (D) Haemangioma
199. A 42-year-old woman is referred to the breast clinic and is due for an ultrasound scan to evaluate a suspected lump in the breast. All of the following are ultrasonographic features of a benign breast mass, except
- (A) Feeding central vessel on Doppler imaging
 (B) Well-defined smooth margins
 (C) Three or fewer lobulations
 (D) Circumferential blood flow pattern on Doppler imaging
200. A 6-year-old girl presents to her family doctor with fever and pain in the lower left leg. Blood tests reveal leucocytosis and anaemia. Plain radiograph of the leg shows a destructive lesion involving the fibular shaft with lamellated onion skin periosteal reaction, cortical destruction and large soft-tissue mass. What is the likely diagnosis?
- (A) Osteosarcoma (B) Ewing's sarcoma
 (C) Chondroblastoma (D) Chondromyxoid fibroma