

Radio
gamma
Paper I Radio

Which of the following examinations are contraindicated in pregnancy

- Magnetic Resonance Imaging ✓
- Intravenous urography
- Ultrasound scanning with a transducer of 7.5 MHz ✓
- Erect lateral pelvimetry
- Magnetic Resonance spectroscopy

Prab
1-6-10

Newer imaging modalities include?

- Retrograde urography
- Fluorography
- Computed tomography ✓
- Digital Subtraction Angiography ✓
- Bone densitometry

ultra
CT ✓ conventional
spiral
multislice
Angiography

MRI - conventional
MR angiography
MR spectroscopy
Nuclear medicine

The following statement is true concerning GIT contrast studies with barium sulphate

- Thin suspension for barium swallow
- The suspension for barium enema is **Thin**
- Thick paste for barium enema
- Thick paste for barium meal
- None of the above

Thick meal
Thick
Thinned barium - swallow
Thin barium

double contrast - barium

Thick suspension - enema

Swallow = Thick
Meal = Thin
enema = Thin

INCT scanning

- The patient moves X
- The patient is stationary ✓
- The x-ray source is stationary X
- The x-ray source and the detector are stationary X
- Metallic objects in the patient are a contraindication X MRI

At table on a movable table
more

Thin Radioisotope scanning / scintigraphy

- Gamma rays are applied through the patient X
- Gamma rays are detected from the patient ✓
- Patient remains "radioactive" for only about 30 min at most ✓
- A metastatic lesion usually appears as an area of reduced tracer uptake X
- There is no role for oral administration of radiopharmaceutical X

- Radiopharmaceutical injected in
- Radio-emitter of gamma rays
- Technetium 99m Tc metastatic
atomic mass

6. An 18 month old girl is brought to the casualty department after the mother notices that her left pupil appears white. You perform ophthalmoscopy and suspect a retinal mass. Which of the following is the investigation of choice?

- a. Repeat ophthalmoscopy by ophthalmologist
- b. Orbital radiograph - screens 4 metallic FB but MRI
- c. CT orbits - long detail (calcification)
- d. MRI orbits - better 4 optic nerve & tumours
- e. Ultrasound - intraorbital lesions such as FB & tumor masses (lesions within globe)

7. An 82 year old woman who was previously well had several falls within the last 2-3 months. She has become increasingly confused but there are no localizing neurological signs on physical examination. A diagnosis of bilateral subdural hematomas is made at CT of the head. Which of the following best describes the CT findings

- a. High attenuation in both Sylvian fissures and basal cisterns
- b. High attenuation overlying the right frontoparietal cortex and extending into the interhemispheric space
- c. High attenuation lentiform collection overlying the left temporal region
- d. Mixed attenuation areas overlying both hemispheres with normal ventricles and no midline shift - mass effects with midline shift - Brain contusion/edema
- e. Superficial areas of low density with right frontotemporal region containing small foci of high attenuation

8. After an RTA, an 18 year old male suffers injury to the thoracic spine. A plain radiograph shows a fracture of T9 with suspicion of bone fragment within the spinal canal. Which of the following is the best examination of choice?

- a. Thoracic myelogram
- b. MRI of the spine
- c. Radionuclide bone scan
- d. Discography
- e. CT scan of the spine

A 37 year old woman is involved in an RTA along with an old woman in a RTA along Waiyaki way and sustains severe CT injury. The CT shows acute blood within the extradural, subdural and subarachnoid spaces. Which of the following statements is true regarding extradural haematomas?

- a. They are crescentic in shape ^{lenticular}
- b. They are rarely associated with a skull fracture ^{subdural}
- c. They are commonest in the temporo-parietal region ^{temporo-parietal}
- d. They are usually due to laceration of the middle cerebral artery ^{meningeal cerebral artery}
- e. They commonly cross the cranial sutures ^{meningeal}

Plain radiography fractures

A plain radiography fractures of the base of skull are best studied on the following view

- a. Occipitomental view (OMV) (Water's view) - Good for the face: zygomatic/maxilla
- b. Occipitofrontal view (Caldwell's view) - orbital / frontal / ethmoidal view / nasal aperture
- c. Lateral view
- d. Submentovertical view - Direct visualization of the base of skull
- e. Townes view - AP view - for mandibular condyle & condyle neck fracture

A 27 year old male presents to the accident and emergency department with history of vomiting, abdominal pain, constipation and abdominal distension. On examination, tenderness and tympanitic percussion were elicited. Which one of the following is the most appropriate radiological examination?

- a. Barium swallow
- b. Barium meal
- c. Barium enema
- d. Plain radiography
- e. Ultrasound

A 80 year old obese female patient has complaints of right upper quadrant pain, chills, fever and jaundice. Diagnosis of cholecystitis is suspected. The best imaging modality in an acute setting would be

- a. Abdominal CT Scan
- b. Magnetic Resonance Cholangiopancreatography (MRCP)
- c. Abdominal ultrasound
- d. Plain abdominal x-ray
- e. Endoscopic Retrograde Cholangiopancreatography (ERCP)

13. Which one of the following favours small bowel rather than large bowel obstruction?

- a. Diameter of more than 5 cm - Large bowel 3-5cm
- b. Presence of haustrations *large*
- c. Short air-fluid levels ✓
- d. Long air-fluid levels - LB
- e. None of the above

14. The following levels are normal constrictions of the oesophagus during a barium swallow study except

- a. Thyroid gland
- b. Cricopharyngeus muscle 1
- c. Aortic arch 2
- d. Left atrial appendage 3
- e. Gastro-oesophageal junction 4

15. The following are indications of barium meal except *meal =*

- a. dyspepsia
- b. weight loss
- c. unexplained iron deficiency anaemia
- d. suspected perforation - C I
- e. partial obstruction

Stomach duodenum

Contra Indications
- Perforation
- Obstruction - (complete)

16. An area of radiographic film exposed to visible light before development appears

- a. Black
- b. White
- c. Grey ✓
- d. None of the above
- e. All the above

17. Bronchopneumonia

- a. Involves the lower zones rather selectively
- b. Shows as dense *patches* discrete opacities
- c. Commonly involves the entire lung fields ✓
- d. Does not occur in adults
- e. Takes weeks to resolve

Which of the following imaging modalities best demonstrates VSD?

~~20~~ Echo

- a. CT scan
- b. MRI
- c. Plain chest x-ray
- d. Angiography

10 The normal thymus

~~10~~ **Should** be evident radiographically in birth

- a. Appears smaller in supine chest films than in the upright position X
- b. When large typically displaces the trachea X
- c. Is a middle mediastinal structure X *upper, etc*
- d. Usually seen in chest films of adults X

Thymus
Thyroid
Cervical

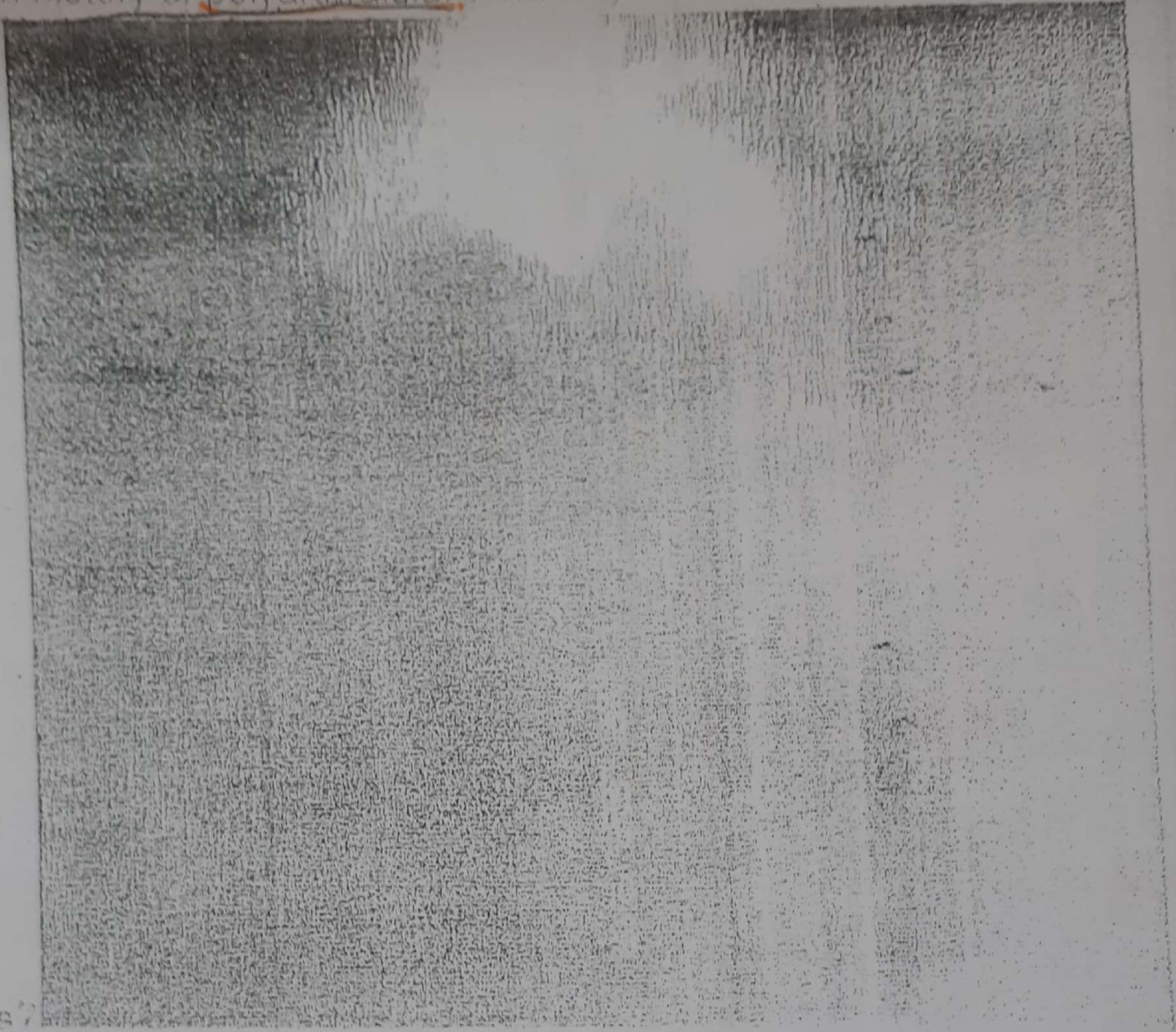
14 The most reliable observation to indicate that a chest radiograph is a PA rather than an AP projection is

- a. Minimal magnification of the cardiac shadow
- b. Degree of tilt of the clavicles
- c. Better demonstration of the thoracic spine

~~10~~ **Scapulae** away from the lung fields

- a. Absence of the gastric air bubble

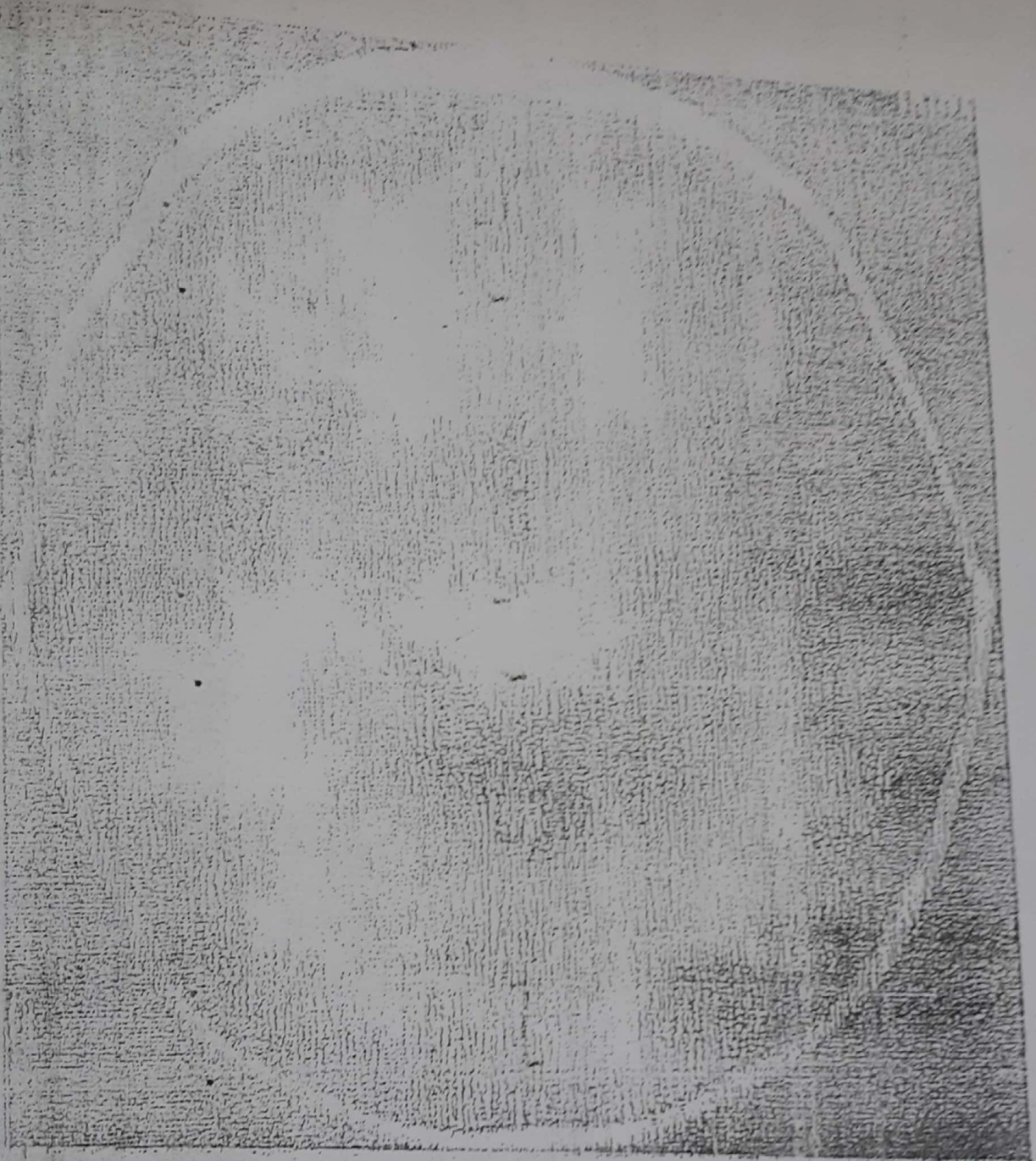
21. The following AP radiograph of the pelvis was taken from a 56-year old female patient with history of polyarthralgia. What is your



diagnosis?

- a. Gout
- b. Psoriatic arthropathy
- c. Rheumatoid arthritis
- d. Hyperparathyroidism
- e. Osteoarthritis

The image demonstrated below is



- a. CT scan of the brain
- b. T1W brain MRI scan
- c. T2W brain MRI scan
- d. Cranial ultrasound
- e. None of the above

T1

23. In the PA radiograph demonstrated below the most obvious diagnosis is

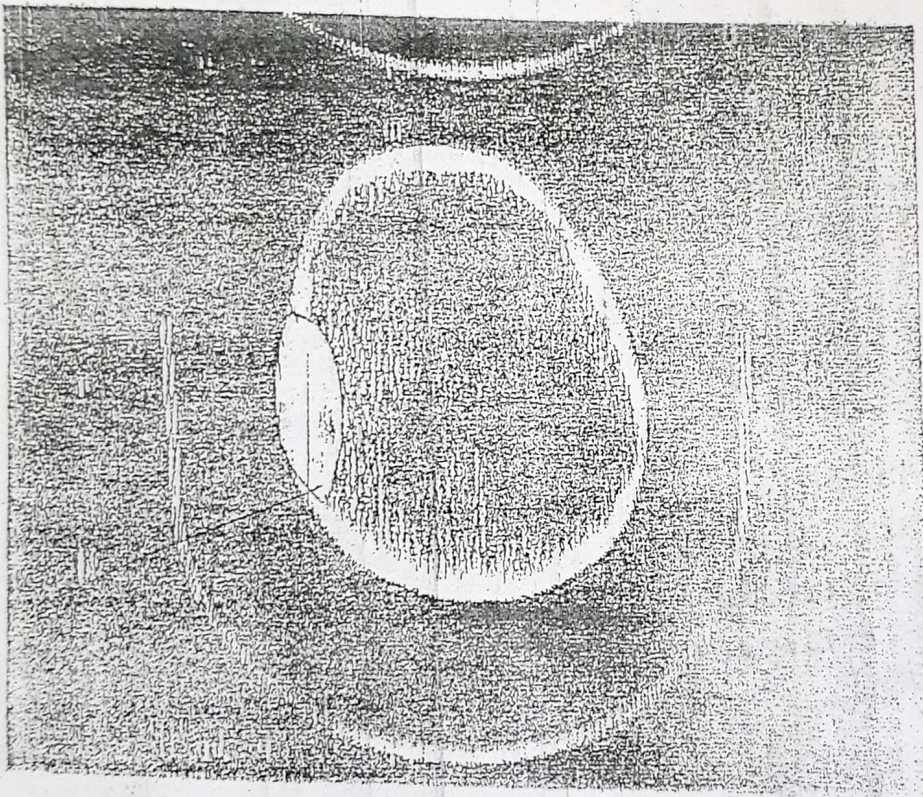


- a. Cardiomegaly
- b. Right middle lobe consolidation
- c. Right lower lobe consolidation
- d. Left pneumothorax
- e. Right lower lobe mass

What is not true regarding the examination demonstrated below?

- It uses non-ionising radiation
- Patient preparation requires fasting
- It is useful in staging breast cancer
- It is contraindicated in pregnancy
- It is operator dependent

25. A 30 year old man was involved in road traffic accident. He presented to the Accident AND Emergency Department with history of confusion. A CT scan was ordered. The image is presented below. What is the diagnosis?



epidural

- a. Epidural hemorrhage
- b. Subdural hemorrhage
- c. Subarachnoid hemorrhage
- d. Calcified Meningioma
- e. None of the above

30. Congestive heart failure >

31. The following are forms of electromagnetic radiation except

- a) Gamma rays
- b) X-rays
- c) Ultrasound ✓
- d) Radio waves
- e) Visible light

~~X-rays~~ X-rays to traverse through structures more easily enabling demonstration of these structures.

- ~~a. Impedes the transmission of x-rays through tissue~~
- c. Changes the frequency of x-ray photons
- d. Causes anaphylactic reactions in 50% of patients
- e. Should never be diluted

13. In acute haematogenous osteomyelitis:

- a) The most common causative agent is streptococcus
- b) There is predilection for the diaphysis
- c) Bony changes are evident radiographically at the onset of symptoms in most cases
- d) Radionuclide bone scan changes appear much later than radiographic changes
- ~~e) The earliest radiographic abnormality is a periosteal reaction~~

14. Multiple myeloma

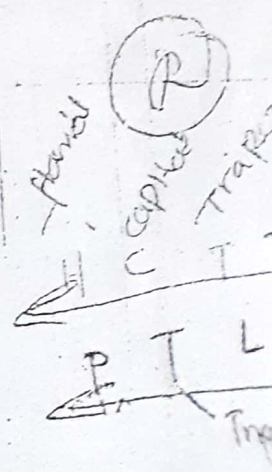
- a) Typically presents between 40-50 years of age
- ~~b) Is a recognized cause of generalized osteopenia~~
- c) Typically destroys the pedicles of the vertebrae
- d) Is more common in females than males
- e) Causes multiple well defined osteosclerotic lesions.

15. The following is the true arrangement of the proximal row of small bones of the right antero-posterior view of the wrist:

- a) Hamate, pisiform, triquetrum, scaphoid
- ~~b) Pisiform, triquetrum, lunate, scaphoid~~
- c) Pisiform, lunate, capitate, hamate
- d) Pisiform, lunate, capitate, hamate
- e) Triquetrum, pisiform, scaphoid, lunate

16. The following signs can be used to assess cardiovascular disease on plain chest radiography except:

- a. The transverse diameter of the heart
- b. Pulmonary vasculature
- c. Presence of pleural effusion
- ~~d. The size of IVC~~
- e. Rib notching



27. Features of cardiac failure on plain chest radiography include

- a. Prominent lower lobe pulmonary vessels *no more*
- b. Lifting and rounding of the cardiac apex *(TOF)*
- c. Filling of the retrosternal airspace *ca*
- d. Posterior displacement of the barium filled oesophagus *-> left*

~~28. Kerley B lines - Pulmonary edema~~

28. Bulges (moguls) seen on the left in the normal chest radiograph include all of the following except

- a. The main pulmonary artery ✓
- b. The left main stem bronchus ✓
- c. The left ventricle ✓ ✓
- d. The aortic knuckle ✓ ✓

*central vessels
Pulmonary
artery*

~~29. The left atrial appendage - left atrial enlargement~~

29. Features of left atrial enlargement include the following except

- a. Splaying of the carina ✓ ✓
- b. Prominent ^{left} cardiac border *double density sign*
- c. Prominent left atrial appendage ✓
- d. Elevation of the left main stem bronchus ✓
- e. Filling of the retrocardiac airspace *Posterior clear*

~~30. Which of the following imaging modalities will not demonstrate pulmonary arterial hypertension?~~

- a. Plain radiography ✓
- b. Echocardiography ✓
- c. Cardiac CT scan ✓
- d. Thallium 201 radionuclide scans
- e. ECG gated MRI of the heart ✓

*D - Diaphragma
I - Initial of cardio-pulmonary
A - aortic arch
Left main bronchus*