

RADIOLOGY

MURKATI

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UNIVERSITY OF NAIROBI

DEPARTMENT OF DIAGNOSTIC IMAGING AND RADIATION MEDICINE

UNDERGRADUATE PROGRAMME (MBCHB V)

DIANA

CONTINUOUS ASSESSMENT TEST

MULTIPLE CHOICE QUESTIONS PAPER

DATE: Friday 19 July 2013

TIME: 10.00AM - 12.00PM

INSTRUCTIONS:

1. WRITE YOUR INDEX NUMBER (NOT YOUR NAME) ON THE SPACE PROVIDED ON THE ANSWER SHEET
2. CHOOSE SINGLE BEST ANSWER USING A PENCIL
3. PLEASE NOTE THAT EACH QUESTION HAS ONLY ONE ANSWER.
4. MARKING WILL NOT BE DONE WHERE MORE THAN ONE ANSWER HAS BEEN GIVEN

Paper 2

1. Which of the following modalities is non-ionizing? - MRI

- a. Magnetic resonance imaging
- b. Plain radiography x-ray
- c. Computerized tomography
- d. Fluoroscopy ✓ - ionizing
- e. None of the above x

Prab

7-30

2. One of the following does not belong to the electromagnetic spectrum

- a. Gamma rays ✓
- b. X-rays ✓
- c. Radiowaves ✓
- d. Light ✓
- e. Ultrasound ---

As low as Reasonably Achievable

3. What does the ALARA principle take into consideration?

- a. Availability ---
- b. Acceptability ---
- c. Convenience ---
- d. Radiation exposure ✓
- e. None of the above ---

4. An eight year old girl presents with joint pain, joint swelling, skin nodules and choreiform uncoordinated jerky movements. She reports history of sore throat within the last 2 weeks. What is your preferred radiological examination? → echocardiogram

- a. Chest x-ray ---
- b. Echocardiography ✓
- c. CT scan of the head ---
- d. Angiocardiology ---
- e. MR scan of the brain ---

5. The left atrial chamber of the heart enlarges

a. Anteriorly and laterally to the right ~~f~~

b. Posteriorly and laterally to the left ~~f~~

c. Laterally to the left ~~f~~

d. Laterally to the right

~~e.~~ Posteriorly and laterally to the right ✓

7. The following are radiological features of left atrial enlargement except

- a. Double right heart border ✓
- b. Widening of carina ✓
- c. ~~Increased convexity and prominence of the right heart border~~
- d. Enlargement of the left atrial appendage ✓
- e. ~~Straightening of the left heart border~~ ✓

the
arrows)
Right
border - formed
enlarge Lf
bulge in the
border
enlargement
appendage
of the
Renal

Left atrial enlargement

A 55 year old man presents to the clinic with history of hesitancy, frequency and nocturia. Which is your imaging modality of choice?

- a. Intra-venous urography
- b. KUB Plain radiography
- c. CT scan pelvis
- d. ~~Pelvic ultrasound~~
- e. Micturating cystourography

bladder
bladder

8. The first choice imaging modality in suspected prolithiasis is

- a. ~~Plain KUB radiography~~
- b. ~~Abdominal ultrasound~~
- c. Pelvic ultrasound
- d. MRI Pelvis
- e. CT Pelvis

9. A 28 year old female patient has irregular menses, infertility, obesity and hirsutism. Which of the following is not an expected finding on pelvic ultrasonography

- a. Enlarged ovaries ✓
- b. ~~A large ovarian cyst~~ ✓
- c. Multiple small peripheral ovarian cysts ✓
- d. Central echogenic ovarian stroma ✓
- e. ~~None of the above~~ ✓

POC
- 25 or more follicles
- increased ov size

2-9mm

10. In the investigation of an patient with epilepsy which is the most appropriate imaging modality

- a. Plain skull radiography
- b. Cisternography
- c. Cranial ultrasound
- d. CT scan Head ✓

EEG

~~MRI Brain~~ - Imaging of choice

1. An 82-year-old woman who was previously well has had several falls within the past 2-3 months. **She** has become increasingly confused with no neurological signs on physical examination. **Axial** on chronic bilateral subdural hematomas **are shown on CT**, the following are the **CT findings**.

chronic

- a. High attenuation in both sylvian fissures, the basal cistern and the lateral ventricle **X**
- b. High attenuation overlying the right frontoparietal cortex and extending into the interhemispheric space with midline shift to the left **X**
- c. Mixed attenuation areas overlying both hemispheres with normal ventricles and **no** midline shift **X**
- d. High attenuation lentiform collection overlying the left temporal region with effacement of the left lateral ventricle
- e. Superficial areas of low density in the right fronto-temporal region containing small foci of high attenuation

12. After an MVA, 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

13. At plain radiography fractures of the **base** of skull are best studied on the following view

- a. Occipitomental view (OMV)
- b. Occipitofrontal view
- c. Lateral view ✓
- d. Submentovertical view ✓ **CT**
- e. Townes view **X** Art 2 Middle cranial fossa

14. 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
- c. CT orbits
- ~~d. MRI orbits~~
- e. Ultrasound ✓

15. 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

16. A 12 year old girl presents with a 3 week history of back pain, malaise and low grade fever. A lateral lumbar spine radiograph shows features of suspicious discitis. Which of the following would support tuberculous rather than pyogenic infection?

- a. Bony bridging of affected vertebrae
- ~~b. Destruction of the adjacent end plates ✓~~
- ~~c. Large paravertebral abscess ✓~~
- d. Marked bony sclerosis
- e. Preserved vertebral body heights *Reduced*

17. Which of the following is true regarding normal cardiothoracic ratio on a chest radiograph?

- a. On an ~~AP~~ view of an adult it is usually less than 55% ✗
- b. On a PA view of an adult it is usually more than 50% ✗
- ~~c. On the AP of an infant, it is usually more than 55% ✗~~
- d. On an ~~AP~~ of an infant it is usually less than 55% ✓
- e. On a PA view of an adult it is 60% ✗

18. Which of the following is not true of pneumothorax?

- a) Associated with ipsilateral pleural effusion ✓
- b) Best seen on expiratory chest radiograph ✓
- c) Lateral decubitus can help to identify ✓
- d) Mediastinal shift to the ipsilateral side ✓ *True*
- e) In mediastinal fibrosis there is no shift in case of tension pneumothorax ✓

1. Features not clearly seen
1. Lateral decubitus
2. Exp. chest radio
3. CT scan
4. US

19. Bronchopneumonia

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

20. On a normal postero anterior chest radiograph

- a) The superior vena cava (SVC) forms the right border of the superior mediastinum ✓
- b) The right ventricle (RV) forms the right border of the heart ✓
- c) The left atrium forms the anterior border of the heart. *Right atrium* ✓
- d) The pulmonary veins form part of the left cardiac border ✓
- e) The left ventricle forms the posterior cardiac border. *of aorta* ✓

21. The normal thymus

- a) Should be evident radiographically at birth ✓
- b) Appears smaller in **supine** chest films than in the upright position ✓
- c) When large typically displaces the trachea ✓
- d) Is a middle mediastinal structure. *middle 1/3* ✓
- e) Usually seen in chest films of adults ✓

22. 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 slant of the clavicles ✓
- c) Better demonstration of the thoracic spine ✓
- d) Scapulae away from the lung fields ✓
- e) Absence of the gastric air bubble ✓

23. Fracture of the scaphoid

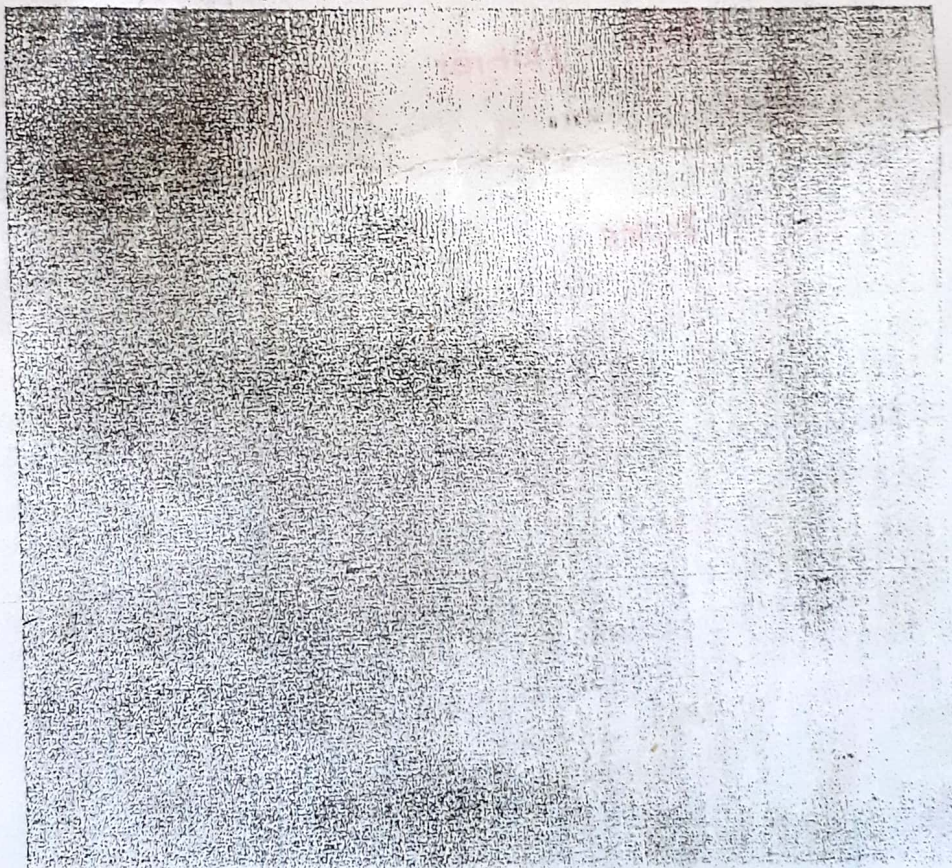
Clinical Radiology

- a) Can be excluded if PA and lateral radiograph of the wrist are normal ✓
- b) Is the second most common fracture of the carpal bones
- c) Most frequently involves the distal scaphoid in base
- d) Most frequently occurs at the waist of the scaphoid ✓
- e) May result in avascular necrosis of the distal fragment *proximate.*

24. 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 -/- X
- d. Radionuclide bone scan changes appear much later than radiographic changes -/- X
- e. The earliest radiographic abnormality is a periosteal reaction ✓

25. 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 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)

27. Which one of the following favors small bowel rather than large bowel obstruction?

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

28. The following are indications of barium meal except

- a. dyspepsia ✓
- b. weight loss ✓
- c. unexplained iron deficiency anaemia ✓
- d. **suspected perforation**
- e. partial obstruction *smaller*

29. The current primary screening modality for breast cancer is

- a) Ultrasonography
- b) Ductography
- c) Magnetic resonance imaging
- d) Computed tomography
- e) Mammography ✓

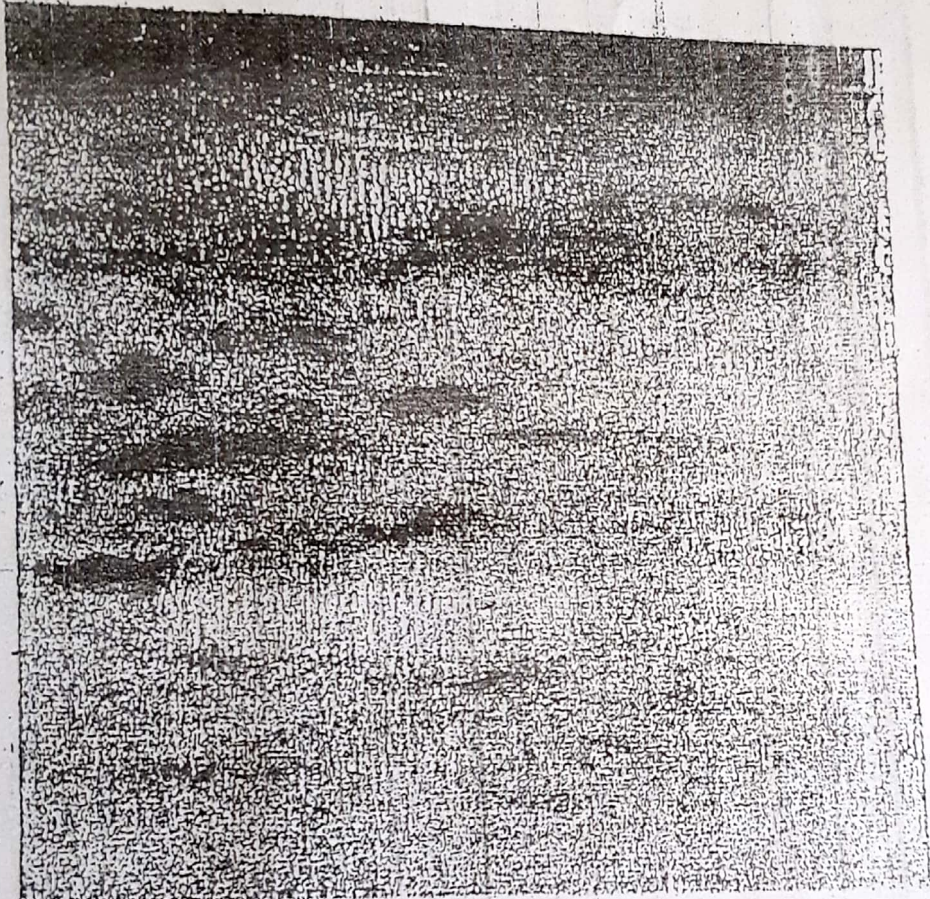
30. In which of the following conditions is ultrasonic examination not useful

- a. Acute epididymo-orchitis ✓
- b. Thyroiditis ✓
- c. Suspected bowel perforation -- *US has a role for Gas pockets*
- d. Haem Achilles tendon --
- e. Breast lump in a patient above 50 years of age. *US*

modality upto 200 h

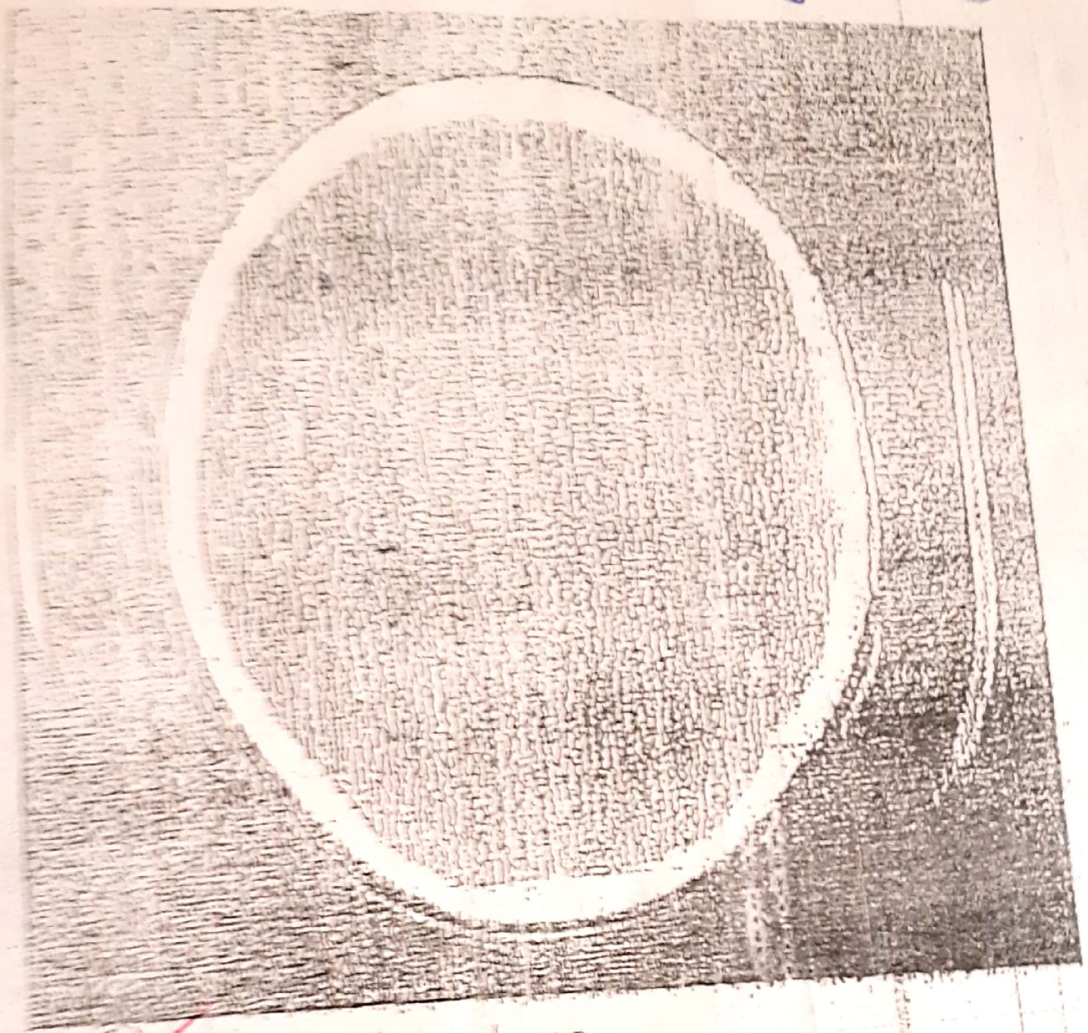
poor visualization for gas on bone

31. What is not ^{also} true regarding the examination demonstrated below?



- a. It uses non-ionising radiation ✓
- b. Patient preparation requires fasting ✓
- c. It is useful in staging breast cancer ✓
- d. It is contraindicated in pregnancy ✗
- e. It is operator dependent ✓

What is your diagnosis?



- a. Epidural hematoma
- b. Subdural hematoma
- c. Arachnoid hematoma
- d. Brain abscess
- e. High grade glioma

Prob

The presence of intracranial tumour deduce from the following signs
may be

- a) Calcification of pineal gland ✓
- b) Lateral displacement of the pineal gland ✓
- ~~c) Hyperostosis of the skull ✓~~
- d) Calcification of the basal ganglia
- e) Calcification of the falx cerebri

37. A 10 year old girl presents with headache, neck stiffness and a positive Kernig's sign. Which of the following would be the best imaging modality for this patient?

- a) Non-contrast enhanced CT
- b) Cranial ultrasound
- ~~c) Contrast enhanced CT~~
- d) AP and lateral views of the skull
- e) T1W MR

Wax 2
watery white 2

38. Contrast medium

- a) Allows xrays to traverse through structures more easily enabling demonstration of those structures
- ~~b) Impedes the transmission of xrays through tissue ✓~~
- c) Changes the frequency of xray photons
- d) Causes anaphylactic reactions in 50% of patients
- e) Should never be diluted

39. 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

40. 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, capitate, lunate, hamate
- e) Triquetrum, pisiform, scaphoid, lunate