**Introduction to Radiology**

The most minimal invasive imaging technique is:-

1. Plain X-ray film.
2. Ultrasound T
3. CT without contrast
4. Nuclear Imaging
5. None of the above.

the best imaging technical tool is :

1. **1- MRI**
2. 2- Arthroscopy
3. 3- CT
4. 4- Ultrasound
5. 5- Plain film

**Which of the following is true regarding foreign body aspiation?** :
A) Normal prevertebral soft tissue thickness.
B) Barium should be used if perforation is suspected.
C) Plain X-ray of the neck is not helpful.
D) Air bubbles can be seen in the prevertbral soft tissue.
E) U/S examination is better than CT in delineating foreign body.

**Which of the following uses ionizing radiation:**A) MRI
B) US
C) CT scan
D) Nuclear Medicine
E) Ba meal

Not contraindicated in preg :

MRCP

**Contraindication of MRI, all true except:**
a- Pregnant women
b- Patient with cardiac pace maker
c- Claustrophobia
d- -----
e- -----

 **Which modality doesn't cause ionization:**
a- MRI
b- CT scan
c- Angiography
d- Monography
e- -----

**Single x-ray of hand is:** غير مهم
a- 3D
b- 4D
c- Functioned
d- Cross-sectional
e- -----

 **Regarding tissue mass, all the following are true except:**
a- Can be related to enlarged normal solid organs.
b- Nature of the mass can be determined by plain film.
c- -----
d- -----
e- -----

**which of the following is true regarding natural contrast media in the body :**
a)hair
b)cartilage
c)water
d)fat
e)blood

MRI is able to visualize:

1. Vertebral body.
2. The intervertebral body.
3. Spinal canal.
4. Spinal canal contents.
5. **All of above**

**the best way to take an x-ray for patient in comma:**

a- lateral decubites.

b- medial decubites.

c- erect position film.

d-supine position film

1. **Which of the following imaging technique is safe for a pregnant?**
2. Bone scan
3. ERCP
4. CT scan
5. X-ray
6. **MRCP**

**MRCP is the true answer because it is MRI, bone scan is not safe, also ERCP is safe????**

**MSK Anatomy & Investigation**

Bochlar Angle

1. Angle between ulnar and radius
2. Angle for calcaneous (T)
3. Angle between thoracic & Lumbar spine
4. Angle for recto-sigmoid junction
5. Angle for gastro-esophageal junction.

regarding scaphoid fracture which is ture

1. 1- its usually break at its distal tip
2. 2- its commonly bi-lateral
3. **3- it articulate with the radius**
4. 4- it articualte with the ulna
5. 5- happen rarely

**In figure (7) all true except**

1. A refers to tibia.
B) B refers to talus.
C) C refers to fibula.
D) D refers to lateral malleolus.
E) E refers to medial malleolus.

**In figure (8) all are true except :**
A) A refers to sacroiliac joints.
B) B refers to symphysis pubis.
C) C refers to obturater foramen.
D) D refers to lesser trochanter.
E) E refers to greater trochanter.
**In figure (9) all are true except:**
A) A refers to trochlea.
B) B refers to radial head.
C) C refers to trochlea.
D) D refers to coronoid process.
E) This is AP view of the elbow.

**13- Lateral aspect of clavicle articulates with:**
a- Sternum
b- Coracoid process
c- Glenoid labrum
d- Acromion
e- Humerus head.

**14- Pisiform bone is located at:**
a- Carpal bones
b- Foot
c- Knee
d- Skull
e- Vertebral body.

**In the above figure all are true except :**
A) A refers to sacroiliac joints.
**B) B refers to symphysis pubis.**
C) G refers to obturater foramen.
D) D refers to lesser trochanter.
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**In the above figure all are true except:**
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E) This is AP view of the elbow.

**MSK non Trauma**

For Periosteal reaction:

1. Expansion of the bone.
2. Elevation of periosteum by pus, blood, tumor or new bone T
3. Sclerosis of the bone
4. Thickening of the medulla of the bone
5. Need CT to diagnose periosteal reaction.

The following are feature of aggressive lesion: EXCEPT

1. Irregular new bone formation
2. Poorly defined margin
3. Periosteal reaction
4. Soft tissue extension
5. Expansion of intact cortex. T

**all of the following can cause periosteal reaction except** :

A) osteomylitis

b) osteosarcoma

c) trauma-fractur

d) enchondroma T

**when detecting a lesion you do all except** :
a-look at the bone from the peripheral of the bone and work inwards.

b-Look around the outline of the cortex for a loss of continuity or
periosteal reaction.

c-Look at the joints.

d-Look at the soft tissues for any mass or swelling.

**Regarding the diagnoses if the tumor all of the following are true except**:

a- how to detect and describe the lesion.

b- the features of the benign and malignant lesion.

c- how to manage the tumor and treat it. T

d- Which other modalities are available to characterize the lesion and
find the extent of the disease.

**In regard to bone tumors , all are true except** :

a- Most bone tumors, both benign and malignant, are radiolucent.

b- Malignant can be primary or secondary.

c- They are uncommon except for secondary deposits in patients with known
metastatic disease.

d- Primary malignant tumors are more common than those that are secondary T

 **all of the following are mono atheropathy except** :

a-gout

b- osteoarthritis

c- trauma

d- dermatomyositis T

**syndesomophytes most likely found in** :

a-ankylosing spondylitis T

b- SLE

c- osteoarthritis

d-rumotoid arthritis

Regarding osteosarcoma all ture except :

1- **most common secondry tumor of the bone .**

2- can occur in any bone

3- prognosis depends on spreading to lungs

4- it’s a malignant bone cancer

5- the most common of malignant bone cancer

in osteosarcoma :

1- pain and swelling are absent

2- localized and doesn’t spread

3- common in lower tibia

**4- common in lower femur**

5- doesn't penetrate the cortex .

in a radiograph showing osteosarcoma , we see all of the following except :

1- the tumor originate in the metaphyseal region of the bone

2- bone destruction

**3- cortex is spared .**

4- sun burst sign

5- a ball like mass

regarding ewing's sarcoma :

1- it's common in general population

**2- result of genetic alteration**

3- happen in pelvis , but not in ribs

4- restricted to bone only

5- its benign

regarding ewing's sarcoma , all of the following are true except :

1- a malignant round cell tumor

2- can involve soft tissue

**3- more frequent in old female .**

4- a rare disease .

5- can occur in femur

on a radiography showing ewing sarcoma have the following characteristics except :

1- preosteum reaction

2- lytic lesion

3- soft tissue involvement

**4- easy to classify .**

5- all are true

regarding Non ossifying fibroma , which is not true :

1- it’s a benign tumor

2- the commonest bony lesion in children

3- **easy to diagnose**

4- adolescents are more prone to have it in general population

5- pain and swelling are present

which of the following is true regarding NOF :

1- the commonest bony lesion in general

2- girls are more affected

**3- 50%of it occue at multiple form**

4- Have a 60 % likelihood to happen below 2 years

5- Easy to diagnose

A 10 year old child with NOF will present to u with :

1- vaiarty of symptoms

2- usually sever pain

**3- his NOF will be localized in his long bones**

4- humerus is the commonest site

5- his bone cortex is thick

Which of the following bones are more affective with osteomyelitis in children :

1- hip

**2- femur**

3- toe

4- skull

5- patella

which of the following doesn’t give osteomyelitis :

1- mycobacterum TB

2- open fractures

3- surgical operations

**4- Rubella virus**

5- Non of the above

The most affected bone with osteomyelitis in adult is :

**1- vertebrae**

2- femur

3- skull

4- wrist joint

5- patella

in radiography showing osteomeylitis , we see all except :

**1- heamorrhage**

2- sequestrium

3- periosteum reaction

4- lytic lesion

5- all of the above

regarding RA , all true except :

**1- inflammatory process of the bone**

2- result in swelling

3- cartilage destruction

4- more in females

5- bony erosins are present

In RA , which of the following is not present :

1- demineralization

2- bony erosion

3- soft tissue involvement

**4- fever**

5- swelling

on radiography showing RA , all present except :

1- soft tissue swelling

2- osteopenia

3- symmetrical involvement

**4- lytic lesion**

5- cartilage destruction

which is false regarding osteochondroma :

1- it’s a benign tumor

2- called bone spur

3- more commonly at shoulder

4- can be multiple

**5- account 5%of neoplasm of the skeleton**

regarding osteochondroma :

1- most arise from the epiphysis

2- most common association is a tender lump

**3- can result from trauma**

4- comes only with multiple joint involvement

5- comes only with solitary joint involvement

complication of osteochondroma include

1- nerve damage

2- hemorrhage

3- malignant transformation

4- bone deformity

**5- all of the above**

**Osteoarthrosis , all are true except :** هااام
A) Hip and knee are commonly affected.
B) Positive rheumatoid factor.
C) Can be secondary to congenital hip dislocation.
D) Marginal osteophyte formation of the affected joint.
E) Hand involvement is a recognized feature

**In figure (10) all are true except:**
A) This is AB view of the hand.
B) No bony erosions
C) The finding are nearly symmetrical
D) There is collapse of the carpal bones
E) The diagnosis is likely rheumatoid arthritis

**In figure (11) which is true:**
A) The lesion is in the epiphysis
B) The border is ill defined
C) The lesion is likely benign
D) This a sclerotic lesion of the tibia

**In figure (12):**
Bone scan with multiple metastasis.



**What's the most likely diagnosis?**
A. Positive fat pad sign
B. Pigmented villonodular synovitis
C. Lipoma
D. Gout

**Regarding bone scan:**
A) Distraction of bone occurs more in malignancy then in benign
B) Lesions with narrow zone of transition are more likely to be benign
C) Green stick occurs more in adults
D) Physical injury is a (\*\*\*) which occurs in the growth plate
E) The most common (\*\*\*) in adult is in the growth plate.

**Rheumatoid Arthritis:**A) There is periartecular osteopenia
B) Periosteal reaction
C) Occurs more commonly in the small bones then in the long bones

ارعفوا خصائص ال Rhaumatoid arthritis

بالصورة و effusion

او لا

**- Which one favor benign over malignancy in MSK tumor:**
a- Patient sex
b- Poorly defined margin
c- Narrow zone of transition
d- Multifocal involvement
e- Presence of pathologic fracture.

 **Which one of the following is a mono-arthritis:**
a- Ankylosing spondylitis
b- Septic arthritis
c- Gout
d- RA
e- -----

**- 60 years old male with bone ache. An x-ray of spine and pelvis shows** multiple lytic lesion. The likely differential is:
a- Osteosarcoma
b- Multiple myoloma
c- Chondrosarcoma
d- Fibrous dysplasia

**Features of osteoarthritis:**
a- Osteophyte
b- Bone destruction
c- Joint space narrowing
d- a+b
e- a+c

\*\* INFLAMMATORY FOLD

When thin + long = benign

When short + thick = malignant

**when detecting a lesion you do all except :**

a-look at the bone from the peripheral of the bone and work inwards.

b-Look around the outline of the cortex for a loss of continuity or periosteal reaction.

c-Look at the joints.

d-Look at the soft tissues for any mass or swelling.

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b-Malignant can be primary or secondary.

c-They are uncommon except for secondary deposits in patients with known metastatic disease.

d-Primary malignant tumors are more common than those that are secondary.

**Indolent lesions are , all except:**

a-poorly defined margin.

b-no extension into the soft tissues.

c-no extension across the epiphyseal plate.

d-benign tumors and cysts.

**A Characteristics of aggressive lesions is:**

a-bone destruction and periosteal reaction.

b-no extension into the soft tissues.

c-no extension across the epiphyseal plate.

d-a well-defined margin.

**Polyarthopathy is found in:**

a-trauma.

b-Rheumatoid Arthritis.

c-gout.

d-Septic Arthritis.

**in Rheumatoid arthritis all are true except :**

a-Errosions occur earlier in the hands than the feet.

b-there is abnormalities of joint alignment.

c-there might be Ulnar deviation.

d-Subluxation of MCP joints.

**which of the following is a sero negative inflammatory arthropathy:**

a-Rieter’s disease.

b-Systemic Sclerosis .

c-Polymyositis.

d-SLE.

**all of the following can cause periosteal reaction except :**

A) osteomylitis

b) osteosarcoma

c) trauma-fractur

d) enchondroma

**all of the following are mono atheropathy except :**

a-gout

b- osteoarthritis

c- trauma

d- dermatomyositis

**syndesomophytes most likely found in :**

a-ankylosing spondylitis

b- SLE

c- osteoarthritis

d-rumotoid arthritis

**جابوا لنا صورة هيكل عظمي بالبون سكان و السؤال كان على ما أذكر**

**Full body bone scan is required for**

1. Normal ……
2. Recurrent infection
3. Osteomylitis
4. **Recurrent bone metastasis**
	1. **This lesion is likely benign (non aggressive lesion)**
	2. The borders are ill defined
	3. There is perosteal reaction
	4. This a sclerotic lesion of the tibia
	5. The lesion is in the epiphysis

**MSK Trauma**

Regarding scaphoid bone , which is incorrect :

1- its boat shaped bone

**2- its fracture usually happen in children less than 10 years**

3- its fracture may be associated with other bone fracture

4- the fracture heal if treated early

5- its blood supply is distal to proximal

regarding scaphoid fracture which is ture

1- its usually break at its distal tip

2- its commonly bi-lateral

**3- it articulate with the radius**

4- it articualte with the ulna

5- happen rarely

which of the following carbal bones most commonly fractured

1- capitate

2- pisiform

**3- scaphoid**

4- hamate

5- non of the above

regarding torus fracture , which is incorrect :

1- involve distal one third of radius

2- common in children

**3- children commonly sustain it by firmly impact**

4- known as incomplete fracture

5- torus means swelling

torus fracture :

1- happen in adult

2- happen in hard bone

3- the whole bone is affected

**4- it called buckel fracture**

5- extreamly common in athletes

regarding torus fracture :

1- adult are more common than children

**2- on x-ray there is bending of one side**

3- the two side are involved

4- treatment is a very long course

5- healing is complicated and long

regarding tibial plateau fractures all correct except :

1- resulting after high fall

2- resulting after lateral direct hit

**3- happen more in soft bone (children)**

4- fibula fracture maybe associated

5- cruciated ligament may be a result

all of the following associated with tibial plateau fractures

1- joint stiffness

2- soft tissue injury

3- osteoarthritis

4- pain

**5- bending of one side of the tibia**

who of the following is more vulnerable to tibial plateau fractures :

1- children

2- women

3- teenagers

**4- old**

5- all the same

tibial plateau fractures :

1- can be simple

2- result from a fall

3- twisting injury

4- result from direct force

**5- all of the above**

scapula fracture represent of all broken bones :

1- > 1%

2- 1-5 %

3- 5-10 %

4- > 50 %

**5- rare**

Which of the following doesn’t cause scapular fracture

1- motor cycle

2- falling from a balcony

3- car accident

**4- sudden deceleration**

5- non of the above

regarding fractured scapula , the following are true except :

1- resulting in a very tender arm

2- skin abrasions

**3- swelling at the ant. Side of the arm**

4- can cause disability

5- best diagnosed by x-ray

the commonest anatomical site for a fractured scapula is

1- acromion

2- coracoid

**3- body**

4- neck

5- non of the above

regarding fracture of the greater tuberosity , the incorrect statement is

1- occur in ant. Dislocation of the shoulder

2- occur in scapula trauma

**3- accompnied with complete thickness of rotator cuff**

4- presistent pain after healing

5- non of the above

which of the following greater tuberosity fracture need surgical fixation :

1- non-displaced

2- minimally displaced

3- > 5 mm displacement in active patient

4- > 3 mm of displaced in active patient

**5- > 5 mm displacement in general population involved in frequent overhead**

**Activity**

regarding calcaneal fracture , which is incorrect

1- called heal fracture

2- called lover's frcarure

3- easily fractured by large force

**4- the line of the fracture is easily seen**

5- stress fracture

calcaneal fracture all are true except :

1- happen during jumping from high balcony

2- arthritis maybe associated

3- common in athlet

4- need tremendous force to cause it

**5- no deformity is present**

all false except regarding ant. Dislocation of shoulder

1- account for 40% of dislocation of the shoulder

**2- humeral head is medial & inferior to glenoid fossa on frontal film**

3- humeral head is displaced posteriorly on transscapular film

4- rarely associated with another injury

5- hill sachs lesion is when the inf. glenoid rim is broken

the most common form of dislocated shoulder is

**1- anterior**

2- posterior

3- anteriolateral

4- posterolateral

5- lateral

on frontal film of ant. Dislocation which is incorrect

1- humeral head is medialy and inferior displaced

2- heumerus is no longer articulate with glenoid

**3- calvicle is in involved**

4- bankart lesion maybe seen

5- humeral head is medially and inferior displaced

anurism of bone cyst , all of the following are ture except :

1- osteolytic lesion

2- its not a anurism in nature

3- female are more incident than males

**4- the peak incident in those aged 30 years**

5- can occur between 10-30 years of age

.

regarding anurismal bone cyst , which is correct :

1- it has a limited size

2- most of the patient are old aged females

**3- happen usually after a trauma .**

4- anurism of empty cavity

5- 60 years old are more susceptible to it

in a radiography , anurismal bone cyst have the following characteristics except

**1- most common site is the growth plate of the knee .**

2- can happen is spine

3- can happen in skull

4- short bones are less frequently affected

5- knee is the commonest involved

the clinical presentation of anurismal bone cyst include the following except :

1- headaches

2- increase in the local skin temp.

3- quadriplegia

**4- arthritis**

5- neurologic radiculopathy .

regarding anerior cruciate ligament :

1- its originate from the poseromedial aspect of the medial femoral condyle

2- course through anerior , inferior and lateral direction

3- inserted into fibula head

4- composed of elastin fibers

**5- appears as a solid band on imaging**

In ACL tear :

1. most of them occur in lateral aspect of the ligament
2. **happen in the origin more than the insertion .**
3. its more clear if the axis is line projected along intercondyler roof
4. nonvisualization of the substance is a late sign
5. all of the above are true

in ACL tear :

1- non-visualization of the substance

2- cloud focal edema

3- heamorrhage

4- best seen with MRI

1. **all of the above**

regarding meniscal tear , all true except :

1- can come combined with ACL tear

**2- movement is there while inflammation presents .**

3- torn by sudden reduction of speed

4- torn by twisting of the knee joint

5- popping sensation may occur

clinical manifestation of meniscal tear in the knee joint have all of the following

except :

1- stiffness

2- swelling

**3- limitation of movement in talar joint**

4- collection of fluid

5- tenderness In the joint

the best imaging technical tool is :

**1- MRI**

2- Arthroscopy

3- CT

4- Ultrasound

5- Plain film

**Which of the following is true regarding foreign body aspiation?** :
A) Normal prevertebral soft tissue thickness.
B) Barium should be used if perforation is suspected.
C) Plain X-ray of the neck is not helpful.
D) Air bubbles can be seen in the prevertbral soft tissue.
E) U/S examination is better than CT in delineating foreign body.
 **Torus fracture :**
A) Is seen in young adult age.
B) Indicating cortical buckling.
C) Disruption of cortex from one side only .
D) Include skull in particular.
E) Occur at physeal plate.

**Which is true, introduction of skeletal trauma :**
A) 2 images should be taken always.
B) Weakest link point >> the least area to be injured.
C) Sublaxation >> complete separation.
D) MRI can demonstrate bone injuries

 **Regarding introduction to imaging of MSK trauma, one of the following is true:**
a- Dislocation can demonstrated in flexion view only.
b- Sublaxation means complete separation of the joint.
c- Greenstick fractions are seen in old patient.
d- Greenstick fractions indicate distruption of cortex from one side only.
e- Greenstick fractions cannot be seen on plain film

 **Regarding introduction to imaging of MSK trauma, the following are true except:**
a- Torus fractions indicate cortical buckle.
b- Torus fractions occur at long bones.
c- Torus fractions are seen in pediatric age.
d- Physeal injuries are common in children.
e- Physeal injuries involve the spine.

 **Regarding introduction to imaging of MSK trauma**
a- Pathological fractures can be visualized on plain film.
b- Pathological fractures indicate normal ----- bone.
c- Pathological fractures are better evaluated by US.
e- Stress fractures indicate pressure of weak bone.
d- Stress fracture is seen only by CT.

 **Regarding pathological fractures, all the following are true except:** تاكدوا من الاجابة لان جانا هالسؤال واتذكر محلول خطأ كان وللحين م اعرف الجواب ودوركم تعرفوا وتتاكدوا من جواب هالسؤال ! :S
a- Can occur in neonates.
b- Presence of underlying bone tumor.
c- Occurs after major bone injury.
d- CT is useful.
e- Can involve the spine.

**Regarding S-H injuries one of the following is true:**
a- Involve growth plate.
b- Type 2 is the least common one.
c- Type 4 has the worst prognosis.
d- Type 3 is seen in adult patients.
e- Type 1 evaluated by MRI only.

 **Regarding S-H injuries:**
a- Type 2 fracture occurs in both metaphysic and epiphysis.
b- Type 3 fracture occurs in both metaphysic and epiphysis.
c- Type 3 occurs in epiphysis only.
d- Type 1 and 5 are easy to see on radiograph.
e- Type 1 carries the best prognosis.

**1 Suspension of tibial fraction and the x-ray doesn't show that. The** modality used to confirm that is:
a- MRI
b- CT scan
c- IVU
d- Angiography
e- Mammography

**- According to MSK radiology, choose the best answer:**
a- Closed fraction present with penetration of the skin
b- -----
c- -----
d- -----
e- -----

**regarding bone trauma which of the following is true :**a)greenstick fracture is seen in elderly
b)physeal injury occur in adults
c)pathological fracture occur with major injury only
d)salter harris injury is seen in children
e)strss fracture occur over malignant lesion

What is the aetiology of Hangman's fracture:

1. Collapsed vertebral body.
2. **Fracture of pars interarticularis.**
3. Disc prolapsed of C3.
4. TB of spine.

None of the above

**In regards to dislocation and sublaxation which is true :**

a- dislocation is a partial sublaxation.

b- dislocation never leads to ligaments damage.

c- sublaxation is a parial dislocation.

d- sublaxation is caused by gradual pressure.

**In regards to Torus and Greenstick fractures all are true except :**

a- Torus is sufficient to break the cortex.

b- Torus produces metaphyseal buckling.

c- Greenstick pentrates one cortex leaving the other intact.

d- Greenstick ramifies within the medullary bone.

**Stress Fracture is more likely to be seen in :**

a- sternum.

b- scapula.

c- clavicle.

d- tibia.

**All the following can cause pathological fracture except :**

a- tumors.

b- blunt truma.

c- infections.

d- inherited bone disorder.

**Radiograph should include :**

a- the most flexable joint.

b- the smallest joint.

c- the nearest joint to the trauma.

d- the largest joint.

**Regarding the weakest link in adults which is not true :**

a- it includes the muscle.

b- it includes the physeal plate.

c- it includes the ligaments.

d- it includes the tendons.

**In regards tp physeal fracture (Salter-Harris injury) which is not true :**

a- SH-I seprates epiphysis from metaphysis.

b- SH-II is the mos common physeal fracture.

c- SH-III extends to the joint .

d- SH-V fracture lines are clear on initial radiographs

**the most common fracture in children is :**

a- greenstick fracture

b- dislocation

c- tours fracture

d- bowing fracture

**In figure (7) all true except:**
A) A refers to tibia.
**B) G refers to talus.**
C) C refers to fibula.
D) E refers to lateral malleolus.
E) B refers to medial malleolus.

**In the above figure all are true except:**
A) This is AP view of the hand.
**B) No bony erosions**
C) The finding are nearly symmetrical
D) There is collapse of the carpal bones
E) The diagnosis is likely rheumatoid arthritis.

 **Osteoarthrosis (it is osteoarthritis) , all are true except :**
A) Hip and knee are commonly affected.
**B) Positive rheumatoid factor.**C) Can be secondary to congenital hip dislocation.
D) Marginal osteophyte formation of the affected joint.
E) Hand involvement is a recognized feature.

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**Nuclear Medicine**

MCQS:

**The nuclear dives used in NM :**
A) Dose calibrator.
B) Gamma camera .
C) Survey meter.
D) Muller tube !!??.
E) None of the above

**Tc-99m is commonly used in nuclear medicine scanning because:**
A) It causes less radiation to the tissue
B) It emits beta particles
C) It emits gamma rays
D) It serves as a label to a wide variety of compounds
E) Has a long half life

\_@- Which material is used in radionuclide bone scan:

a- Tc ++ m MDp.

b- I\_\_, MIBG.

c- Thallium \_@\_.

d- Xe \_,,.

e- None of the above.

Technetium 99m
Physical half life : 6 hours

Thyroid gland
متى نقول hypothyrodism with cold nodule

**9- The following favor malignancy than benign on barium swallow examination** except:
a- Contrast extravasation.
b- Irregular outline stricture.
c- Rat tail appearance of stricture.
d- Shoulder sign.
e- -----

**Regarding tracheo-esophageal fistula, one of the following is true:**
a- Iodine water soluble should not be used

 b- Barium will lined both esophagus and trachea.
c- The fistula is not visualized.
d- Dense contrast barium is used.
e- ---- stricture is seen down after the fistula.

**- Regarding contrast media used in Abdomen?**
A) ERCP is used in gastric obstruction
B) Barium is radiolucent contrast
C) Double contrast means : barium + air
D) Angiogram is indicated in GI bleeding
E) US is used to detect abdominal masses

**which of the following is true regarding natural contrast media in the body :**
a)hair
b)cartilage
c)water
d)fat
e)blood

\*\* arterial phase – venous – delayed

A patient has prostate cancer, the best modality to exclude any bony metastasis in the skull is:

1. **Radionuclide scan.**
2. MRI.
3. CT scan.
4. Myelography.
5. X-ray

Which material is used in radionuclide bone scan:

1. **Tc 99 m MDp.**
2. I123 MIBG.
3. Thallium 201.
4. Xe 133.
5. None of the above

**- the only way to make a functional &structral image is by :**

a- MRI

b- x-ray

c- nuclear midecine

d- CT scan

1. **Half life of Technitium 99m is:**
2. 10 hr
3. **6 hr**
4. 4 hr
5. 3 second