NAME : HUMA NAWAZ

ID NO : 15037

DISCIPLINE : BS RADIOLO-
-GY

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POSITIONING

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INU PESHAWAR

QUESTION NO: 1

What is dental OPG? Describe the positioning and patient technique in detail?

ANSWER:

DENTAL OPG:

INTRODUCTION:

- An OPG (Orthopantogram) is a scan that gives a panoramic view of the jaw and teeth.
- The scan can provide information on wisdom teeth, bone loss, orthodontic assessment, jaw trauma, dental pain or to be used as part of a general dental check up.

POSITIONING AND PATIENT TECHNIQUE:

➡ Patient should be asked to remove any earrings, jewellary,

, hair pins, spectacles, dentures or orthodontic appliances.

➡ The procedure and equipment movements should be explained to reassure patients

➡ Load the panoramic film in the darkroom, and cover the bite block with a disposable plastic cover slip.

➡ Set the exposure factors and adjust the height of the machine to accommodate the patient.

➡ Instruct the patient to sit or stand with the back **straight and erect** and ask him to bite on the plastic bite block.

➡ The **upper** and **lower** front teeth must be placed in an end-to-end position in the groove of the bite block.

➡ The midsagittal plane should be perpendicular to the floor and aligned with the vertical center of the ~~chest~~ chin rest.

➡ The Frankfurt plane should be parallel to the floor, thus obtaining the correct position for the occlusal plane.

➡ Observe the patient carefully.

QUESTION NO: 2

How will you scan a patient with lower back pain. Write a basic view for lumbar x-rays?

ANSWER:

SCAN A PATIENT WITH LOWER BACK PAIN:

⇒ A CT scan is a type of x-ray that produces cross-sectional

images of a specific part of the body.

⇒ In case of a lumbar spine CT scan, the doctor can see a cross-section of your lower back.

⇒ The lumbar portion of the spine is a common area where back problems occurs.

⇒ CT scan is used to investigate the problems that includes back pain, lower back pain and signs of cancers etc.

PREPARATION TO SCAN A PATIENT WITH LOWER BACK:

⇒ A technician will ask the patient to lie on your back during scanning.

⇒ The technician may use pillows or straps to ensure that you stay in the correct position long enough for better image quality.

⇒ Patient also have to hold breath during brief individual scans.

⇒ Using a remote from a separate room for your scan.

⇒ CT technician will move the table into CT machine.

⇒ Depending on the reason for patient scan, the patient may be hooked up to an IV so that contrast dye should be injected into the patient veins during test.

⇒ After a round of scans, the patient is asked to wait while technicians reviews the images to ensure they are clear enough that your doctor can read them correctly.

A typical CT scan takes between 30 and 45 minutes to complete.

BASIC VIEW FOR FOR LUMBAR X-RAYS:

1. AP view

2) PA View
3) OBLIQUE VIEW:

1. PATIENT POSITION:

The patient is erect or supine depending on clinical history

In the supine projection hands are placed by the patient's side.

if performing erect position the patient in the PA position. this has numerous advantages including reduce dose to the gonadal region.

2. TECHNICAL FACTORS:

⇒ Anteroposterior projection
⇒ Suspended expiration (for a uniform density)

3. CENTERING POINT:

The level of the illiac crests at the MSP.
The central ray is perpendicular to the image receptor.

4. IMAGE CHARACTERISTICS:

the image should include from T12 to the bottom of the sacro-iliac joints.

QUESTION NO: 3.

Patient of old age came in the department with a complaint of knee pain, what view should be done?

ANSWER:

KNEE PAIN PATIENT:

➔ The knee is one of the most commonly injured joints in the body.

➔ With the help of x-rays you will understand the common causes of knee pain.

BASIC VIEWS:

1. **ANTERO-POSTERIOR**

POSITION OF PATIENT:

The patient is either supine or seated on the x-ray table, with both leg extended.

* POSITION OF PART:
⇒ With the cassette under the patient's knee.
⇒ Flex the joint slightly.
⇒ Locate the apex of patella.
⇒ As the patient extends the knee centre the cassette about 1/2 inch below the patellar apex.

* CENTRAL RAY:
⇒ The central ray may be directed perpendicularly to the joint.

* EVALUATION CRITERIA:
⇒ Femorotibial joint space should be open.
⇒ Patella should be completely superimposed on the femur.
⇒ No rotation of the femur and tibia should be seen.

2. LATERAL VIEW:

* POSITION OF PATIENT:
⇒ Ask patient to turn onto affected side.
⇒ Ask patient to bring the knee forward in flexion and extended

the other extremity behind it

⇒ A flexion of 20 to 30 degrees is preffered at this position relaxes the muscles and shows the maximum volume of the joint cavity.

* POSITION OF PART:

⇒ Flex the knee to the desired angle and centre the film to the knee joint.

⇒ The joint can easily located by palpating the depression between the femoral and tibial condyles on the medial side of the knee.

* CENTRAL RAY:

⇒ Direct the central ray to knee joint located 1/2 in (1cm) distal to the medial epicondyle at an angle of 5 degrees cephalad.

* EVALUATION CRITERIA:

⇒ Femoral condyles should be superimposed.

⇒ Patella should be in lateral profile.

⇒ Fibular head & tibia should only be slightly superimposed.

QUESTION NO: 4

A patient fell from the bike after being hit by car, has now complained of headache what are the xrays prescribed for skull?

ANSWER:

X-RAYS PRESCRIBED FOR SKULL:

INTRODUCTION:

⇒ Headache and head trauma are common presenting problems in both primary care and accident.

⇒ Plain Skull X-ray (SXR) films have largely been superseded by CT Scanning or MRI scans in the context of headache.

1. CT SCAN FOR HEADACHES:

⇒ A CT scan also known as a CAT scan, may help to diagnose headaches by providing

images of the brain.
A CT scan works similarly to traditional x-ray exams.

➡ The CT images can rule out.
- Brain tumors
- Abscess or infection of the brain
- Injury or trauma

2. MRI FOR HEADACHES:

➡ MRI scans do not uses x-rays to create brain images.
➡ Instead an MRI scan uses radio waves and magnets to produce the results.
➡ MRI are a lot more detailed than CT scans and prouide much more informations
This makes it the headache imaging type of choice for those needing a diagnosis of subacute or chronic symptoms.

QUESTION NO: 5

(i) How you see the importance of KVp and mAs setting in your x-ray machine.

(ii) Write about the positioning and technique of pelvic x-ray.

PART (i)

ANSWER:

⇒ Exposure factors influence and determines the quantity and quality of the x-ray radiation to which the patient is exposed.

⇒ The Kvp and mAs are under the control of the operator except for those fixed by the design of the x-ray machine.

Kvp:

- Kvp controls radiographic contrast.
- Kvp determines the ability for the beam
- Kvp has more effect than any other factor on image receptor exposure because it affects beam quality.

mAs:

- The mA selected for the

exposure determines the number of x-rays produced.

- Patient dose is also directly proportional to the mA with a fixed exposure time.
- Many x-ray machines are identified by the maximum mA or mAs available.
- A change in mA does not affect kinectic energy of the electrons therefore only the quantity is changed.

PART (ii)

ANSWER:

POSITIONING AND TECHNIQUE OF PELVIC X-RAY:

ANTEROPOSTERIOR:

The AP pelvis view is part of a pelvis series examining the iliac crest, sacrum, proximal femur, pubis, ischium

and the great pelvic ring.

PATIENT POSITION:

Patient is Supine
Lower limbs are internally rotated 15-25° from the hip.

TECHNICAL FACTORS:

CENTRING POINT:

The midpoint of the anterior superior iliac spine and the pubic Symphasis

COLLIMATION:

Laterally to the skin margins.
Superior to above the iliac crests.

DETECTOR SIZE:

35 cm x 43 cm

EXPOSURE:

70 - 80 Kvp
20 - 30 mAs

GRID:

Yes

(15)

IMAGE TECHNICAL EVALUATION:

- Obturator foramina appear equal
- Iliac wings have an equal concavity
- Greater trochanters of the proximal femur are in profile.

END OF PAPER