

IQRA NATIONAL UNIVERSITY

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Q1:

Ans:

Orthopantomogram (OPG)

- An OPG is a panoramic X-ray of the upper and lower jaws, including the teeth.
- The OPG unit is specifically designed to rotate around the patient's head during the scan.
- An OPG will take around 20 seconds.
- An OPG can be used to look for
  - ↳ Fractures.
  - ↳ Dislocated jaw.
  - ↳ Infection.
  - ↳ Dentition (Teeth).
- Patient Positioning.
  - Once the operator is properly set up and all equipment is prepared you are ready to see your patient after doing extra intraoral exam in a seated operatory occupation to remove glasses Jewelry dentures and any other Metal objects.

- (2)
- During OPG patient remains in a stationary position (seated or standing) while both the X-ray source and film rotate in combination around the patient.
  - X-ray source rotates from one side of the jaw, around the front of the patient, and then to the other side of the jaw.

→ ~~Technique~~

⇒ Technical Factors:

- Panoramic Projection.
- Paused Respiration.
- Centering Point.
  - ↳ Frankfort's horizontal line is perpendicular to the floor.
  - ↳ Laser lights will be vendor-specific however, central laser light in the midsagittal plane.
    - Axial laser light at the IOML.
    - Lateral laser light at the lateral incisor.

⇒ Exposure:

\* 70-80 kVp

\* 8-15 mA over a number of seconds.

⇒ Grid: → Yes.



## Q2: Back Pain:

Ans: Back Pain can be excruciating, so it seems that getting an X-ray, CT-scan or MRI to find the cause would be good idea. But that's usually not the case, because:

- ↳ They don't help you get better faster.
- ↳ They can pose risks.

→ It can be good idea if you have signs of severe or worsening nerve damage to get imaging tests, or serious underlying problem, such as Spinal Infection.

→ Most People get over Back pain in a few weeks and these simple steps might help.

- ↳ Stay Active
  - ↳ Apply Heat
  - ↳ Consider over-the-counter medicines,
  - ↳ Sleep Comfortably.
  - ↳ Talk with your Health care provider.
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> Write the Basic View of Lumbar X-rays?

1: AP/PA View:

- The entire lumbar spine should be visible, with a demonstration of T11/T12 superiorly and the Sacrum inferiorly.
- ~~Q~~ Often performed erect unless otherwise indicated.

2: Lateral View:

- Visualization of lumbar vertebral bodies, pedicles, and facet joints.
  - Ideal projection when examining for suspected fractures.
  - Can be performed erect to assess stable fracture.
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Q3: Complaint of knee pain:

Ans: Examination and standard radiographic imaging are important in the determination of the Aetiology of knee pain.

→ This section will summarise pertinent symptoms and signs in the assessment of knee pain.

→ Conventional Radiography of the knee comprises a standard Anteroposterior view and a lateral view.

→ The lateral view allows assessment of the vertical position of the patella.

→ Measurement of patellar tilt on the lateral radiograph with the knee, if full extension is more sensitive for patellofemoral joint pain and prior dislocation the measures on the axial view.

→ The Axial will show PFJ (Patellofemoral joint) static alignment.



(6)

→ Computed tomography (CT) allows axial plane evaluation of the PF joint relationships in varying degree of flexion for detecting malalignment.

→ Magnetic Resonance Imaging (MRI) can visualize the components of extensor mechanism and show lesions of articular cartilage and menisci, plicae, and osteoarthritic change.

→ Static MRI imaging Axial sections are obtained with the knee image at 4-8 different angle positions.

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Q4:

Ans: A blow to the head or severe twist to Neck can be scary, sometime there can be a brain injury such as concussion, bleeding on the brain or cracks to the skull.

→ Head and Neck injuries are a common reason for visiting the emergency department.

→ The Technologist may order a CT scan, of the brain to make sure the patient do not have a skull fracture or a serious brain injury.

→ If a patient has signs of serious injury, a CT scan is usually the best first test to diagnose it.

⇒ Specific Signs of Patient.

- Weakness on one side of face, or body
- Reduced Vision.
- Swallowing.
- Severe Headache
- Being on a Blood thinner



- Fluid or Blood from an ear or Nose
  - One pupil larger than the other.
  - Most people with head injuries do not have either of these problems and simple concussion do not show up on a CT scan, if patient do not have any of these symptoms or signs, research shows the risk of patient of a serious injury needing surgery or leading a serious complication is less than 1 in 7000, and a CT scan is unlikely to be helpful.
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Q5: PART A:

Ans: Kilovoltage (kVp):

→ When the kVp is increased at the control panel, a larger potential difference occurs in the x-ray tube, giving more electrons the kinetic energy to produce x-rays and increasing the kinetic energy overall. The result is more photons and higher energy photons (means quantity and quality)

→ Increasing or decreasing kVp changes the amount of radiation exposure to the IR and contrast produced within the image.

⇒ Milliamperage: (mAs).

→ As the mAs is increased, the quantity of radiation reaching the IR is increased.

→ As the mAs is decreased, the amount of radiation reaching the IR is decreased.

Q5: PART: B

Ans: Positioning of Pelvis:

1 → Pelvis AP:

⇒ Position of Patient:

→ Supine position,

→ Have patient suspended respiration for exposure

⇒ Central ray:

→ Central ray perpendicular at midline of patient about 2 inches (5cm) inferior to ASIS and 2 inches superior to pubic symphysis, in average-sized patient.

2- Pelvis Lateral (Left or Right),

⇒ Position of Patient:

→ Place Patient in lateral recumbent

→ Dorsal decubitus or upright position.

→ Have patient suspend respiration for exposure.



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 ⇒ Central ray: perpendicular to a point centered at a level of soft tissue depression just above the greater trochanter about 2 inches and to mid-point of imag receptor.

### 3 → Pelvis Axial:

#### ⇒ Patient Position:

→ Seat patient well back on end or side of table so posterior surface of knee is in contact with the edge of table.

→ Patient have suspend respiration fo exposure.

⇒ Central ray: Perpendicular through lumbosacral region at level of greater trochanters.

→ When flexion of body is restricted, direct CR anteriorly, perpendicular to coronal plane of pubic Symphysis.