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Paper	Radiological Positioning
ID	15357
Discipline	BS Radiology Semester 4th

Q No 1

Ans:

OPG:- The OPG stand for
"orthopantomogram"

Is a panoramic scanning
dental x-ray of the upper
and lower jaw.

An OPG also demonstrates
the number, position and growth
of all the teeth including those
that have not yet surfaced, erupted
through the gum.

It is different from the
small close up x-rays
dentists take of individual
P.T.O

Over the upper lumbar spine

Centering point:-

- The level of the T12 vertebra
- Central centering point is directly over the lumbar vertebrae, which corresponds to the posterior third of the abdomen.
- The central ray is perpendicular to the image receptor.

Collimation:-

- Superiorly to include the T12 vertebra.
- Inferiorly to include the anterior border of the lumbar vertebral bodies.
- Posteriorly to include all elements of the posterior column, particularly the spinous process.

Orientation:-

Portrait

Detector Size:-

35 cm x 43 cm

Exposure:-

70 - 80 kVp
60 - 80 mAs

SID:-

110 cm

Grid:-

Yes ensure the correct grid is selected if using focused grids

X

most occur in the supine position without moving the patient.
→ In the lateral decubitus position the patient so that the humeri are extended 90 degrees the thorax, with the elbows flexed so that forearms are parallel to the thorax spinal curvature in the

AP.
→ In performing erect position the patient in the PA position. This has numerous advantages including reduced dose to the gonadal region and utilization of beam divergence arms can be placed by the erect bucky can be held for patient stability.

Technical factors:-

- Anterior posterior projection.
- suspended inspiration (for uniform density)

Centring point:-

- The level of the iliac crest at the MSP
- The central ray is perpendicular to the image receptor.

Technical factors:-

Lateral projections:-

- expiration to minimize superimposition of the diaphragm P.T.O

foreign bodies

- No evidence of movement or sharpness.
- No evidence of positioning error including rotation and error within the occlusal plane (both external edges should be parallel to each other).

x ————— x

Qrto 2

Ans:

How will you scan a patient with lower back pain:-

Antero-posterior view:-

The lumbar spine which consists of five vertebrae. It is utilized in many imaging contexts including trauma, postoperative, and chronic conditions.

patient positions:-

The patient is erect or supine depending on clinical history.

- Ideally, spinal imaging should be taken erect in the setting

P.T.O

Q No 2

How will you scan a patient with lower back pain?

Back pain can be exacerbating, so it seems that getting on x-ray, CT scan or MRI to find cause would be a good idea.

The MRI can be better at detecting abnormalities of spinal cord bulging discs small disc herniation pinched nerves and other soft tissue problems.

If some one is experiencing pain in their lower back a doctor may recommend a lumbar MRI scan to help diagnose the source of the pain.

→ A lumbar MRI is a powerful diagnostic tool that doctors may use to check spinal alignments.

P.T.O

- radio-opaque objects such as jewellery, dentures or hearing aids should be removed from the image area.
- The equipment is brought to start position and careful explanation is given to the patient.
 - A 15 x 30 cm image receptor is used on many machines however Direct Radiography (DR) technology may be utilization newer equipment.
 - The patient walks into the machine, holding the handles and adopting a sitting position.
 - The head is tilted downwards until the Frankfort plane is parallel with the floor and machine height adjusted to allow the patient to bite into the bite block, with upper and lower incisors within the grooves. The chin should be placed on the rest.
 - Ensure the patient is not rotated by ensuring the sagittal plane light runs down the middle of the face, then ~~the~~ close the head restraints.
 - The patient is asked to place their tongue on the roof of their mouth to

from trauma to give a functional overview of the lumbar spine.

→ all imaging of patients with suspected spinal injury must occur in the supine position without moving the patient. In the supine projection hands are placed by the patients side.

→ the D positioning erect position the patient: this has numerous advantages including reduced dose to the gonadal region and utilization of beam divergence. The central ray is perpendicular to the image receptor.

Collimation:-

- superiorly to include T12/L1 junction.
- inferiorly to include the sacral region.
- lateral to include the S. transverse process and sacroiliac joints.

Orientation:-

portrait

Detector Size:-

→ 35 cm x 43 cm

Q No 5 (A)

Ans:-

Tube Voltage, kVp , determines the Quantity and Quality of the photons generated along with MAS (tube current and exposure time product) and filtration, kVp (tube voltage) is one of the primary settings that can be adjusted on X-ray machine to control the image quality and dose.

The kVp determines the quality of the X-ray beam and thus its ability to penetrate tissue. Higher kVp settings produce more penetrating beams with a higher percentage of radiation reaching the film. A kVp setting of 75 to 85 is adequate for penetrating most areas (eg. lower kVp setting can be up value when radiographing in mature horses and for soft tissue technique). A higher kVp setting would generally mean a short time of exposure.

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degrees to the long axis of the tibia.

Essential Image Characteristics:-

- The patella must be centralized over the femur.
- The distal third of femur and proximal third of tibia are included.

Additional Consideration:-

- This projection can also be undertaken in the erect position (weight bearing).



teeth. An OPG may also reveal problems with the jawbone and joint which connects the jawbone to the head, called the temporomandibular joint or TMJ. An OPG may be requested for the planning of orthodontic treatment, for assessment of wisdom teeth or for general overview of the teeth and the bone which the teeth.

procedure:-

You may be asked to remove jewellery, eye glasses, and metal objects that may obscure the images. You will be asked to stand with your face resting on a small shelf and to bite gently on a sterile mouth piece to steady your head. It is important to stay very still while the X-ray is taken. You will be discomfort during the procedure.

Positioning and patient and image receptors:-

→ Any bulky clothing and P.T.B

To bring the femoral necks parallel to the image receptor.

Direction and Centring of X-ray Beam

→ Centre in the midline, with a vertical central beam to the centre of the image receptor.

→ The centre of the image receptor is placed midway between the upper borders of the symphysis pubis and anterior superior iliac spine for the whole of the pelvis and proximal femoral. The upper edge of the image receptor should be seen above the upper borders of the iliac crest to compensate for divergent beam and ensure that whole of the bony pelvis included.

Essential image characteristics:-

→ Iliac crest and proximal femora, including the lesser trochanters, should be visible on the image.

→ No rotation. The iliac bones and pubis ~~should~~ ^{should} be the same size and shape.

Q No 3

Ans:-

patient of old age came in the department with a complaint of knee pain:-

Anterio-posterior view (AP):-

Position of patient and image receptor:-

- > For computed radiography (CR) an 18 x 24 cm image receptor is generally used.
- > The patient is either supine or seated on the X-ray table, with both legs extended.
- > The affected limb is rotated to centralise the patella between the femoral condyles and sandbags are placed against the ankle to help maintain this position.
- > The image receptor should be in close contact with the posterior aspect of the knee joint, with its centre level with the upper borders of tibial condyles.

Direction and centring of X-ray beam:-

- > Centre 2.5 cm below the apex of the patella through the joint space, with central ray 90°

P.T.O

Q No 5(B)

Ans:-
Pelvis X-ray:-

A pelvis X-ray is a picture of the bones around both the hips. The pelvis connects the legs to the body. One to two pictures are usually taken of the pelvis, one with the legs straight from the front (Antero-posterior view) and one with the legs bent from the side (Lateral view). The X-rays are taken while the patient is lying flat on his or her back.

Pelvis Antero-posterior:-

→ The patient lies supine with their median sagittal plane perpendicular to the table top.

→ The mid line of the patient must coincide with the central primary beam and table bucky mechanism.

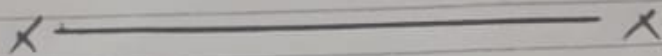
→ To avoid pelvic rotation, the anterior superior iliac spines must be equidistant from the table top.

→ The knees are slightly abducted and internally rotated to

P.T.O

Additional Consideration:-

→ At first visit and trauma cases gonadal protection is usually omitted, however local protocols can vary. It is used and follow up images.



Q no 4

Ans:-

Firstly: When doctors take history from patient he prescribed a patient to skull x-ray.
→ When the skull x-ray is done then after results on the basis of result doctor decided whether we go for skull CT or MRI

→ Skull x-ray is an imaging test doctors use to examine the bones of the skull including the facial bones etc. and if CT scans is necessary if when there is swelling or bleeding in the brain or a fracture in the skull. If you have signs of a serious injury a CT scan is usually the P.T.O

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First test diagnose but CT scan
etc. after knowing the result of
x-rays of skull.

→ And the x-rays is prescribed
by the doctor is Boy skull

→ SKULL AP

→ SKULL - Horizontal Ray

→ SKULL - submentovertex

→ SKULL - Townes.

→ lateral view also.

x ————— x