Q NO: 1

OPG:

The OPG stand for : orthopantogram.

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 through the gum.

It is different from the small close up x-ray of dentists take individual teeth.

An OPG may also reveal problems with the jawbone and joint which connect the jawbone to the head.

called the temporomendibular 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.

Patient position:

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

(3)

the jaw.

Q NO: 2:

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

The MRI was developed in the 1980's and has revolutionized treatment for patient with low back pain. An MRI scan is generally considered to be the single best imaging study of the spine to help plan treatment for back pain.

An MRI can be better at detecting abnormalities of the spinal cord, bulging discs, small disc

herniations, pinched nerves and other soft tissue problems.

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

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

Basic view for lumber x-ray:

1= Lumbar spin AP view:

The lumbar spin AP view images the lumbar spine which consist of five vertebrae.

it is utilized in many imaging contexts including trauma, postoperatively, and for chronic conditions.

patient position

- The patient is erect or supine depending on clinical history

=) ideally, spinal imaging should be taken erect in the setting of non-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.
- If 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.

Technical factors

- Anteroposterior projection:
- suspended expiration: (for a uniform density)
- Centering point:

The level of the illiac crests : at the MSP

The central ray is perpendicular to the image receptor.

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- **Collimation:**

superiorly to include the T12/L1 junction

inferior to include the sacral region

lateral to include the transverse processes and sacroiliac joints.

- **Orientation:**
  portrait
- **Detector size:**
  35cm x 43cm
- **exposure:**
  - 70-80 KVP
  - 40-60 mAs

- SID: 110 cm

2: Lumbar spine (Lateral view)

The lumbar spin lateral view images the lumber spin which consist of five vertebrae.

patient position:

- The patient is positioned erect, supine or lateral recumbent, depending on clinical history.
- In the lateral decubitus position, position the patient so that the humeri are extended 90 degrees to the thorax, with the elbows flexed so that

the forearms are parallel to the thorax. spinal curvature in th AP ~~projection~~

projection will determine if a right lateral or a left lateral is performed.

Technical factors

- Lateral projection:
- Expiration: (to minimize superimposition of the diaphragm over the upper lumbar spine)
- Centering point:

The level of the iliac crest

coronal centering point is directly over the lumbar vertebra, which corresponds

to the posterior third of the abdomen

The central ray is perpendicular to the image receptor

- **Collimation:**

superiorly to include the T12 / L1

inferior to include the sacrum

Anterior to include the anterior borders of the lumbar vertebral bodies.

posterior to include all elements of the posterior column, particularly the spinous processes.

- **Orientation:** portrait
- **Detector size:**

35 cm x 43 cm

(12)

- exposure: 70-80 Kvp
  60-80 mAs
- SID:
  110 cm

(13)

Q NO: 3

⇒ Antero - posterior view:

position of patient and image receptor:-

For computed radiography 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 effected limb is rotated to centralized the patella b/w 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 the centre level with the upper borders of tibial condyles.

Detector size:

35 cm × 43 cm

Exposure:

70 – 80 KVP
60 – 80 mAs

SID:

110 cm

follow up images.

(13)

Qno 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 results doctor decided wether 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 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

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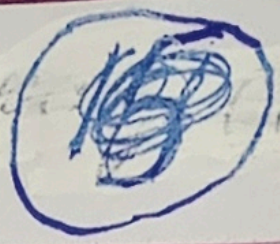
16



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

→ And the x. rays prescribed by the doctor is for skull

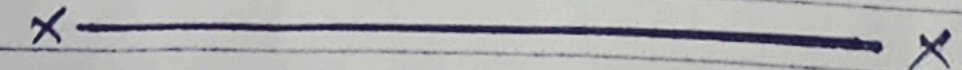
→ Skull AP

→ Skull - Horizontal Ray

→ Skull - submentovertex

→ Skull - Townes.

→ -lateral view also.



Q NO: 5 A:

Kvp and MAs:

Tube voltage, term a 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 setting that can be adjusted on x-ray machine to control the image quality and dose

The Kvp determine the quanity of the x-ray beam and thus its ability to penetrate tissue. High Kvp setting produce more penetrating beams with a highes percentage of radiation reaching the film.

Kvp control the energy of x-ray beam from x-ray machain and

mAs control the No of x-ray from x-ray machiam setting.

Q NO: 5 B

position of pelvic x-ray

one to two pictures are usually taken of the pelvis, one with the legs straight from the front (Anteroposterior or AP view) and one with the legs bent from the side (Lateral views).

The x-rays are taken while the patient is lying flat on his or her back.

Definition:

A pelvis x-ray is a picture of the bones around both the hips. The pelvis connects the legs to the body.

Technique:

Radiograph technique the anteroposterior pelvic radiograph should be made with the patient supine on the x-ray table with both lower extremities orientated in 15° of internal rotation in order to maximise the length of the femoral neck.

The x-ray tube to film distance should be 120 cm, with the tube orientated perpendicular to the table.

The crosshairs of the beam should be centred on the point

(20)

midway between the superior borders of the pubic symphysis and a line drawn connecting the anterior superior iliac spines.