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SUB: RADOILOGICAL POSITIONING

BS RADIOLOGY

MAM: ATOFAH

**Q1: Explain the x-ray projection of chest and its radiological consideration for it’s?**

ANS**: Chest –posterior – Anterior:**

**\*Position of patient and Image Receptor**:

.In these posterior –anterior chest X ray are commonly used.

.(PA) view , the x ray source is positioned so that the x ray beam enters the posterior (back) aspect of the chest and exits out of the anterior (front) aspect , where the beam is detected .

.To obtains this view, the patient stands facing a flat surface behind whice is an x-ray detector.

.The patient faces the image receptor, with the feet slightly a part for stability.

.Chin extended and placed on the top of the image receptor.

.The median sagittal plane is adjusted at the right angles to the middle of the image receptor.

.The dorsal aspect of the hands are placed, behind and below the hips , with the elbow brought forward and the shoulder rotated interiorly and pressed downward in contact with the image receptor .

.X-ray tube for far in 6 foot .

**\*Direction and centering of x-ray Beam**:

.The horizontal central beam is the directed at the right angels to the image receptor.

.They is the level of eight thoracic vertebrae (i.e. spineus process of T7 found using the inferior angle of scapula).

. The exposure is made in full normal arrested inspiration.

.FRD of 180 cm be used in minimize magnification.

**\*Essential image charteristics:**

**.** (PA) view is the most common radiological investigation in the emergency department.

. (PA) view examines the lungs, bony thoracic cavity, mediastinum and great vessels.

. The chest x-ray is frequently used to aid diagnosis of acute and chronic condition.

.Full lungs field with the scapula projected laterally away from the lungs field and clavical symmetrical and equidistant from the spinous process.

.Inspiration – visualizing either 6 ribs anterior or 10 ribs posterior.

**\*Additional Consideration:**

**.**An expiration radiography is obtained to demonstrate a small apical pneumothroax.

**\* Chest Anterior –posterior (ERRECT):**

. These projections are often used as an alternative.

. When the posterior –anterior projection cannot be performed due to the patient’s condition.

.The patient erect on a chair.

. These x-ray is the shoulder is relax and hand is back side of the hip.

.These x ray is marker is very important.

\***POSITION OF PATIENT AND IMAGE RECEPTOR:**

.The patient sits with their back against the image receptor, with the upper edge of the image receptor above the lungs pieces.

.The median sagittal plane is at the right –angels to the middle of the image receptor.

.Dependent on the patient’s condition, the arm are extended forwards the anatomical position and internally rotated to minimize the superimposition the scapula on the lungs fields.

**\*Direction and centering of x-ray Beam**:

.The horizontal ray is directed first angle to image receptor and toward the sterna notch.

.Then angled until it is coincident with the middle of the image receptor.

.The exposure is taken on normal full inspiration.

.FRD at least 120 cm is essential to reduce unequal magnification of intrathoracic structure.

**\*Essential image characteristic**:

.The image should be of comparable quality to that described for the posterior –anterior chest projection.

**\*Additional Consideration**:

.The heart is moved further from image receptor.

.Increasing magnification.

.Assessment of heart size (CRT).

.Anything is deacted of the x-ray.

**\*CHEST –LATERAL:**

**\*Position of patient and image receptor:**

**.Th**ese x ray are the patient in the lateral side and close the IR.

.These x ray is the 72 inches distance.

.Cassette (IR) 11/2 to above shoulders.

.In these projection is may be undertaken with or without a grid, depending on patient size and local protocols.

.The patient is turned to the side of investigation in contact with the image receptor.

.The arm is folded over the head or raised above the head to rest on horizontal bar.

.The middle of the image receptor, include the pieces, the lower lobes to the level of the first lumber vertebra.

**\*Direction and centering of x-ray Beam:**

**.**Centering; coronal plane T7.

.Direction the horizontal central ray at the right angel to the image receptor at the mid axillary line.

**\*Essential image characteristics:**

**.**The entire lung fields should be visible superior from a pices inferior to the posterior costophrenic angle

. The chin should not be superimposing any structures

.There is superimposing of the anterior ribs

.The sternum is seen in profile

.Image processing should be optimized to visualize the heart and the lungs tissue, with particular regard to any lesions if appropriate.

**\*Additional considerations:**

.The additional lateral view of the chest provided no for the patient and cost intensification for the health care system.

.This might be a lack of evidence for any diagnostic benefits of the additional lateral view of the thorax in recent study.

.The projection is useful to confirm position and the size a lesion suspected on the initial projection or the position of leads post pace marker insertion.

.It is not a routine examination because of the additional patient does and the increasing use of computed tomography to examine the thorax.

**\*Radiological consideration:**

.A chest x-ray produce by images of heart ,lungs , airways ,blood vessels and the bones of the spine and chest .Imaging with x-rays involves exposing a part of the body to a small dose of ionizing to produce pictures of the inside of the body .

**Q2: Explain basic x-ray projections of femur and discuss its radiological finding?**

ANS: **PROJECTIONS;**

**\*Standard projections**

**.AP**

**.**Demonstrates the lower limp in the anatomical position.

.Often will be performed in two x rays due to the limitations of the image receptor.

**.Lateral**

**.**Projection 90 degree to the AP.

.Must includes both the knee and hip joint.

.Often will be performed in two x-rays due to the limitation of the image receptor.

**\*Additional projection:**

In the case of bilateral fractured femurs, a modified horizontal beam lateral can be similarly to that the Clement – nakayama.

**\*Indication:**

**.** Trauma

.Obvious deformities

.Suspected foreign body

.Inability to weight bear

.Osteomyelitis

**\* WHY IT’S DONE:**

A femur x-ray can help the cause of symptoms such as a pain, limp, tendemess, swelling or deformity of the upper leg. It can detect a broken bone, and after a broken bone has been set, it can help determine whether the bone is in satisfactory alignment.

If surgery of the upper leg is required, an x ray may be taken to plan for surgery and to assess the results of operation .Also an x ray can help detect cysts, tumors or other diseases in the bone, including later stages of bone infections.

**\*Preparation**

A femur x ray does not require any special preparation. Your child may be asked to remove some clothing, jewelry, or any metal objects that might interface with the image.

.SID: 40 inches

100cm

14 x 17 portraits

70 kvp, 20 MAs.

**Q3: Explain in detail basic projections for neck pain patients?**

ANS: The cervical spine is a set of radiography taken to investigate the bony structure of the clavicle spine, albeit commonly replaced by CT, the cervical spine series is an essential trauma radiography for all radiographic to understand.

**INDICATION**

Cervical spine radiograph are indicated for variety of setting including.

.Infection

.Atypical pain

.Trauma

.Degenerative change

**PROJECTION**

**Standard projection:**

In the absence of CT view of the cervical spine should be performed, AP, Lateral, oblique, and odontoid.

**\*AP…..PROJECTION**

.Antero-posterior projections of the central spine demonstrate the vertebral bodies and inter vertebral spaces.

**\*Lateral projection**

.Often utilize in trauma demonstrated

.Soft tissues structure around the c-spine

.Spinous process.

.Anterior –posterior relationships of vertebral bodies.

**\*ODONTOID….**

Also known as “peg’’ projection it demonstrate the C1and C2.

**\*AP OBLIQUE…**

Demonstrate the intervertebral foramina of the slide position further from the image receptor.

**\*PA OBLIQUE…**

 Demonstrate the intervertebral foramina of slide position closer to the image receptor.

**\*ADDITIONAL PROJECTION**

**.CERVICOTHORACIC**

.Modified Lateral projection of the cervical spine to visualize the C7and T1 junction.

**\*FLEXION EXTENTION LATERAL**

Specialized projection of the cervical spine often requested to assess for spinal stability.

**\*FUCHS VIEWS**

**N**on angles AP radiography of C1, IT should not be used in a trauma settings.

**Q4: Write names for basic x ray projections for the following?**

ANS**: A. HAND:**

**.**PA VIEW

.Hand – Dorsi -Palmar

.Hand-Dorsi –palmar Oblique

.Hand-Lateral

**B.FOOT:**

**.A**P View

**.**Foot –Dorsi –plantar

.Foot –Dorsi – plantar –Oblique

.Foot –Lateral – Erect

**C. ABDOMEN:**

**.**Anterior – posterior supine

.PA erect view

. PA Prone view

.Left lateral –Decubitus

.Dorsal decubitus view

.Oblique views