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Q1: Explain basic X-ray projection of femur and discuss its radiological findings?

Ans: FEMUR – ANTERIOR-POSTERIOR:

Position of Patient and Image Receptor:

The patient lies on the supine of the X-ray table, to with the both legs extended.

The affected limb is rotated to the centralized with the patella over the femur.

The buckey tray the image receptor is immediately under the limb.

Direction and Centring of X-ray Beam:

The middle to the centre of the image with receptor.

To the vertical central ray at to the 90 degree with the imaginary line joining with both femoral condyles.

Essential image Characteristic:

It is the hip joint and knee joint should be both to be included on the image where possible.

Additional Consideration:

It is in the suspected fracture, to the limb must not be rotated.

To the knee and hip joints should be included on to the images. There is impossible to achieve,

It is the distal femur to the focus attention, if there the effect of the scatter or not of pressing concern, the image receptor can be placed directly under the femur.

Femur Radiological Findings:

The specific information which can be obtain from the anteroposterior femur radiographs.

Leg length, femoral, neck shaft angle, angle and femoral head extrusion index.

FEMUR-LATERAL :

Position of Patient and Image Receptor:

To the anterior posterior position these patient rotates onto the effected side and to the knee with slightly flexed.

This pelvis is rotate backwards to separate with thighs.

The position of the limb is then adjusted to the vertical superimpose the femoral condyle.

These are used to the support and the position limb behind the one being examined.

Direction and Centring of X-ray Beam:

This centre of the midline to the image receptor with to the vertical central ray parallel these imaginary line with the joining the femoral condyles.

Essential Image Characteristic:

This image should be show from the “knee up” with the proximal third of to the femur.

Additional Considerations:

In the slim patients it is possible to demonstrate up to the femoral head a separate to the image with this proximal region may be needed to the entire length of the femur is required to be seen.

Femur Radiological Findings:

The lateral femur of radiographs, it is the shapes and offset are the femoral head-neck junction as well as the alpha angle are assessed .the quantitative method used to femoral head neck junction.

Through the anterior most aspect of the femoral neck, and a line parallel to line 1 through the anterior most of the femoral head.

Q2: Explain the X-ray projection of the chest and its radiological consideration?

CHEST- POSTERIOR-ANTERIOR:

Ans: Projections:

The X-ray pass from the patient the posterior to the anterior of the patient. Hence posterior-anterior projection. The image is viewed as if looking at the patient face to face.

Position of Patient and Image Receptor:

This patient faces in the image receptor with to feet slightly apart for the stability and chin extended and placed on top of the Image receptor.

It is the median sagittal plane is adjusted at right angle to the middle into the image receptor. This dorsal aspect in this hand are placed behind and below the hips.

Direction and Centring of X-ray Beam:

It is the horizontal beam is directed at right angled with the image receptor at the level of the eight thoracic vertebra.

The exposure is made in full normal arrested inspiration.

Additional consideration:

This is an expiration radiograph may be obtained to demonstrate a small apical pneumothorax.

CHEST – ANTERO-POSTERIOR:

Projections:

Sometimes it is not possible for the radiograph to in the acquire a PA chest X-ray. This is usually because with the patient is too unwell to stand.

This chest X-ray image is still viewed as if looking the patient face to face.

Position of Patient and Image Receptor:

It is the patient sits with to be this back against the image receptor. This upper edge those image receptor above it lung apices.

It is the median sagittal plane is adjusted at right angle to the middle of the image receptor.

Direction and Centring of X-ray Beam:

This is the horizontal ray is directed first at right angle in the image receptor toward the sternal notch.

It is the exposure is taken on the normal full inspiration.

Essential Image Characteristic:

This is the image should be comparable quality to that describe in the postero-anterior chest projection.

Additional Considerations:

It is the heart is moved further from this image receptor, this increasing magnification and reducing of heart size.

CHEST – LATERAL:

Position of Patient and Image Receptor:

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

It is the patient is turned to the bring of the side under investigation in to contact with the image receptor.

It is the arms are to be folded over the head or raised above to the head to rest on a horizontal bar.

This is the median sagittal plane is adjusted to parallel to the image receptor.

Direction and Centring of X-ray Beam:

The direct of the horizontal central ray at this right-angles to the middle of the image receptor at this mid-axillary line.

Additional Considerations:

It is the projection is to be useful to confirm the position and size of a lesion suspected on the initial projection or the position of leads post pacemaker insertion.

However, this is not to be a routine examination because of the additional a patient dose and the increasing in use of a computed tomography to examine the thorax.

CHEST – SUPINE (ANTERO-POSTERIOR):

Projection:

This projection is usually only utilized when the patient is unable to sit up on a bed or trolley.

Position of Patient and Image Receptor:

The assistance, an imaging receptor is carefully positioned under with the patient's chest with the upper edge of the image receptor above the lung apices.

It is the median sagittal plane is adjusted at right-angles to the middle of their image receptor.

Direction and Centring of X-ray Beam:

In this described for the sitting of an antero-posterior position.

Additional Considerations:

To the maximum lung at demonstration is lost due to the absence of the gravity effect of abdominal organs, which is present in the erect position.

At this pleural effusion or a pneumothorax is not as well demonstrated with compared with the erect projections.

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

CERVICAL SPINE – ANTERO-POSTERIOR:

Position of Patient and Image Receptor:

It is the patient lies supine on the Bucky table or, it erect are positioning is the preferred, sits or stands with the

posterior aspect of this head and shoulders against the vertical Bucky.

This is the median sagittal plane are adjusted to be at right-angles to the image receptor and to be coincide with the midline of the table or Bucky.

It is the neck are extended so that the lower part of the jaw is cleared from the upper cervical vertebra.

Direction and Centring of X-ray Beam:

This beam are centred in the midline are towards at a point just below the prominence of the thyroid cartilage through the fifth cervical vertebra.

CERVICAL SPINE – LATERAL ERECT:

Position of Patient and Image Receptor:

This is the patient stands or sits with the either shoulder against are the image receptor.

It is the median sagittal plane are should be adjusted such as that it is a parallel with the image receptor.

It to be aid immobilization, are the patient should stand with the feet a slightly apart and with the shoulder are resting against with the image receptor stand.

Direction and Centring of X-ray Beam:

It is the horizontal with central ray is centred to be a point vertically below are the mastoid process at the level of the

prominence of a thyroid cartilage.

This is an FRD of a 150 cm should be used to a reduce magnification.

Q4: Writes names for basic X-ray projections for the following.

Ans:(1) Hand:

PA view

DP oblique view

Lateral view

Ball – catcher view

(2) Foot:

AP view

Oblique view

Lateral view

Weight – bearing view

(3) Abdominal:

Acute abdominal series

AP supine view

PA erect view

Lateral decubitus view

Dorsal decubitus view

PA prone view

Lateral view

Oblique view