

Department of Radiology Techniques

Radiological Position

The Second Stage



Foot Toes

Lecture 2

Assist. Lecturer

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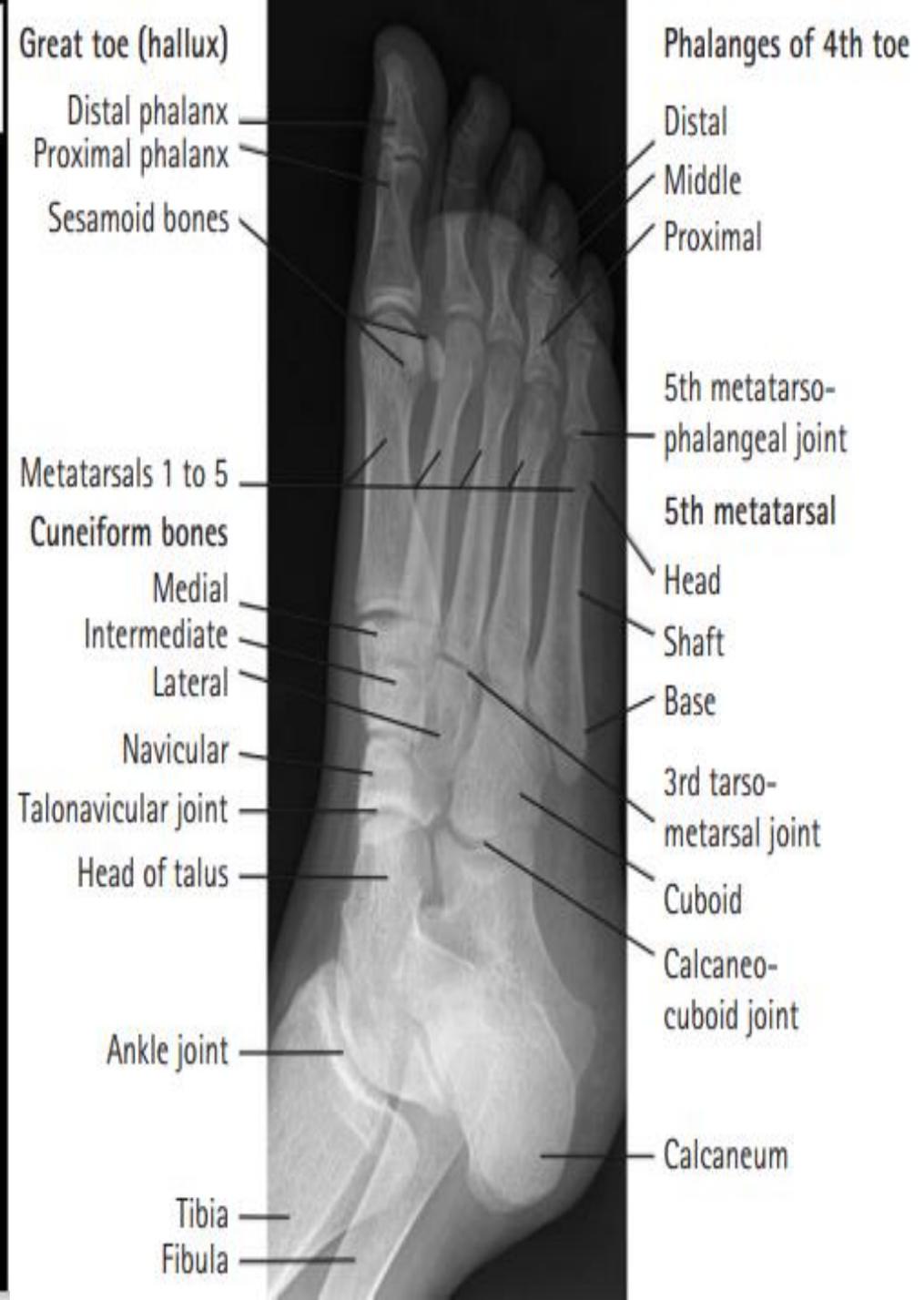
Basic positions of foot toes

1- Anterior – Posterior (Dorsi-plantar)

2- Oblique

3- Lateral For Hallux

Cassette out – Bucky (8x10 Inch)



1- Anterior – Posterior (Dorsi-plantar)

Position of Patient

- The patient is seated on the X-ray table, supported if necessary with the affected and hip , knee flexed on the same affected side.
- The plantar aspect of the affected foot is placed on the cassette out Bucky and the lower leg is supported in the vertical position by the other knee .
- *Cassette may be supported on a 15-degree pad.*

Direction and centering of the X-ray beam

- The vertical central ray is directed over the third metatarsophalangeal joint,
 - perpendicular to the cassette if all the toes are to be imaged.
 - For single toes, the vertical ray is centered over the metatarosphalangeal joint of individual toe and collimated to include the toe either side



Normal dorsi-plantar projection of all toes

2- Dorsi-plantar oblique – basic

Position of patient and cassette

- From the basic dorsi-plantar position, the affected limb is allowed to lean medially to bring the plantar surface of the foot approximately 45 degrees to the cassette.
- A 45-degree non-opaque pad is placed under the side of the foot for support, with the opposite leg acting as a support.

Direction and centering of the X-ray beam

- The vertical ray is centered over the first metatarso-phalangeal joint if all the toes are to be imaged and angled sufficiently to allow the central ray to pass through the 2nd third metatarsophalangeal joint.
- For single toes, the vertical ray is centered over the metatarso-phalangeal joint of the 2nd individual toe, perpendicular to the cassette.



Collimated dorsi-plantar oblique projection of fifth toe, showing fracture of the proximal phalanx

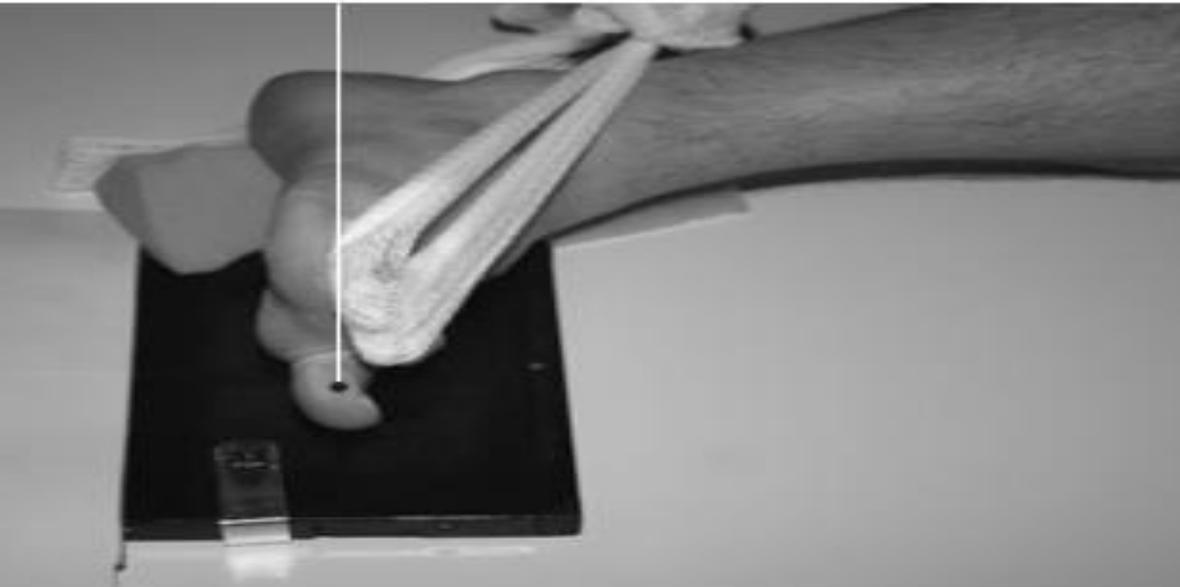
3- Lateral (basic) – hallux

Position of patient and cassette

- From the dorsi-plantar position, the foot is rotated medially until the medial aspect of the hallux is in contact with the cassette. A bandage is placed around the remaining toes (provided that no injury is suspected) and they are gently pulled forwards by the patient to clear the hallux. Alternatively, they may be pulled backwards; this shows the metatarsophalangeal joint more clearly.

Direction and centering of the X-ray beam

- The vertical ray is centered over the first metatarsophalangeal joint.



Normal lateral basic projection of hallux

First metatarsal-phalangeal sesamoid bones

The sesamoid bones are demonstrated on the lateral foot projection. However, when requested specifically, a modified lateral and an axial projection may be necessary for further demonstration .

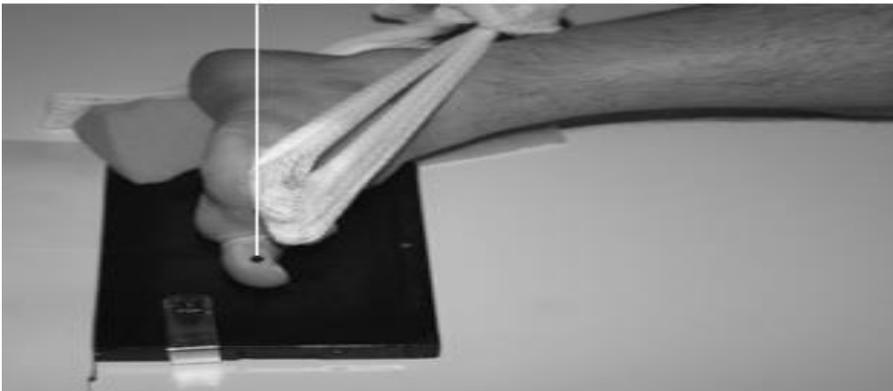
1- Lateral

Position of patient and cassette

- The patient lies on the unaffected side, and the medial aspect of the affected leg and foot is placed in contact with the table.
- The cassette is placed under the foot to include the phalanges of the hallux and the distal part of the first metatarsal.
- The hallux is then dorsiflexed with the aid of a bandage and held by the patient.

Direction and centering of the X-ray beam

- Centre with the vertical ray perpendicular to the cassette, over the first metatarso-phalangeal joint.



Normal lateral basic projection of hallux

2- Axial

Position of patient and cassette

There is a choice of two positions for this projection:

1- The patient is positioned as for the lateral projection of the foot. The foot is raised on a support and the cassette is supported vertically and well into the instep. A horizontal beam is used in this case.

2 -The patient sits on the X-ray table, with legs extended. The hallux is then dorsiflexed with the aid of a bandage and held by the patient. The cassette is raised on a support and positioned firmly against the instep.

Direction and centering of the X-ray beam

- Centre to the sesamoid bones with the central ray projected tangentially to the first metatarso-phalangeal joint.



Lateral projection of first metatarsal sesamoids, note exostosis on medial sesamoid

Normal axial projection of first metatarsal sesamoids

Thanks

