

Reading Hospital School of Health Sciences
Medical Imaging Program
MI 133: Clinical Seminar II

Fingers (2nd through 5th)

Routine:	PA, Oblique, and Lateral
Position/Projection:	Prone (PA)
Patient Prep:	Remove all jewelry from area of interest, if possible
Technique:	63 kVp @ 0.6 mAs (Tabletop)
SID:	40 inches
Collimation:	To anatomy of interest
Patient Position:	Patient is seated with hand placed on image receptor, palm side down. Separate digits slightly and center to digit(s) of interest.
Central Ray:	Perpendicular to the proximal interphalangeal joint (PIP).
Marker Placement:	R or L as appropriate. Use lead number to mark finger being examined. (number can be annotated)
Shielding:	Gonadal shielding required
Breathing Instructions:	N/A
Purpose/Structures:	A PA projection of the appropriate digit

Evaluation Criteria:

- Evidence of proper collimation and presence of side marker placed clear of anatomy of interest
- Entire digit from fingertip to distal portion of the adjoining metacarpal
- No soft tissue overlap from adjacent digits
- No rotation:
 - Equal concavity of both sides of the phalangeal bodies
 - Equal amount of soft tissue on both sides of the phalanges
- Fingernail, if seen, centered over the distal phalanx
- Open interphalangeal (IP) and MCP joint spaces
- Bony trabecular detail and surrounding soft tissues

RH Note: If 2 fingers are ordered on the same hand, they may be imaged under the same order, or accession number. If the 2 fingers are adjacent, both fingers can be imaged together for the PA and Oblique views, with a separate lateral view of each. If the 2 fingers are not adjacent (or a finger and a thumb), take 3 separate views of each one. Please label fingers appropriately.

Merrill's Additional Note: If joint injury is suspected an AP projection is recommended.

Fingers (2nd through 5th)

Routine:	PA, Oblique, and Lateral
Position/Projection:	PA Oblique (Lateral Rotation)
Patient Prep:	Remove all jewelry from area of interest, if possible
Technique:	63 kVp @ 0.6 mAs (Tabletop)
SID	40 inches
Collimation:	To anatomy of interest
Patient Position:	Patient is seated with hand on image receptor, palm side down. Rotate hand and finger(s) laterally until they reach 45 degrees. Place a 45 degree angle sponge to support the patient. Separate the fingers and ensure finger(s) must be parallel to IR.
Central Ray:	To the proximal interphalangeal (PIP) joint of the affected digit.
Marker Placement:	R or L as appropriate. Use lead number to mark finger being examined. (number can be annotated)
Shielding:	Gonadal shielding required
Breathing Instructions:	N/A
Purpose/Structures:	A PA oblique projection of the bones and soft tissue of the affected digit

Evaluation Criteria:

- Evidence of proper collimation and presence of side marker placed clear of anatomy of interest
- Entire digit, including the distal portion of the adjoining metacarpal
- Digit rotated at a 45-degrees, demonstrated by the concavity of the elevated side of the phalangeal bodies
- No superimposition of the proximal phalanx or MCP joint by adjacent digits
- Open interphalangeal (IP) an MCP joint spaces
- Bony trabecular detail and surrounding soft tissues

Merrill's Additional Note: the second digit can be obliqued medially to keep it closer to the IR.

Fingers (2nd through 5th)

Routine:	PA, Oblique, and Lateral
Position/Projection:	Lateral (Lateral)
Patient Prep:	Remove all jewelry from area of interest, if possible
Technique:	63 kVp @ 0.6 mAs (Tabletop)
SID	40 inches
Collimation:	To anatomy of interest
Patient Position:	Patient is seated with digit of interest extended and the rest flexed in a fist. <u>Lateral 2nd digit</u> The hand should rest on the lateral or radial surface for the 2 nd finger. Support the elbow with a sponge. Be sure the long axis of the finger is parallel to the IR. Adjust the anterior or posterior rotation of the hand to obtain a true lateral position of the digit. <u>Lateral – 3rd through 5th digits</u> The hand should rest on the medial or ulnar, surface for the 3 rd – 5 th digits. Adjust the anterior or posterior rotation of the hand to obtain a true lateral position of the digit. *The 2 nd and 5 th digit will rest directly on the IR, but the 3 rd and 4 th must be elevated to place the long axis parallel with the IR. Use a sponge to support fingers.
Central Ray:	To the proximal interphalangeal joint (PIP).
Marker Placement:	R or L as appropriate. Use lead number to mark finger being examined. (number can be annotated)
Shielding:	Gonadal shielding required
Breathing Instructions:	N/A
Purpose/Structures:	A lateral projection of the affected digit

Evaluation Criteria:

- Evidence of proper collimation and presence of side marker placed clear of anatomy of interest
- Entire digit from fingertip to distal portion of the adjoining metacarpal
- No rotation:
 - Fingernail in profile, if visualized and normal
 - Concave, anterior surfaces of the phalanges
- No superimposition of the proximal phalanx or MCP joint by adjacent digits
- Open interphalangeal (IP) joint spaces
- Bony trabecular detail and surrounding soft tissues

Thumb

Routine:	AP, Oblique and Lateral
Position/Projection:	Oblique (PA Oblique)
Patient Prep:	Remove all jewelry from area of interest, if possible
Technique:	63 kVp @ 0.6 mAs (Tabletop)
SID:	40 inches
Collimation:	To anatomy of interest
Patient Position:	Patient seated with the thumb abducted, place the palmar surface of the hand in contact with the IR. Ulnar deviate the hand slightly. This position naturally places the thumb in the 45-degree oblique position.
Central Ray:	To the first metacarpophalangeal (MCP) joint.
Marker Placement:	R or L as appropriate. (number marker is not necessary for thumb images)
Shielding:	Gonadal shielding required
Breathing Instructions:	N/A
Purpose/Structures:	Oblique projection of the thumb
Evaluation Criteria:	<ul style="list-style-type: none">• Evidence of proper collimation and presence of side marker placed clear of anatomy of interest• Area from the distal tip of the thumb to the trapezium• Proper rotation demonstrated by concave surface of elevated side of the proximal phalanx and metacarpal• Open interphalangeal (IP) and MCP joint spaces• Bony trabecular detail and surrounding soft tissues

Thumb

- Routine:** AP, Oblique and Lateral
- Position/Projection:** Lateral (Lateral)
- Patient Prep:** Remove all jewelry from area of interest, if possible
- Technique:** 63 kVp @ 0.6 mAs (Tabletop)
- SID:** 40 inches
- Collimation:** To anatomy of interest
- Patient Position:** Patient is seated at the end of the radiographic table. Place hand in a natural arched position with the palm down and fingers flexed or resting on a sponge. Rotate the hand until the thumb is in a true lateral position.
- Central Ray:** To the first metacarpophalangeal (MCP) joint.
- Marker Placement:** R or L as appropriate. (number marker is not necessary for thumb images)
- Shielding:** Gonadal shielding required
- Breathing Instructions:** N/A
- Purpose/Structures:** Lateral projection of the thumb
- Evaluation Criteria:**
- Evidence of proper collimation and presence of side marker placed clear of anatomy of interest
 - Area from the distal tip of the thumb to the trapezium
 - No rotation:
 - Concave anterior surface of the proximal phalanx and metacarpal
 - Thumbnail, if visualized and normal, in profile
 - Open interphalangeal (IP) and MCP joint spaces
 - Bony trabecular detail and surrounding soft tissues

Thumb

Routine:	AP, Oblique and Lateral
Position/Projection:	AP
Patient Prep:	Remove all jewelry from area of interest, if possible
Technique:	63 kVp @ 0.6 mAs (Tabletop)
SID:	40 inches
Collimation:	To anatomy of interest
Patient Position:	Patient is seated with hand turned into extreme medial (internal) rotation so thumb is in the true AP position. Have the patient hold the extended digits back with the opposite hand. Align the thumb with the long axis of the IR.
Central Ray:	To the first metacarpophalangeal (MCP) joint.
Marker Placement:	R or L as appropriate. (number marker is not necessary for thumb images)
Shielding:	Gonadal shielding required
Breathing Instruction:	N/A
Structure Shown:	AP projection of the thumb

Evaluation Criteria:

- Evidence of proper collimation and presence of side marker placed clear of anatomy of interest
- Area from the distal tip of the thumb to the trapezium
- No rotation:
 - Concavity of the phalangeal and metacarpal bodies
 - Equal amount of soft tissue on both sides of the phalanges
 - Thumbnail, if visualized, in the center of the distal thumb
- Overlap of soft tissue profile of the palm over the midshaft of the first metacarpal
- Open interphalangeal (IP) and MCP joint spaces without overlap of bones
- Bony trabecular detail and surrounding soft tissues

Thumb - Special View

* 14th edition Merrill's Volume I, pages 160-161

Projection:	PA
Patient Prep:	Remove all jewelry from area of interest, if possible
SID:	40 inches
Collimation:	To anatomy of interest
Patient Position:	Patient is seated at the end of the radiographic table. Place the hand in a lateral position. Rest the elevated and abducted thumb on a radiographic support or hold it up with a radiolucent stick. Adjust the hand to place the dorsal surface of the digit parallel with the IR. This position magnifies the part.
Central Ray:	To the first metacarpophalangeal (MCP) joint.
Marker Placement:	R or L as appropriate. (number marker is not necessary for thumb images)
Shielding:	Gonadal shielding required
Breathing:	N/A
Purpose/Structure:	PA projection of the thumb. Done if you cannot obtain AP position due to patient condition

Evaluation Criteria:

- Evidence of proper collimation and presence of side marker placed clear of anatomy of interest
- Area from the distal tip of the thumb to the trapezium
- No rotation:
 - Concavity of the phalangeal and metacarpal bodies
 - Equal amount of soft tissue on both sides of the phalanges
 - Thumbnail, if visualized, in the center of the distal thumb
- Overlap of soft tissue profile of the palm over the midshaft of the first metacarpal
- Open interphalangeal (IP) and MCP joint spaces without overlap of bones
- Bony trabecular detail and surrounding soft tissues
- PA thumb projection will be magnified compared with AP projection

