Reading Hospital School of Health Sciences
Medical Imaging Program
MI 243 Clinical Seminar IV
2022

Pelvis: Non-trauma

Routine: 2 views: AP & AP Oblique Modified Cleaves Method "Frog Lateral"

Projection: **AP**

Patient Prep: Remove pants (including sweatpants, hosiery); Check for artifacts on underwear (snaps, beading, etc.) * Pediatrics – remove diaper, wrap patient in a sheet

Technique: 85 kVp,  ; non-AEC = 12.5 mAs (Bucky)

SID: 40"

Collimation: 17 X 14 landscape

Patient Position: Patient supine. Adjust pelvis so it is not rotated. If the patient is able to, ask them internally rotate the lower limbs 15-20 degrees and place sandbags lateral to the ankles to aid the patient. *****Never force a patient to internally rotate their legs for trauma.

Central Ray: Perpendicular to the IR. CR to the level of the soft tissue depression just above palpable prominence of the greater trochanter (approx. 1.5"), which is also midway between the ASIS and pubic symphysis. On avg. size patients, the center of IR is about 2" inferior to ASIS and 2" superior to symph. (Top of the light field is approximately 1.5" above the crest.)

Marker: Right or left marker on appropriate anatomical side, placed horizontal in the upper corner.

Shielding: No shielding for AP

Breathing: Suspended respiration

Purpose/Structures: AP projection of the pelvis and head, neck, trochanters and *proximal one third of femora.*

Evaluation Criteria:

- Entire pelvis along with the proximal femora
- Both ilia and both greater trochanters should be equidistant to the edge of the radiograph.
- Lower vertebral column should be centered to the middle of the radiograph.
- No rotation
    - Both ilia symmetric in shape
    - Symmetric obturator foramina
    - Ischial spines equally seen
    - Sacrum and coccyx aligned with pubic symphysis
- Proper rotation of proximal femora
    - Femoral necks in their full extent without superimposition
    - Greater trochanters in profile
    - Lesser trochanters, if seen, visible on the medial border of the femora
- Soft tissue and bony trabecular detail

*****_Narrowed obturator foramina indicate rotation in that direction_.

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Pelvis: Non-trauma

Routine: 2 views; AP & AP Obliques Modified Cleaves Method "Frog Lateral"

Projection: **AP Oblique Modified Cleaves Method "Frog Lateral"**

Patient Prep: Remove pants (including sweatpants, hosiery); Check for artifacts on underwear (snaps, beading, etc.) * Pediatrics – remove diaper, wrap patient in a sheet

Technique: 85 kVp,  ; non-AEC = 12.5 mAs (Bucky)

SID: 40"

Collimation: 17 X 14 landscape

Patient Position: Patient supine. Have the patient flex the knees as much as possible, feet flat on table. Abduct both thighs 45° turning the feet inward to brace the soles against each other for support. Make sure pelvis is not rotated. Use sponges to maintain position.

Central Ray: RH: Perpendicular to the IR. CR to the level of the soft tissue depression just above palpable prominence of the greater trochanter (approx. 1.5"), which is also midway between the ASIS and pubic symphysis. On avg. size patients, the center of IR is about 2" inferior to ASIS and 2" superior to symphysis. (Top of the light field is approximately 1.5" above the crest.) ** *See notes*

Marker: Right or left marker on appropriate anatomical side, placed horizontal in the upper corner.

Shielding: No shielding per RH protocol.

Breathing: Suspended respiration.

Purpose/Structures: AP oblique projection of the femoral heads, necks and trochanteric areas.

Evaluation Criteria:

- No rotation of the pelvis, as evidenced by a symmetrical appearance.
- Acetabulum, femoral head and femoral neck
- Lesser trochanter on the medial side of the femur.
- Femoral neck without superimposition by the greater trochanter; excess abduction causes the greater trochanter to obstruct the neck.
- Femoral axes extended from the hip bones at equal angles.

Additional Non-Trauma Pelvis Notes:

- If patient has an orthopedic device, entire device must be seen on the AP and oblique views.
    - Exception to above: If patient has an intramedullary femoral rod, only the proximal aspect of the prosthesis needs to be included.
- ** *Merrill's states to center at MSP and 1" superior to symphysis*

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Pelvis: Trauma

Routine: 3 views: AP & bilateral AP Obliques

Projection: **AP**

Patient Prep: Remove pants (including sweatpants, hosiery); Check for artifacts on underwear (snaps, beading, etc.) * Pediatrics – remove diaper, wrap patient in a sheet

Technique: 85 kVp,  ; non-AEC = 12.5 mAs (Bucky)

SID: 40”

Collimation: 17 X 14 landscape

Patient Position: Patient supine. Adjust pelvis so it is not rotated. If the patient is able to, ask them internally rotate the lower limbs 15-20 degrees and place sandbags lateral to the ankles to aid the patient. *****Never force a patient to internally rotate their legs for trauma.

Central Ray: Perpendicular to the IR. CR to the level of the soft tissue depression just above palpable prominence of the greater trochanter (approx. 1.5”), which is also midway between the ASIS and pubic symphysis. On avg. size patients, the center of IR is about 2” inferior to ASIS and 2” superior to symph. (Top of the light field is approximately 1.5” above the crest.)

Marker: Right or left marker on appropriate anatomical side, placed horizontal in the upper corner.

Shielding: No shielding for any trauma views.

Breathing: Suspended respiration.

Purpose/Structures: AP projection of the pelvis and head, neck, trochanters and proximal 1/3 of the femora.

Evaluation Criteria:

- Entire pelvis along with the proximal femora
- Both ilia and both greater trochanters should be equidistant to the edge of the radiograph.
- Lower vertebral column should be centered to the middle of the radiograph.
- No rotation
    - Both ilia symmetric in shape
    - Symmetric obturator foramina (*Narrowed obturator foramina indicate rotation in that direction*)
    - Ischial spines equally seen
    - Sacrum and coccyx aligned with pubic symphysis
- Proper rotation of proximal femora
    - Femoral necks in their full extent without superimposition
    - Greater trochanters in profile
    - Lesser trochanters, if seen, visible on the medial border of the femora

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Pelvis: Trauma

Routine: 3 views: AP & bilateral AP Obliques

Projection: **Bilateral AP Obliques (Judet Method)**

Patient Prep: Remove pants (including sweatpants, hosiery); Check for artifacts on underwear (snaps, beading, etc.) * Pediatrics – remove diaper, wrap patient in a sheet

Technique: 85 kVp,  ; non-AEC = 12.5 mAs (Bucky)

SID: 40"

Collimation: 17 X 14 landscape

Patient Position: Start with patient supine, legs straight. Each side will then be elevated approximately 45° in its turn; use a sponge behind patient's pelvis to help them hold each position.

Central Ray: RH: Perpendicular to IR. Center 1.5 – 2" medial of the elevated ASIS. (Top of light field should be 1- 1.5" above the crest of the elevated ilium.) **

Breathing: Suspended respiration.

Shielding: No shielding for any trauma views.

Marker: Mark side down for each view, placed horizontally in the upper corner.

Purpose/Structures: Pelvis and head, neck, trochanters and proximal one third of femur. Useful in diagnosing fractures of the iliopubic column and/or ilioischial column and/or acetabulum.

Evaluation Criteria:

- Entire pelvis up to and including the lesser trochanters visualized on **both** sides.
- The broad surface of the iliac wing closest to the IR should be demonstrated without rotation.
- The acetabulum closest to the IR should be seen in profile.
- The hip joints, proximal femur and sacroiliac joint should be clearly demonstrated.
- ***Merrill's***: *The ilioischial column and anterior acetabula rim visualized on side down. The iliopubic column and posterior acetabular rim visualized on elevated hip.*

Additional Trauma Pelvis Notes:

- If patient presents due to injury or some type of trauma, you always do trauma routine regardless of patient mobility.
- If patient has an orthopedic device, entire device must be seen on the AP and oblique views.
    - Exception to above: If patient has an intramedullary femoral rod, only the proximal aspect of the prosthesis needs to be included.
- *** Merrill's states to perform as a unilateral hip view; centering 2" inferior to elevated ASIS*

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Pelvis - *Special View*

Projection: **Superoinferior Axial Inlet (Bridgeman Method)**

Patient Prep: Remove pants (including sweatpants, hosiery); Check for artifacts on underwear (snaps, beading, etc.) * Pediatrics – remove diaper, wrap patient in a sheet

Technique: 85 kVp, ; non-AEC = 12.5 mAs (Bucky)

SID: 40”

Collimation: 17 X 14 landscape

Patient Position: Patient supine with ASISs equidistant from the table.

Central Ray: 40 degrees caudad entering midline at the level of ASIS

Breathing: Suspended respiration.

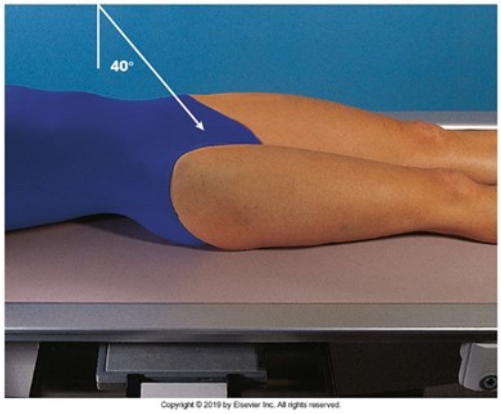
Shielding: No shielding.

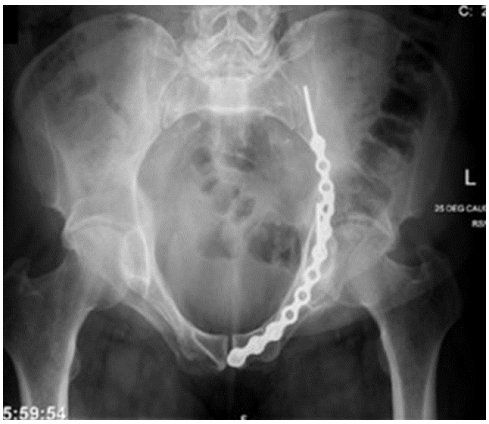
Marker: Mark side down for each view, placed horizontally in the upper corner.

Purpose/Structures: An axial projection of the pelvic ring, inlet, in its entirety.

Evaluation Criteria:

- Medially superimposed superior and inferior rami of the pubic bones
- Nearly superimposed lateral two-thirds of the pubic and ischial bones
- Symmetric pubes and ischial spines
- Hip joints
- Anterior pelvic bones





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Pelvis - *Special View*

Projection: **AP Axial Outlet Projection (Taylor Method)**

Patient Prep: Remove pants (including sweatpants, hosiery); Check for artifacts on underwear (snaps, beading, etc.) * Pediatrics – remove diaper, wrap patient in a sheet

Technique: 85 kVp, ; non-AEC = 12.5 mAs (Bucky)

SID: 40”

Collimation: 17 X 14 landscape

Patient Position: Patient supine with ASISs equidistant from the table.

Central Ray: Cephalad angle entering midline and 2”distal to the superior pubic symphysis
Males: 20 - 35°
Females: 30 -45°

Breathing: Suspended respiration.

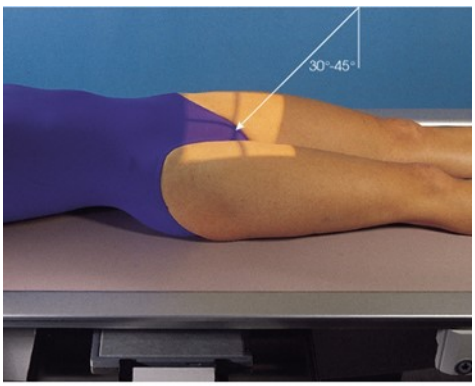
Shielding: No shielding.

Marker: Mark side down for each view, placed horizontally in the upper corner.

Purpose/Structures: The superior and inferior rami without foreshortening.

Evaluation Criteria:

- Pubic and ischial bones magnified with pubic bones superimposed over the sacrum and coccyx
- Symmetric obturator foramina
- Pubic and ischial rami near the center of the radiograph
- Hip joints



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Pelvis – *Special View*

Projection: **Axiolateral (Original Cleaves Method)**

Patient Prep: Remove pants (including sweatpants, hosiery); Check for artifacts on underwear (snaps, beading, etc.) * Pediatrics – remove diaper, wrap patient in a sheet

Technique: 85 kVp, ●○● ; non-AEC = 12.5 mAs (Bucky)

SID: 40”

Collimation: 17 X 14 landscape

Patient Position: Patient supine. Have the patient flex the knees as much as possible, feet flat on table. Abduct both thighs 45° turning the feet inward to brace the soles against each other for support. Make sure pelvis is not rotated. Use sponges to maintain position.

Central Ray: Angled cephalad parallel with femoral shafts, approx. 25 to 45 degrees. CR enters at symph

Marker: Right or left marker on appropriate anatomical side, placed horizontal in the upper corner.

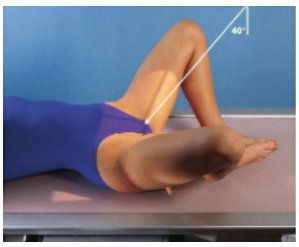
Shielding: No shielding

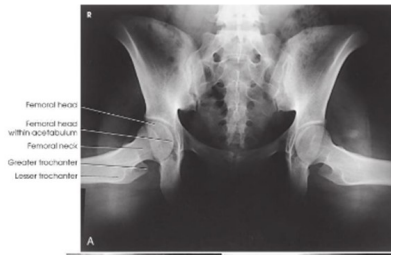
Breathing: Suspended respiration.

Purpose/Structures: An axiolateral projection of the femoral heads, necks and trochanteric areas.

Evaluation Criteria:

- No rotation of the pelvis, as demonstrated by a symmetric appearance.
- Axiolateral projections of the femoral necks
- Femoral necks without overlap from the grater trochanters
- Small parts of the lesser trochanters on the posterior and anterior surfaces of the femora
- Both sides equidistant from the edge of the radiograph
- Femoral neck angles approx. 25 to 20 degree superior to the femoral bodies.





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Pelvis – *Special View*

Projection: **Lateral (Left or Right lateral position)**

Patient Prep: Remove pants (including sweatpants, hosiery); Check for artifacts on underwear (snaps, beading, etc.) * Pediatrics – remove diaper, wrap patient in a sheet

Technique: 85 kVp,  ; non-AEC = 45 mAs (Bucky)

SID: 40”

Collimation: 14 x 17 lengthwise

Patient Position: Patient in lateral position with midcoronal plane perp to IR. Extend thighs to prevent obscuring the pubic arch and ensure knees are directly over each other. Place a support under lumbar spine to prevent pelvic tilt.

Central Ray: At MSP and 2” superior to elevated greater trochanter

Marker: Mark side down, placed in the upper corner.

Shielding: No shielding

Breathing: Suspended respiration.

Purpose/Structures: Lateral lumbosacral junction, sacrum, coccyx and superimposed hip bones and upper femora.

Evaluation Criteria:

- Entire pelvis and proximal femora
- Sacrum and coccyx
- Pelvis in true lateral position without rotation
    - Superimposed posterior margins of the ischium and ilium
    - Superimposed femora
    - Superimposed acetabular shadows
- Pubic arch unobscured by the femoral

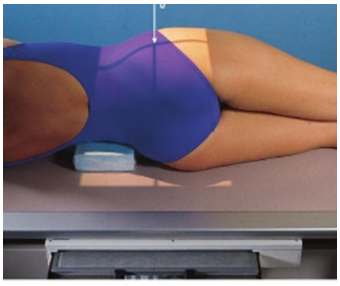

Fig. 7-20 Lateral pelvis.

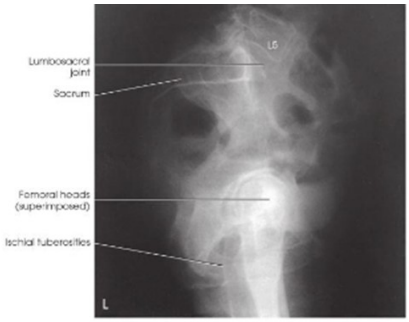

Fig. 7-21 Lateral pelvis.