

## MRSC2100 – Sacrum and Coccyx – Lecture 3

### Grids

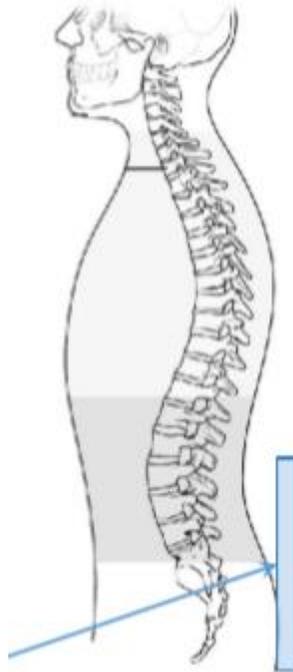
- Increases contrast and resolution when used
- Use on a thick body part (femur/shoulder or thicker)
- Have to increase either the kVp or mAs
- Increasing the kVp will grey out the image (reduce the contrast) as a grid already increases the contrast
- Can only angle the beam along the long axis of the grid (cross-ways for landscape, up and down for portrait)
- Grid focus length is the distance at which the angle of the diverging grid will intersect
- Greater angulation = shorter grid focus length
- Grid cut-off (especially towards the periphery) occurs if the grid is placed back to front
- If the grid is uneven then only one half the image will be exposed
- The bucky shakes upon exposure to further reduce scatter radiation

### Positioning Considerations

- If patient has an hourglass waist may need foam underneath waist and possible angulation (usually caudally)
- Using lead is challenging, best form of protection is ALARP dose
- Larger patients may have their belly going to one side so it is not accurate to line up the umbilicus to the midline – feel the crests are equidistant to IR
- Try to use manual exposure due to presence of gas in bowels

### AP Sacrum

- Position: supine with knees drawn up
- Angle: 15 degrees cephalad
- CR: halfway between ASIS and symphysis at mid-sagittal plane
- Collimation: borders of cassette
- IR: 24x30
- kVp: 75kVp
- mAs: central AEC ~20 mAs
- FFD: 100cm
- Grid: yes
- Instructions: stay very still
- Breathing: suspended respiration



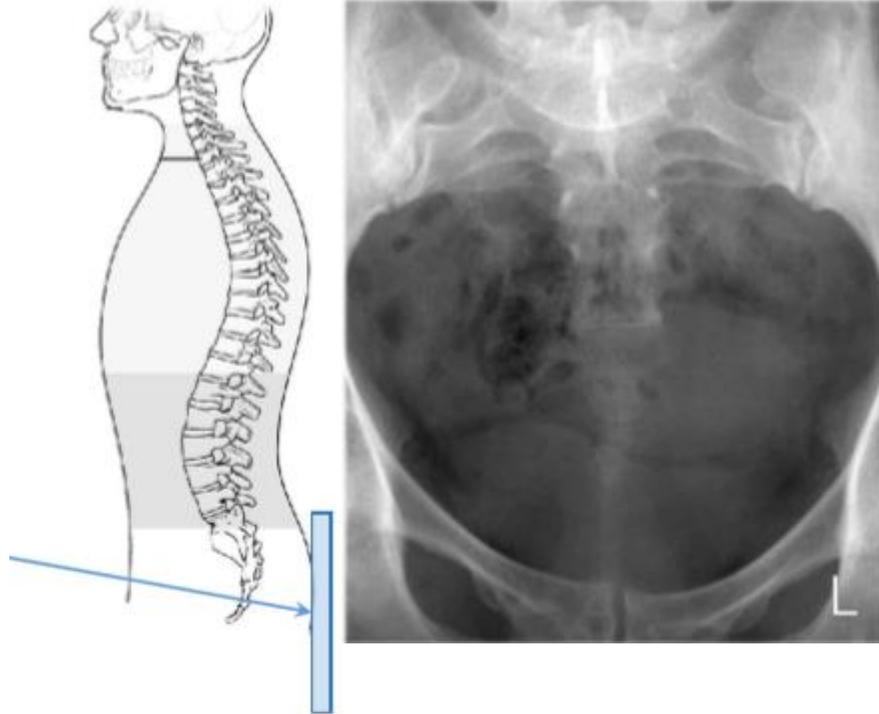
### AP Sacrum Criteria

- SI joints seen
- Entire sacrum seen
- No rotation (sacral foramina equidistant to midline, sacral promontory are symmetrical)

- L5/S1 disc space shown
- Sacrum windowed well (bowel gas can interfere)

#### *AP Coccyx*

- Position: supine with knees drawn up
- Angle: 15 degrees caudally
- CR: 5cm superior to pubic symphysis at mid sagittal plane
- Collimation: 10x10cm area
- IR: 18x24
- kVp: 75
- mAs: central AEC ~15 mAs
- FFD: 100cm
- Grid: yes
- Instructions: stay very still
- Breathing: suspended respiration

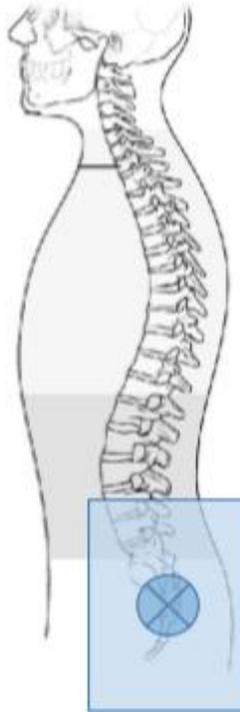


#### *AP Coccyx – Criteria*

- Entire coccyx included
- No rotation
- Entire coccyx windowed well
- May be difficult due to large proportion of people having a skewed coccyx

### *Lateral Sacrum and Coccyx – most useful*

- Position: recumbent on left side (away from radiographer)
- Angle: straight tube unless compensatory angulation required
- CR: 10cm posterior to ASIS
- Collimation: full length, 15cm width
- IR: 24x30
- kVp: 75kVp
- mAs: central AEC ~50 mAs (greatly varied)
- FFD: 100cm
- Grid: yes
- Instructions: stay very still
- Breathing: suspended respiration

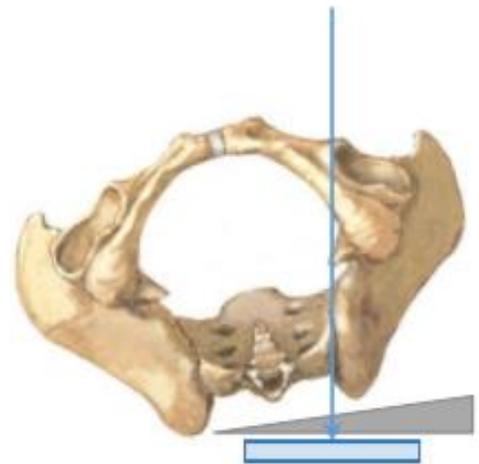


### *Lateral Sacrum and Coccyx – Criteria 0*

- Entire coccyx and sacrum seen
- No rotation
- Entire sacrum and coccyx windowed well
- CR ~mid iliac crest in line with ASIS
- Bowel gas is not as much of an issue for this projection

### *Oblique SI Joints (SI Joints)*

- Position: patient supine with target side raised 15 degrees using a wedge
- Angle: straight tube
- CR: 5cm medial to ASIS of interest (the one that is raised)
- Collimation: full length, 10cm width
- IR: 18x24
- kVp: 75kVp
- mAs: central AEC ~20 mAs (greatly varied)
- FFD: 100cm
- Grid: yes
- Instructions: stay very still
- Breathing: suspended respiration



### Oblique SI Joints – Criteria

- Target SI joint as open as possible
- Entire sacrum and coccyx windowed well
- LPO = right SI joint, RPO = left SI joint
- Will always have a degree of superimposition of sacrum and ilium due to shape of articular surface of SI joint
- Put marker on distally and laterally



*Acetabulum: Judet Series* (right hip is shown as area of interest in diagrams) – not a great series due to rolling onto site of injury in external oblique

2 images are taken for each acetabulum, done unilaterally for a query acetabulum fracture

### External Oblique/Iliac View

- Position: patient 45 degrees oblique rolled onto side of interest
- Angle: straight tube
- CR: 5cm inferior and medial to ASIS
- Collimation: to the cassette
- IR: 24x30
- kVp: 80kVp (thick anatomy)
- mAs: central AEC ~50 mAs (greatly varied)
- FFD: 100cm
- Grid: yes
- Instructions: stay very still
- Breathing: suspended respiration



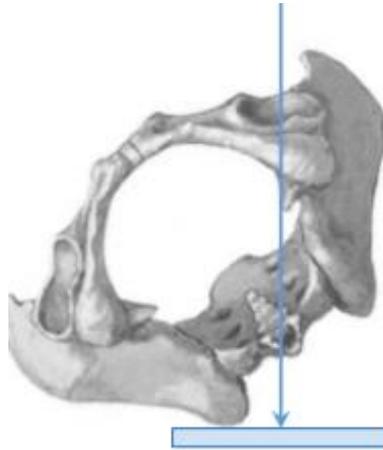
External Oblique

### External Oblique – Criteria

- Anterior rim/posterior column of acetabulum shown well
- Entire mid-pelvic region windowed well
- Obturator foramen shown closed
- Painful for patient because they have to roll onto site of fracture

### Internal Oblique/Obturator View

- Position: 45 degrees oblique so the area of interest is raised
- Angle: straight tube
- CR: 5cm distal and medial to ASIS
- Collimation: to the cassette
- IR: 24x30
- kVp: 80kVp
- mAs: central AEC ~50 mAs (greatly varied)
- FFD: 100cm
- Grid: yes
- Instructions: stay very still
- Breathing: suspended respiration



Internal Oblique

### Internal Oblique – Criteria

- Posterior rim/anterior column of acetabulum shown well
- Entire mid-pelvic region windowed well
- Obturator foramen shown open

### Judet's View – Real Way

- Have the affected acetabulum raised with 45 degree wedges
- Perform the internal oblique
- Use a horizontal beam with upright cassette for external oblique