Reading Hospital School of Health Sciences

Medical Imaging Program

Clinical Case Study Sacrum and Coccyx

AP Axial of Sacrum

1. Is orientation of the image correct?
    a. Yes, this image is oriented correctly
2. Is all necessary anatomy included?
    a. All anatomy is required on this image. The pubic bones should not overlap the sacrum, the sacrum is centered and seen. And there is no rotation of the sacrum by looking at the ala's.
3. Is the body part centered appropriately?
    a. The body part is centered correctly. They are supposed to be 2 inches superior to pubic symph and they are.
4. Is the body part positioned accurately?
    a. This body part is positioned properly. The patient just has to lay on the table and we need to make sure we are centered appropriately and do not forget the tube angle of 15 degrees cephalad
5. Is the collimation and IR orientation as required?
    a. The collimation looks like it was done crosswise instead of the 10 x 12 portrait. They did get all anatomy on, but should have used the right collimation. They are lying supine on the IR, so it is below them.
6. Is the proper marker(s)/annotation(s) utilized on the image?
    a. They forget to put their marker on the image, so they put an electronic one, so technically this image should be repeated for that
7. Is the exposure within the appropriate EI range?
    a. The EI is within the range of this image and the technique for this view is 90 kVp, center cell non AEC 14 mAs
8. Are there any artifacts present on the image?
    a. There are no artifacts present in this image.
9. Overall, is this image ACCEPTABLE or NOT ACCEPTABLE?
    a. This image is acceptable. They provided sufficient tube angle where the symph is not covering up the sacrum at all and the image is centered, but due to them missing their marker they should technically repeat for this.

AP Axial Coccyx

10. Is orientation of the image correct?
    a. The orientation of this image is correct.
11. Is all necessary anatomy included?
    a. All anatomy is included on this image. The coccyx should be centered on the image and no rotation shown by the pelvis or obturator foramen.
12. Is the body part centered appropriately?
    a. This image is centered accurately and should be center 2 inches above symph
13. Is the body part positioned accurately?
    a. The body part is positioned correctly and they used the angle that they needed, the 10 degrees caudad.

14. Is the collimation and IR orientation as required?
    a. The collimation for this view should be 6 x 8 lengthwise. Which it looks like they went crosswise but they did get all anatomy on this view, so I wouldn't repeat for collimation. The IR is underneath the patient because they are lying supine.
15. Is the proper marker(s)/annotation(s) utilized on the image?
    a. They forgot their marker again, so they put an electronic one on, so technically they should be repeat for that.
16. Is the exposure within the appropriate EI range?
    a. The EI is way under exposed if we are using indirect, so we will need to adjust our technique and increase mAs or increase kVp by 15%. The technique for this image is 85 kVp, center cell at 14 mAs.
17. Are there any artifacts present on the image?
    a. There are no artifacts within this image.
18. Overall, is this image ACCEPTABLE or NOT ACCEPTABLE?
    a. This image is unacceptable and needs to be repeated, because we are under-exposed. They also can fix the marker, by putting their own marker in the image.

Lateral Sacrum

19. Is orientation of the image correct?
    a. The orientation of this image is correct.
20. Is all necessary anatomy included?
    a. All anatomy is on this image. We are supposed to see the sacrum, and the posterior margins of the ischia and ilia by demonstration rotation.
21. Is the body part centered appropriately?
    a. This image is centered accurately. They are supposed to be 3.5 inches posterior from the ASIS.
22. Is the body part positioned accurately?
    a. The body part in my eyes is not positioned appropriately. It looks like we have rotation, because I can see the one femoral head in front of the other one, so it demonstrates rotation. I believe it is under -rotated and they need to rotate them up more on their left side.
23. Is the collimation and IR orientation as required?
    a. The collimation is supposed to be 10 x 12 portrait and it looks like they did that and the IR is below the patients left side, since they are on their left side.
24. Is the proper marker(s)/annotation(s) utilized on the image?
    a. They clipped out their own marker and used an electronic marker again, so it will need to be repeated just because their marker needs to be in on the image
25. Is the exposure within the appropriate EI range?
    a. The EI is under exposed, so we will need to adjust our technique and increase mAs or the kVp. The technique for this view is supposed to be 96 kVp, center cell non AEC 45 mAs
26. Are there any artifacts present on the image?
    a. There are no artifacts within this image
27. Overall, is this image ACCEPTABLE or NOT ACCEPTABLE?
    a. This image would be repeatable. I believe there is enough rotation for them to repeat. They also will need to put their own marker on the image instead of using an electronic one. It is also under-exposed, so we will need to adjust our technique

Coccyx Lateral

28. Is orientation of the image correct?
    a. This image is oriented properly
29. Is all necessary anatomy included?
    a. All anatomy is on this image. They have the coccyx and the posterior margins of the ischia and ilia will then demonstrate rotation
30. Is the body part centered appropriately?
    a. The body part is centered right and it is supposed to be 3.5 inches posterior from the ASIS and then 2 inches inferiorly.
31. Is the body part positioned accurately?
    a. The body looks a little rotated looking at the ischia and ilia.
32. Is the collimation and IR orientation as required?
    a. The collimation is 6 x 8 and it looks like they did that, but the IR is below the patient and they are lying on their left side
33. Is the proper marker(s)/annotation(s) utilized on the image?
    a. The marker is in the wrong spot and should be placed anteriorly. They also used an electronic marker instead of their own, so they will need to repeat for that.
34. Is the exposure within the appropriate EI range?
    a. The EI is within range and the technique for this view is 85 kVp, center cell non AEC 40 mAs
35. Are there any artifacts present on the image?
    a. There is no artifact within this image
36. Overall, is this image ACCEPTABLE or NOT ACCEPTABLE?
    a. This image needs to be repeated. The reason why is because of rotation and the electronic marker. We need to rotate the patient back, because it looks like they are over rotated, and they need to put their own marker on the anterior side of the image.

AP Axial SI joint

37. Is orientation of the image correct?
    a. The orientation of this image is correct.
38. Is all necessary anatomy included?
    a. Explain the anatomy required by evaluation criteria.
        i. All anatomy is included on this image and the anatomy that should be demonstrated is the lumbosacral junction and the sacrum
        ii. Both SI joints
        iii. Open intervertebral disk spaces between L5 and S1
    b. Drag the arrows with letters on the Case Study slides to identify anatomical structures within each slide.
        i. done
39. Is the body part centered appropriately?
    a. The body part is centered accurately. They should be centered around 1 ½ inches superior to the symph and the vertebrae down the midline of the image which it mostly is.
40. Is the body part positioned accurately?
    a. This image is positioned appropriately and does not need anything repeated.
41. Is the collimation and IR orientation as required?
    a. The IR should be below the patient because they are in a supine position and the angle of the tube should be 30 -35 degrees depending on the gender
    b. The collimation for this view is a 12 x 10 (landscape) and it looks like they used this collimation

42. Is the proper marker(s)/annotation(s) utilized on the image?
    a. The marker is in the correct placement for this image, but should be tented better on the sheet due to the divergence look of it.
43. Is the exposure within the appropriate EI range?
    a. The EI is within range on this image and the proper technique for this image is 90 k Vp , center cell; non AEC 14 mAs.
44. Are there any artifacts present on the image?
    a. There are no artifacts within this image
45. Overall, is this image ACCEPTABLE or NOT ACCEPTABLE?
    a. This image is acceptable and does not need to be repeated for anything

SI Joint Obliques

46. Is orientation of the image correct?
    a. This image is oriented right
47. Is all necessary anatomy included?
    a. Explain the anatomy required by evaluation criteria.
        i. All anatomy is on this image.
        ii. The SI joint of visualization should be centered on the image and have minimal overlapping of the ilium and sacrum
    b. Drag the arrows with letters on the Case Study slides to identify anatomical structures within each slide.
        i. done
48. Is the body part centered appropriately?
    a. The body part is centered an inch medial to the ASIS, so the centering is good
49. Is the body part positioned accurately?
    a. This image is under rotated due to the sacrum sitting in the SI joint space a little bit.
50. Is the collimation and IR orientation as required?
    a. The proper collimation for this image is 6 x 10 and it looks like they used that. Also the IR should be below the patient in a supine position
51. Is the proper marker(s)/annotation(s) utilized on the image?
    a. The correct marker is marked on this image the right way
52. Is the exposure within the appropriate EI range?
    a. The EI is within range on this image and the technique for the oblique is 90 kVp, center cell; non AEC 16 mAs
53. Are there any artifacts present on the image?
    a. There are no artifacts within this image
54. Overall, is this image ACCEPTABLE or NOT ACCEPTABLE?
    a. This image needs to be repeated due to the rotation of the ala being under-rotated and closing off the SI joint.

SI Joints Oblique

55. Is orientation of the image correct?
    a. The orientation of this image is correct.
56. Is all necessary anatomy included?
    a. Explain the anatomy required by evaluation criteria.
        i. All anatomy is included on this image.

        ii. They need to have the SI joint fully open and centered on the image.
    b. Drag the arrows with letters on the Case Study slides to identify anatomical structures within each slide.
        i. done

57. Is the body part centered appropriately?
    a. The centering for this image is correct since they need to be one inch medially from the ASIS.
58. Is the body part positioned accurately?
    a. This image the SI joint is slightly closed off at the top, so I believe it is under-rotated and needs to be repeated to see the SI joint.
59. Is the collimation and IR orientation as required?
    a. The collimation for this view is a 6 x 10 which it looks like they used and the IR is below the patient so they are lying supine
60. Is the proper marker(s)/annotation(s) utilized on the image?
    a. The right marker is in the correct position for this image
61. Is the exposure within the appropriate EI range?
    a. The EI is within range and the correct technique for this image is 90 kVp, center cell non AEC 16 mAs
62. Are there any artifacts present on the image?
    a. There are no artifacts within this image.
63. Overall, is this image ACCEPTABLE or NOT ACCEPTABLE?
    a. I believe this image is not acceptable due to the SI joint not being completely opened.

Pathology

<u>Ankylosing Spondylitis</u>

1. **Define the pathology.**
    a. Inflammatory arthritis
2. **Identify if the pathology is subtractive, additive or neither**
    a. Neither
    b. The technique does not need to be modified for this pathology
3. **Identify symptoms that a patient would have with this pathology (https://www.mayoclinic.org/diseases-conditions/ankylosing-spondylitis/symptoms-causes/syc-20354808#:~:text=Ankylosing%20spondylitis%20is%20an%20inflammatory,be%20difficult%20to%20breathe%20deeply.)**
    a. pain and stiffness in your lower back and hips, especially in the morning and after periods of inactivity. Neck pain and fatigue also are common
4. **Identify the type of imaging that is obtained for best visualization of this pathology.**
    a. MRI and Radiography