

Reading Hospital School of Health Sciences

Medical Imaging Program

MI 238: Clinical Case Study- Sacrum Coccyx & SI Joints

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Due Date: 7/12/2021

Each student will be assigned clinical a seminar case study for each procedure taught within the semester. The case study will allow the student to practice their knowledge of image critique and anatomical structure identification. Students will submit answers for each projection within the case study on the provided form below or by completing the form in the notes section under each slide in their PowerPoint. The form must be completed in its entirety. **Completed answers to the questions and anatomical structure labeling within the PowerPoint must be uploaded into the Edvance 360 dropbox.**

Sacrum Image # 1		
Orientation		
Is orientation of the image correct?	<u>YES</u>	NO
	If no, state proper orientation:	
Anatomy – <i>drag the arrows with letters on the case study slide to identify anatomical structure within each slide</i>		
State the anatomy required according to evaluation criteria.	Sacrum centered and seen in its entirety, sacrum free of foreshortening, with the sacral curve straightened, pubic bones not overlapping the sacrum, no rotation of the sacrum, as demonstrated by symmetric alae.	
Is all necessary anatomy included?	<u>YES</u>	NO
Centering		
Identify the correct location for centering.	Central ray should be angled 15 degrees cephalad. Center 2 inches superior to pubic symphysis (midway between symphysis pubis and ASIS.)	
Is the body part centered appropriately?	<u>YES</u>	NO
	If centering is incorrect, explain how you would move the central ray to achieve proper centering.	
Positioning		
Is the body part positioned accurately?	<u>YES</u>	NO
	If no, explain what anatomy demonstrates inaccurate positioning (over or under-rotation etc) and how to modify positioning necessary to meet evaluation criteria.	
Collimation		
State the proper collimation size to be used.	10 x 12 Portrait (Lengthwise)	
State how the IR should be oriented to the patient	Portrait	Landscape

Marker/Annotations			
Is a marker utilized on the image?	<u>YES</u>		NO
State proper location of marker.	Appropriate right or left marker should be placed on the image.		
Is an additional marker and/or annotation required on this image?	<u>YES</u>		NO
	If yes, state the additional marker: They forgot to place a lead marker on the image they have an annotated "L" on the image.		
Exposure			
Provide the correct technique	kVp	mAs	Activated AEC cells
	90 kVp	14 mAs	Center Cell
What is the exposure index of this image?	EI: 200		
If out of EI range, state technique modifications.	The EI is just within the acceptable range.		
Artifacts			
Are there any artifacts present on the image?	YES		<u>NO</u>
	If there is an artifact, does it make the image not acceptable?		
OVERALL			
Is this image ACCEPTABLE or NOT ACCEPTABLE?	ACCEPTABLE		<u>NOT ACCEPTABLE</u>
State the reason for NOT ACCEPTABLE.	Overall, this was a good image, but it would be considered NOT ACCEPTABLE for the proper lead marker not being on the image.		

Coccyx Image # 2			
Orientation			
Is orientation of the image correct?	<u>YES</u>	NO	
	If no, state proper orientation:		
Anatomy – drag the arrows with letters on the case study slide to identify anatomical structure within each slide			
State the anatomy required according to evaluation criteria.	Coccyx centered and seen in its entirety, coccygeal segments not superimposed by public bones, no rotation of coccyx, as demonstrated by distal segment in line with pubic symphysis.		
Is all necessary anatomy included?	<u>YES</u>	NO	
Centering			
Identify the correct location for centering.	Central ray should be angled 10 degrees caudad. Center to a point about 2 inches superior to pubic symphysis.		
Is the body part centered appropriately?	<u>YES</u>	NO	
	If centering is incorrect, explain how you would move the central ray to achieve proper centering.		
Positioning			
Is the body part positioned accurately?	<u>YES</u>	NO	
	If no, explain what anatomy demonstrates inaccurate positioning (over or under-rotation etc) and how to modify positioning necessary to meet evaluation criteria.		
Collimation			
State the proper collimation size to be used.	6 x 8 Portrait (Lengthwise)		
State how the IR should be oriented to the patient	Portrait	Landscape	
Marker/Annotations			
Is a marker utilized on the image?	<u>YES</u>	NO	
State proper location of marker.	Appropriate right or left marker should be placed on the image.		
Is an additional marker and/or annotation required on this image?	YES	<u>NO</u>	
	If yes, state the additional marker: They placed an additional annotated "L" marker on the image since the left lead marker was being cut off the image.		
Exposure			
Provide the correct technique	kVp	mAs	Activated AEC cells
	85 kVp	14 mAs	Center Cell

What is the exposure index of this image?	EI: 1250	
If out of EI range, state technique modifications.	The EI is out of range this image is under exposed, we would need to double the mAs to get it within the acceptable range.	
Artifacts		
Are there any artifacts present on the image?	YES	<u>NO</u>
	If there is an artifact, does it make the image not acceptable?	
OVERALL		
Is this image ACCEPTABLE or NOT ACCEPTABLE?	ACCEPTABLE	<u>NOT ACCEPTABLE</u>
State the reason for NOT ACCEPTABLE.	Overall, this image would be considered NOT ACCEPTABLE as we would repeat for the EI being out of range, and while we are at it move the lead marker in the light field.	

Sacrum Image # 3			
Orientation			
Is orientation of the image correct?	<u>YES</u>	NO	
	If no, state proper orientation:		
Anatomy – drag the arrows with letters on the case study slide to identify anatomical structure within each slide			
State the anatomy required according to evaluation criteria.	Entire Sacrum on image, closely superimposed posterior margins of the ischia and ilia, demonstrating no rotation.		
Is all necessary anatomy included?	<u>YES</u>	NO	
Centering			
Identify the correct location for centering.	Central ray is perpendicular. Center at point 3 ½ inches posterior to the ASIS.		
Is the body part centered appropriately?	<u>YES</u>	NO	
	If centering is incorrect, explain how you would move the central ray to achieve proper centering.		
Positioning			
Is the body part positioned accurately?	YES	<u>NO</u>	
	If no, explain what anatomy demonstrates inaccurate positioning (over or under-rotation etc) and how to modify positioning necessary to meet evaluation criteria. There is rotation present, can tell by the hips I would bring the right hip forward a little more.		
Collimation			
State the proper collimation size to be used.	10 x 12 Portrait (Lengthwise)		
State how the IR should be oriented to the patient	Portrait	Landscape	
Marker/Annotations			
Is a marker utilized on the image?	<u>YES</u>	NO	
State proper location of marker.	Place left marker anteriorly.		
Is an additional marker and/or annotation required on this image?	YES	<u>NO</u>	
	If yes, state the additional marker: They added an annotated "L" on the image as the left lead marker is on the image but hard to see due to anatomy in the way.		
Exposure			
Provide the correct technique	kVp	mAs	Activated AEC cells
	96 kVp	45 mAs	Center Cell
What is the exposure index of this image?	EI: 1000		

If out of EI range, state technique modifications.	The EI is out of range this image is under exposed, we would need to double the mAs to get it within the acceptable range.	
Artifacts		
Are there any artifacts present on the image?	YES	<u>NO</u>
	If there is an artifact, does it make the image not acceptable?	
OVERALL		
Is this image ACCEPTABLE or NOT ACCEPTABLE?	ACCEPTABLE	<u>NOT ACCEPTABLE</u>
State the reason for NOT ACCEPTABLE.	Overall, this image would be considered NOT ACCEPTABLE, we would need to repeat for improper positioning as rotation is present, our EI is out of range, and we could move our left lead marker while we are at it to be able to better see it.	

Coccyx Image # 4			
Orientation			
Is orientation of the image correct?	<u>YES</u>	NO	
	If no, state proper orientation:		
Anatomy – drag the arrows with letters on the case study slide to identify anatomical structure within each slide			
State the anatomy required according to evaluation criteria.	Coccyx seen on the image, closely superimposed posterior margins of the ischia and ilia, demonstrating no rotation.		
Is all necessary anatomy included?	<u>YES</u>	NO	
Centering			
Identify the correct location for centering.	Central ray perpendicular. Center to a point 3 ½ inches posterior to ASIS and 2 inches inferiorly.		
Is the body part centered appropriately?	<u>YES</u>	NO	
	If centering is incorrect, explain how you would move the central ray to achieve proper centering.		
Positioning			
Is the body part positioned accurately?	<u>YES</u>	NO	
	If no, explain what anatomy demonstrates inaccurate positioning (over or under-rotation etc) and how to modify positioning necessary to meet evaluation criteria. There is minimal rotation present, not enough that I would repeat for.		
Collimation			
State the proper collimation size to be used.	6 x 8 Portrait (Lengthwise)		
State how the IR should be oriented to the patient	Portrait	Landscape	
Marker/Annotations			
Is a marker utilized on the image?	<u>YES</u>	NO	
State proper location of marker.	Place left marker anteriorly.		
Is an additional marker and/or annotation required on this image?	YES	<u>NO</u>	
	If yes, state the additional marker: They added an annotated “L” on the image as the left lead marker is on the image but hard to see due to anatomy in the way.		
Exposure			
Provide the correct technique	kVp	mAs	Activated AEC cells
	85 kVp	40 mAs	Center Cell
What is the exposure index of this image?	EI: 400		
If out of EI range, state technique	The EI is within the ideal range.		

modifications.		
Artifacts		
Are there any artifacts present on the image?	YES	<u>NO</u>
	If there is an artifact, does it make the image not acceptable?	
OVERALL		
Is this image ACCEPTABLE or NOT ACCEPTABLE?	<u>ACCEPTABLE</u>	NOT ACCEPTABLE
State the reason for NOT ACCEPTABLE.	Overall, this image would be considered ACCEPTABLE, the left marker is barely visible on the image anteriorly, which is why they added an annotated "L" on the image.	

SI Image # 1			
Orientation			
Is orientation of the image correct?	<u>YES</u>	NO	
	If no, state proper orientation:		
Anatomy – drag the arrows with letters on the case study slide to identify anatomical structure within each slide			
State the anatomy required according to evaluation criteria.	Lumbosacral junction and sacrum, open intervertebral disk space between L5 and S1, both sacroiliac joints adequately penetrated.		
Is all necessary anatomy included?	<u>YES</u>	NO	
Centering			
Identify the correct location for centering.	The central ray enters 1 ½ inches superior to the pubic symphysis, and down the midline of the body. The central ray should be angled 30 degrees cephalad for males, and 35 degrees cephalad for females.		
Is the body part centered appropriately?	<u>YES</u>	NO	
	If centering is incorrect, explain how you would move the central ray to achieve proper centering.		
Positioning			
Is the body part positioned accurately?	<u>YES</u>	NO	
	If no, explain what anatomy demonstrates inaccurate positioning (over or under-rotation etc) and how to modify positioning necessary to meet evaluation criteria.		
Collimation			
State the proper collimation size to be used.	12 x 10 Landscape (Crosswise)		
State how the IR should be oriented to the patient	Portrait	Landscape	
Marker/Annotations			
Is a marker utilized on the image?	<u>YES</u>	NO	
State proper location of marker.	Appropriate right or left marker should be placed on the image.		
Is an additional marker and/or annotation required on this image?	YES	<u>NO</u>	
	If yes, state the additional marker:		
Exposure			
Provide the correct technique	kVp	mAs	Activated AEC cells
	90 kVp	14 mAs	Center Cell
What is the exposure index of this image?	EI: 200		
If out of EI range, state technique modifications.	The EI is just within the acceptable range.		

Artifacts		
Are there any artifacts present on the image?	YES	<u>NO</u>
	If there is an artifact, does it make the image not acceptable?	
OVERALL		
Is this image ACCEPTABLE or NOT ACCEPTABLE?	<u>ACCEPTABLE</u>	NOT ACCEPTABLE
State the reason for NOT ACCEPTABLE.	Overall, this image would be considered an ACCEPTABLE image, no need to repeat it.	

SI Image # 2			
Orientation			
Is orientation of the image correct?	<u>YES</u>	NO	
	If no, state proper orientation:		
Anatomy – drag the arrows with letters on the case study slide to identify anatomical structure within each slide			
State the anatomy required according to evaluation criteria.	Open sacroiliac joint space with minimal overlapping of the ilium and sacrum, joint centered on the radiograph.		
Is all necessary anatomy included?	<u>YES</u>	NO	
Centering			
Identify the correct location for centering.	The central ray is perpendicular to the IR and centered 1 inch medial to the elevated ASIS.		
Is the body part centered appropriately?	<u>YES</u>	NO	
	If centering is incorrect, explain how you would move the central ray to achieve proper centering.		
Positioning			
Is the body part positioned accurately?	YES	<u>NO</u>	
	If no, explain what anatomy demonstrates inaccurate positioning (over or under-rotation etc) and how to modify positioning necessary to meet evaluation criteria. This image is under rotated, as the SI joint is not open there's overlap with the lilac tuberosity. The patient needs to be rotated up more on the sponge.		
Collimation			
State the proper collimation size to be used.	6 x 10 Portrait (Lengthwise)		
State how the IR should be oriented to the patient	Portrait	Landscape	
Marker/Annotations			
Is a marker utilized on the image?	<u>YES</u>	NO	
State proper location of marker.	Appropriate right or left marker should be used to mark laterally on the elevated ASIS.		
Is an additional marker and/or annotation required on this image?	YES	<u>NO</u>	
	If yes, state the additional marker:		
Exposure			
Provide the correct technique	kVp	mAs	Activated AEC cells
	90 kVp	16 mAs	Center Cell
What is the exposure index of this image?	EI: 300		
If out of EI range, state technique	The EI is within the acceptable range.		

modifications.		
Artifacts		
Are there any artifacts present on the image?	YES	<u>NO</u>
	If there is an artifact, does it make the image not acceptable?	
OVERALL		
Is this image ACCEPTABLE or NOT ACCEPTABLE?	ACCEPTABLE	<u>NOT ACCEPTABLE</u>
State the reason for NOT ACCEPTABLE.	Overall, this image would be considered NOT ACCEPTABLE, as we would need to repeat for improper positioning with the image being under rotated.	

SI Image # 3			
Orientation			
Is orientation of the image correct?	<u>YES</u>	NO	
	If no, state proper orientation:		
Anatomy – drag the arrows with letters on the case study slide to identify anatomical structure within each slide			
State the anatomy required according to evaluation criteria.	Open sacroiliac joint space with minimal overlapping of the ilium and sacrum, joint centered on the radiograph.		
Is all necessary anatomy included?	<u>YES</u>	NO	
Centering			
Identify the correct location for centering.	The central ray is perpendicular to the IR and centered 1 inch medial to the elevated ASIS.		
Is the body part centered appropriately?	<u>YES</u>	NO	
	If centering is incorrect, explain how you would move the central ray to achieve proper centering.		
Positioning			
Is the body part positioned accurately?	YES	<u>NO</u>	
	If no, explain what anatomy demonstrates inaccurate positioning (over or under-rotation etc) and how to modify positioning necessary to meet evaluation criteria. This image is under rotated, as the SI joint is not open there's overlap with the lilac tuberosity. The patient needs to be rotated up more on the sponge.		
Collimation			
State the proper collimation size to be used.	6 x 10 Portrait (Lengthwise)		
State how the IR should be oriented to the patient	Portrait	Landscape	
Marker/Annotations			
Is a marker utilized on the image?	<u>YES</u>	NO	
State proper location of marker.	Appropriate right or left marker should be used to mark laterally on the elevated ASIS.		
Is an additional marker and/or annotation required on this image?	YES	<u>NO</u>	
	If yes, state the additional marker:		
Exposure			
Provide the correct technique	kVp	mAs	Activated AEC cells
	90 kVp	16 mAs	Center Cell
What is the exposure index of this image?	EI: 400		
If out of EI range, state technique	The EI is within the ideal range.		

modifications.		
Artifacts		
Are there any artifacts present on the image?	YES	<u>NO</u>
	If there is an artifact, does it make the image not acceptable?	
OVERALL		
Is this image ACCEPTABLE or NOT ACCEPTABLE?	ACCEPTABLE	<u>NOT ACCEPTABLE</u>
State the reason for NOT ACCEPTABLE.	Overall, this image would be considered NOT ACCEPTABLE, as we would need to repeat for improper positioning with the image being under rotated.	