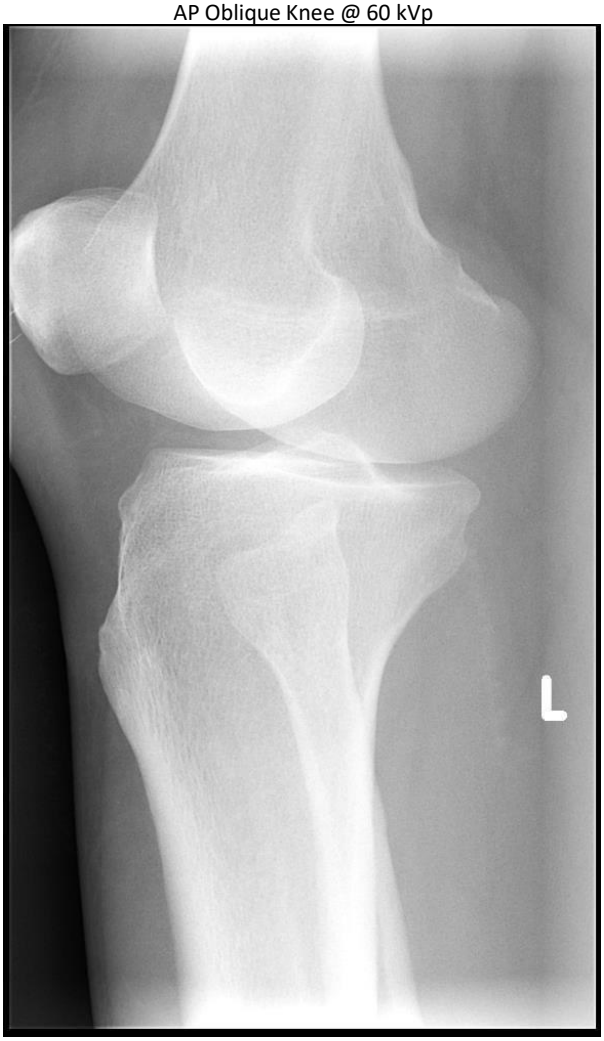
Image Critique Questions

Module 9

1. Use the 5 evaluation criteria categories when critiquing the following image to determine if it is diagnostic:

AP Oblique Knee @ 60 kVp



1. Is all the required anatomy included in the radiograph? Yes **No**
**If no, explain what is required*
Entire patella must be included
Lateral soft-tissue margins should be included

2. Does the anatomical appearance in the radiograph correlate to what is expected from a routine AP oblique projection?
Yes **No**
**If no, explain how the appearance of this radiograph is different compared to the ideal radiograph*
Over-rotation in the lateral direction demonstrated: Fibular head should be aligned with anterior edge of tibia (appears too posterior)

3. Identify if the appropriate amount of radiation was used to form the image.
Acceptable, Overexposed, **Underexposed**
- Is motion present in the image? Yes **No**

Is this image diagnostic? Yes **No**

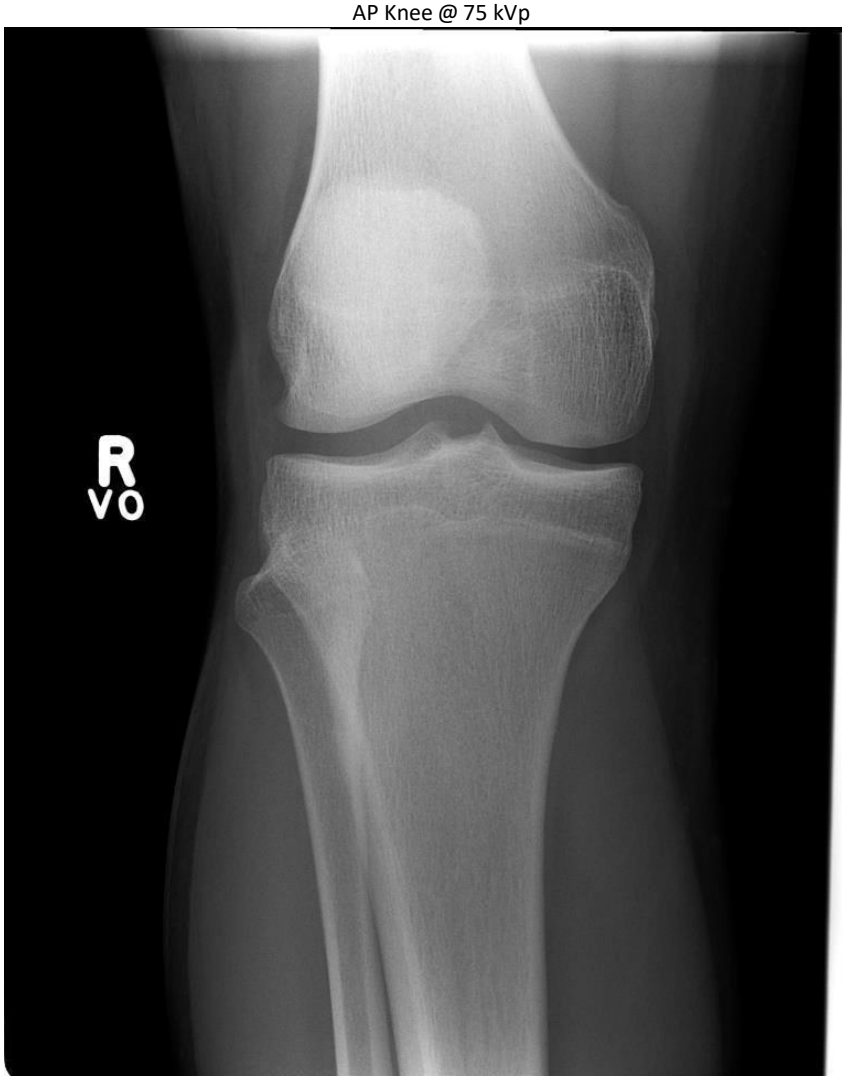
4. Identify if the collimated light field was: Acceptable, **Too Small**, Too Large
- Was the CR close to the middle of the required anatomy? **Yes** No

5. Does the marker placement follow Anderson's Marker Rules? Yes **No**
- Are there artifacts in the image? **Yes** No
  If yes, could they have been removed?* ***The anatomical marker should not obscure soft-tissues*

2. Use the 5 evaluation criteria categories when critiquing the following image to determine if it is diagnostic:

1. Is all the required anatomy included in the radiograph? **Yes** No
   **If no, explain what is required*

AP Knee @ 75 kVp



2. Does the anatomical appearance in the radiograph correlate to what is expected from a routine AP projection?
   Yes **No**
   **If no, explain how the appearance of this radiograph is different compared to the ideal radiograph*
   Slight lateral rotation evidenced by:
   More than ½ of fibular head is superimposed by the tibia
   Asymmetric appearance of femoral condyles

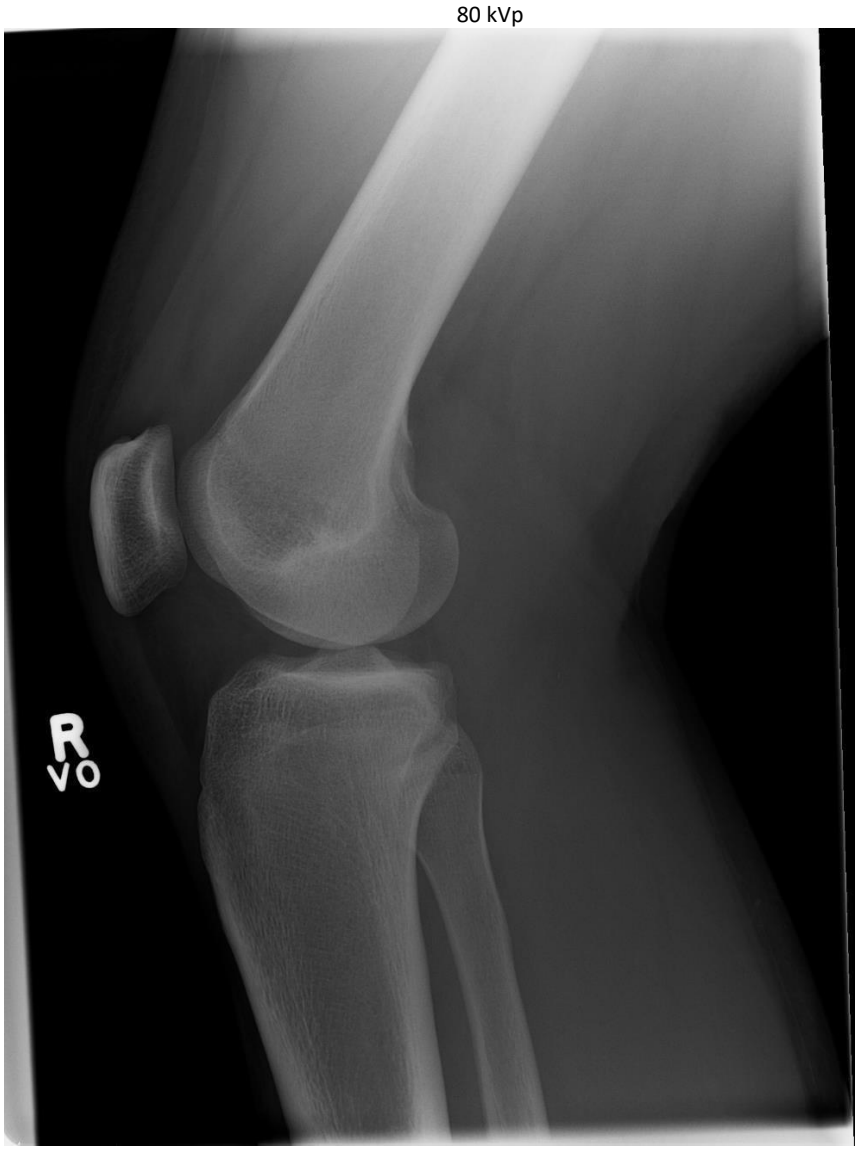
3. Identify if the appropriate amount of radiation was used to form the image.
   Acceptable, Overexposed, Underexposed
   - Is motion present in the image?
     Yes **No**

4. Identify if the collimated light field was:
   Acceptable, Too Small, Too Large
   - Was the CR close to the middle of the required anatomy?
     Yes **No * slightly too distal**

Is this image diagnostic? Yes No

5. Does the marker placement follow Anderson's Marker Rules?
   Yes No
   - Are there artifacts in the image?
     Yes **No**
     **If yes, could they have been removed?*

3. Use the image below to answer the next five questions:



a. Which routine projection of the knee is displayed?

Lateral projection

b. What positioning error(s) occurred?

- **Rotation**

c. If the image was repeated, how would you correct the positioning error(s)?

- **Rotate the leg anteriorly (aka. roll knee down towards IR)**

d. How did you identify the positioning error(s)?

- **The medial femoral condyle is posterior to the lateral femoral condyle (identified via the abductor tubercle) – aka. femoral condyles are not superimposed**

e. If the image had to be repeated, would you make any other adjustment(s)? Explain your rationale.

- **Ensure the distal femur is parallel to the IR/light field to enable increased side-to-side collimation**
- **Increase collimation superiorly-inferiorly slightly (excessive amounts of distal femur and proximal tibia/fibula are included radiographically)**
- **Center CR over the femorotibial joint (CR was centered too superiorly and posteriorly)**

4. Use the 5 evaluation criteria categories when critiquing the following image to determine if it is diagnostic:

Medial Oblique Knee @ 85 kVp



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McQuillen Martensen 5th Ed. pg. 375 Fig. 6.163

Is this image diagnostic? Yes **No**

1. Is all the required anatomy included in the radiograph? Yes **No**
**If no, explain what is required*
Must include at least ¼ of proximal tibia/fibula

2. Does the anatomical appearance in the radiograph correlate to what is expected from a PA axial projection?
Yes **No**
**If no, explain how the appearance of this radiograph is different compared to the ideal radiograph*
Excessive medial rotation evidenced by:
Excessive superimposition of femoral condyles (i.e. distal femur is "too narrow")
Patella appears to be in a more lateral orientation
Tibial tuberosity is well demonstrated (i.e. the anterior surface of the tibia is "too flat")

3. Identify if the appropriate amount of radiation was used to form the image.
Acceptable, **Overexposed**, Underexposed
- Is motion present in the image? Yes **No**

4. Identify if the collimated light field was: Acceptable, **Too Small**, Too Large
- Was the CR close to the middle of the required anatomy? Yes **No *too superior**

5. Does the marker placement follow Anderson's Marker Rules? Yes **No *lead anatomical marker is preferred over digital annotations**
- Are there artifacts in the image? **Yes** No
If yes, could they have been removed?* **Patients should be given proper changing & gowning instructions to remove clothing that would appear over anatomy of interest

5. Use the images below to answer the next five questions:



a. Which routine projection of the femur is displayed? **AP projection**

b. What positioning error(s) occurred?

- **Anatomy not in required AP position for proximal femur image (i.e. femur was not internally rotated 15-20^0 for the proximal image)**

c. If the image was repeated, how would you correct the positioning error(s)?

- **Rotate the right leg (aka. affected limb) medially 15-20^o**

d. How did you identify the positioning error(s)?

- **Femoral neck not in profile (superimposition of greater trochanter over femoral neck)**
- **Lesser tubercle clearly visible medially (should not be visible or only barely visible)**

e. If the image had to be repeated, would you make any other adjustment(s)? Explain your rationale.

- **Increase technique – images are underexposed**
- **Use the anatomical marker to prove overlap between images (Marker should have been in the inferior lateral corner in the proximal image & superior lateral corner in the distal image)**

6. Use the images below to answer the next five questions:





a. Which routine projection of the femur is displayed? **Lateral projection**

b. What positioning error(s) occurred?
- **Unaffected leg was not removed completely from distal image**
- **Femur not parallel to anterior edge of IR**

c. If the image was repeated, how would you correct the positioning error(s)?
- **Ensure unaffected leg is abducted away from the affected leg**
- **Move the affected leg until it is running parallel to long edge of table (and/or move the mattress to position the femur parallel to the anterior edge of the IR)**

d. How did you identify the positioning error(s)?
- **Soft-tissue of unaffected leg is visible in superior anterior corner of distal image (i.e. the bright white density)**
- **Collimator had to be tilted to match angle of anatomy (collimator should not be tilted)**

e. If the image had to be repeated, would you make any other adjustment(s)? Explain your rationale.
- **Use the anatomical marker to prove overlap between images (Marker should have been in the inferior anterior corner for the proximal image & superior anterior corner for the distal image)**
- **Increase collimation side-to-side (aka. anterior-posteriorly); some soft-tissue should be clipped**