

# Step by Step Guide How to template the Hip

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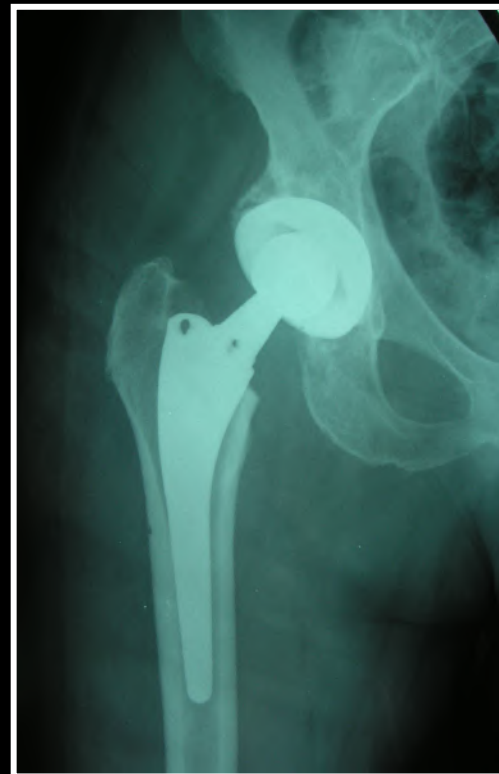
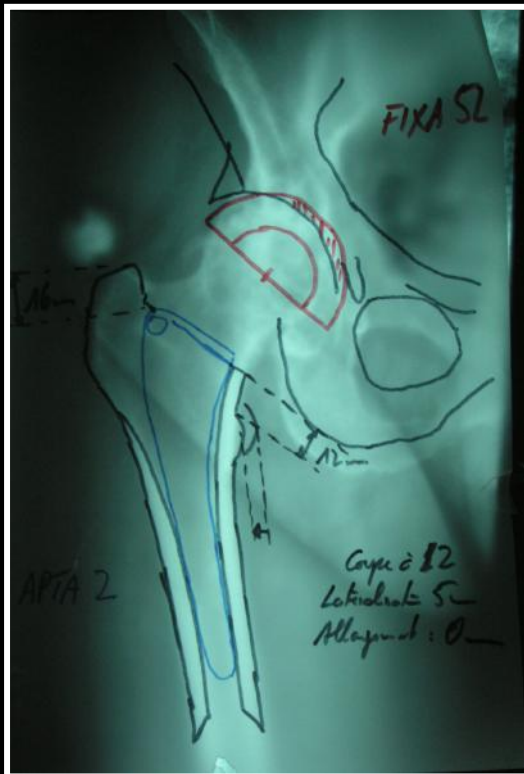


# Definition

« ... »

The process of anticipating the size and position of implants prior to surgery

« ... »



# Crucial

- allows surgeon to anticipate potential difficulties to reproduce hip biomechanics
- minimizes limb length discrepancy

# Accuracy

- 52-98% accurate +/- one size
- related to experience and practice

# 1st Step – Obtain appropriate radiographs

## 1. AP pelvis.

- centered over pubic symphysis

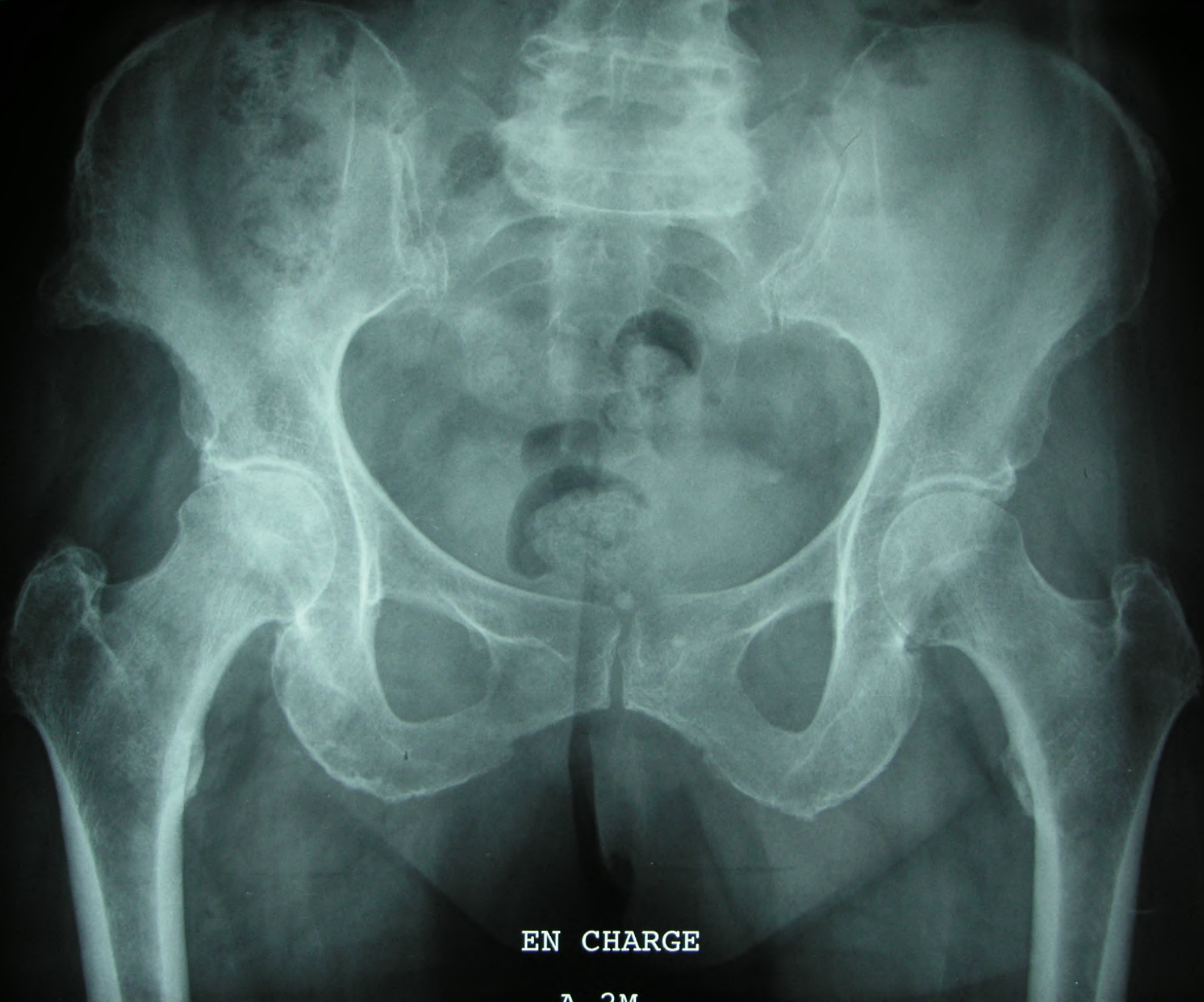
## 2. AP hip.

- taken with 10-15 degrees of internal rotation
  - places femoral neck parallel to cassette
  - external rotation on radiographs will
    - falsely decrease offset
    - create valgus appearing femoral neck
    - falsely decrease femoral canal diameter

## 3. Frog lateral hip.

### ***Magnification***

- 20% is standard
- most templates account for this
- magnification markers are helpful



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A 3M



*Radiographic landmarks*

# Femoral side

*greater trochanter*



*saddle point*

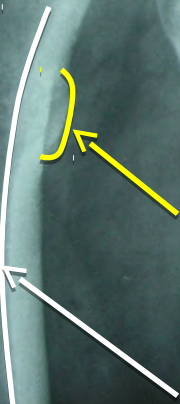
most distal part of the junction between the superior aspect of the femoral neck and the greater trochanter



*lesser trochanter*



*medullary canal*



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2M



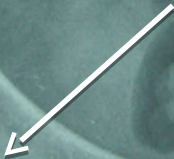
# Acetabular side

acetabular roof



*tear drop*

created by superposition of the most distal part of the medial wall of the acetabulum and the tip of the anterior/posterior horn of acetabulum



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# Pelvis

*ischial tuberosities*

important to determine limb length discrepancy

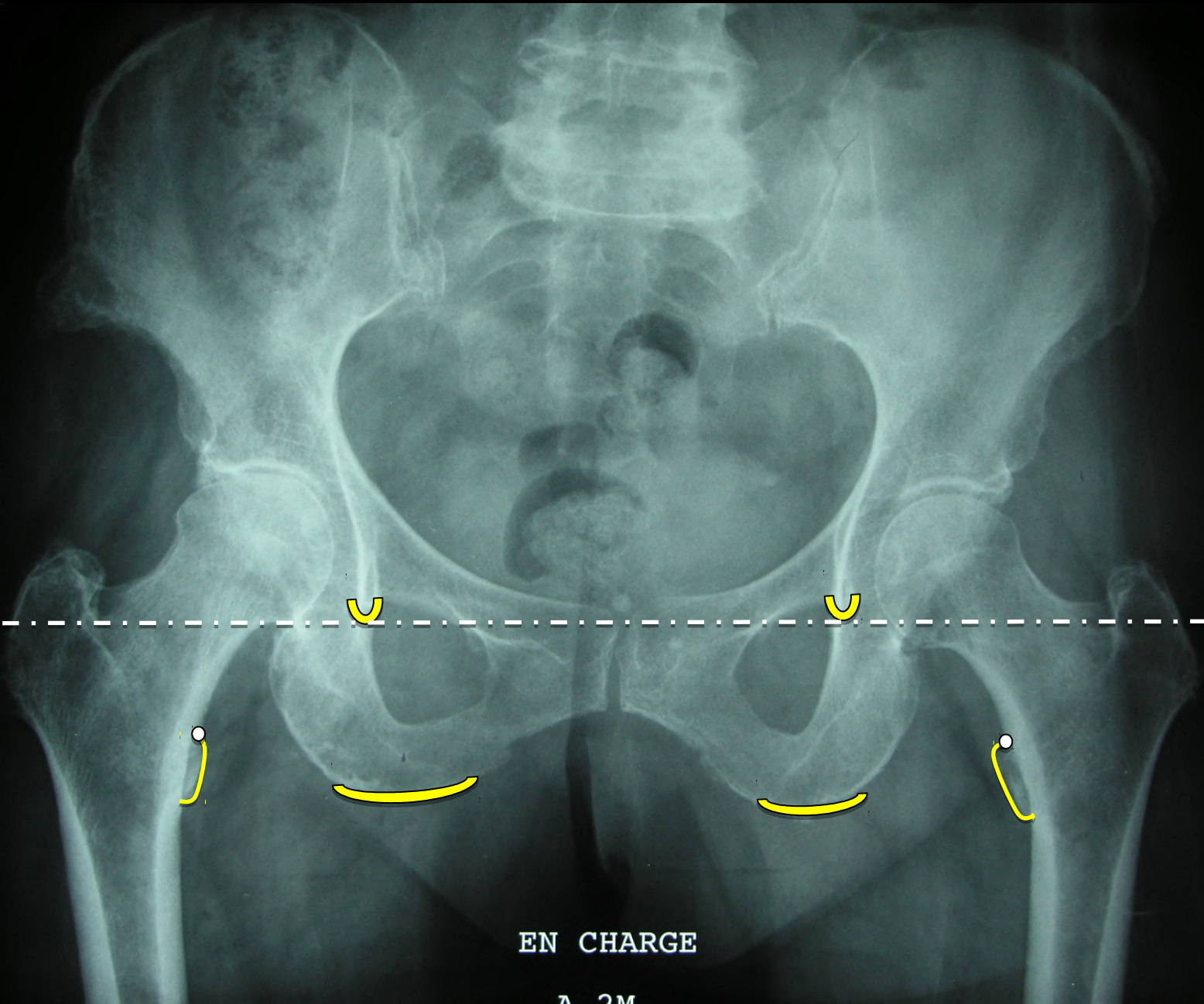


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# Establish limb length discrepancy

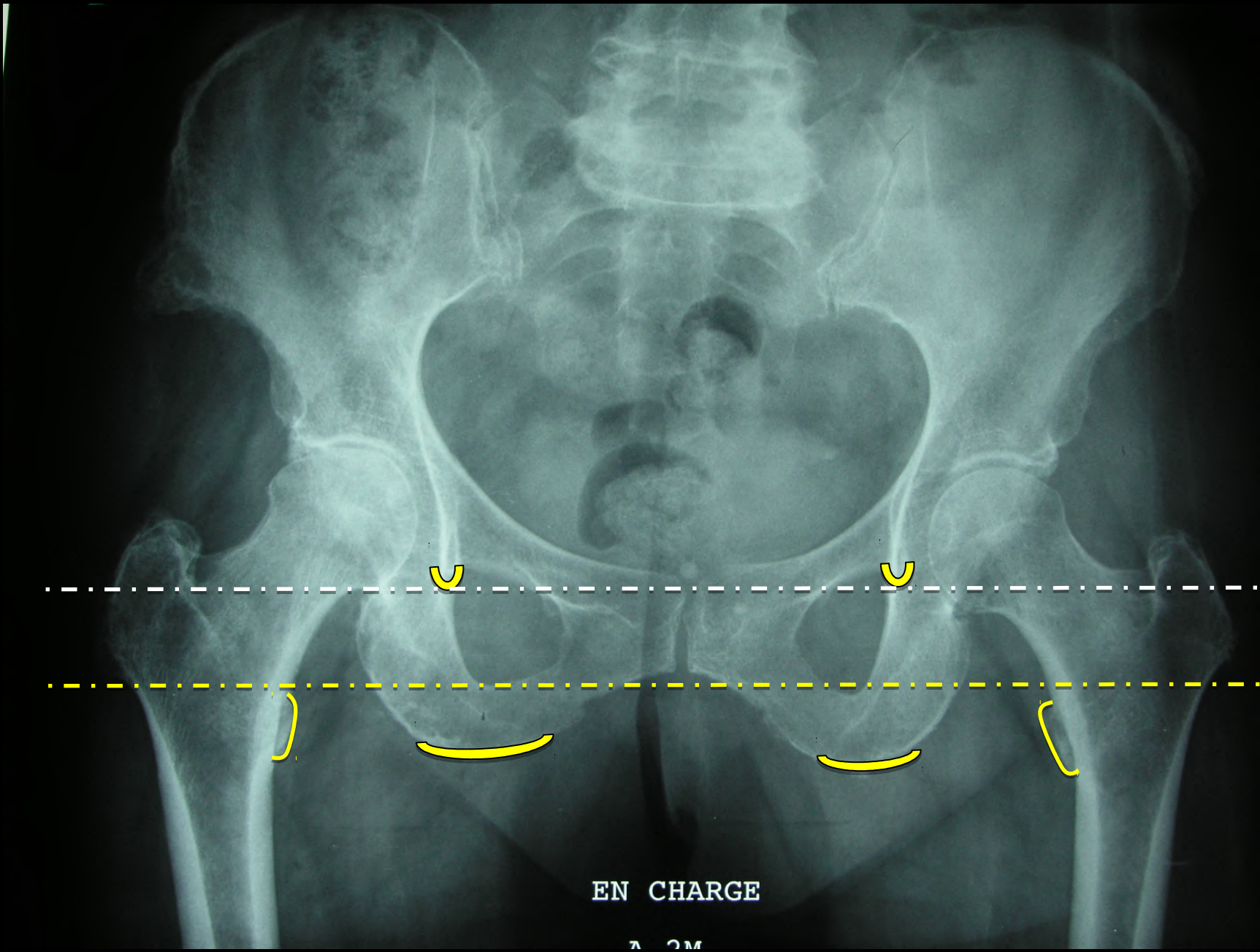
## *Steps*

- On AP pelvis, draw horizontal line connecting the teardrops
  - ensure the line extends beyond the medial femoral cortices bilaterally
- Mark the top (proximal-most point) of both lesser trochanters on the AP pelvis radiograph
- Measure the distance between the teardrop line and the line drawn at the most proximal aspect of the lesser trochanters



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7 2M

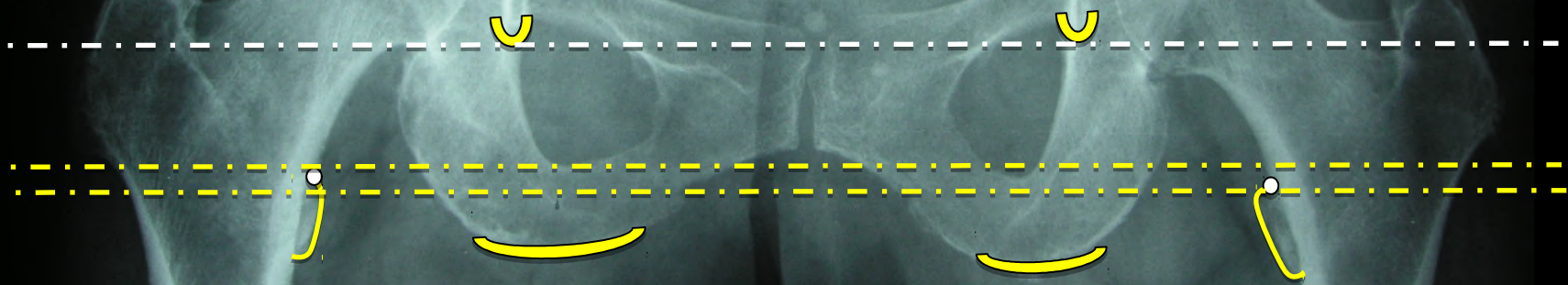
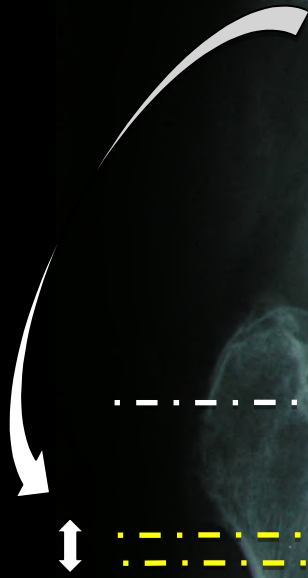


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Right Hip is 4 mm shorter

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An anteroposterior radiograph of the pelvis. A white box at the top center contains the word "Alternatives". Two yellow U-shaped markers are placed on the iliac crests. Two horizontal dashed lines are drawn across the lower pelvis. The upper dashed line is yellow and passes through the teardrop markers. The lower dashed line is white and passes through the ischial tuberosities. Yellow curved lines connect the teardrop markers to the yellow dashed line, and the ischial tuberosities to the white dashed line. A white double-headed vertical arrow is on the left side, indicating the vertical distance between the two lines.

Alternatives

A line connecting the ischial tuberosities may be used instead of the teardrops line

*Template the acetabulum*



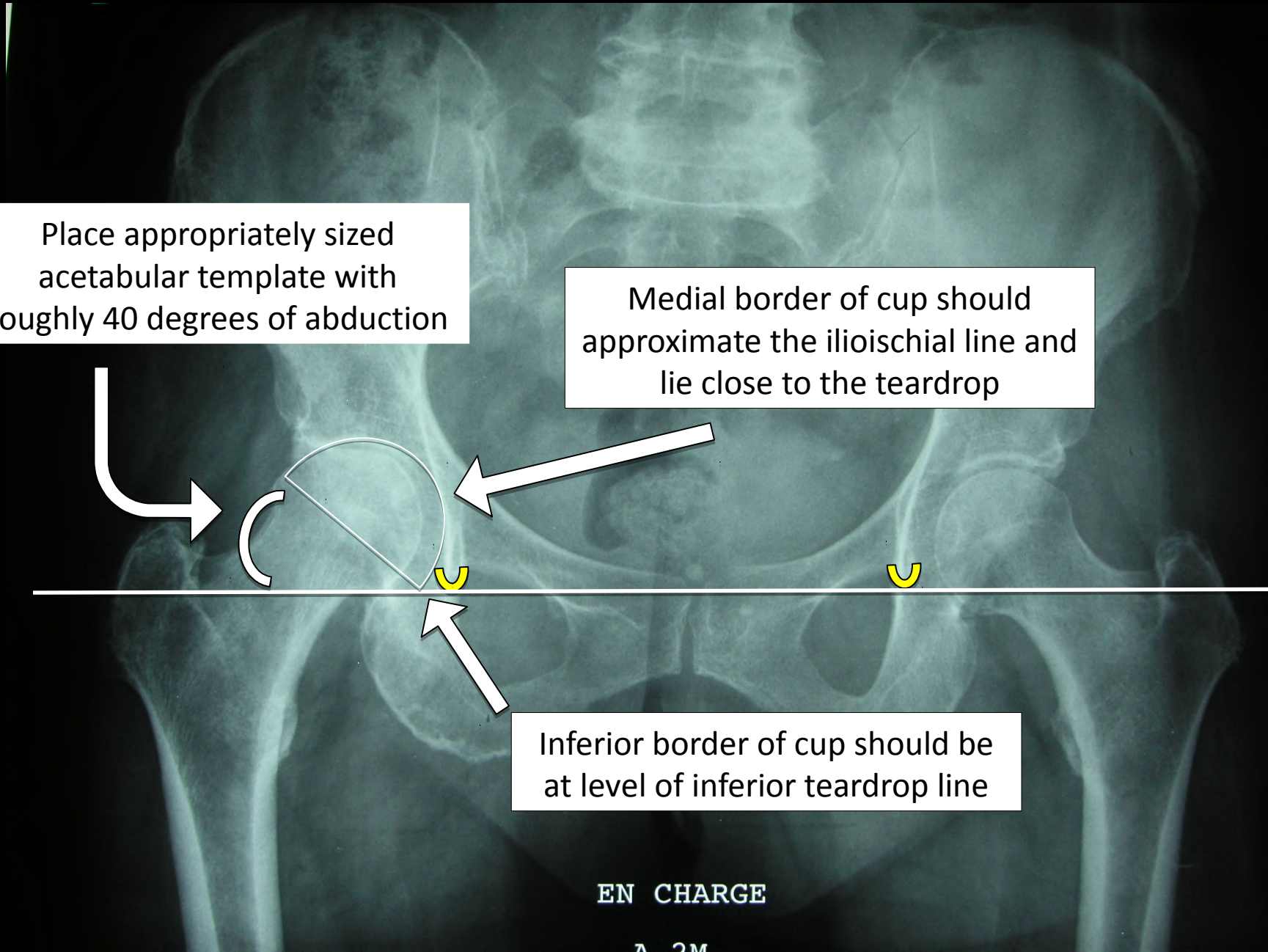
Place appropriately sized acetabular template with roughly 40 degrees of abduction

Medial border of cup should approximate the ilioischial line and lie close to the teardrop

Inferior border of cup should be at level of inferior teardrop line

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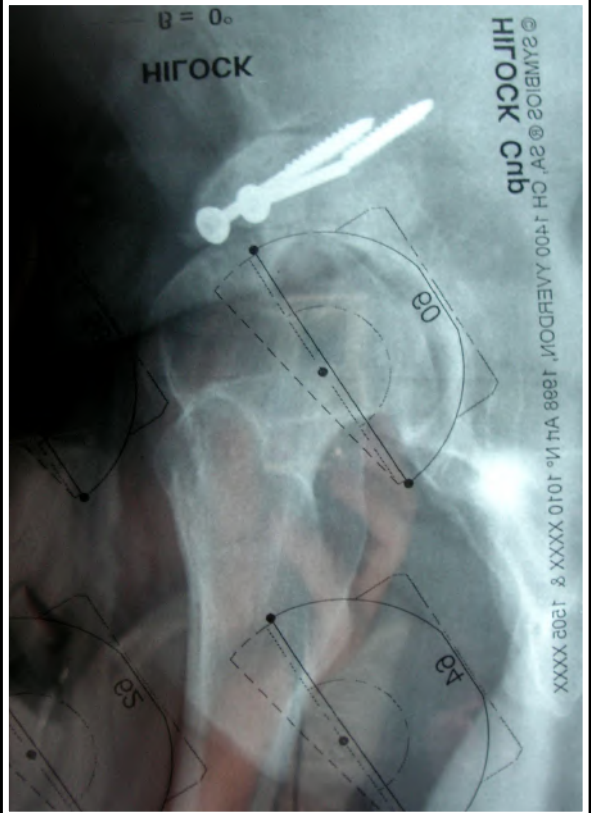
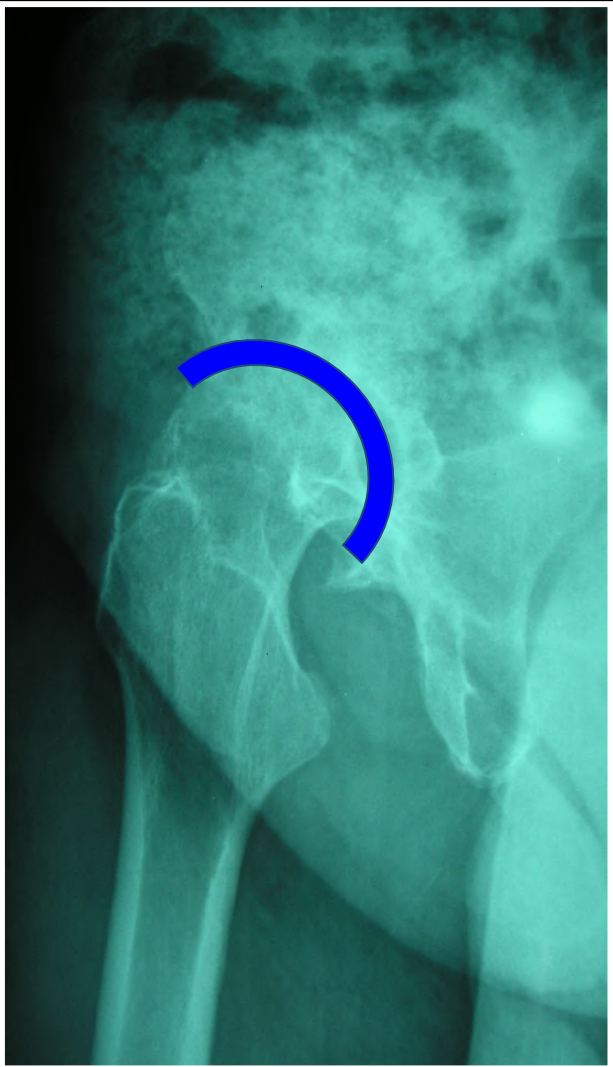
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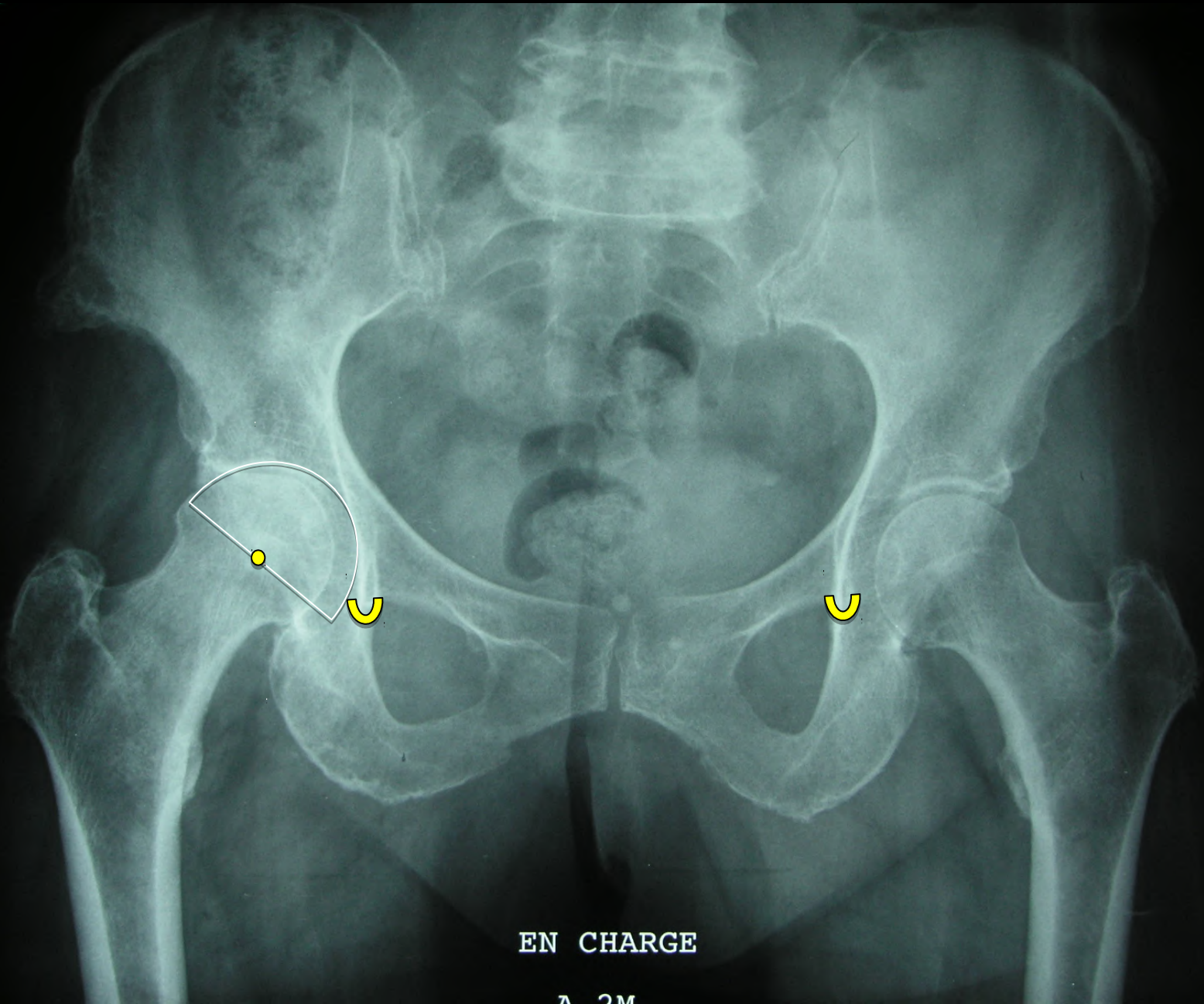
Mark center of rotation  
of acetabular component



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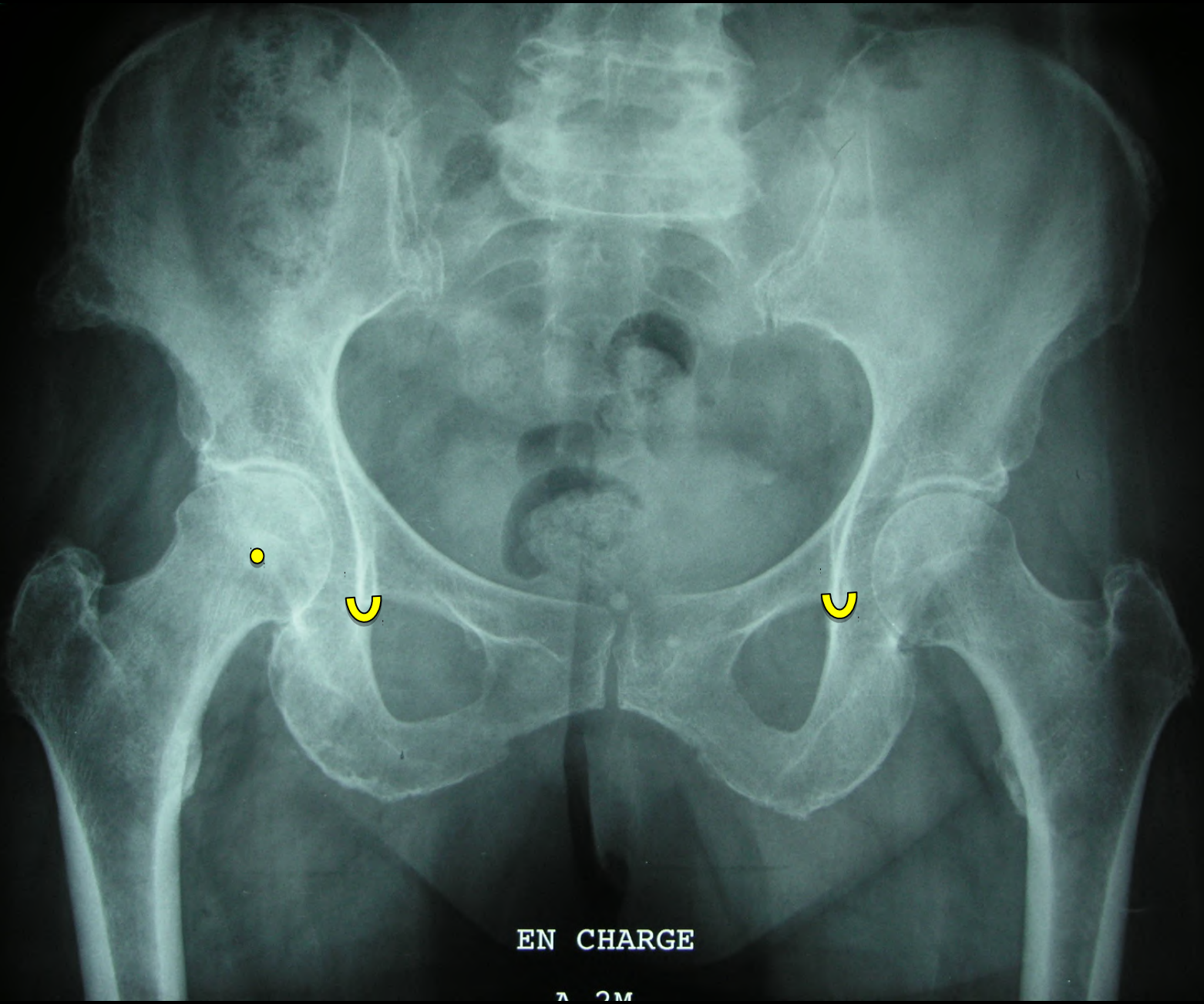


Template the femur



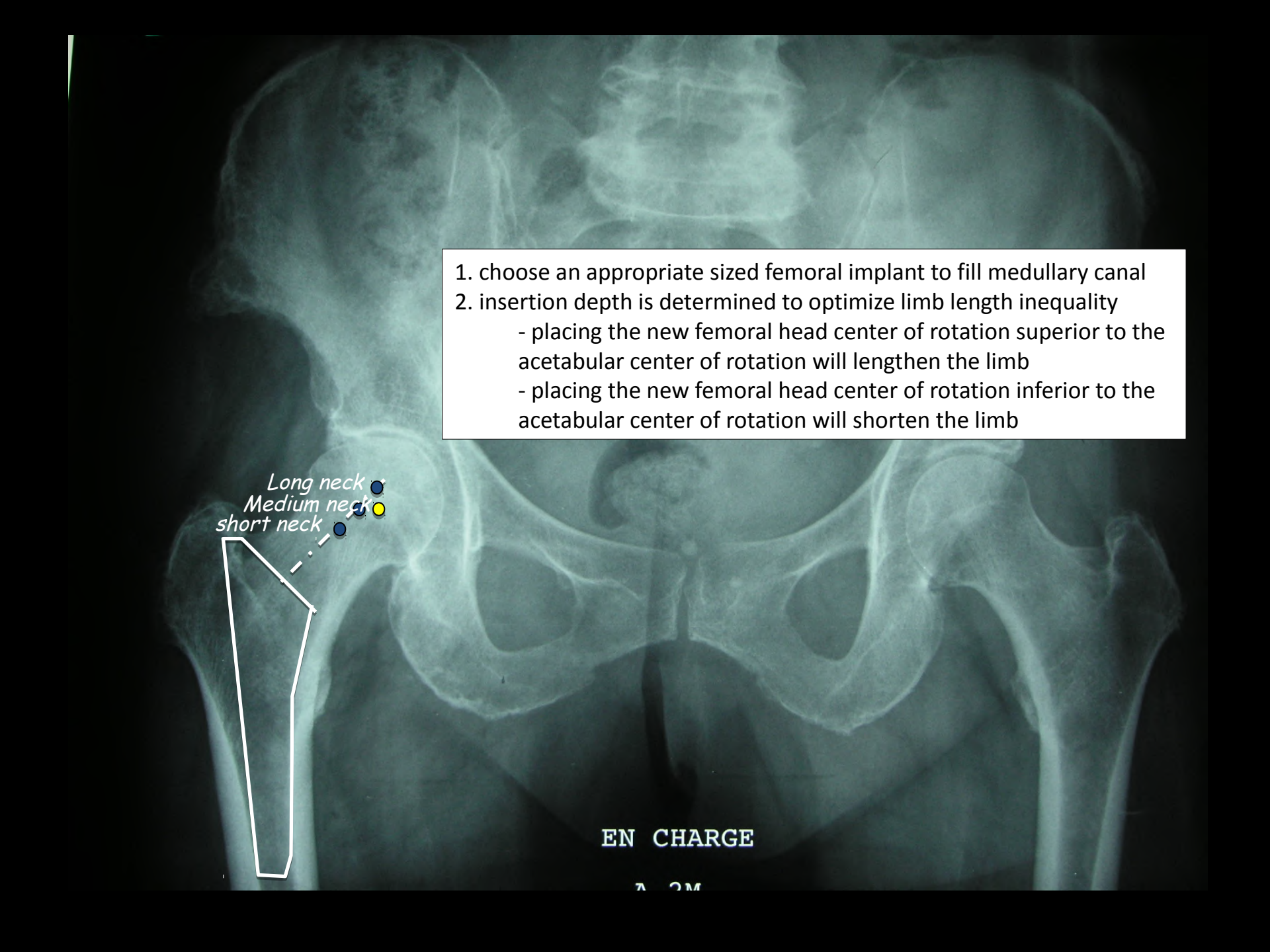
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- 
1. choose an appropriate sized femoral implant to fill medullary canal
  2. insertion depth is determined to optimize limb length inequality
    - placing the new femoral head center of rotation superior to the acetabular center of rotation will lengthen the limb
    - placing the new femoral head center of rotation inferior to the acetabular center of rotation will shorten the limb

Long neck ●  
Medium neck ●  
short neck ●

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mark the intended femoral neck resection level

- use lesser trochanter for posterior approach
- use saddle point for anterior approaches

Long neck

Offset is restored by

- choosing a stem with more or less offset
- choosing a stem with a different neck-shaft angle
- modifying the length of the femoral neck

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*Thank You*

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