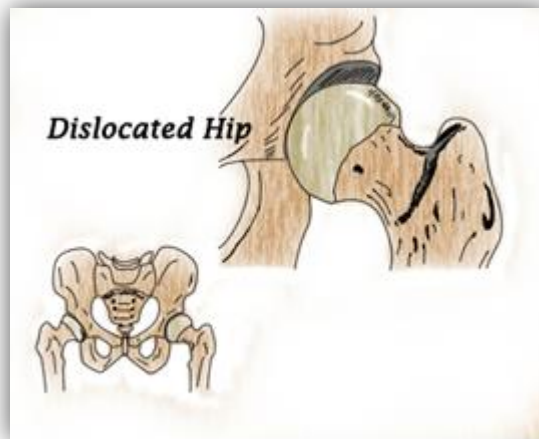


Developmental Dysplasia of the Hip (DDH)

Also called congenital dislocation of the hip (CDH)

DDH is a congenital dislocation or subluxation of the hip joint found in children. It occurs in 1 out of 1000 births. The hip joint is a ball and socket joint, constant of femoral head (the ball) and the acetabulum (the socket). This joint may be fully dislocate or be little shallow in birth, it has many risk factors but the real reason is unknown till now.



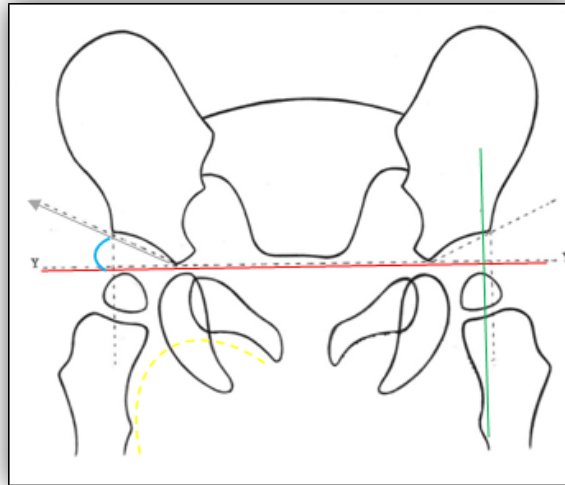
The best imaging modality for diagnosis of DDH is radiography since it gives necessary and sufficient information, in addition of being available in all hospitals, fast and cheap. Yet, for children in the first 6-12 months of their life, ultrasonography is preferable because of a lack of skeletal ossification in this age. (Radiology recall 645)

The best projection to diagnose DDH is anterior-posterior pelvis view. In this projection the whole pelvis, femoral head, neck, trochanters and proximal third of fourth of the shaft of femur should be included in the image. To provide accurate diagnostic image, most important thing is positioning the patient in true supine position to avoid pelvic rotation and both iliac crest should be symmetrical.



As a radiographer it is necessary to have full understanding of physicians needs from this view. This view will be used by radiologists and orthopedic surgeons for angular measurement and growth determination by drawing specific lines using anatomical landmarks of pelvis.

Pelvic anatomical landmarks on AP view of the pelvis



Hilgenreiner's line: it is a reference line drawn horizontally through the triradiate cartilage of both acetabulum. (Red line)

Perkin's line: it is drawn vertically and perpendicular to Hilgenreiner's line starting at the lateral margin of the ossified acetabulum center and through the lateral margin of the acetabular roof. (Green line)

*For children whose femoral head is not ossified, Perkin's line should pass through the beak of the femoral neck.

Acetabular angle (or acetabular index AI): it represents the angle between Hilgenreiner's line and a line drawn along the superior and inferior points of the acetabulum. (Blue angle)

Shenton's line (or Shenton's curve): runs from the top of the obturator foramen and the medial cortex of the femoral neck to the lesser trochanter. This line should run continuity in smooth arc, any breaks in this line suggests DDF. (Yellow line)

Positioning Technique

AP Pelvis

- Patient positioned supine
- Feet and lower limbs rotated 15° to 20° internally to bring the femoral necks and trochanters parallel to the cassette
- Immobilization of the legs is important in pediatric patients, it can be performed by using sand bags or by help of parents/nurse
- Avoid pelvis rotation (check the distance from ASIS to the tabletop on each side)
- Central ray perpendicular to the cassette directed to pubic symphysis