

BACKGROUND

Radiographic findings traditionally associated with acetabular retroversion, global acetabular overcoverage, and pincer-type femoroacetabular impingement (FAI) can also be seen in developmental hip dysplasia (DDH). Additionally, many patients with DDH have concomitant radiographic evidence of cam-type anatomy.

AIM

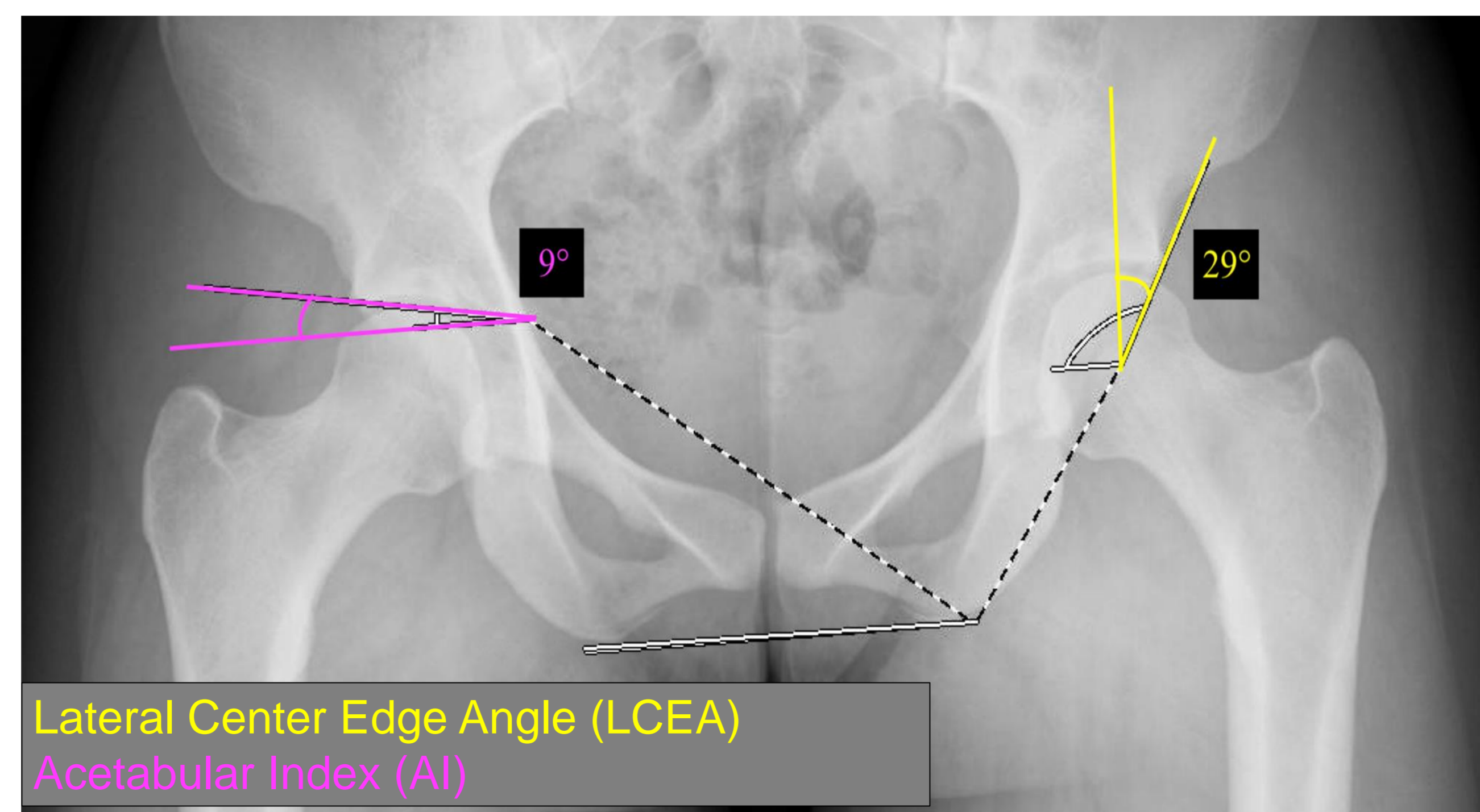
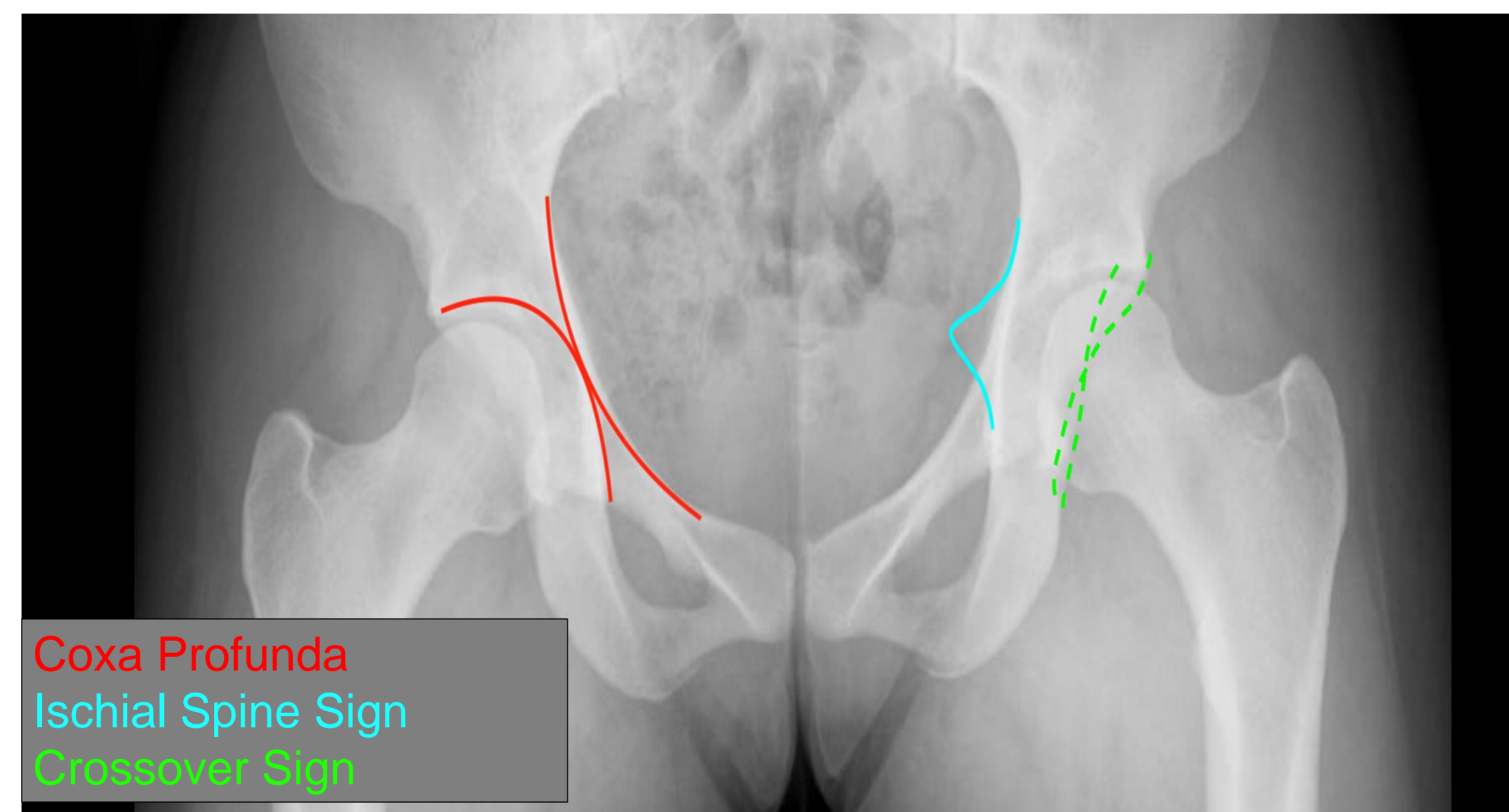
To examine the incidence of radiographic characteristics typically indicative of acetabular retroversion, deep acetabula, and pincer-type FAI anatomy as well as cam-type anatomy in the setting of dysplastic hips.

METHODS

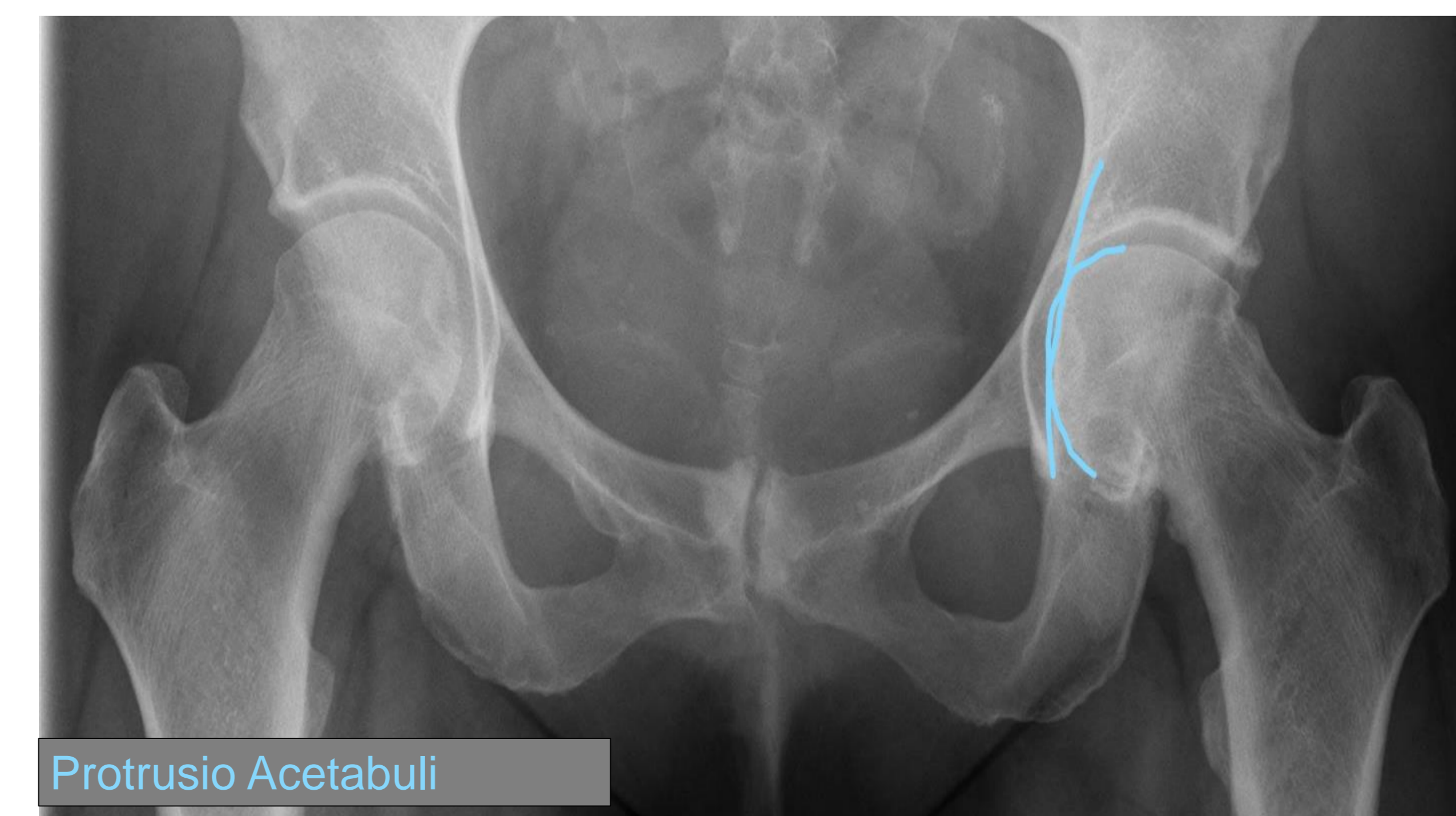
- 94 hips in 47 patients (85.1% female, age 17.0 ± 4.2 years) with dysplastic hips (lateral center edge angle (LCEA) < 25°)
- Observed radiographic incidence of coxa profunda, protrusio acetabuli, crossover sign, and ischial spine sign
- Lateral alpha angle, acetabular index (AI), and alpha angle was measured only when a Dunn lateral radiograph was available (n= 60)
- Radiographs were independently assessed by three different orthopaedic surgery residents to increase validity
- Calculated intraclass correlations (ICC) between all 3 observers were above 0.75 for all measured radiographic signs except for crossover sign (0.53)

RESULTS

- Presence of ischial spine sign (p= 0.9406) or crossover sign (p= 0.2922) did not predict coxa profunda.
- Although non-significant, coxa profunda was more frequently observed in hips without an ischial spine sign (44/59, 74.58%).
- AI, LCEA, anteroposterior alpha angle, and lateral alpha angle also did not predict coxa profunda (p> 0.08).
- Hips with higher AI or lower LCEA trended toward an association with coxa profunda.
- Pincer-type morphology was observed in over half of this population, and cam morphology in approximately one-third.



Radiographic Sign	Incidence
Coxa Profunda	63% (n= 59)
Protrusio Acetabuli	1.06% (n= 1)
Crossover Sign	50% (n= 47)
Ischial Spine Sign	26% (n= 24)
AP Alpha Angle (>50°)	35% (27/77 hips)



CONCLUSIONS

Mixed radiographic parameters associated with FAI may be observed in dysplastic hips. No association was found between the incidence of coxa profunda, ischial spine sign, or crossover sign, suggesting these signs are independent.

Although acetabular dysplasia and signs of a deep acetabulum or pincer deformity are traditionally deemed mutually exclusive, we found coxa profunda in 63% of dysplastic hips, a crossover sign in 50%, and a positive ischial spine sign in 25%. Additionally, 35% had an increased lateral alpha angle suggesting cam-type FAI. Our data suggests signs of coxa profunda or acetabular retroversion should not be considered a surrogate for pincer-type impingement and these signs should not necessarily prompt an FAI diagnosis. Additionally, cam-type morphology is common in patients with DDH and should be considered when evaluating the cause of pain.

REFERENCES

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CONTACT INFORMATION

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