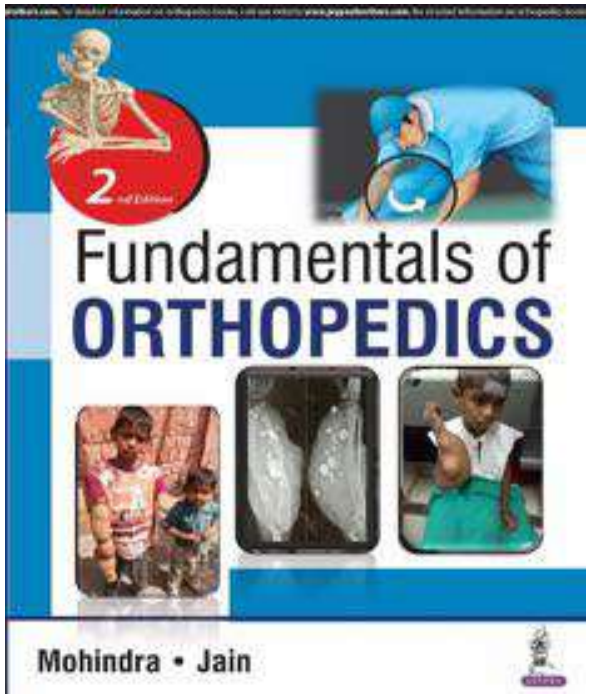

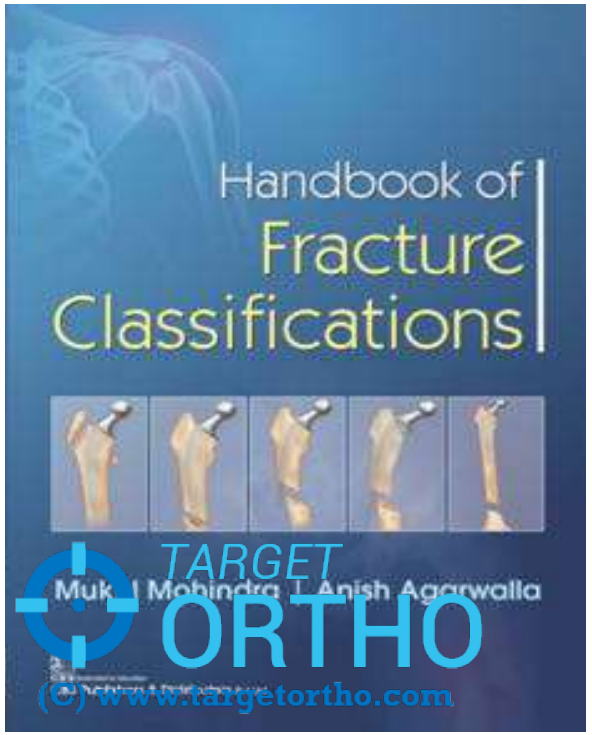

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OTHOPEDIC INSTRUMENTS

The term *hip preservation surgery* refers to any procedure or combination of procedures involving periacetabular osteotomy, proximal femoral osteotomy, cartilage restoration, surgical dislocation, and adjuvant arthroscopy.

DEVELOPMENTAL DYSPLASIA OF HIP

3.5 years female

3.5 years female

Q. What would be the ideal treatment for the case discussed?

A. Open reduction followed by Hip spica

B. Varus Derotation Osteotomy

C. Pelvic-acetabular osteotomy

D. A combination of (B) and (C)

Acetabulum

Femoral Head

DEVELOPMENTAL DYSPLASIA OF HIP

- Just dysplasia
- Subluxation
- Frank dislocation
- Teratalogical dysplasia

ETIOLOGY

FIRST BORN

FEMALE CHILD

FAIR COMPLEXION

FETAL MALPRESENTATION

+ FAMILY HISTORY

Q. Which of the following is not a risk factor for DDH?

A. Twin pregnancy
B. Breech delivery
C. Oligohydramnios
D. All above are risk factors

INCIDENCE: 1 in 1000 live births

SIDE INVOLVED: Left > Bilateral > Right Hip

ASSOCIATED CONDITIONS

NOT ?

A. Torticollis

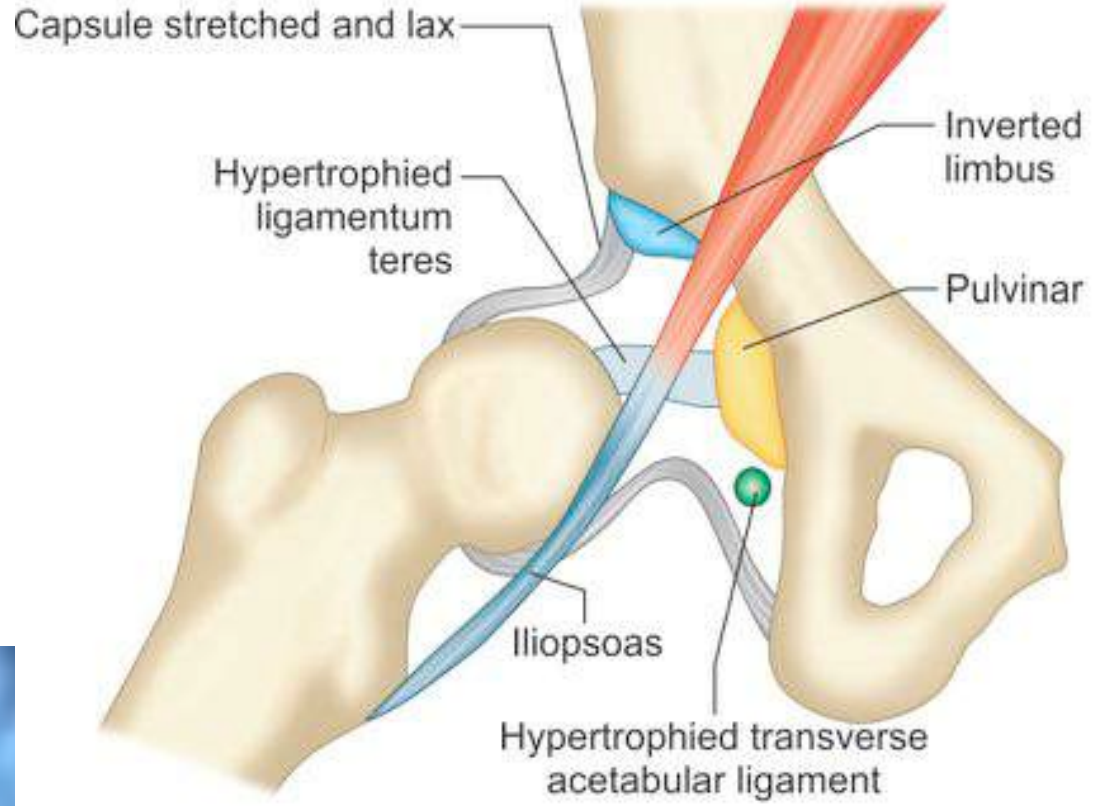
B. Metatarsus adductus

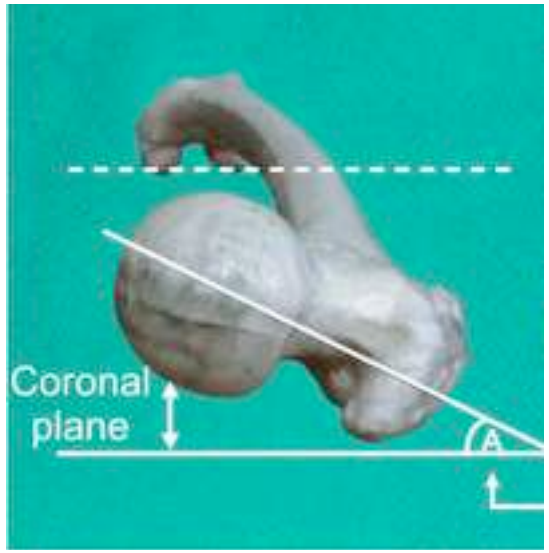
C. CTEV

D. Congenital dislocation of Knee

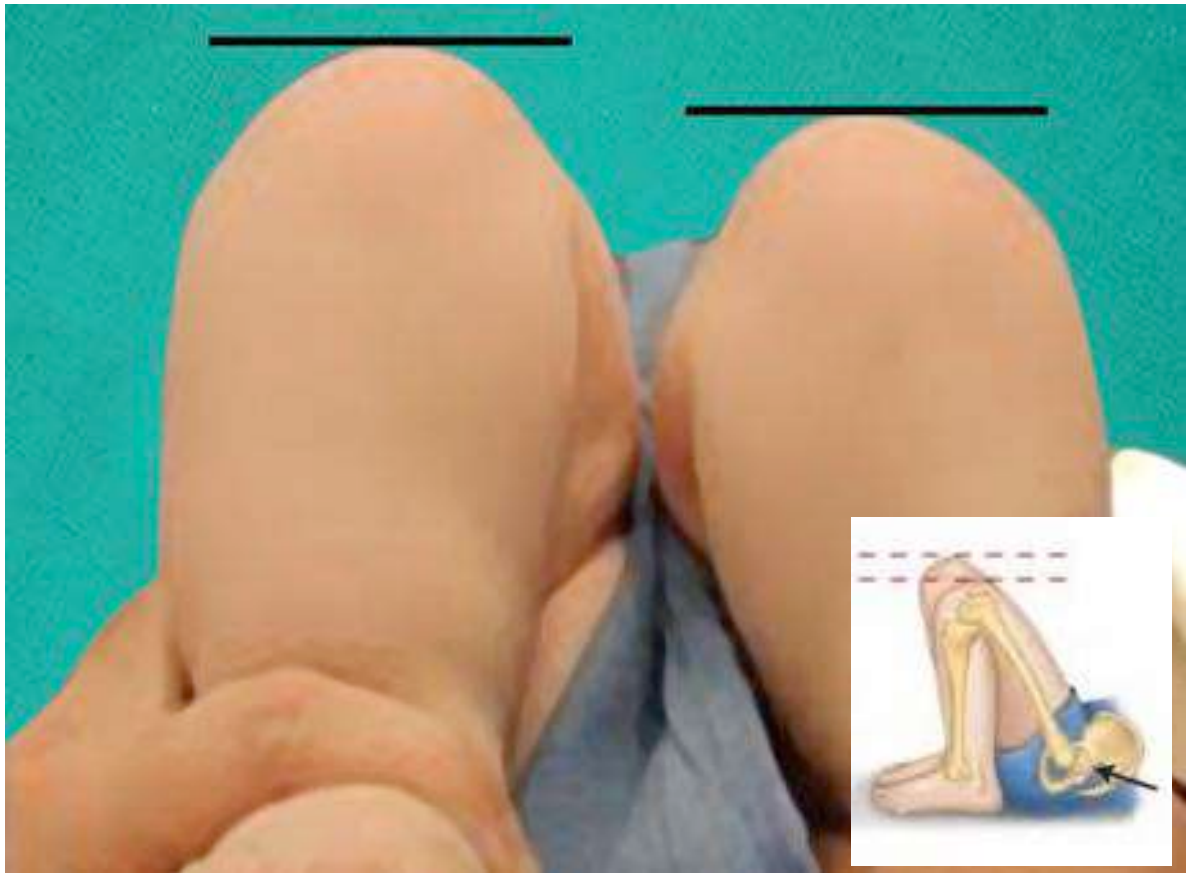
PATHOLOGICAL CHANGES

- Small head
- Shallow/ flat acetabulum
- *Coxa valga*
- *High anteversion*

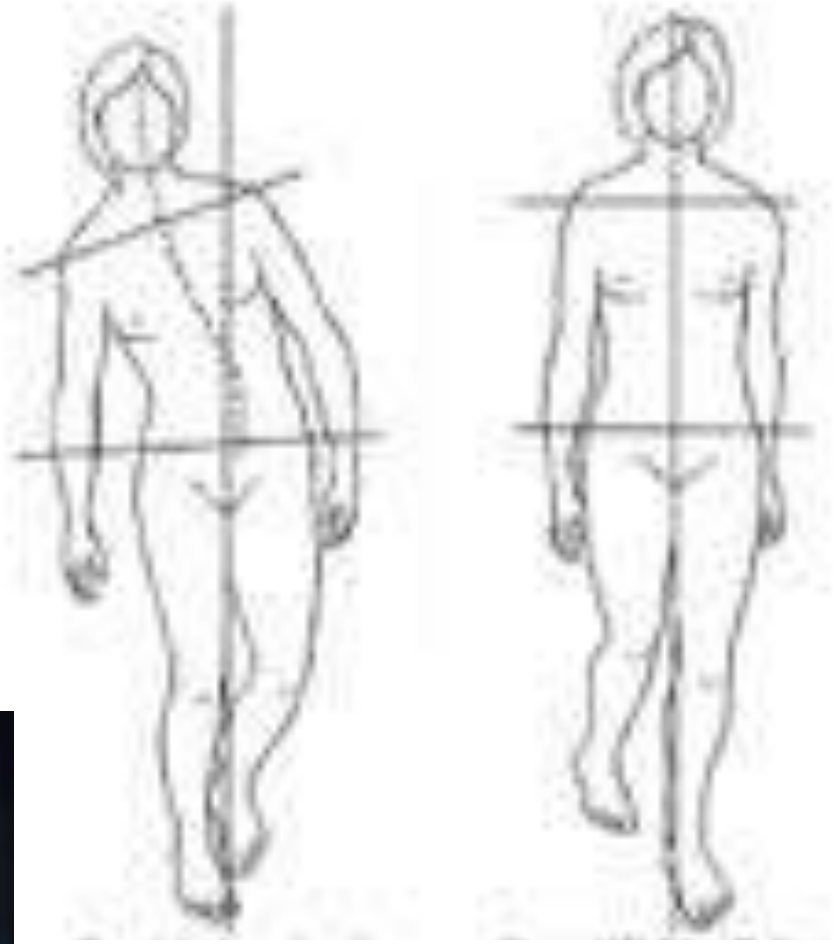




CLINICAL PRESENTATION

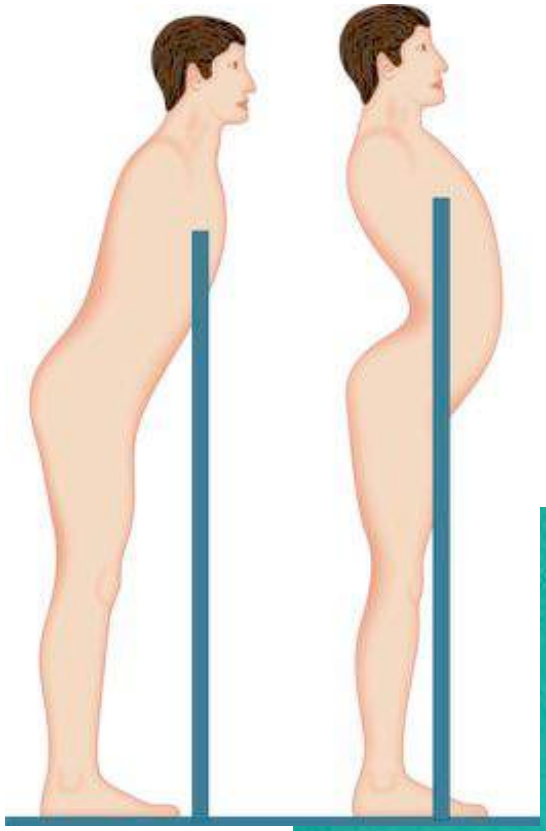



TARGET
ORTHO
(C) www.targetortho.com

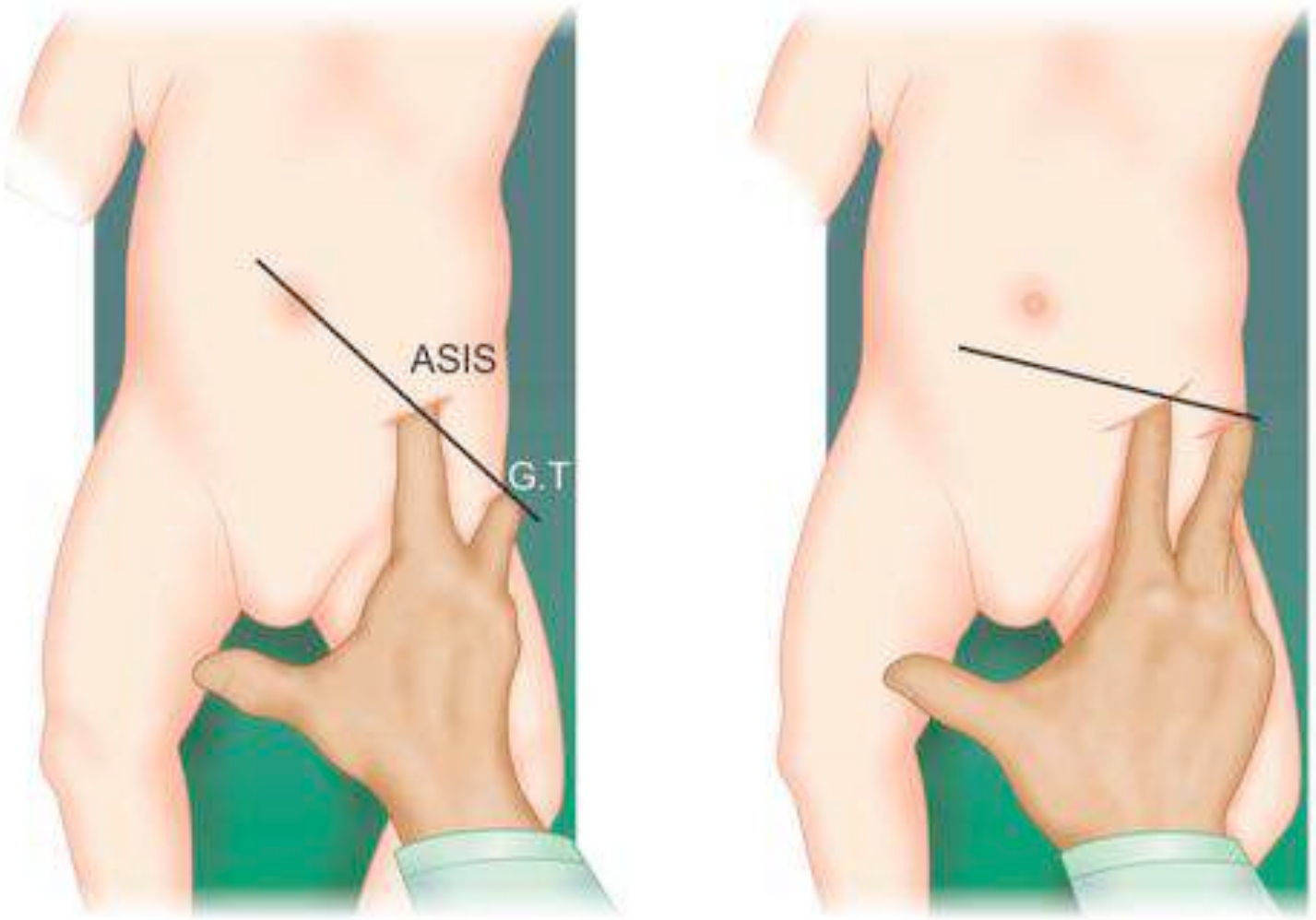


EXAMINATION

- Wide perineum
- Allis/ Galeazzi sign
- Limb shortened (supratrochanteric shortening) and externally rotated
- Restricted internal rotation and Abduction (especially in flexion)
- Exaggerated lumbar lordosis
- Telescopy
- Vascular sign of Narath

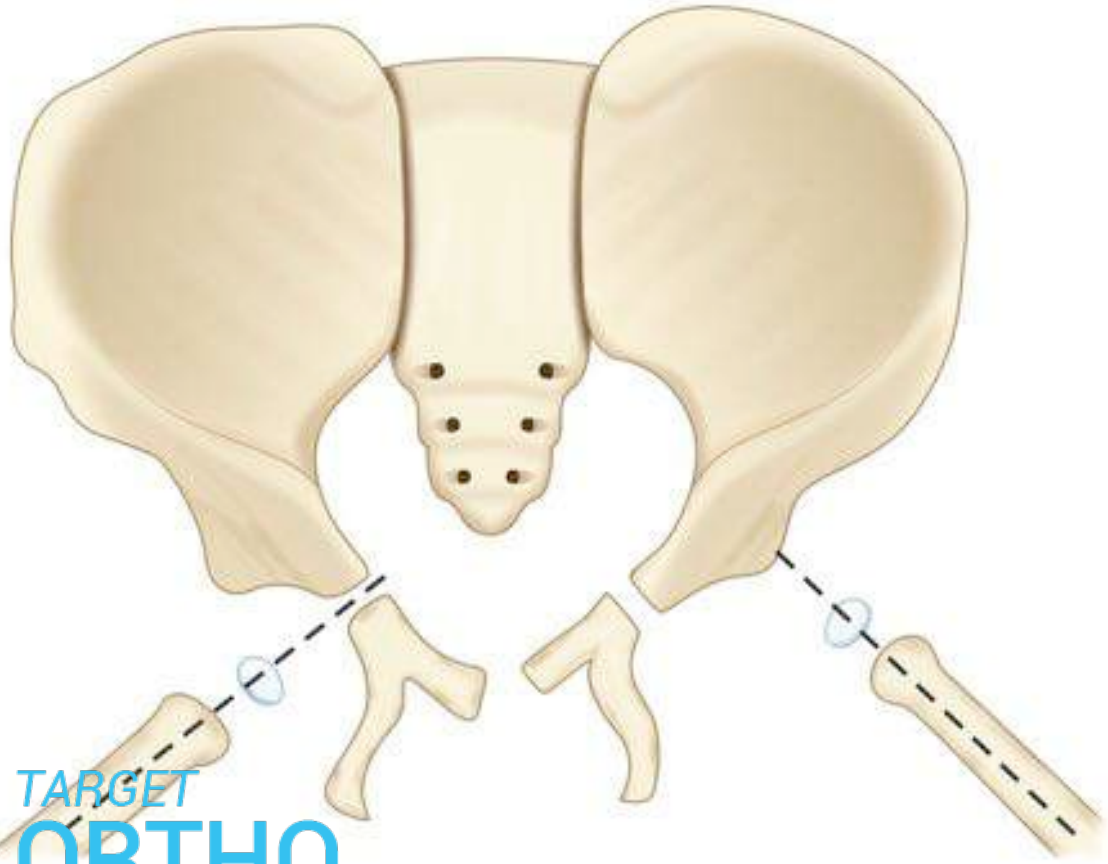


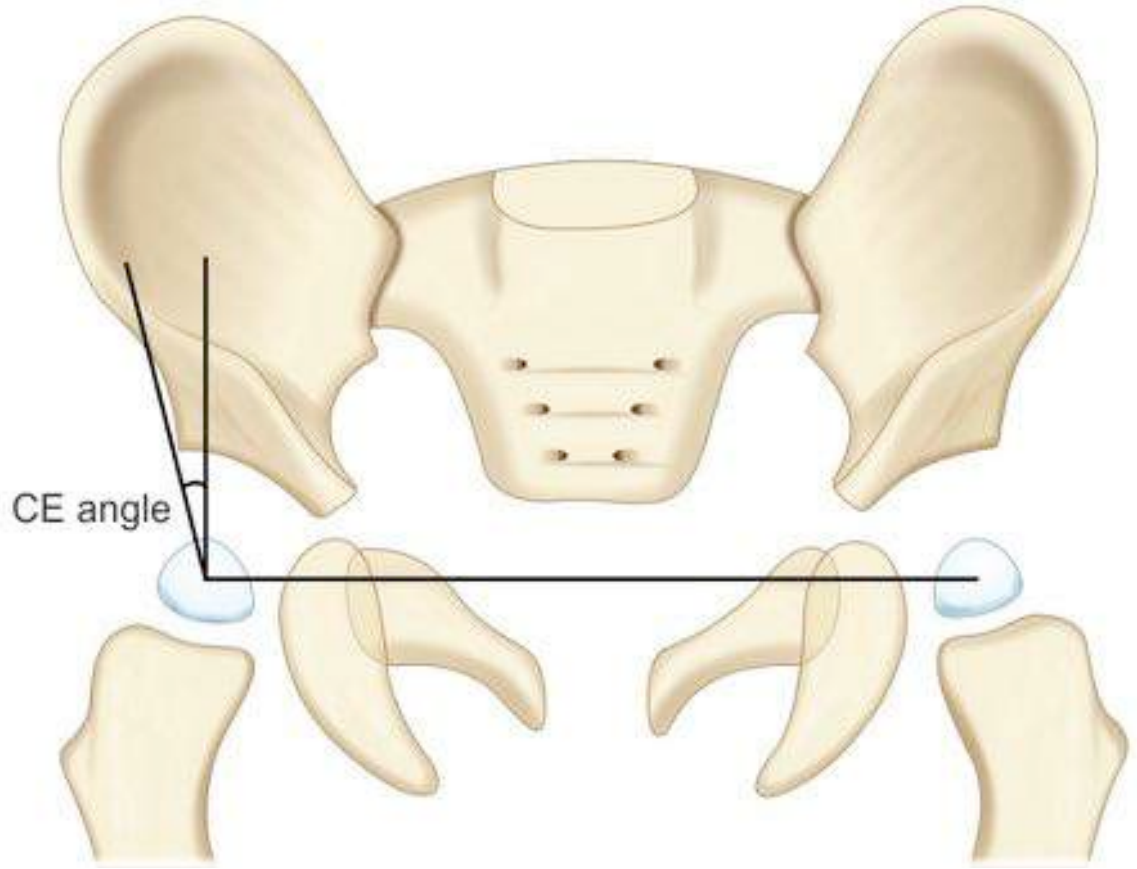
KLISIC SIGN



RADIOLOGY

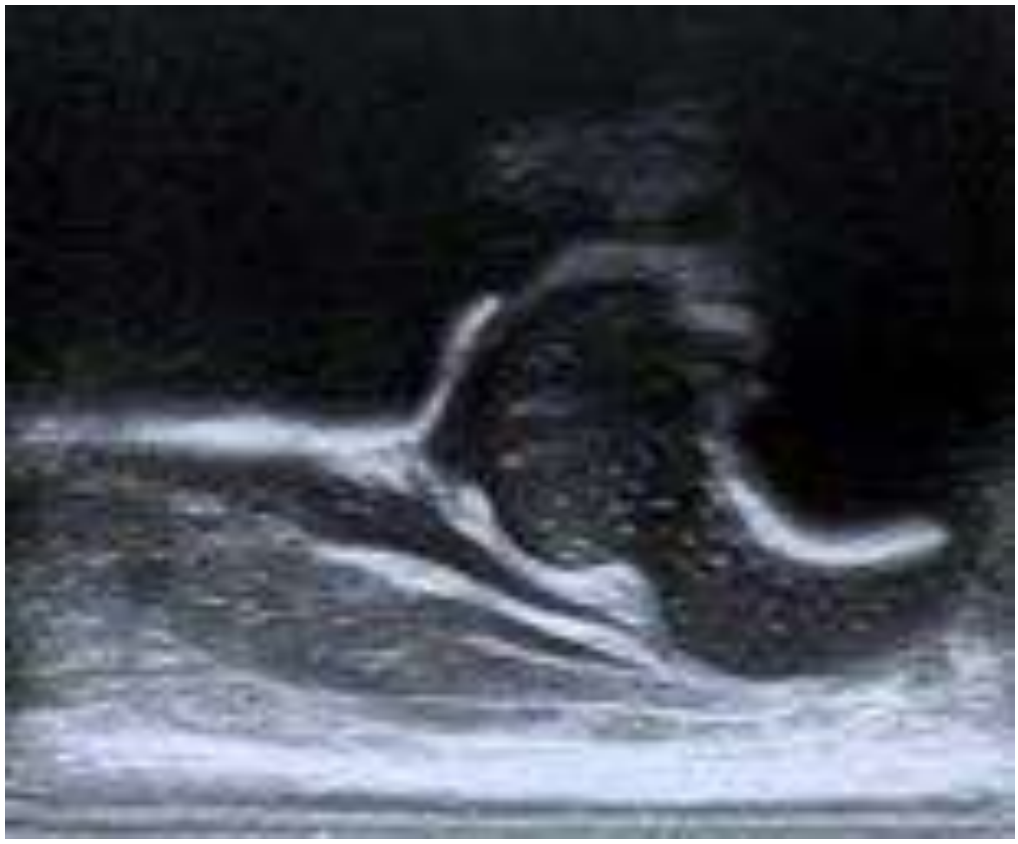
VON ROSEN VIEW





CENTER EDGE ANGLE OF WIBERG

ULTRASOUND



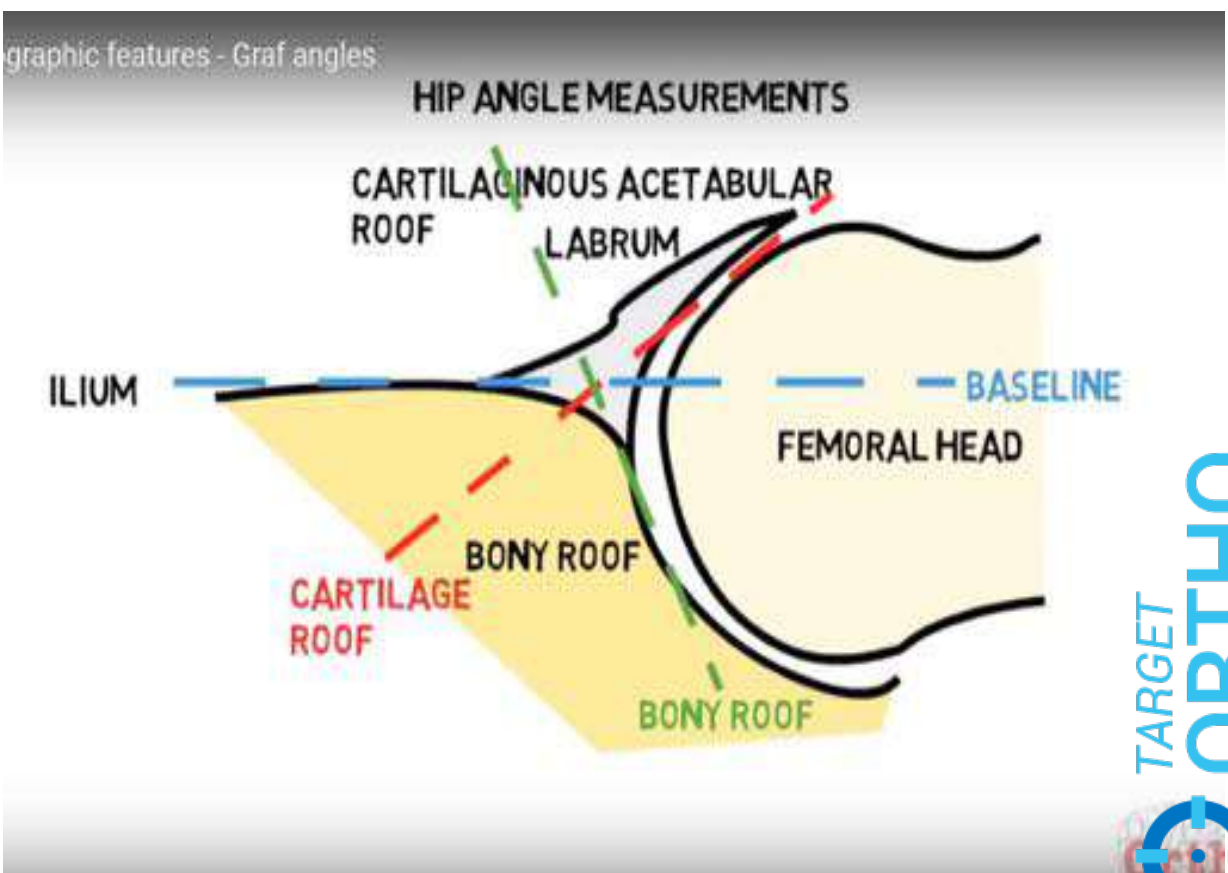


Table 12.5: Classification of developmental dysplasia of hip (DDH) by Graf's method

Grade (Class)	*Alpha angle*	*Beta angle*	*Description (head)*	*Treatment*
I	>60°	<55°	Normal	None
II	43-60°	55-77°	Delayed ossification	Abduction orthosis
III	<43°	>77°	Lateralization	Abduction orthosis
IV	Unmeasurable	Unmeasurable	Dislocated	Abduction orthosis/closed reduction/open reduction (age dependent)

Q. MRI based classification for DDH?

A. University of Pennsylvania classification

B. Crowe’s classification

C. Ludloff’s classification

D. Kashiwagi classification

SCREENING

Best ?

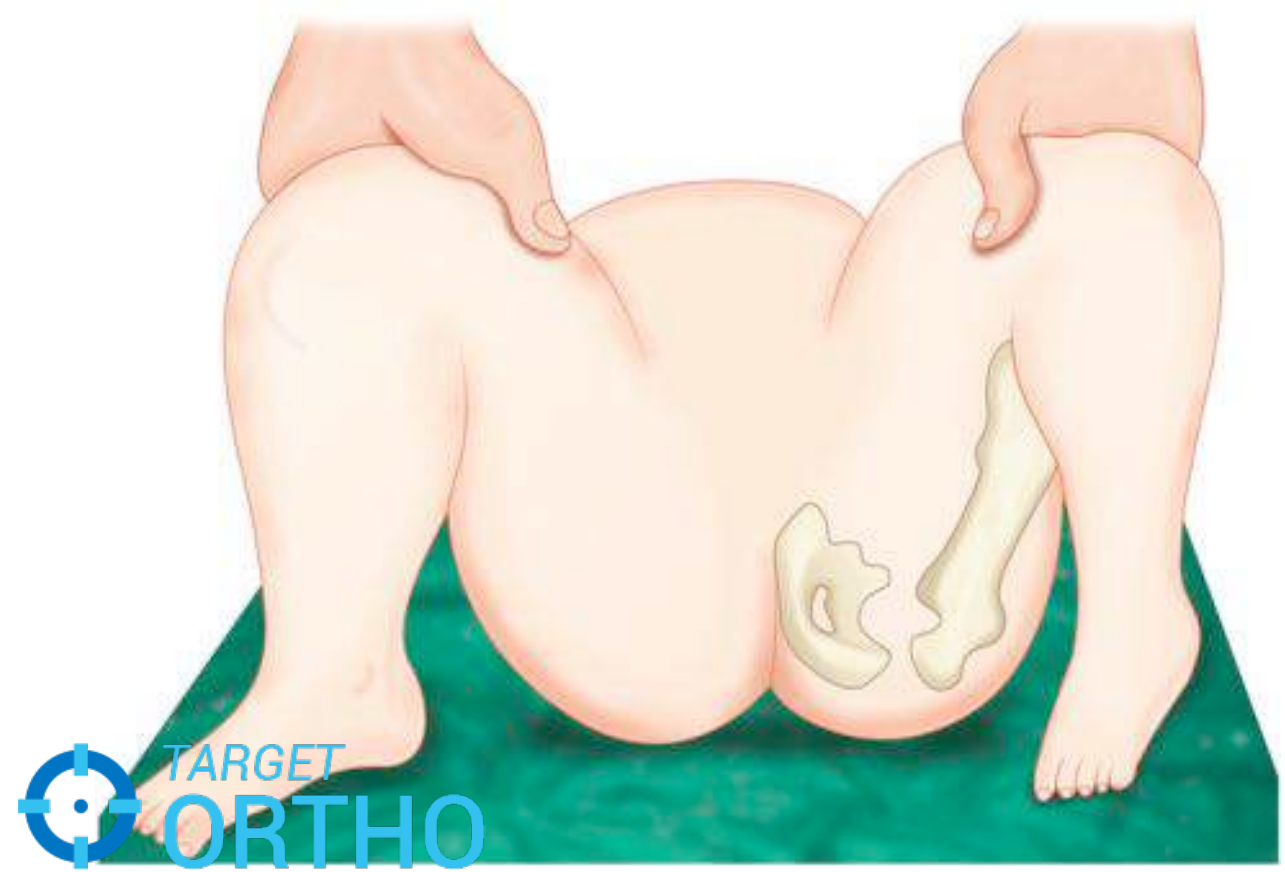
A. Search for presence of >2 risk factors

B. Clinical examination

C. USG

D. X rays (Von Rosen View)

ORTOLANI AND BARLOW's TESTS



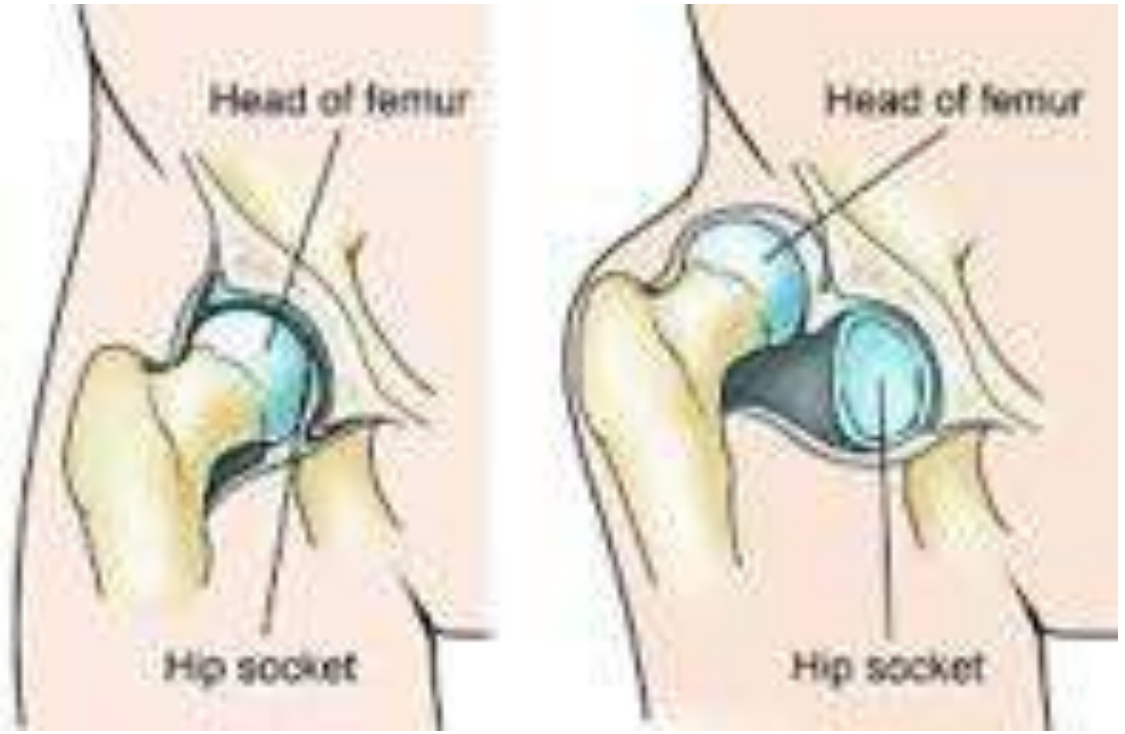
Q. Reason for Clunk??

A. Limbus

B. Neolimbus

C. Thickened L. Teres and TAL

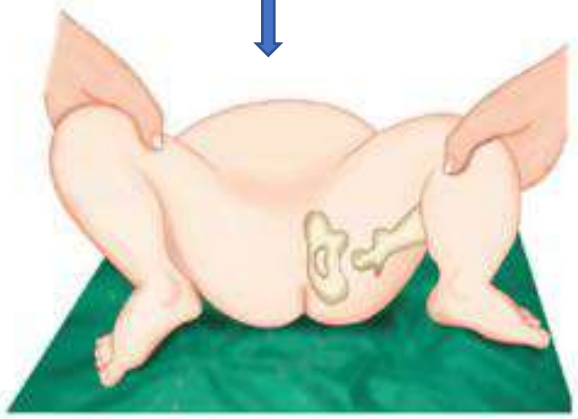
D. Snapping ilio psoas



MANAGEMENT

AGE < 6 MONTHS

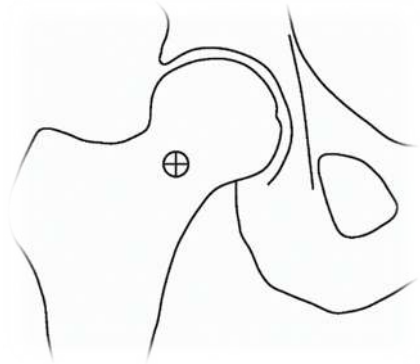
Ortolani manuver



Abduction orthosis
(higher degree of abduction)

Abduction orthosis
(Pavlik Harness)

Check X ray < USG < Arthrogram
(at 3 weeks)



Reduced hip
(Rose thorn appearance)

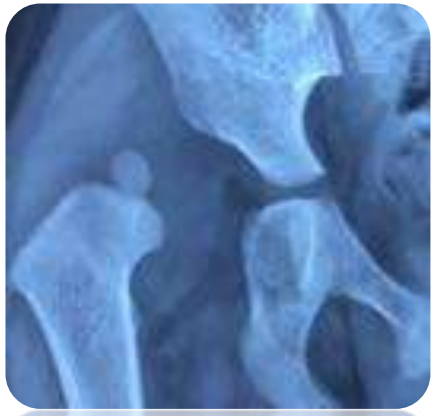
Check every 3 weeks

Dislocated hip

CR and spica
x 3 months

Discontinue at least 6 weeks after hip attains stability

AGE 6-18 MONTHS



CR fails

Open reduction
+
Spica cast

Continue spica
x 3 months

Trial of CR
+/- Pre op traction

Ramsey safe zone
narrow

Add Adductor tenotomy

Spica cast
(*Human position*)

Check every 3 weeks
(CT Scan)

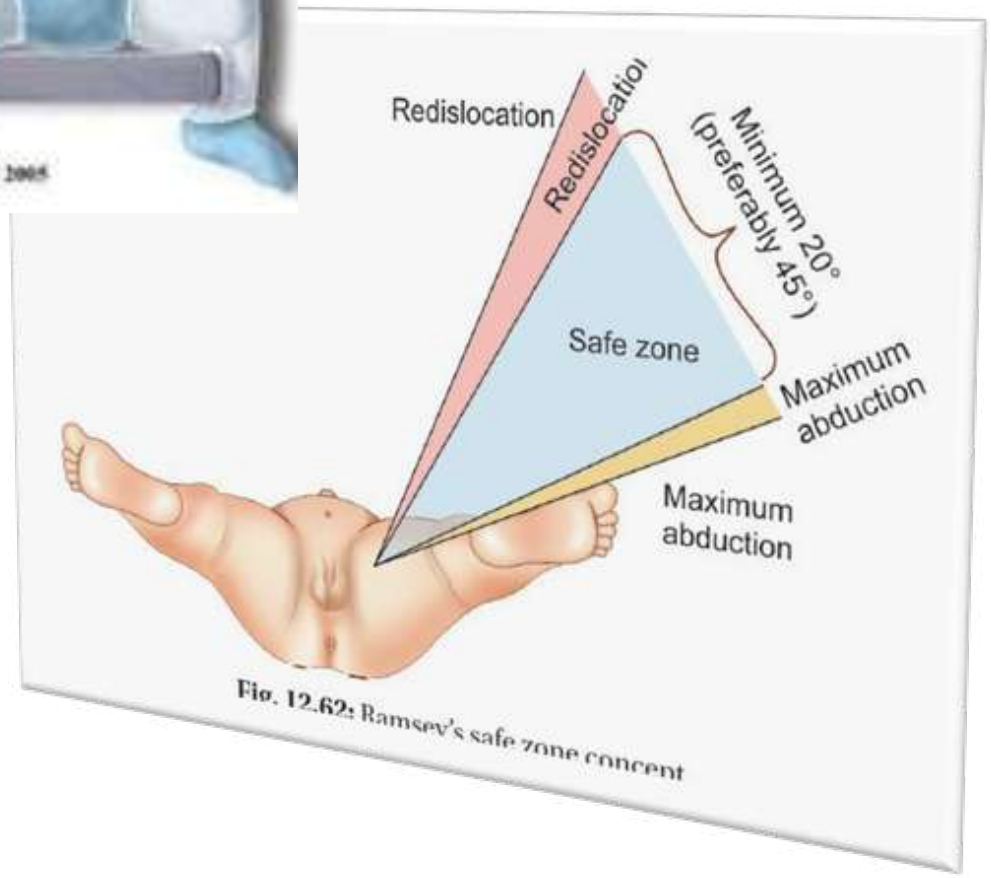


Fig. 12.62: Ramsey's safe zone concept

AGE 18 MONTHS- 3 YEARS

Open reduction

Add femoral shortening > 2 years age to avoid undue pressure on femoral head (to prevent AVN)

Check stability on table

CR contraindicated

- Hip stable in neutral position
  Spica x 3 months
- Hip stable on flexion abduction
  (antero lateral coverage deficient)
  Acetabular osteotomy
- Hip stable on abduction and internal rotation
  (anteversion, coxa valga are problem)
  Femoral Varus Derotation Osteotomy

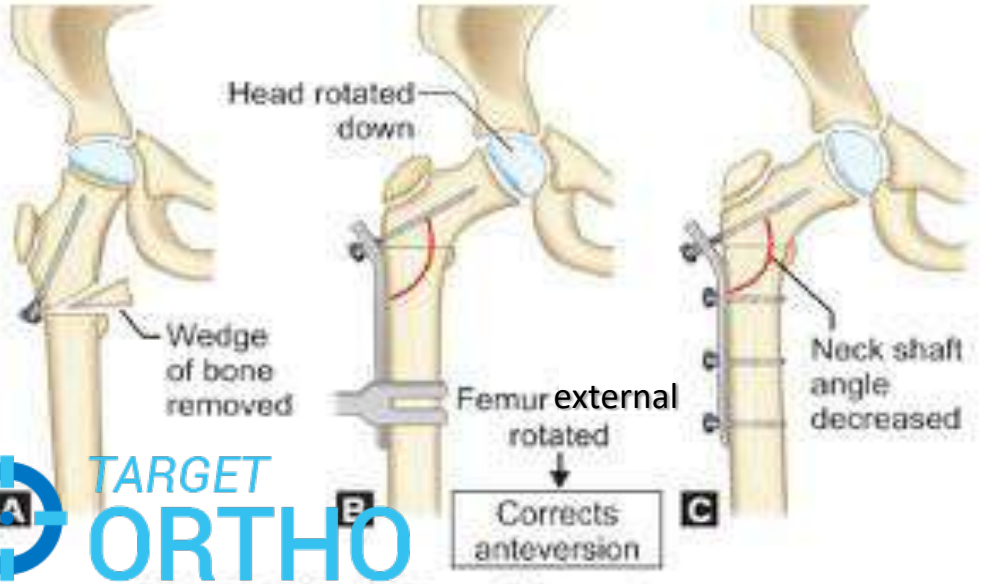
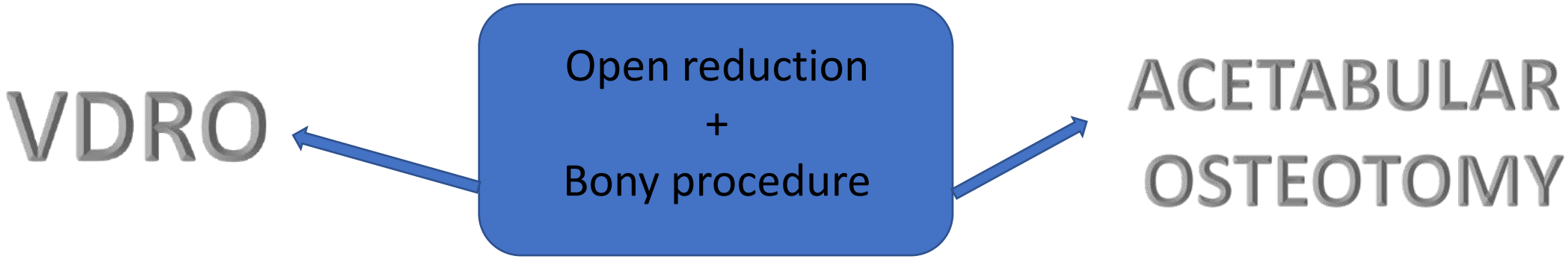


Fig. 12.63A to C: Femoral derotation osteotomy

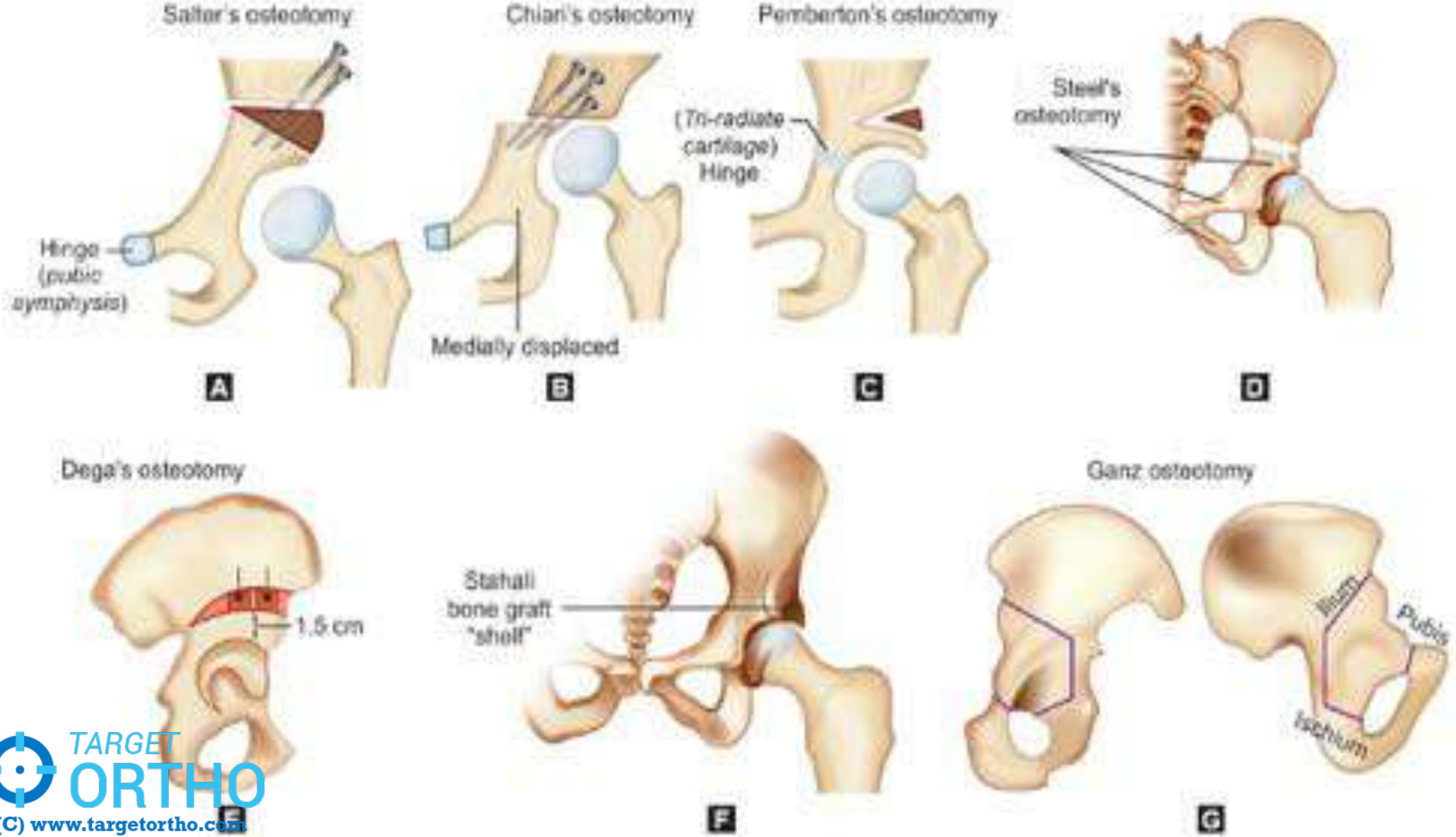
AGE 3-10 YEARS

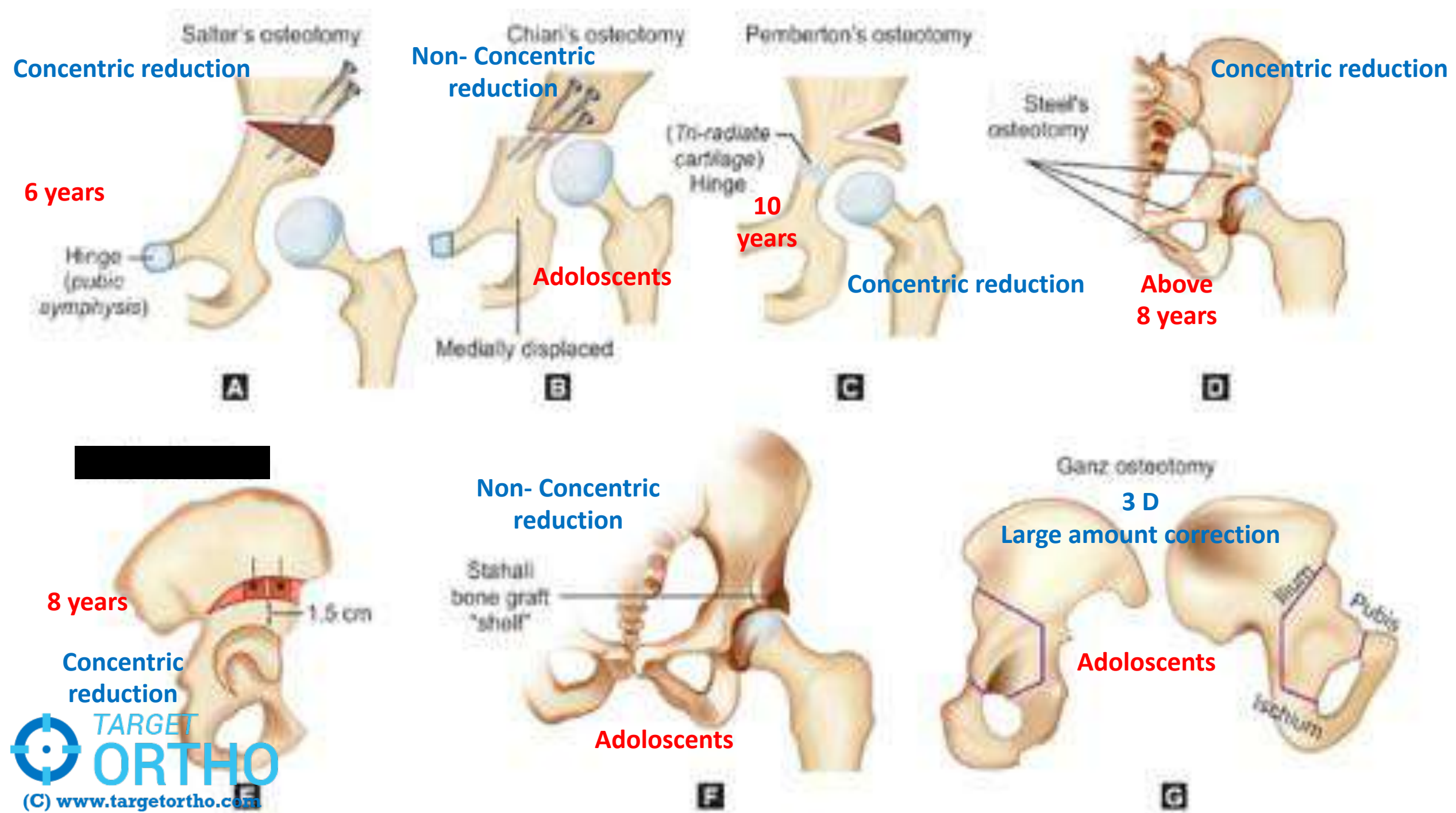
No developmental potential in acetabulum



Children < 4 years: VDRO

Children > 4 years: Acetabular osteotomy





AGE >10 YEARS

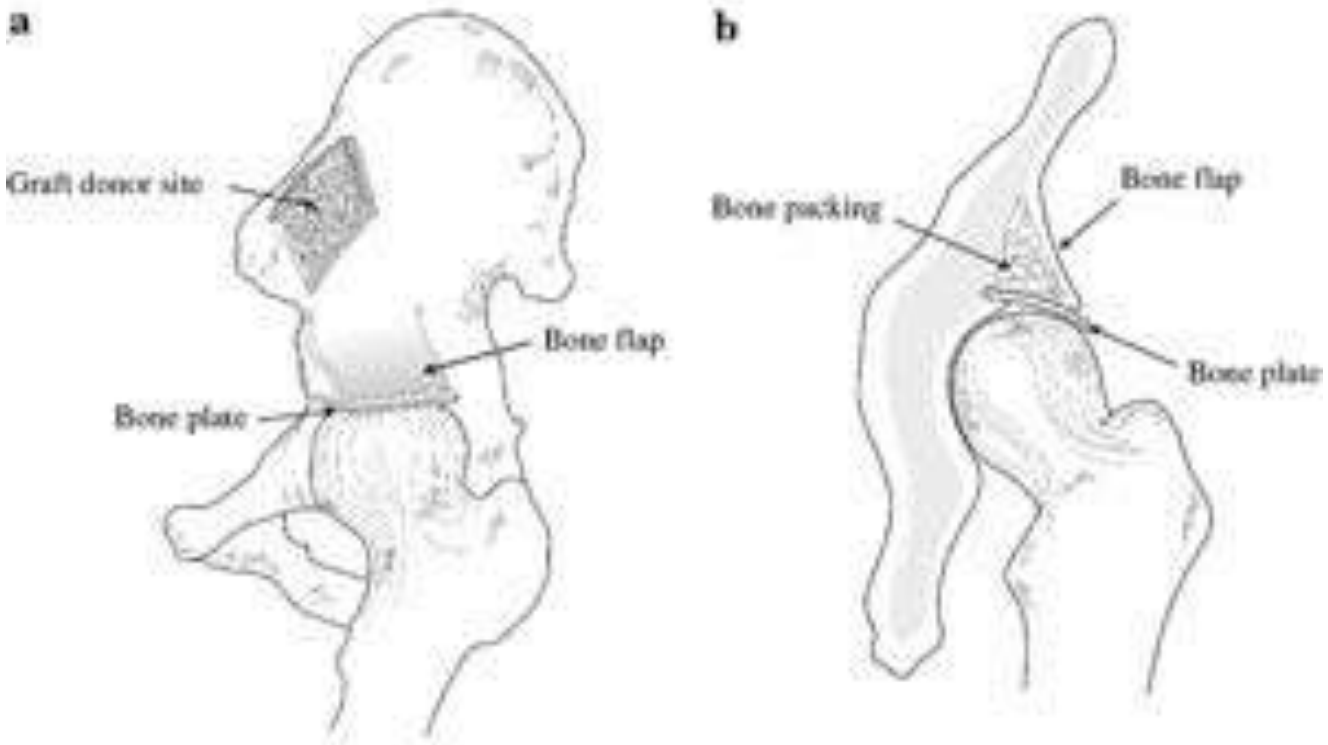
Upper age for osteotomies : 10 years

Thereafter, natural outcome is better

AGE >10 YEARS

DDH with subluxed hip that is painful

TECTOPLASTY



TAKE HOME MESSAGE

< 6 MONTHS: ABDUCTION ORTHOSIS

6-18 MONTHS: CR + SPICA (+/- Adductor tenotomy)

18 MONTHS- 3 YEARS: OR +/- OSTEOTOMY (Hip Stability)

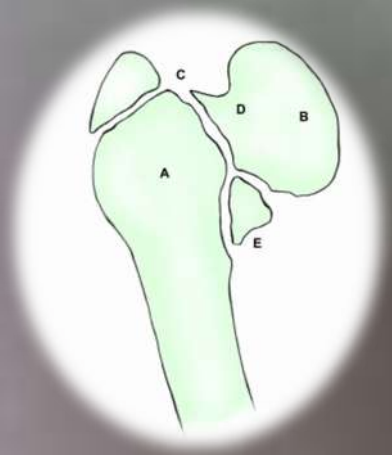
3 – 10 YEARS: OR + OSTEOTOMY

> 10 YEARS : Wilful neglect

Q. Not a clinical feature of B/L DDH??

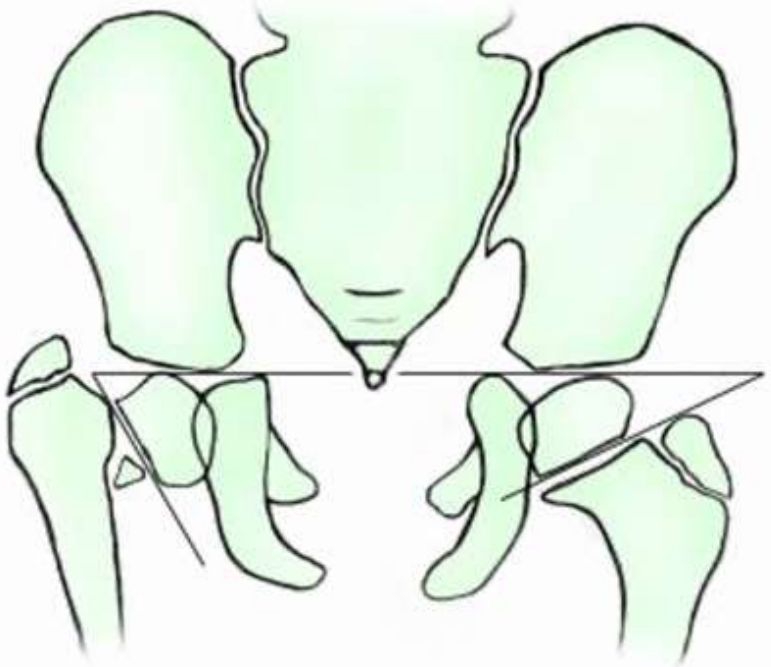
A. Exaggerated lordosis
B. Waddling gait
C. B/L Genu valgum
D. Short stature

6 years male



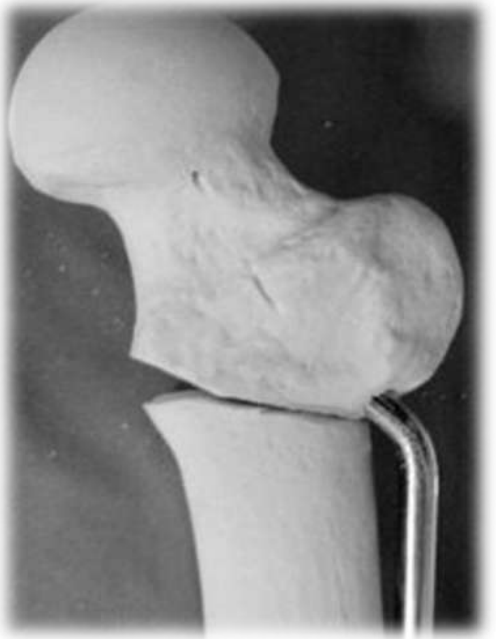
H-E Angle

Hilgenreiner's Epiphyseal Angle

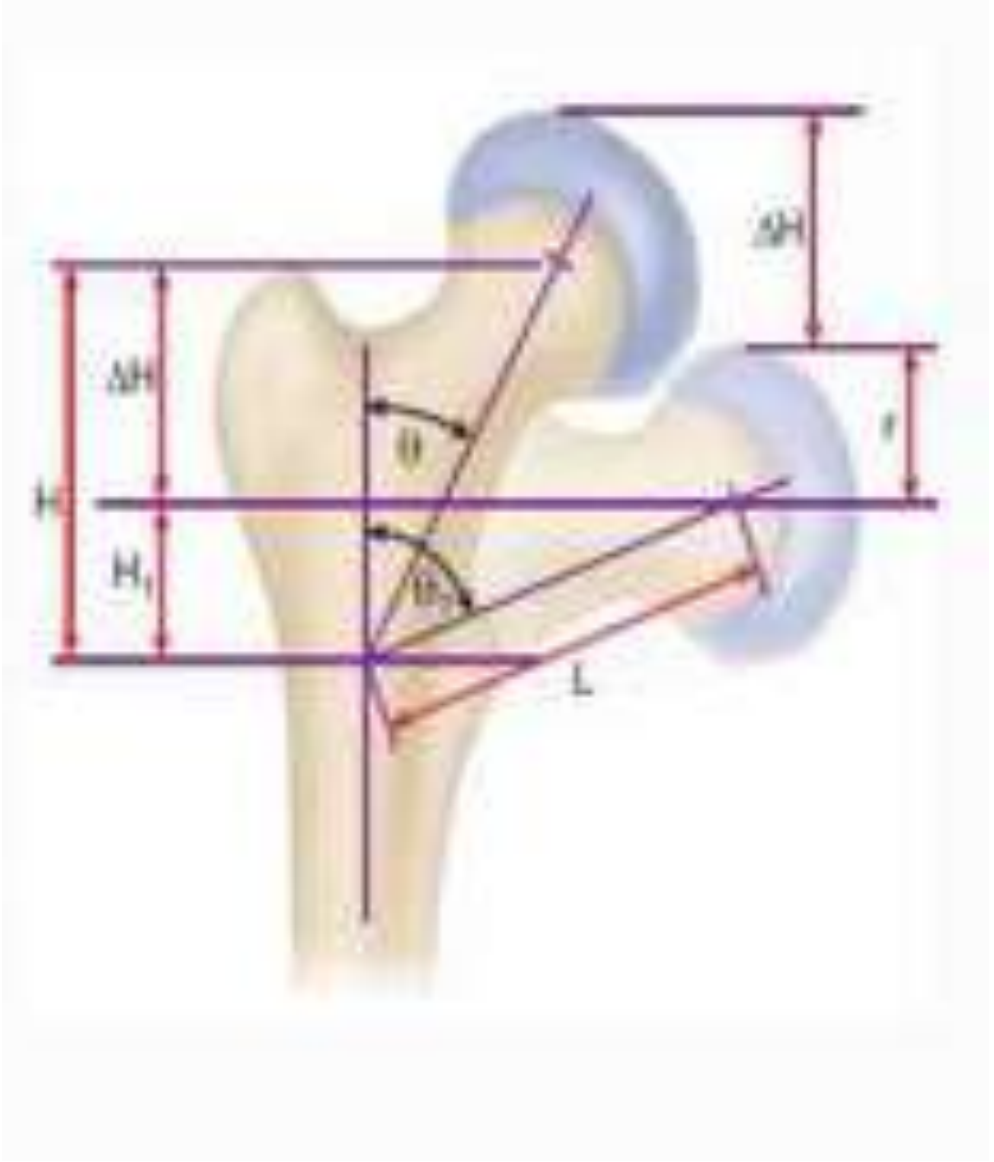


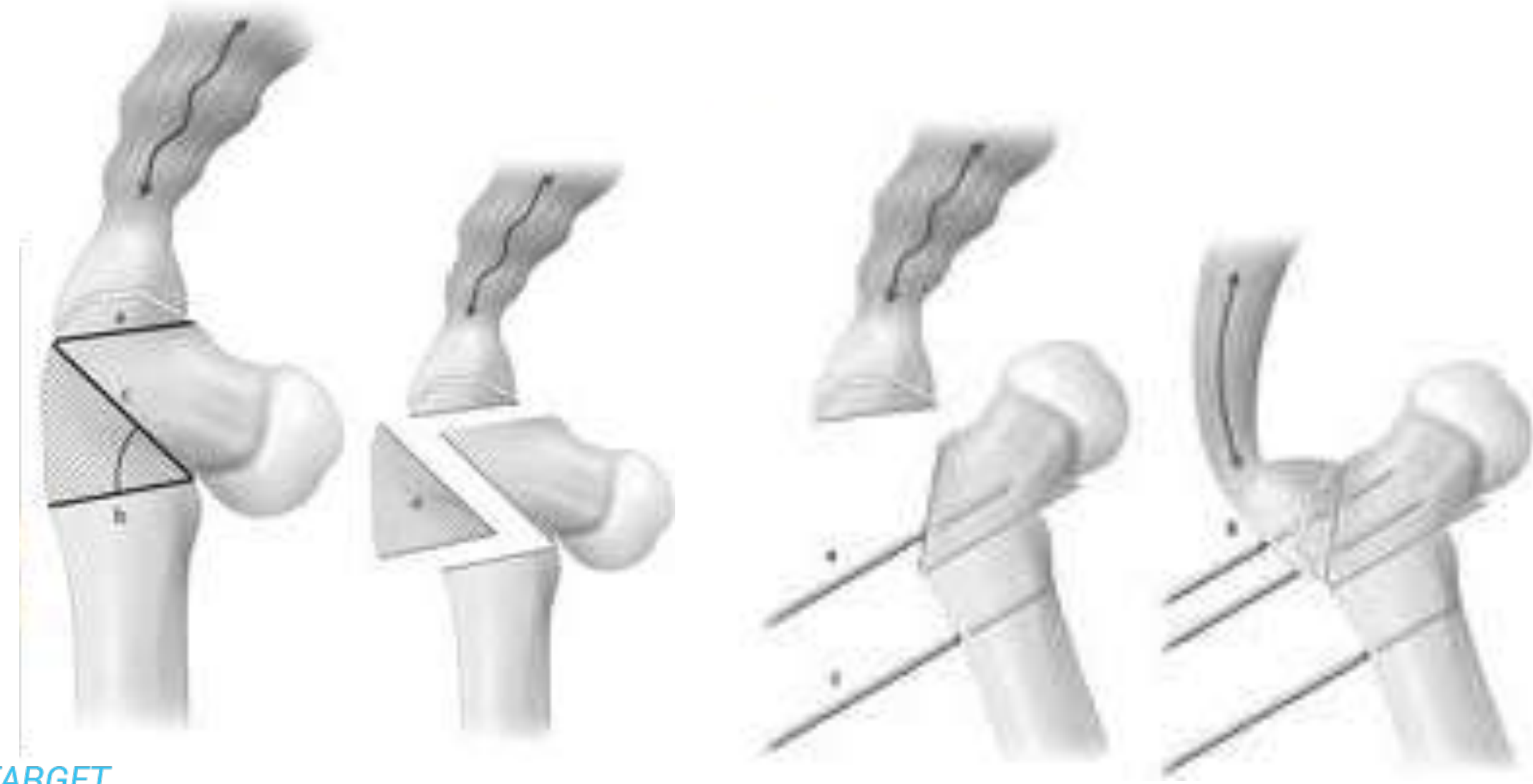
TREATMENT PRINCIPLES

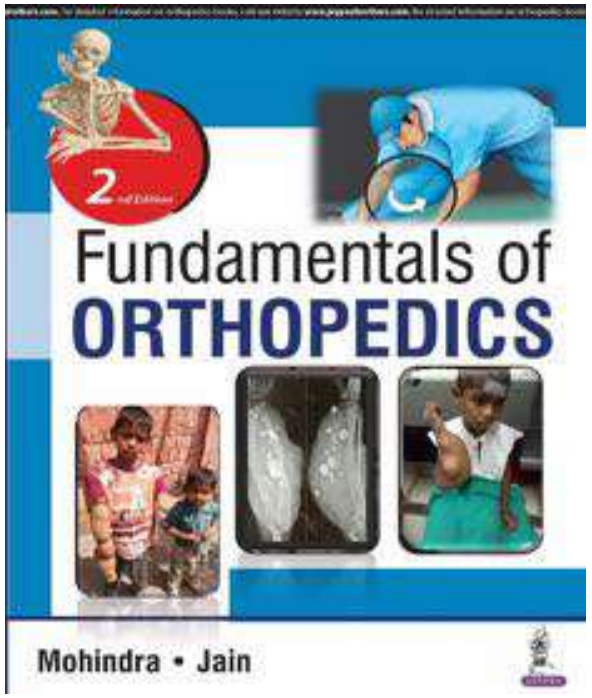
- Correction of neck shaft angle *(when HE angle > 60°)*
- Distalization of greater trochanter
- Capital neck and trochanteric epiphysiodesis

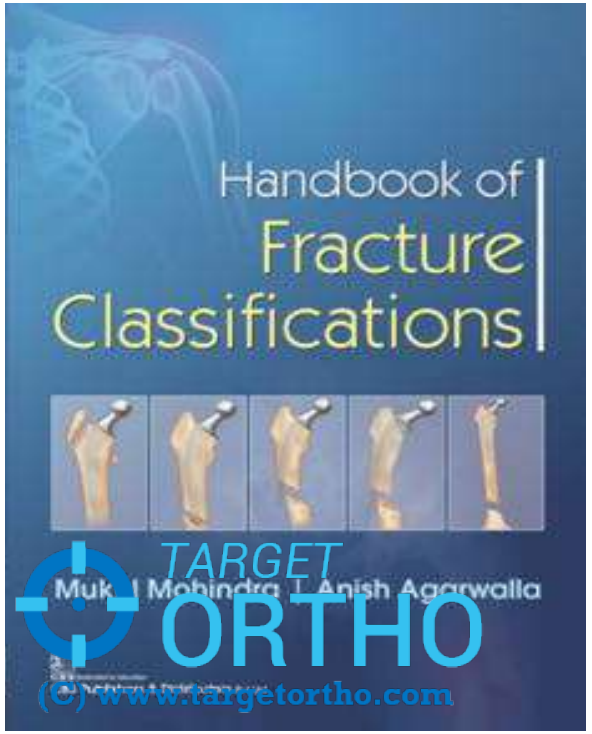


$$H = L(\cos\alpha_1 - \cos\alpha)$$









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