Developmental Dysplasia of the Hip (DDH) – High Yield MCQ Notes

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Definition

Developmental dysplasia of the hip (DDH) is a spectrum of disorders involving abnormal development of the hip joint, ranging from mild acetabular dysplasia to complete dislocation of the femoral head.

Epidemiology

- **Incidence:** 1–2 per 1000 live births (dislocated hip)
- **Female:Male ratio:** 4:1
- **Side affected:** Left hip > Right hip (≈ 60% left-sided)
- **Bilateral:** 10–20%
- **Risk factors:**
- Breech presentation
- Firstborn child
- Family history of DDH
- Oligohydramnios
- Swaddling in extension and adduction

Etiology / Pathophysiology

- **Mechanical:** Breech, intrauterine positioning, tight swaddling
- **Genetic:** Family history increases risk
- **Ligamentous laxity:** Often in females due to maternal estrogen effects
- **Acetabular dysplasia:** Shallow acetabulum → femoral head instability → subluxation/dislocation

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Classification

Ortolani & Barlow Classification (Clinical)

- **Barlow test:** Tests dislocatable hip; adduct hip and push posteriorly → hip dislocates out of acetabulum
- **Ortolani test:** Tests reducible hip; abduct hip and lift anteriorly → hip reduces into acetabulum (clunk felt)

Graf Classification (Ultrasound)

- **Type I:** Normal
- **Type IIa:** Immature hip (<3 months)
- **Type IIb:** Dysplastic hip (older infants)
- **Type III:** Subluxated
- **Type IV:** Dislocated

Other Classification (Radiographic)

- **Tönnis Classification:** Based on X-ray in children >4–6 months

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Clinical Features

Infants (<6 months): - Asymptomatic in most
- Positive **Barlow/Ortolani** tests
- Asymmetric thigh/gluteal folds
- Limited hip abduction

Older infants/children: - Limb shortening (**Galeazzi sign**)
- Trendelenburg gait
- Limp
- Leg length discrepancy

Investigations

1. **Ultrasound (USG):** Gold standard in infants <6 months
2. **X-ray (AP pelvis, frog-leg lateral):** After 4–6 months
3. **Screening:**
4. All infants with risk factors
5. Clinical exam at birth, 6 weeks, 3 months

Management

Conservative

- **Pavlik harness:** <6 months
- **Abduction splint:** 6–12 months (if harness fails)

Surgical

- **Closed reduction:** 6–18 months
- **Open reduction:** >18 months or failed closed reduction
- **Osteotomy:** For acetabular/femoral correction if residual dysplasia

Post-op care

- Spica cast 6–12 weeks
- Physiotherapy after cast removal

Complications

- Residual acetabular dysplasia
- **Avascular necrosis (AVN)** of femoral head
- Early osteoarthritis
- Recurrent dislocation

Prognosis

- Excellent if detected and treated early (<6 months)
- Poor if untreated beyond walking age

High-Yield MCQ Points

- **Most common side:** Left hip
- **Female:male ratio:** 4:1
- **Gold standard diagnostic tool in infants <6 months:** Ultrasound
- **Barlow vs Ortolani:** Barlow → dislocatable, Ortolani → reducible
- **Initial management in <6 months:** Pavlik harness
- **Complication of treatment:** AVN of femoral head
- **Risk factors:** Breech, firstborn, family history, ligamentous laxity, swaddling