PERTHES DISEASE

(Legg–Calvé–Perthes Disease)

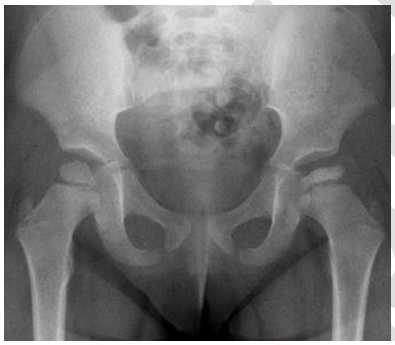
A **self-limiting idiopathic avascular necrosis** of the **femoral head epiphysis** in **children**, due to temporary loss of blood supply.

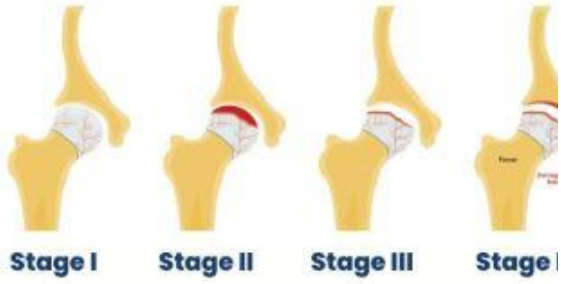
- Age group: **4–10 years**
- **Male : Female = 4:1**
- **Unilateral** in ~90%

Etiology & Risk Factors

- **Idiopathic** in most cases
- Risk factors:
  - Low birth weight
  - Passive smoking exposure
  - Coagulopathies (Protein C/S deficiency – debated)
  - Family history (rare)

Pathogenesis: Temporary vascular insufficiency → necrosis of femoral head → collapse → revascularization and remodeling





CLINICAL FEATURES

- Onset: Insidious
- Limping (painless or mildly painful)
- Pain: @ Hip, groin, **referred to knee**
- Restricted hip motion: Especially **abduction** and **internal rotation**
- Leg length discrepancy (in late cases)
- **Trendelenburg gait** if abductor weakness

INVESTIGATIONS

1. X-ray (AP & frog-leg lateral)

Stage	Findings
Initial	Increased joint space, small ossific nucleus
Fragmentation	Collapse, fragmentation of epiphysis
Re-ossification	New bone formation begins
Healing	Remodeling complete (with or without deformity)

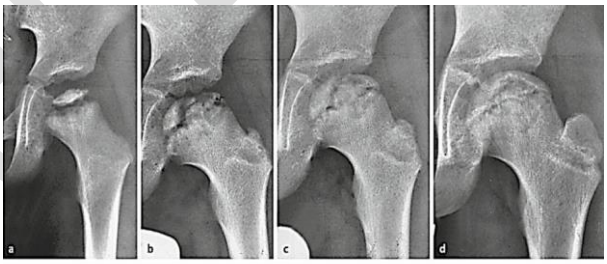


Figure 1. LPCD radiographic progression according to the Waldenstrom Classification: a) initial stage, b) fragmentation stage; c) reparation stage; d) healed stage. (Hefti, 2015)

- **Lateral Pillar Classification (Herring)** used to guide prognosis

2. MRI

- **Most sensitive** early investigation
- Detects marrow changes before radiographic changes

MANAGEMENT

Depends on:

- Age at onset
- Degree of femoral head involvement (lateral pillar)
- Symptoms and range of motion

AGE <6 YEARS (any type):

- **Conservative** treatment:
  - NSAIDs (for pain)
  - Activity modification
  - Physiotherapy (maintain ROM, especially abduction)
  - Regular follow-up

AGE >6 YEARS

Consider **containment procedures** to maintain femoral head within acetabulum

OPERATVE

Procedure	Indication
Varus femoral osteotomy	Most commonly performed
Pelvic osteotomy (Salter)	Alternative to femoral osteotomy
Shelf acetabuloplasty	To improve acetabular coverage

COMPLICATIONS

- Coxa magna (abnormal enlargement and broadening of the femoral head)
- Coxa plana (flattening of the femoral head due to avascular necrosis)
- Hip stiffness
- Early osteoarthritis
- Limb length discrepancy