Legge – Calve – Perthes disease

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Legg- Calve – Perthes disease
Loss of Blood Flow to Femoral Head
Anatomy
Acetabular retroversion
Etiology of Legg-Calve-Perthes Disease

Factors That May Be Etiologic
• Trauma
• Susceptible child
• Hereditary factors
• Coagulopathy
• Hyperactivity
• Passives moking

Factors Unlikely To Be Etiologic
• Endocrinopathy
• Urban environment
• Synovitis
Clinical Features of Legg-Calve-Perthes Disease

• **Onset:** between 18 months of age and skeletal maturity (most prevalent between 4 and 12 years of age)

• **Male sex prevalence:** the disease is four or five times more likely to develop in boys than in girls

• **Involvement:**
bilateral in 10% to 12% of patients
Clinical Features of Legg-Calve-Perthes Disease

Symptoms

- **limp** that is exacerbated by activity and alleviated with rest

- **pain**, which may be located in the groin, anterior hip region, medial knee joint or laterally around the greater trochanter

- history of antecedent **trauma**
Clinical Features of Legg-Calve-Perthes Disease

Signs

- Abductor limp

- Decreased range of motion of the hip, especially on abduction and internal rotation

- Flexion/extension less affected
Symptoms and Signs of Legg-Calve-Perthes Disease

Symptoms
• Limping
• Hip pain
• Knee pain
• History of trauma (?)

Signs
• Limp
• Decreased hip range of motion
• Spasm of long muscle around hip joint
Pathologic Findings of Legg-Calve-Perthes Disease

Early Stage
• Dead trabecular bone, Collapsed trabeculae
• Thickened articular cartilage, Physeal disruption
• Cartilage extending from the physis into the metaphysis

Fragmentation Stage
• Invasion of vascular granulation tissue
• New bone forming on old trabeculae
• Woven new bone formation

Healing Stage
• New bone, woven and lamellar
• Return to normal architecture
Differential Diagnosis for Legg-Calve-Perthes Disease

Other Causes of Avascular Necrosis

• Sickle cell disease
• Other hemoglobinopathies
• Thalassemia
• Steroid medication
• After traumatic hip dislocation
• Treatment of developmental dysplasia of the hip
Differential Diagnosis for Legg-Calve-Perthes Disease

Epiphyseal Dysplasias
- Multiple epiphyseal dysplasia
- Spondyloepiphyseal dysplasia
- Mucopolysaccharidoses
- Hypothyroidism
Differential Diagnosis for Legg-Calve-Perthes Disease

Other Syndromes

• Osteochondromatosis
• Metachondromatosis
• Schwartz-Jam pel syndrome
• Trichorhinophalangeal syndrome
• Maroteaux-Lamy syndrome
Caterall classification

- Group I, partial head or less than half head involvement;
- Groups II and III, more than half head involvement and sequestrum formation
- Group IV, involvement of the entire epiphysis
Lateral pillar classification

Group A

Group B

Group C
Imaging Evaluation

flattened, fractured femoral head

avascular necrosis vs. normal
Imaging Evaluation
Imaging Evaluation

- MRI
- Bone scan
- Arthrography
- X-ray
Treatment

The primary aim of treatment of Legg-Calv-Perthes disease is containment of the femoral head within the acetabulum.
Bracing

Scottish Rite Orthosis
Bracing
Varus Derotational Osteotomy
Proximal femoral varus osteotomy
A  Neutral (impinged)

B  Attempted Abduction

C  Adducted (plan osteotomy)

D  After Valgus Osteotomy
Proximal femoral valgus osteotomy
Valgus osteotomy
Triple ost.
Shelf acetabuloplasty
Chiari osteotomy
Triple pelvic osteotomy
Double-level osteotomy
Greater trochanteric advancement
Treatment

1. Most patients can be treated by noncontainment methods and obtain good results (84%).

2. Satisfactory clinical results frequently can be obtained at long-term follow-up despite an unsatisfactory radiographic appearance (nine hips).

3. The Catterall classification is a valid indicator of results, but is not applicable as a therapeutic guide for an average of 8.1 months after onset.
Treatment

4. Head-at-risk signs added little to the Catterall classification as a prognostic indicator or therapeutic guide.

5. All of the fair and poor results were in patients with Catterall III or IV involvement and onset of the disease at age 6 or older. (A Catterall III or IV classification is equivalent to Herring groups B and C.)
Scott – Schlatter disease
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