

## CAN'T WALK and LIMP

### CAN'T WALK and LIMP

#### **GOALS - By the end of the session, the student will be able to:**

1. List the age appropriate differential diagnosis for pediatric patients presenting with *pain with walking or who can't walk*.
2. Find reliable resources to help in distinguishing the various etiologies of *limb pain*.
3. Describe the epidemiology, clinical, laboratory, and radiographic findings, of *slipped capital femoral epiphysis, fractures, Legg-Calve-Perthes disease, osteomyelitis, septic arthritis, transient synovitis (toxic synovitis) and reactive arthritis (Lyme, JRA, inflammatory bowel disease)*.
4. Describe the distinguishing features of different etiologies of hip and knee pain.
5. Explain how the physical manifestations of disease and the evaluation and management may vary with the age of the patient. Be able to give specific examples.
6. Describe how you might distinguish between injury and inflammatory arthritis.
7. Describe the initial management of lower extremity injuries.
8. Know the risk factors for child abuse. List characteristics of the history that should trigger concern for possible abuse. Recognize responses in the history or findings on the physical examination that raise the concern of non-accidental injury, such as inconsistency in the history, unexplained delays in seeking care, injuries with specific patterns or distributions on the body, or injuries incompatible with the child's development.
9. List the physical and behavioral signs of physical, sexual, and psychological abuse and neglect.
10. Understand the importance of a full, detailed, carefully documented history and physical examination in the evaluation of child abuse.
11. Discuss the unique communication skills required to work with families around issues of maltreatment. Participate with the medical team to discuss the issue of suspected abuse and neglect with families.

## **CAN'T WALK and LIMP**

### **CASE 1**

*You are working in the emergency room and are asked to evaluate a toddler.*

Mom is visibly upset as she tells you that she brought in her 22 month old who refuses to walk. The family had another family over this evening and 5 children ages 1-7 were playing in their son's bedroom on the bunk beds and play house. Periodically the parents would hear a bang or a thump, but play always resumed quickly. A couple of times one of the children cried, but it never lasted.

After dinner, the toddler, Tommy, would not walk upstairs on his own. Mom thought that he was just tired and carried him up to get him ready for bed. He woke up a couple of hours later crying and whining. Mom realized that he would not put weight on his left leg, so she brought him in to be checked.

Mom sees no visible swelling or deformity, knows of no specific trauma and she does not believe that he has been ill.

### **PHYSICAL EXAMINATION**

Well appearing, lean African American toddler, sitting on mom's lap pointing to pictures in a board book. He seems fine until you ask mom to put him down to walk. He has no pain as you flex or extend his knee, rotate or flex his hip. He has no pain when you palpate his thigh or calf. He moves his ankle well.

When placed standing, he will not put his left foot on the floor. He stands with his weight on the right leg and his left knee flexed and he whimpers. When forced to take a step or 2, he will, but he cries. He stops immediately when he is picked up. Reflexes are normal and he has no rash.

The rest of the history and physical are normal.

**What are the possible causes of this child's symptom?**

**What would you do to evaluate it?**

**What would make you think that this child is abused? What makes you think that he is not abused?**

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### CASE 2

*You are working in the emergency room and are asked to evaluate a 4 year old who has a fever and leg pain.*

Danny is a previously well, cute dark haired 4 year old who is fully immunized. He is brought in by his parents because he will not stand up – in fact he will only lie in bed with his left hip flexed and “turned out to the side.” He is comfortable like that but it hurts him to move from this position. He was fine other than a cold that started 2 days ago, until this afternoon. Then he spiked a temp to 101.5 and looked sweaty and uncomfortable.

#### PHYSICAL EXAMINATION

Dark, neatly cut hair, mildly diaphoretic, child who is alert and cooperative with the exam. T= 101, HR = 130, RR = 22

Normal exam except he will not move the left hip. He tries hard to cooperate, but does whatever he needs to so that he won't move the left hip. When you pull on his foot to try to straighten the hip, he slides down in the bed. The leg is warm, well perfused, without rash or neuro changes.

**What are the possible causes of this child's symptom?**

**What would you do to evaluate it?**

**What would make you think that this child is abused? What makes you think that he is not abused?**

### CASE 3

*You are working in the emergency room when the preceptor asks you to go to urgent care to evaluate an 11 year old who refuses to walk.*

Matt is a heavy set nearly 12 year old who has been increasingly less active over the last 3 weeks. Mom noticed that he had developed a limp, though Matt denies it. He has not had any injury, though he is usually very active, playing outside with his friends every chance that he gets. He has not had any fever. He has not had any other concerns.

#### PHYSICAL EXAMINATION

Pre teen who is pleasant and cooperative. He does anything that you ask of him. He sits easily. He spends less time on his right leg than on his left leg when he does try to walk for you. He takes three steps then sits. His DTRs are normal, strength is good. He flexes and extends his right hip fairly well and will not internally rotate the hip.

**What are the possible causes of this child's symptom?**

**What would you do to evaluate it?**

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### TEACHING NOTES

#### CASE 1

##### 1. Make a problem list

- *Leg pain*
- *Refusal to walk*

##### 2. What are the diagnostic possibilities?

1. Trauma – occult fracture, sprain
2. Abuse – spiral fracture
3. Inflammatory process – JRA, lyme,
4. Neurological pain – from diskitis or zoster, etc.
5. Infection – toxic synovitis, osteomyelitis, septic arthritis.
- 6.

##### 3. What information do they need to distinguish between the different diagnoses?

Discuss how each helps to distinguish

##### 4. Get the students to commit to a

Diagnostic plan  
Therapeutic plan  
Monitoring plan

##### 5. Review the database sheet. (Assume that all other tests that they suggest are normal or not revealing.) Do any of the labs change the diagnostic possibilities?

FIGURE 16

## Toddler's fracture



A nondisplaced spiral fracture of the mid-tibial shaft (A), the so-called toddler's fracture. Follow-up radiograph one month later (B) shows fracture healing. Radiograph two months after original injury (C) shows complete healing.

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**What would you think if this child had this x-ray?**



**AVN above (this is an older child – no apophysis – he's fused)**

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**The flat femoral head plus sclerosis is evidence of AVN. This child has LCP and it's not early.**



**Examples of LCP at a much earlier stage (hypodensity of femoral head)**

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### CASE 2

#### 1. Make a problem list

- *Leg pain*
- *Refusal to walk*

#### 2. What are the diagnostic possibilities?

- Trauma – occult fracture, sprain
- Abuse – spiral fracture
- Inflammatory process – JRA, lyme,
- Neurological pain – from diskitis or zoster, etc.
- Infection – toxic synovitis, osteomyelitis, septic arthritis

#### 3. What information do they need to distinguish between the different diagnoses? Discuss how each helps to distinguish

#### 4. Get the students to commit to a

Diagnostic plan  
Therapeutic plan  
Monitoring plan

5. **Review the database sheet.** (Assume that all other tests that they suggest are normal or not revealing.) Do any of the labs change the diagnostic possibilities?
6. **CBC was 11.5** with 32 Seg 11 mono 54 lym How would this be different if the CBC was 24K and left shifted?



toxic synovitis – You should NOT measure this distance on a frog. It needs to be a straight leg.

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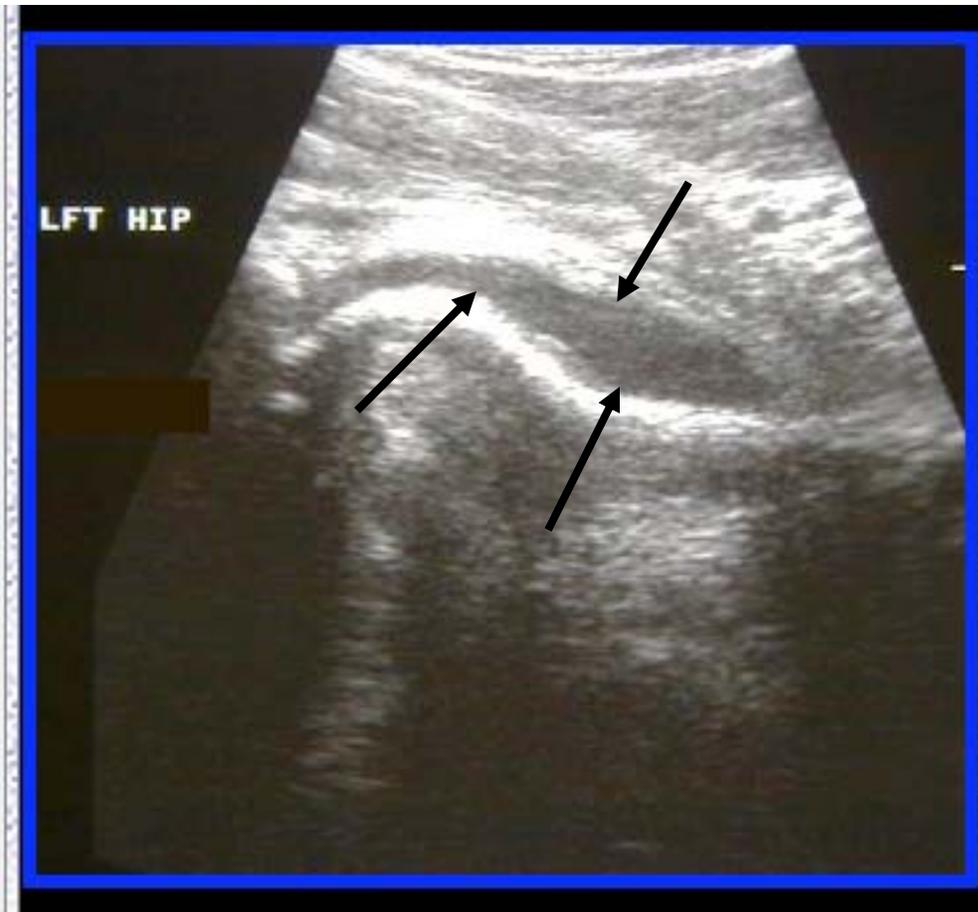


septic hip



On the straight leg you measure from the tear drop to the medial portion of the femur. Does not have to be the bottom of the tear drop – measure wherever the tear drop lines up with the medial part of femur. If the difference between the two sides is  $> 2\text{mm}$  it's an effusion

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**Hip effusion**

- 7. What do they think this child has? –**
- 8. Ask them to list the things that they learned from this case**

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### CASE 3

#### 1. Make a problem list

*Leg pain*

*Decreased walking*

#### 2. What are the diagnostic possibilities?

Trauma – occult fracture, sprain

Infection – toxic synovitis, osteomyelitis, septic arthritis

Slipped capital femoral epiphysis

Avascular necrosis

Legg-Calve-Perthes Disease

#### 3. What information do they need to distinguish between the different diagnoses?

Discuss how each helps to distinguish

#### 4. Get the students to commit to a

Diagnostic plan

Therapeutic plan

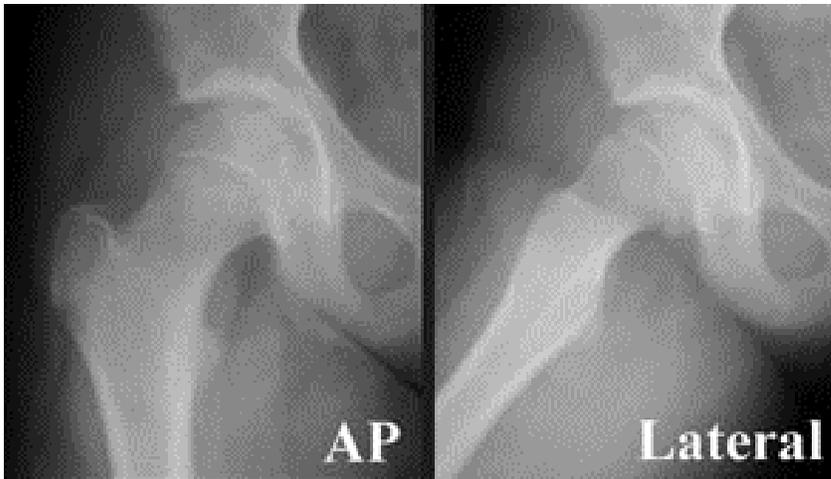
Monitoring plan

#### 5. Review the x-ray. (Assume that all other tests that they suggest are normal or not revealing.)

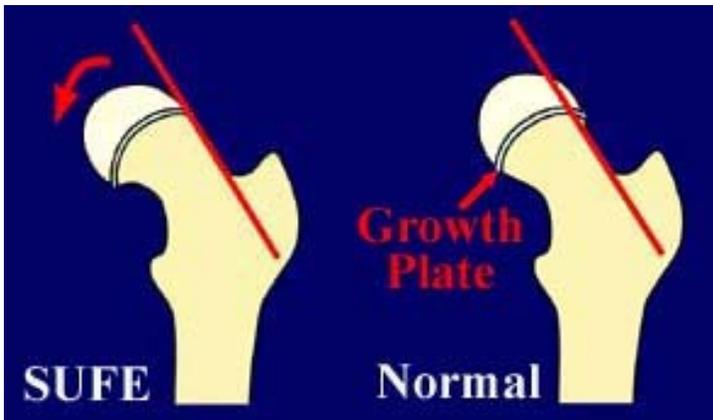


#### 6. SCFE

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The point of this X-ray is that the AP looks OK but you can see the slip on the lateral. Thus don't rely on one view.



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