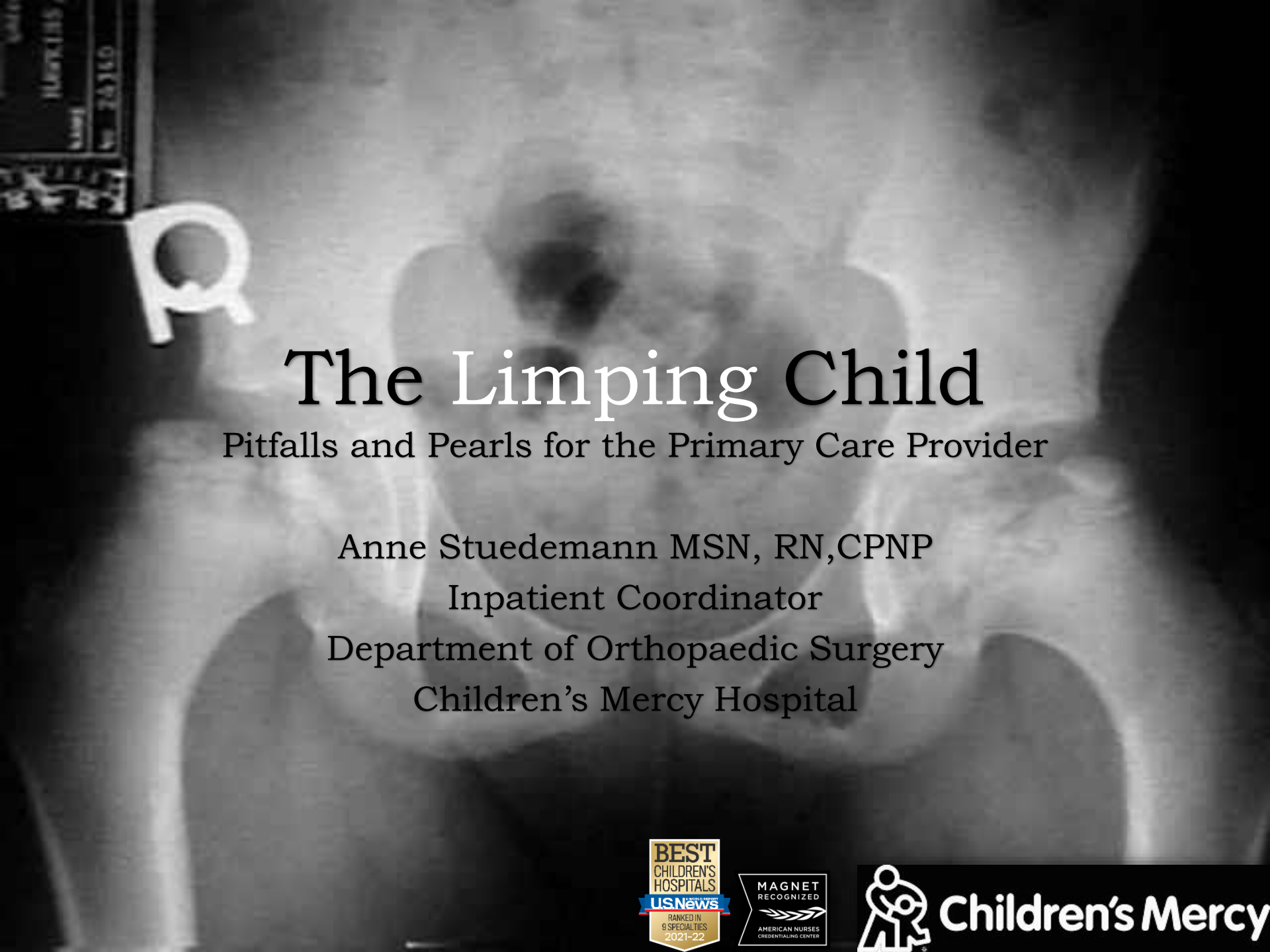

The Limping Child

Pitfalls and Pearls for the Primary Care Provider

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Children's Mercy Hospital

BEST CHILDREN'S HOSPITALS U.S.News RANKED IN 9 SPECIALTIES 2021-22

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Children's Mercy

Conflict of Interest

I hereby certify that, to the best of my knowledge, no aspect of my current personal or professional situation might reasonably be expected to affect significantly my views on the subject on which I am presenting.

I have no financial relationships to disclose.

I will not discuss off label use and/or investigational use in my presentation.

The Limping Child

- Limping is a common reason for children to present to primary care providers and emergency departments
- Limping is a compensation for a problem with normal gait mechanics.
- Any limp is considered abnormal
- It is important to understand normal gait patterns and development when evaluating a child with a limp.

(Lawrence, 1998)

Objectives

I. Discuss common differential diagnosis for limping by age

II. Review routine focused physical exam, common laboratory tests/radiographic studies, and limp analysis

III. Perform a case study review to integrate learning into current practice scenarios

The Limping Child

- Limping is due to six general causes
  1. Pain
  2. Weakness
  3. Structural abnormalities of spine, pelvis, or lower extremities
  4. Joint Stiffness
  5. Spasticity
  6. Poor Balance

(Cramer & Scherl, 2004)

Motor Development

- Cruise and/or walk while holding onto objects before 1 year old
- Walk independently by 14-18 months
- Mature heel-to-toe gait pattern by 3 years of age (Lawrence, 1998)

Common Differential Diagnosis: By Age

All ages
Septic arthritis
Osteomyelitis
Cellulitis
Stress fracture
Neoplasm (including leukemia)
Neuromuscular
Toddler (ages one to three)
Septic hip
Developmental dysplasia of the hip
Occult fractures
Leg-length discrepancy

Child (ages four to 10)
Legg-Calvé-Perthes disease
Transient synovitis
Juvenile rheumatoid arthritis
Adolescent (ages 11 to 16)
Slipped capital femoral epiphysis
Avascular necrosis of femoral head
Overuse syndromes
Tarsal coalitions
Gonococcal septic arthritis

(Leet, Skaggs, 2000)

History

- Age
- Pain onset, duration, quality, and location
- Posture of child
- History of injury
- Aggravating factors
- Systemic signs of illness

(Lawrence, 1998)

Physical Exam

(Lawrence, 1998)

Physical Exam

- Range of motion
  - Active and passive, spine and lower extremities
- Neurovascular exam
  - Sensory, reflexes, peripheral pulses, temperature, capillary refill, color, clonus, muscle strength

(Lawrence, 1998)

Laboratory Tests

- Infection, inflammatory disease, and malignancy all require quick diagnosis and treatment.
- Child with an acute non-traumatic limp with generalized signs of sepsis
  - Fever, night pain, malaise, or localized complaints
- Positive Joint Exam

(Lawrence, 1998)

Laboratory Tests

- CBC with differential (5,000 - 13,500 cells/mcl)
- ESR (0-13)
- CRP (0-1.0)
- Other lab studies
  - ANA & rheumatoid factor

(Flynn & Widmann, 2001)

Radiographic Studies

- Plain radiograph 1st
- Order *after* clinical assessment
  - Focused views more diagnostic than "aerial photographs"
  - Plain radiographs are often negative with early bone or joint infections.
  - Early changes not seen until 10-12 days after onset of bone & joint infections

(Flynn & Widmann, 2001)

Radiographic Pearls

- AP/lateral of suspected source of problem
- 3 views (AP, lateral, oblique) help where views of the bone overlap and obscure imaging (ankle, hand, foot).
- Non-standard oblique views often confusing
- Use comparison views liberally

Radiographic Studies

- CT/MRI
  - Rarely necessary as first line of imaging
  - CT used specifically for imaging suspected localized abnormalities of bone
  - MRI very effective in imaging bone marrow, joint, cartilage, and soft tissues.

(Flynn & Widmann, 2001)

A Day in the Life of Orthopaedic Clinic

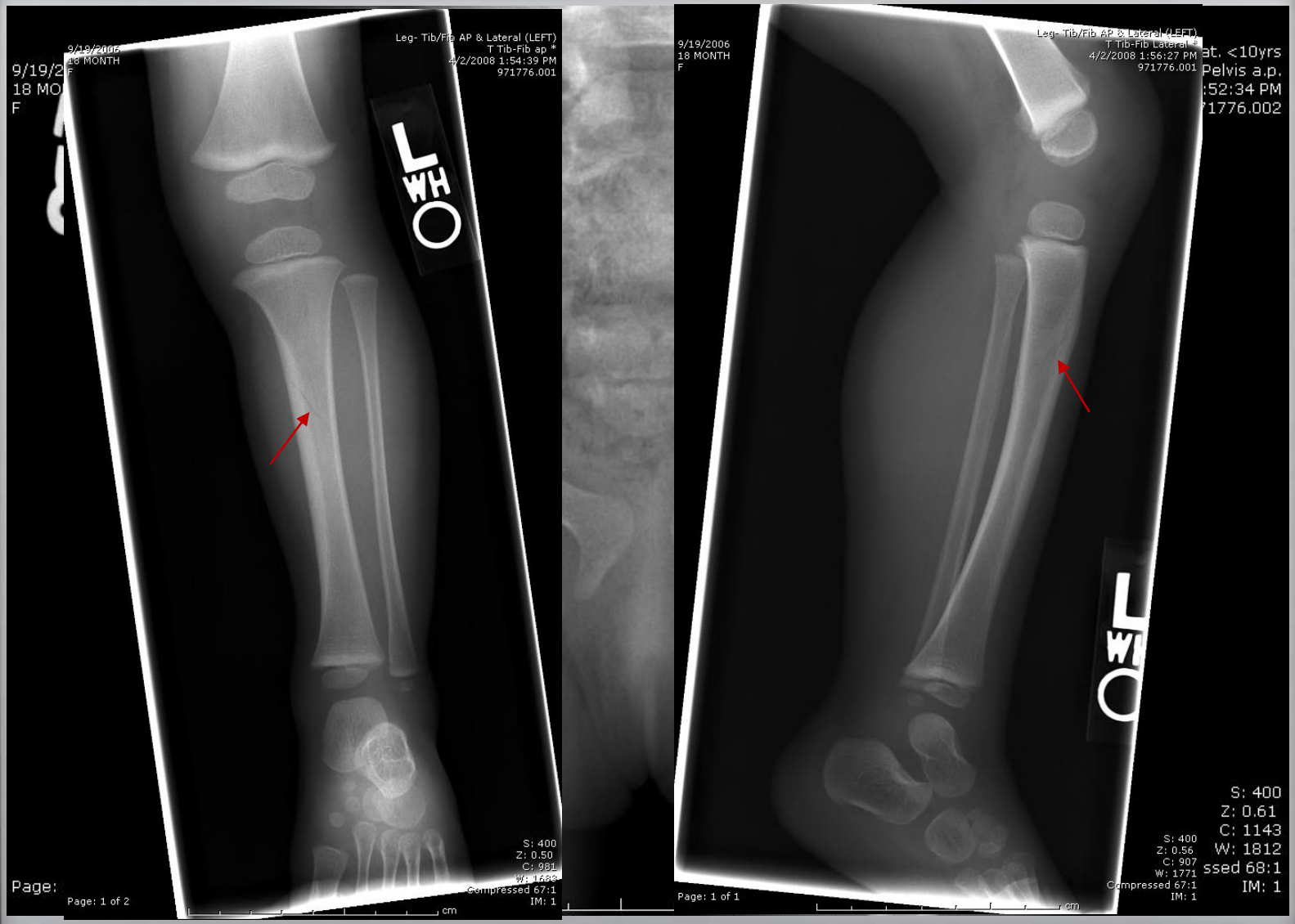
CASE STUDY REVIEW

Case Study #1

An 18-month-old male who refuses to bear weight on his right leg for the past two days. No observed trauma or injury. No history of fevers or recent illnesses, healthy appearing. He has been independently ambulatory since one year of age.

Case Study #1: Physical Exam

- Temp 36.5C, HR 110, RR 12, B/P 100/80
- Well appearing child, well developed and nourished
- 1-2 second capillary refill in UE/LE bil.
- No edema or erythema noted in UE/LE bil.
- Pt. cries with attempt to passively range the motion of the hip.
- Pt. has full hip and knee ROM bil.
- Shows signs of discomfort on palpation of L tibia shaft
- When placed in standing position, refuses to bear weight on left leg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Toddler's Fracture

- Spiral fracture of the tibia shaft without fibular involvement.
- Most children present with a painful limp or refusal to bear weight.
- Painful on exam with palpation of the tibia shaft.
- Radiographs may appear normal for the first 10-14 days post injury.

(Cramer & Scherl, 2004)

Toddler's Fracture

- Treatment
  - Casting vs. No Treatment
  - Long leg cast
  - No waterproof
  - Treatment x3-4 weeks from date of injury
- Post treatment
  - Child will out toe
  - Off playground equipment x1 week to regain ROM

Have an Ortho Question?

1) Orthopaedic Resident on call
   - 816-234-3000
   - Select Language
   - Select “5” for the Hospital Operator
   - Ask for the “Orthopaedic Resident on Call”

Case Study #2

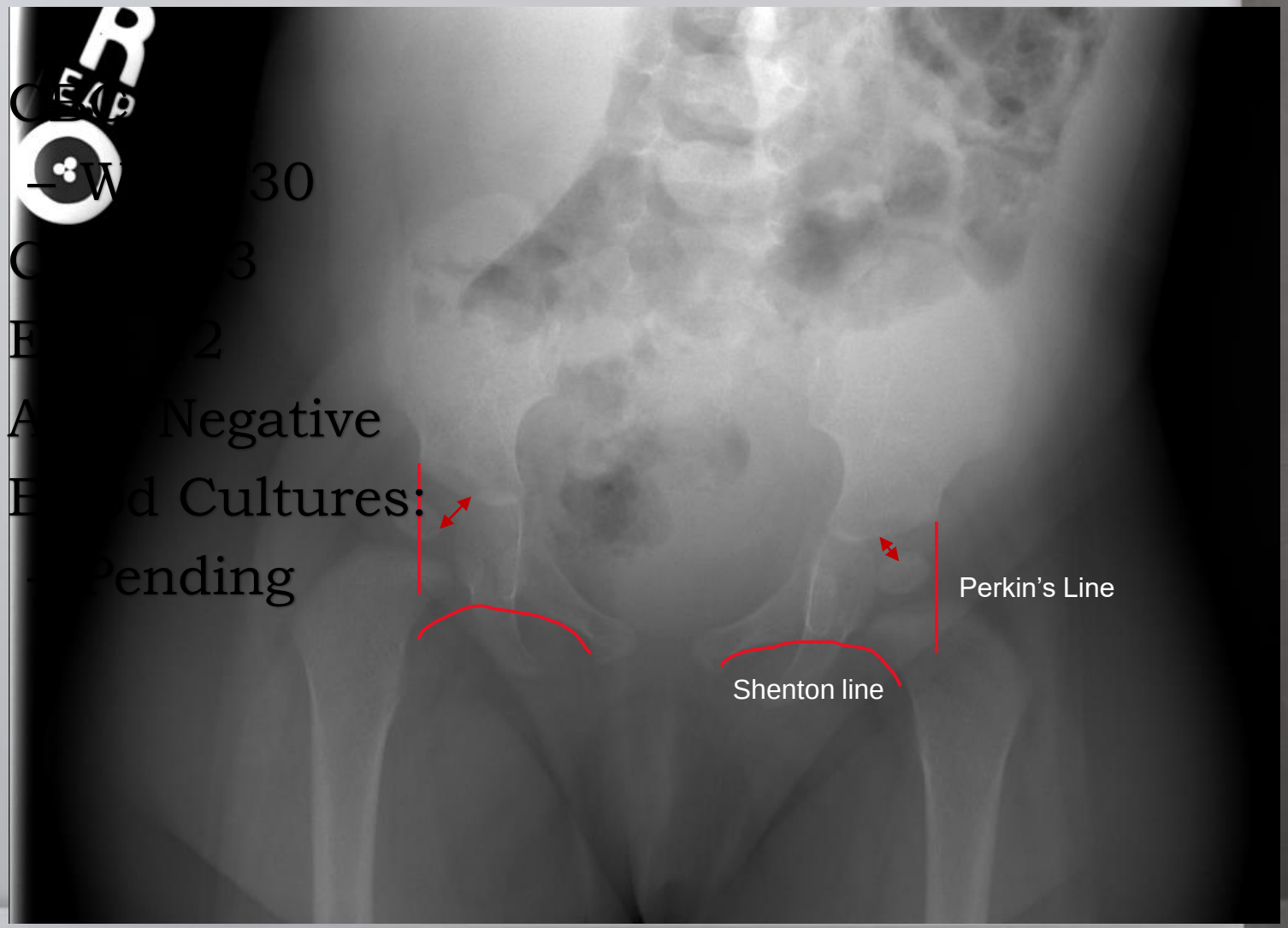
A three-year-old female presents with a fever (39.5 C) and refusal to bear weight on her right leg. Her parents report that last night she complained of pain in her right leg and started running a low-grade temperature. As the night continued her leg pain increased as did her fever. Her mother reports that 2 weeks ago the child had an acute upper respiratory infection. Her mother also reports that 1 week ago the child was playing at the playground and fell off the swing set onto her right leg.

Case Study #2: Physical Exam

- Temp 39.5C, HR 120, RR 12, B/P 100/80
- Pallor noted in face and extremities
- 1-2 second capillary refill in UE/LE bil.
- Pt. holding right leg flexed, slightly abducted, and externally rotated.
- Pt. screams with attempt to passively range the motion of the hip, pain with log roll of the hip.
- No s/sx of pain on palpation of the right foot, ankle, or knee.
- Slight edema noted around right hip and painful to palpation.

Case Study #2: Lab/Radiology Results

- C[illegible]
  - W[illegible]30
- C[illegible]3
- E[illegible]2
- A[illegible] Negative
- B[illegible]d Cultures:
  - [illegible]Pending



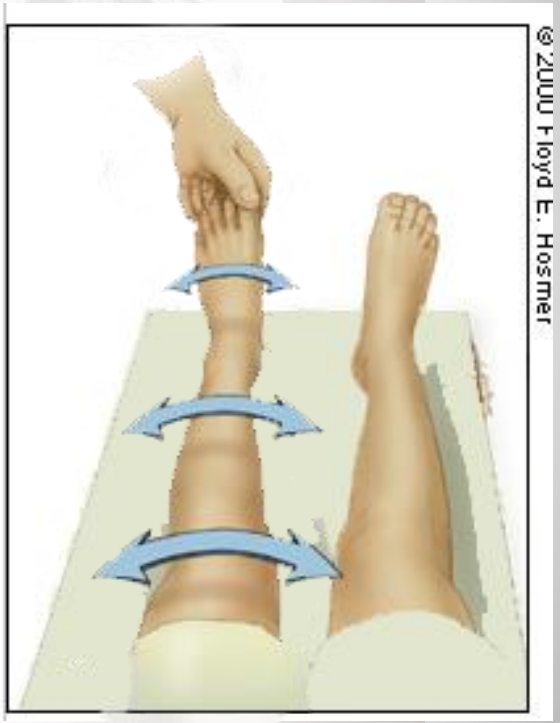
Septic Arthritis

- A microbial infestation of the synovial space in a joint.
- Medical Emergency
- Pathogens enter by either hematogenous spread, local infection, or traumatic or surgical infection of the joint space.
  - Staphylococcus aureus, followed by Group A streptococci and Streptococcus pnumoniae.

(Lawrence, 1998)

Positive Hip Joint Exam

- Differentiating transient synovitis from septic arthritis is challenging, because both conditions present with decreased motion of the hip.
- A modified log-roll test may be helpful in differentiating the degree of hip irritation.
- ***Exam Pearl***
  - While distracting the supine child. gently hold the big toe and pretend to examine the foot from different angles. You can achieve significant hip rotation by rotating the foot.
  - On *log roll test*: if an arc of 30 degrees, or more, of hip rotation is possible without complaints of pain it may point more towards transient synovitis than septic arthritis

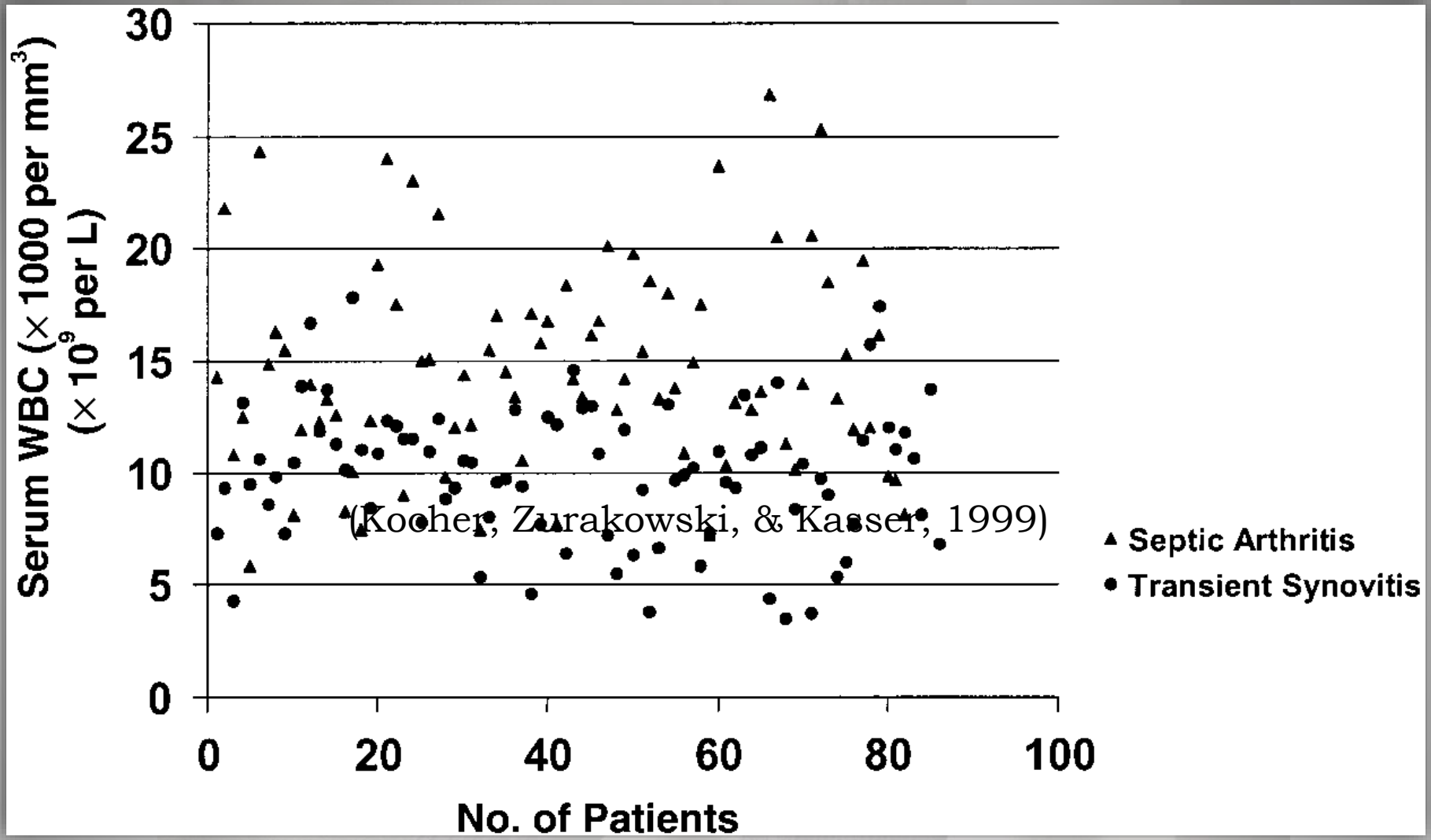


(Leet, Skaggs, 2000)

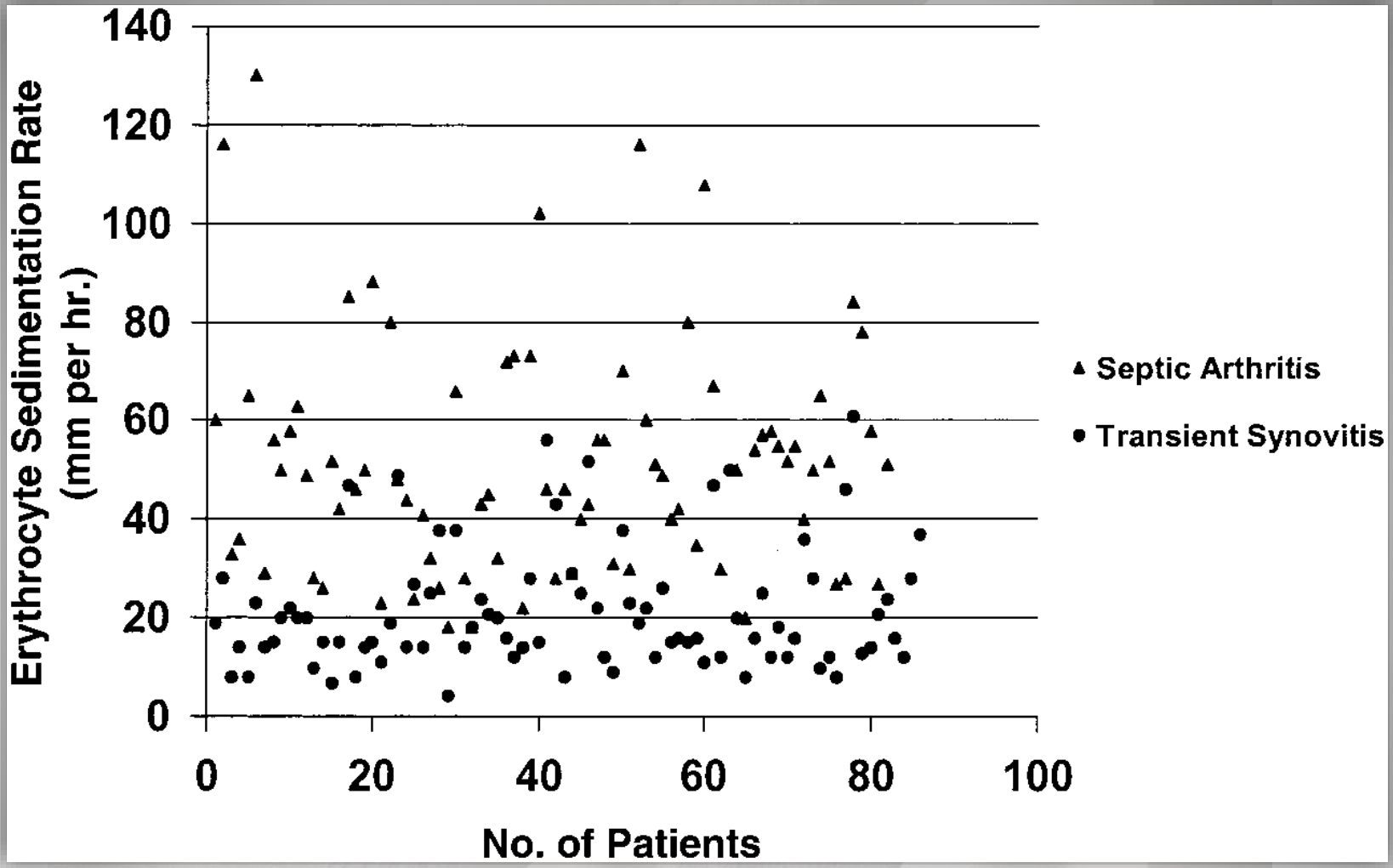
Septic Arthritis vs. Transient Synovitis

- Differentiate from Transient Synovitis
  - Kocher four predicators of septic arthritis
    - History of fever
    - Non-weight bearing
    - ESR>40
    - WBC >12,000 cells/mm^3
  - Probability of septic arthritis with positive predictors
    - 1 of 4: 2-5 %
    - 2 of 4: 33-62%
    - 3 of 4: 93-97%
    - 4 of 4: 99-99.8 %

(Kocher, Zurakowski, & Kasser, 1999)



(Kocher, Zurakowski, & Kasser, 1999)



(Kocher, Zurakowski, & Kasser, 1999)

Septic Arthritis

- Kocher, Mandiga, Zurakowski, Barnewolt, & Kasser, 2004
  - Prospective study that studied children who presented to a major children's hospital between 1997 and 2002
    - The same four predictors of septic arthritis were used (hx of fever, NWB, ESR of 40mmg/hr, and a serum WBC >12,000)
    - Concluded that these four predictors demonstrated diminished (curve from 0.96 to 0.86) but nevertheless very good diagnostic performance in a new patient population

(Kocher, Mandiga, Zurakowski, Barnewolt, & Kasser, 2004)

Septic Arthritis

- **Luhmann, Jones, Schootman, Gordon, Schoenecker, & Luhmann, 2004**
  - A retrospective review on all children who had undergone hip arthrocentesis for the evaluation of an irritable hip between 1992 and 2000
    - Using the four independent predictors of Kocher
      - Predicted probability of the patient having septic arthritis at 59% (in contrast to the reported 99.6%)
    - Statistical analyses demonstrated that the best three variables with a predicated a probability of 71% are:
      I. A history of fever
      II. A serum total WBC >12,000
      III. A previous health care visit

Septic Arthritis

- What to do?
  - Take the 4 predictors as ***GUIDELINES*** to practice
    - The clinical prediction rule in not meant to be rigid and diagnostic, it is to be used as a guideline to care
    - It should never replace clinical judgment

(Kocher, Mandiga, Zurakowski, Barnewolt, & Kasser, 2004)

Septic Arthritis

- Treatment
  - Emergent referral to Pediatric Orthopaedic Surgeon for joint aspiration, and surgical drainage.
  - Ideally would obtain blood cultures and aspirate joint aspiration promptly, prior to antibiotics.
    - Would NOT hold antibiotics on a septic child

(Lawrence, 1998)

Classic effusion positioning:
Joint is flexed, abducted, and externally rotated

Children's Mercy

Quick Hit
Transient Hip Synovitis

Transient Hip Synovitis

- Self-limited inflammatory condition, typically post viral infection (Lawrence, 1998)
- AKA Toxic Synovitis
- Most common disorder to cause a child to limp
- Presents typically in children from 18 months to 12 years of age
  - Peak incidence between 3-10 years of age
  - 2:1 male to female ratio (Do, 2000)

Signs and Symptoms

Transient Hip Synovitis	Hip Septic Arthritis
GENERAL • Well appearing child	GENERAL • Acutely ill appearing child
PAIN with ROM • Absent, mild, to severe	PAIN with ROM • Moderate to Severe
GAIT & ROM • Limp • May keep hip flexed, abducted, and externally rotated (widens joint space) • Hip tender to palpation	GAIT & ROM • Limp • Prefer to keep hip flexed, abducted, and externally rotated (widens joint space) • Hip tender to palpation
SYMPTOMS • Afebrile or low grade	SYMPTOMS • Febrile or history of fever
LABS • WBC & ESR normal or mildly elevated	LABS • WBC & ESR elevated
Imaging • Plain hip films: WNL • Ultrasound with no or scant effusion	Imaging • Plain hip films: May note widening of joint space/effusion • Ultrasound with noted hip effusion

(Luhmann et al, 2004) (Lawrence, 1998)

Transient Hip Synovitis

- Differentiate from Septic Arthritis
  - Kocher four predicators/*guidelines* of septic arthritis
    1. History of fever
    2. Non-weight bearing
    3. ESR>40
    4. WBC >12,000 cells/mm^3
  - Luhmann et. al predicators/*guidelines* of septic arthritis
    1. History of fever
    2. WBC >12,000 cells/mm^3
    3. Previous health-care visit

(Kocher, Zurakowski, & Kasser, 1999)

(Luhmann, Jones, Schootman, Gordon, Schoenecker, & Luhmann, 2004)

Transient Hip Synovitis

- Treatment
  - Symptomatic relief
    - Rest
    - Anti-inflammatory medication
    - Routine aspiration is not recommended
  - Pain and limping that does not resolve after two weeks, or return visit should be referred to an orthopedist for surveillance

(Cramer & Scherl, 2004)

Have an Ortho Emergency?

1) **Children's Mercy Emergency Room**
   - 1-800-Go-Mercy
   - Triage will answer
   - Ask for ER physician if anticipating admission

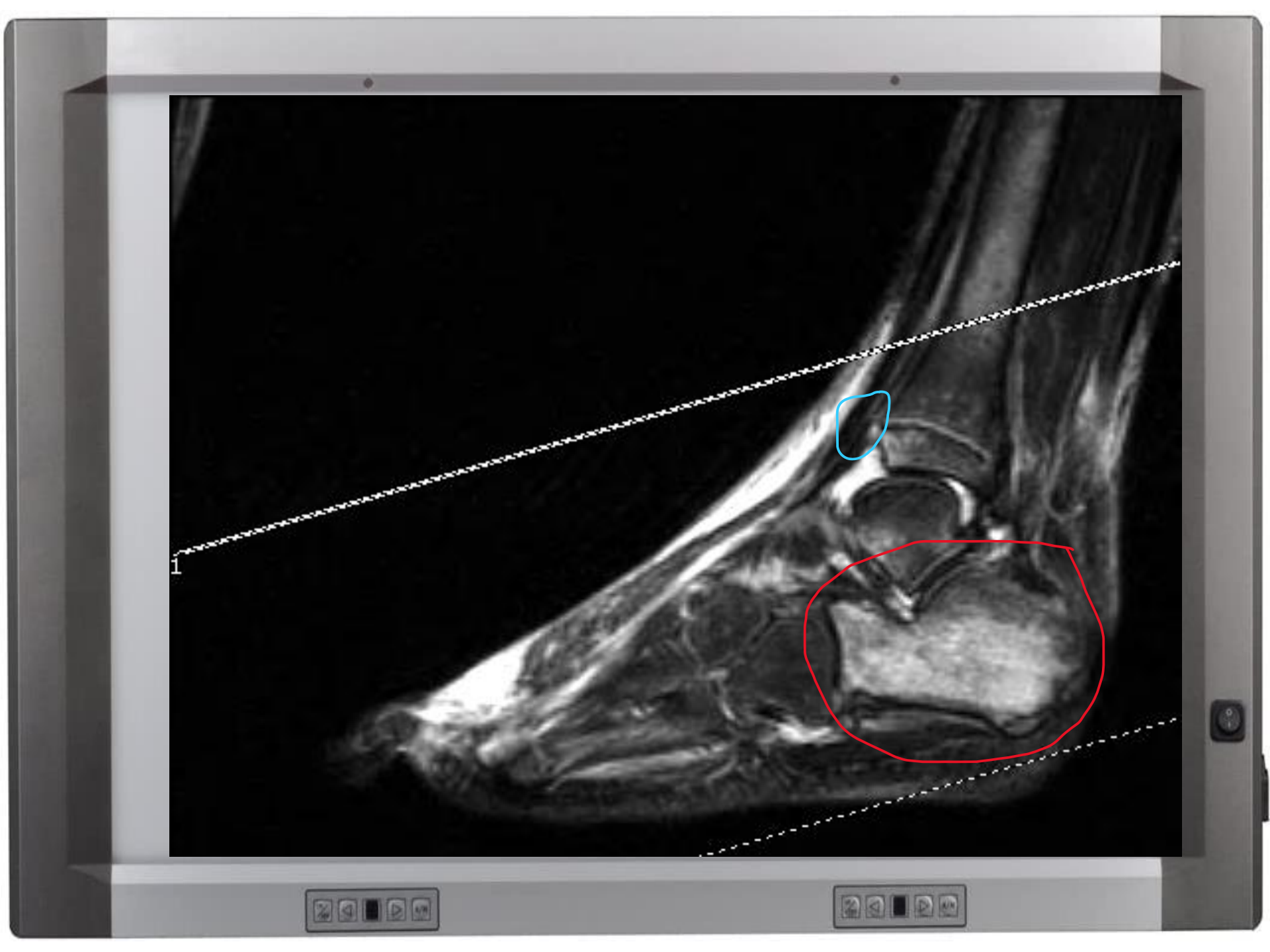
2) **Orthopaedic Resident on call**
   - 816-234-3000
   - Select Language
   - Select "5" for the Hospital Operator
   - Ask for the "Orthopaedic Resident on Call"

Case Study #3

A ten-year-old male presents with a 10-day history of limping on his left leg. His mother reports that 2 weeks ago he was playing soccer and sprained his ankle. Last known illness was a sinus infection one month ago. His mother denies any recent history of fevers. She reports he is still playing soccer but has a hard time keeping up with other children related to his limp. She requests a brace for his ankle.

Case Study #2: Physical Exam

- Temp 37.8C, HR 80, RR 9, B/P 105/85
- Well developed, well nourished child.
- Brisk capillary refill in UE/LE bil.
- Noted mild edema and erythema around the left heel and dorsal aspect of the foot.
- Pt. denies pain on palpation of his phalanges, metatarsals, cuneiforms, talus or navicular. Also denies pain on palpation of the lateral or medial malleolus.
- Complains of mild discomfort on palpation of the plantar aspect of the calcaneous.
- Full hip and knee range of motion bilaterally.
- Good subtalar motion through left ankle.
- Complaints of mild discomfort with dorsiflexion and eversion of the left foot.



Case Study #3: Labs

- CBC
  - WBC: 9
- CRP: 8 (0-1)
- ESR: 30 (0-13)
- ANA: Negative
- Blood Cultures:
  - Pending

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Lawrence, 1998)

Table 2

Pathogens to Consider in Unique Populations

Patient Population	AHO Pathogens
Infants < 1 Year of Age	Group B *Streptococcus*
	Haemophilus influenzae
	S. aureus
	Neisseria gonorrheae
	Group A *Streptococcus*
	Enterobacteriaceae
Children 1–5 Years of Age	*Kingella kingae*
	S. aureus
	S. pneumoniae
School Age - Adolescence	*S. aureus*
	Group A *Streptococcus*
Hemoglobinopathy/Asplenia	*Salmonella* spp.
	S. aureus
	Plesiomonas
	H. influenzae
	S. pneumoniae
Intravenous Drug Users	*S. aureus*
	Enterobacteriaceae
	Pseudomonas aeruginosa
Animal Exposures	*S. aureus*
	Salmonella spp.
	Bartonella henselae
	Brucella spp.

McNeil JC. Acute Hematogenous Osteomyelitis in Children: Clinical Presentation and Management. *Infect Drug Resist*. 2020;13:4459-4473. Published 2020 Dec 14. doi:10.2147/IDR.S257517

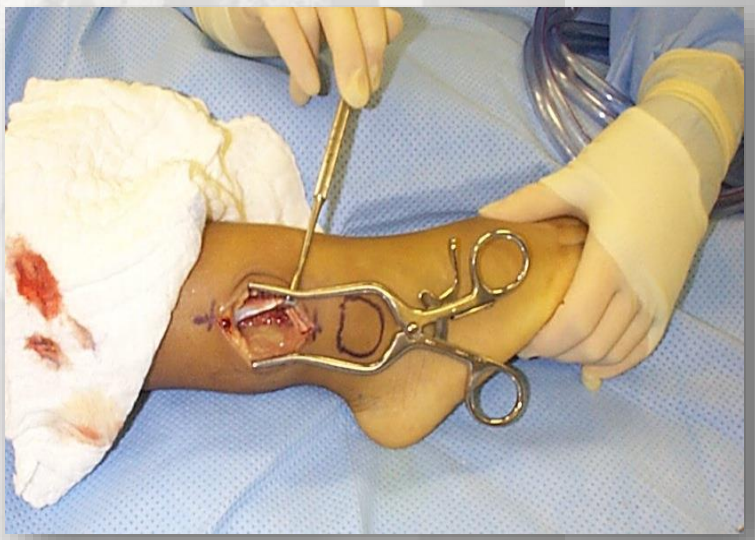
Osteomyelitis Pearls

- Labs
  - The WBC may be normal
  - ESR is usually elevated
  - Blood cultures are positive in 30-60% of the cases.
- Radiographs
  - Plain radiographs may be normal up to 2 weeks
- MRI
  - Has high sensitivity (85-100%) and sensitivity (75-100%).

(Lawrence, 1998)

Osteomyelitis

- Treatment
  - Will require surgical debridement if a subperiosteal abscess is present.
  - May utilize interventional radiology for soft tissue abscesses
  - Referral to a Pediatric Emergency Room for Intravenous antibiotics and additional tests/imaging



(Lawrence, 1998)
(Miller et al, 2020)

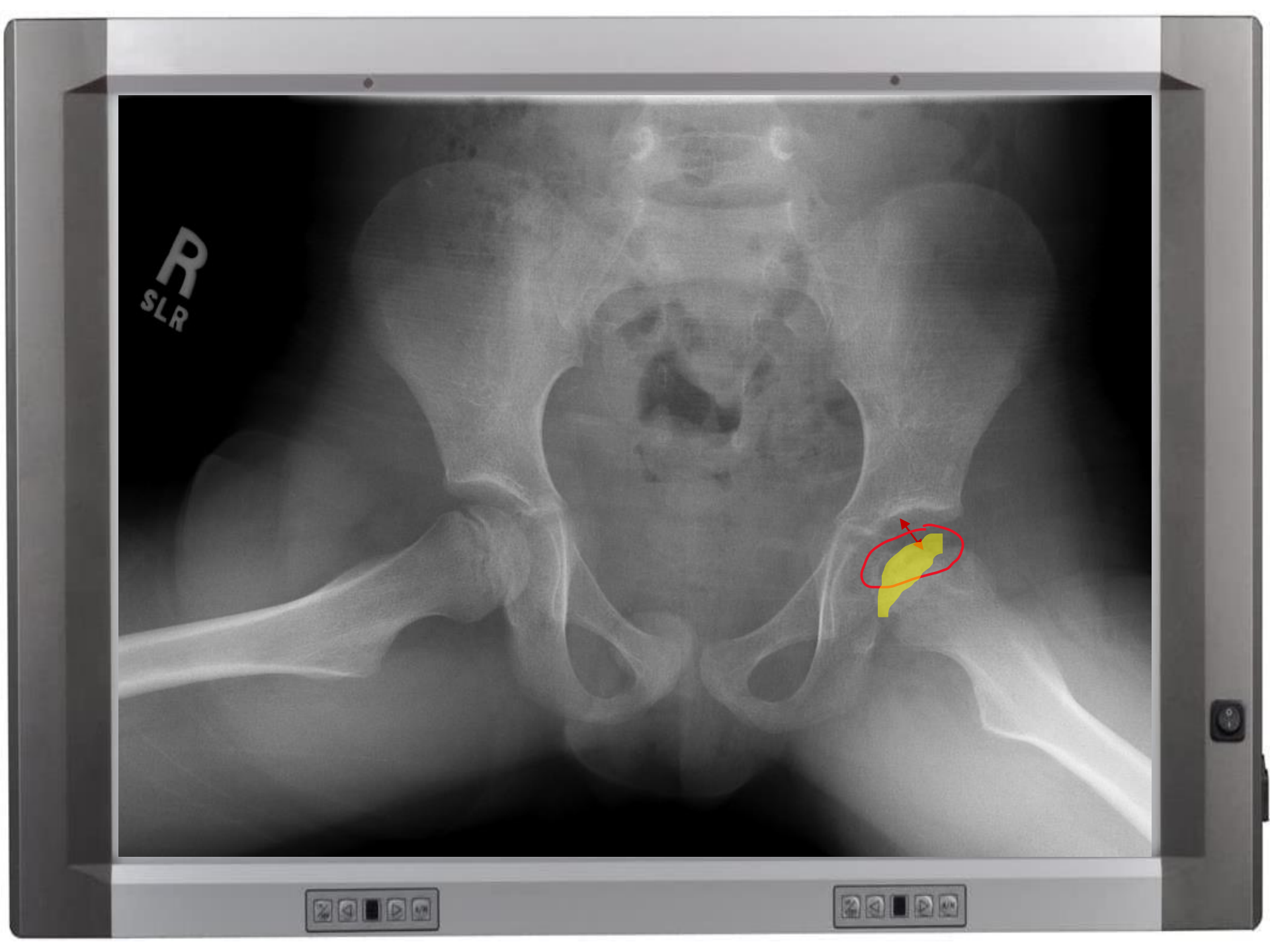
Case Study #7

6 1/2-year-old presents to clinic with a history of a left leg limp for two to three months. Her parents report that some days are worse than others, and that she only occasionally complains of pain. Her complaints seen to be localized to the left groin/anterior thigh. Pain is worse with activities. No known injury. No history of recent illnesses or fevers.

Otherwise, healthy child.

Case Study #7: Physical Exam

- AFVSS
- Well developed, well nourished child.
- Brisk capillary refill in UE/LE bilaterally
- Full hip and knee ROM on the right leg.
- Decreased hip abduction and internal rotation on left leg.
- Positive Trendelenburg test left leg
- Positive Galeazzi's test with left leg being shorter than right.
- No s/sx of pain on palpation of lower extremities bilaterally.
- Good subtalar motion through ankles.
- No noted muscle tightness in lower extremities.
- No edema or erythema noted.
- Spinal cord straight and intact, without any dimpling or cutaneous abnormalities.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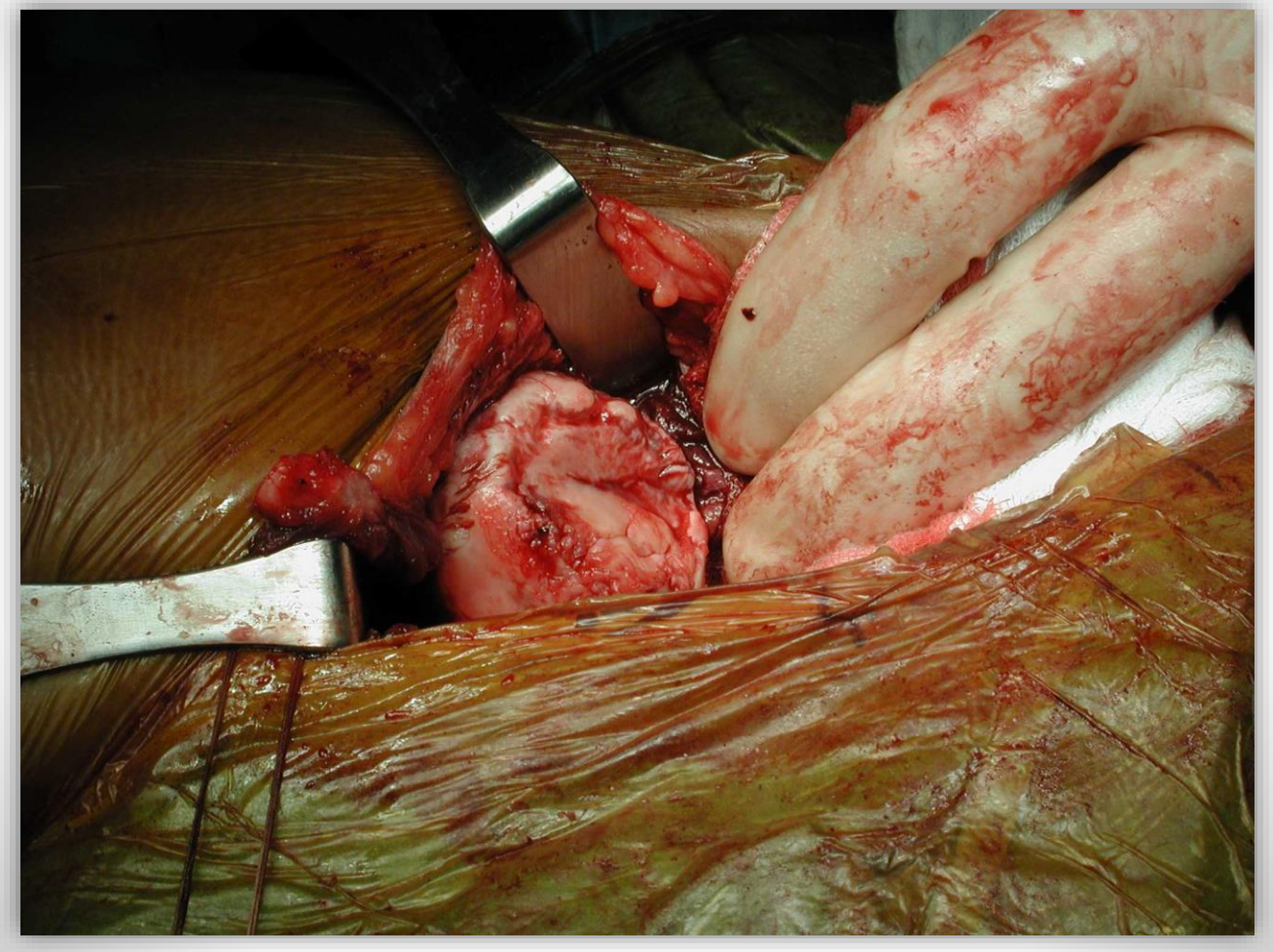
Legg-Calve-Perthes Disease

- Ischemic necrosis, collapse, and subsequent repair of the femoral head.
- Etiology
  - Unclear, theories point towards disruption of blood flow to femoral head.
- Peak incidence
  - Between 4-8 years of age
  - 4:1 ratio boys to girls
- Disease is self limiting

(Cramer & Scherl, 2004)
(AAOS, 2016)

AVN



Legg-Calve-Perthes Exam Pearls

- Signs/Symptoms
  - Thigh, hip, or knee pain
    - Pain worse with activity
    - Can be mild and intermittent
  - Limp
    - Trendelenburg gait
  - Exam
    - Decreased hip abduction
    - Decreased hip internal rotation
    - Slight leg length discrepancy
    - Positive Trendelenburg test

(Cramer & Scherl, 2004)

Legg-Calve-Perthes Disease

- Immediate orthopedic referral
- Goal of treatments
  - Optimize outcome
    - Minimize geometric deformity
      - Braces (A-frame Orthosis, Petrie casts)
      - Surgery
    - Promote revascularization and avoid development of physeal bar
      - By containment of the hip in the acetabulum
    - Containment
      - Combination of ROM therapy, bracing, activity modification and NSAIDs

(AAOS, 2016)
(Lawrence, 1998)

Need a Hip Surgeon?

1) Lisa Berglund MD
   - Renee Altenhofen APRN
   - raltenhofen@cmh.edu

1) Caleb Grote MD
   - Adolescent and Young Adult Hip Surgeon
     - *Ages 13 and up*
   - cwgrote@cmh.edu

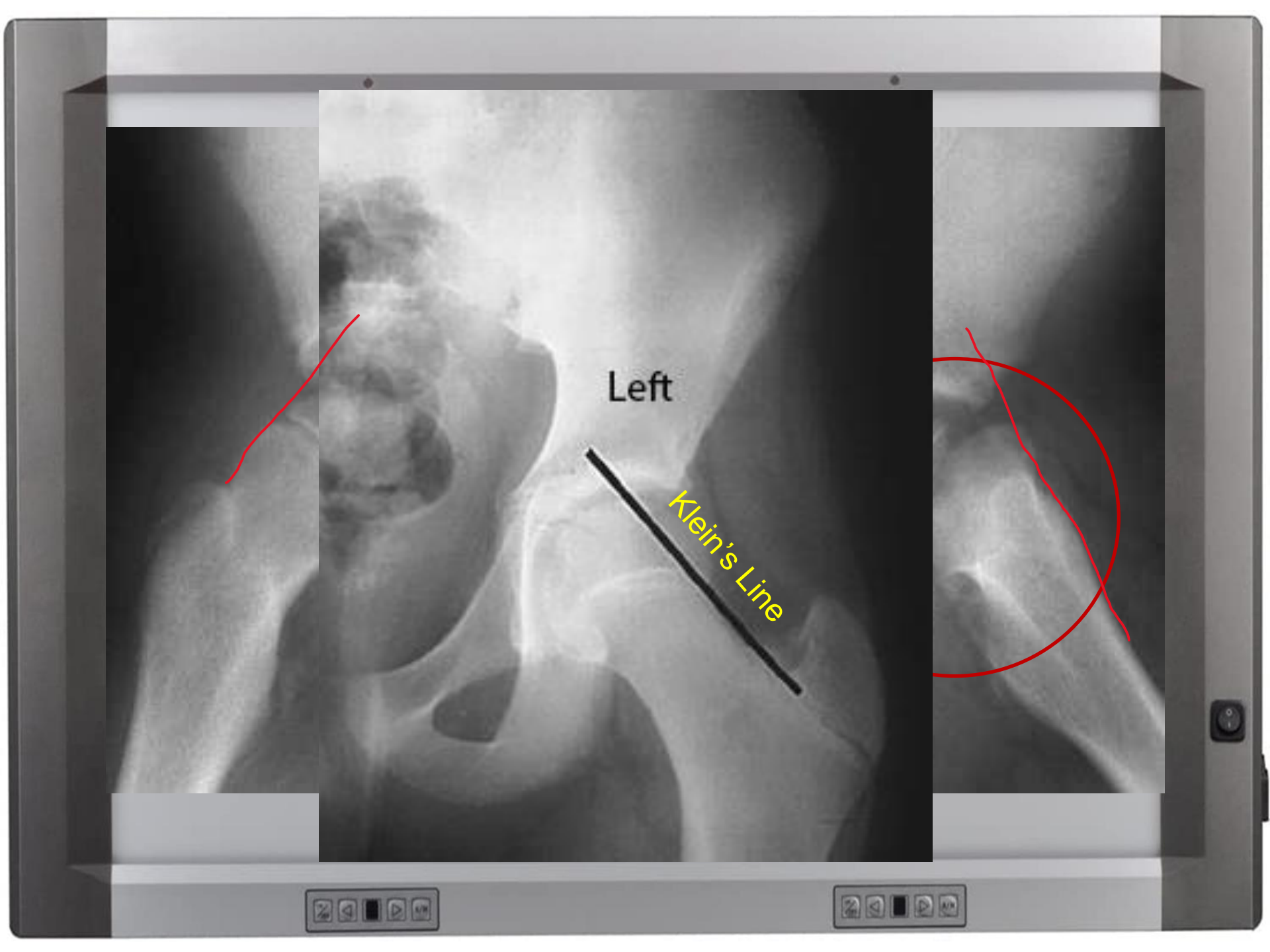
Children's Mercy

Case Study #8

13-year-old female presents with complaints of left knee pain for about two months. She has been limping on and off for the past few months. She fell at school about the same time the she started limping. No complaints of right leg pain. Otherwise, healthy. Weight 80kg, height 156cm. No history of previous illness or fever. No pertinent family history.

Case Study #8: Physical Exam

- Temp 36.5C, HR 70, RR 9
- Well developed, obese child.
- Brisk capillary refill in UE/LE bilaterally
- Full hip and knee ROM on the right leg.
- Left leg externally rotated, and slightly flexed at rest.
- Decreased left hip flexion, internal rotation, and abduction.
- Complains of pain with ROM of left hip, especially with log roll and internal rotation.
- Complains of pain with straight leg raise.
- FROM left knee and ankle.
- Antalgic gait, with left leg limp noted with ambulation
- No noted muscle tightness in lower extremities.
- No edema or erythema noted.
- Spinal cord straight and intact, without any dimpling or cutaneous abnormalities.


Left
Klein's Line

Slipped Capital Femoral Epiphysis (SCFE)

- Disorder of the growth and development of upper femur
- Most common adolescent hip disorder
- The metaphysis of the femur displaces from the physis.
- Etiology unclear
- Increase incidence with obesity
  - Causes shear stress across the femoral physis

(Cramer & Scherl, 2004)

Slipped Capital Femoral Epiphysis (SCFE)

- Male predominance
- May occur at any time from age 6-physeal closure
  - Average age of diagnosis: 13.5 years boys, 12 years for girls
- Bilaterality has been reported in many as 60%
- Slips can occur from acute trauma, or gradually from constant force.
- Stable slip: patient can bear weight
- Unstable slip: patient is unable to bear weight

(Cramer & Scherl, 2004)

Slipped Capital Femoral Epiphysis (SCFE)

- Treatment
  - Unstable slips
    - Medical emergency
    - Immediate referral
  - Stable slips
    - Refer patient to Pediatric Emergency Room for surgical Orthoapedic treatment
    - Why the rush?
      - Patient may fall on hip or hip may become unstable. Outcomes for an unstable SCFE are less favorable than a stable SCFE
  - Goal
    - Prevent progression of the disease with surgical intervention
    - Pain relief

(Cramer & Scherl, 2004)

Slipped Capital Femoral Epiphysis (SCFE)

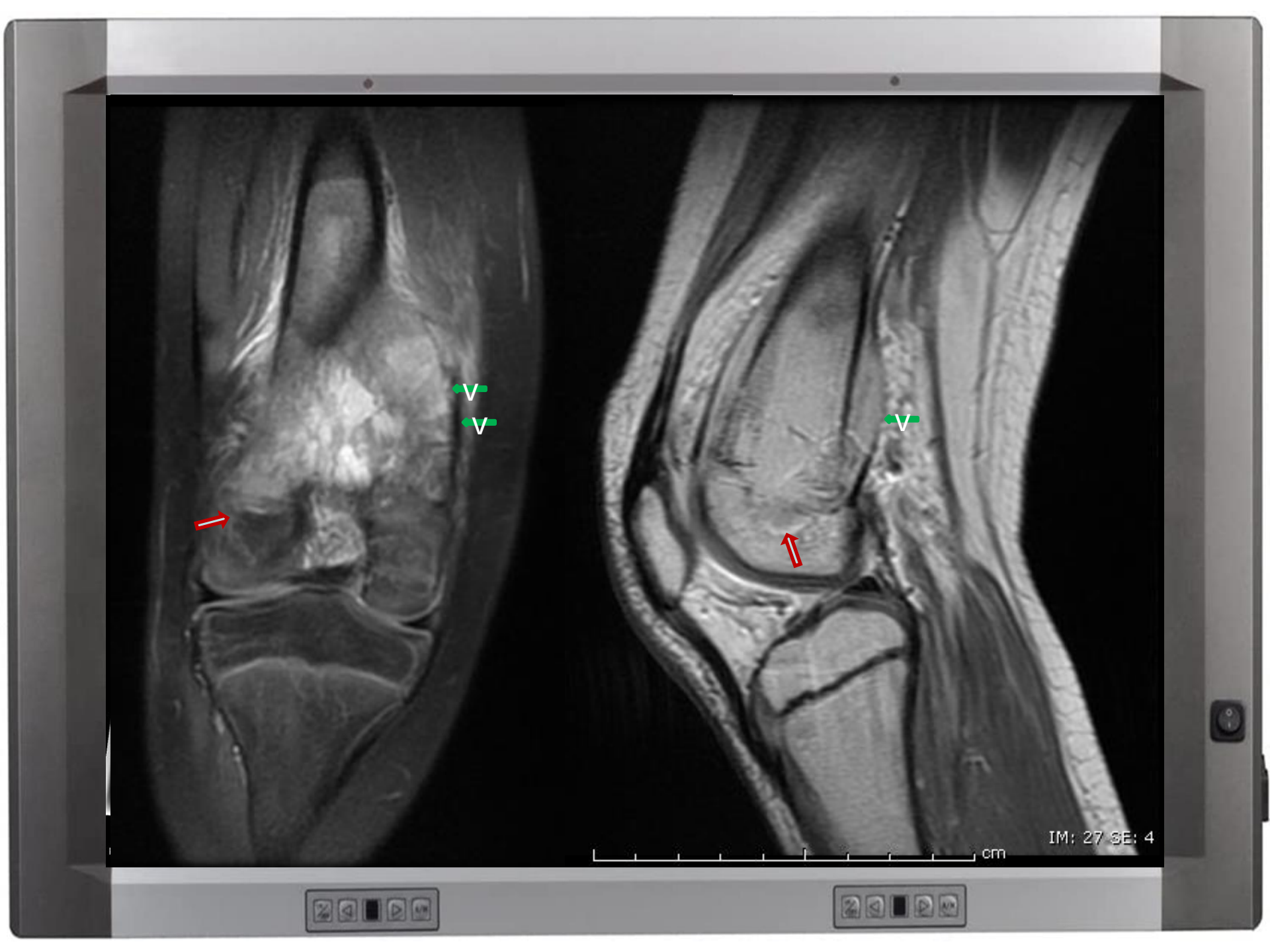
Surgical intervention

- In Situ Pinning


Scary Things Wake Children at Night…

Quick Hit
Aggressive vs Defensive Bone Lesions

Osteosarcoma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Osteosarcoma

- Most common childhood malignant primary bone tumor
- Often occurs at the metaphyseal ends of long bones.
- Up to 15% will present with clinically evident metastases. (cramer)
- Cause remains unknown.

Osteosarcoma

- Sign/Symptoms
  - Pain and swelling in the affected area (Cramer & Scherl, 2004).
  - Pain is not affected with weight bearing, often may present with pain that is worse at night (Lawrence, 1998).

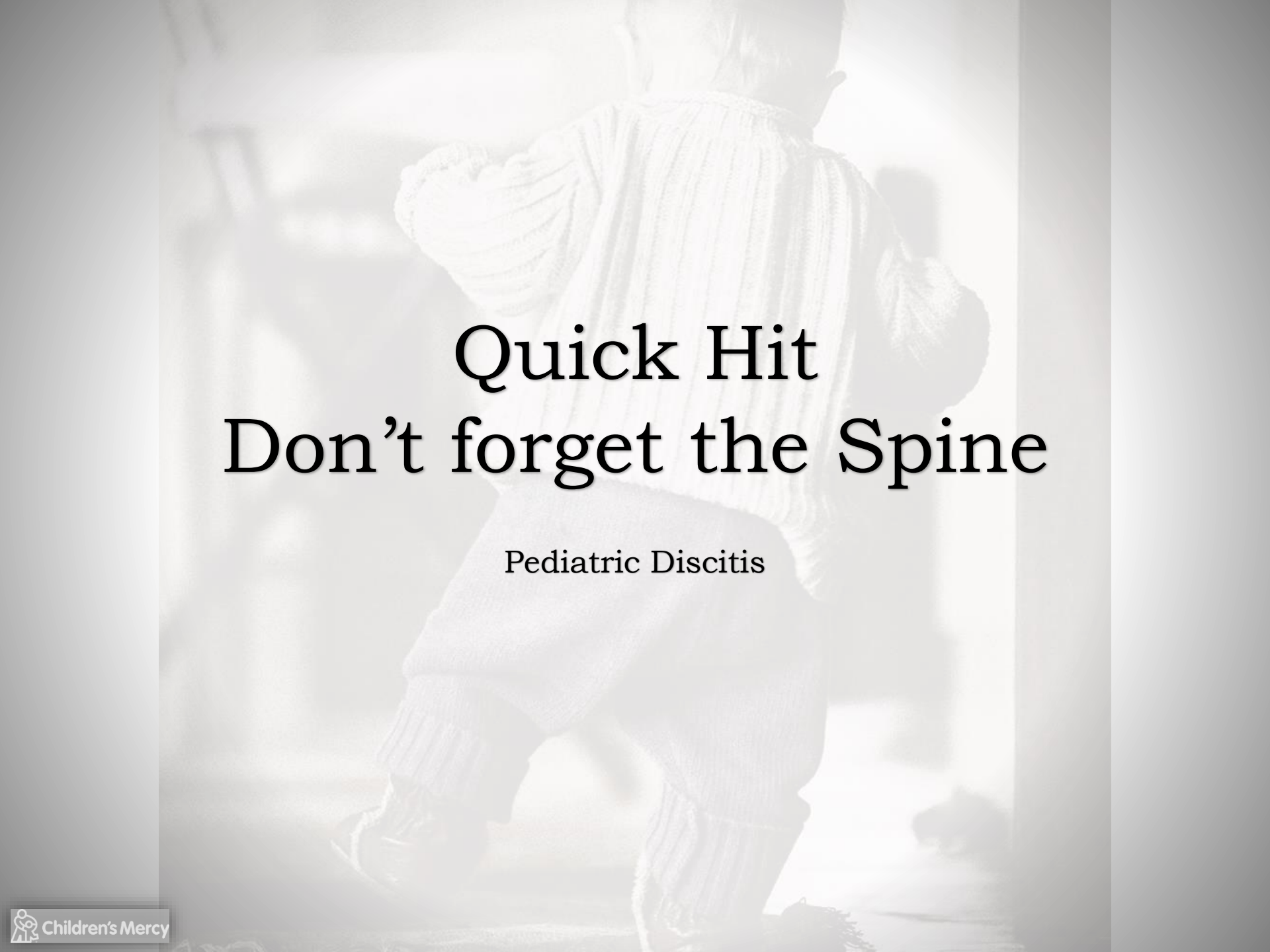
Osteosarcoma

- Treatment
  - Immediate referral to Pediatric Orthopaedic Surgeon and Pediatric Oncologist
    - Will require surgical resection and chemotherapy
- Prognosis
  - Depends on location of tumor, size of tumor, and extent of metastases.

(Cramer & Scherl, 2004)

Need a Tumor Surgeon?

1) John Krumme MD
   - jwkrumme@cmh.edu



Quick Hit
Don’t forget the Spine

Pediatric Discitis

Discitis

- An infection occurring in or around the intervertebral disk space
  - Typically, is associated with infection of the adjacent vertebrae (osteomyelitis)
- Thought to be bacterial in origin
- Can occur any where in the spine, typically presents in lower thoracic or lumbar regions

(Snider, 1997)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cm
IM: 1

Discitis

- Signs/symptoms
  - L
  - T
  - P
  - P
  - L
  - A
  - Nausea or vomiting

Figure 1: The elicitation of the Tripod sign: The child when asked to sit up tries to sit up by supporting himself with his hands placed behind him like a tripod

(Snider, 1997)

Discitis

- Labs
  - The WBC may be normal
  - ESR & CRP are usually elevated
  - Blood cultures are usually negative
  - Disc space cultures are negative in 50% of the cases.
- Radiographs
  - Plain radiographs may not be seen for 2-3 weeks
- MRI
  - Gold standard for imaging to evaluate soft tissues and for epidural abscess

(Snider, 1997)

Discitis

- Treatment
  - Referral to Emergency Room for Pediatric Orthopaedics & Pediatric Infectious Disease
  - Parental antibiotics for 2-4 days then transition to oral antibiotics for 4-6 weeks.
  - Surgical debridement is rarely indicated
  - Spine brace may be used for comfort

(Snider, 1997)


Children's Mercy

Child Abuse

Non-accidental Trauma (NAT)

- U.S and Human Services define. Department of Health s 4 main types of child maltreatment
  - Neglect (52% reported cases)
  - Physical abuse (24%)
  - Sexual abuse (12%)
  - Emotional abuse (6%)

- Always be suspicious of the fracture that is secondary to soft tissue injury.

(Cramer & Scherl, 2004)

Child Abuse

- At-Risk Children
  - Very young children
    - 80% of all fractures caused by Child Abuse occur in children younger than 18 months
    - 2009 Mean age for NAT was 11.8mos
  - Children with Disabilities
    - 3 times more likely to be maltreated
  - Parental and Environmental factors
    - Parents with low self esteem, drug/alcohol abuse, personal history of abuse
    - Socioeconomic status
      - Low socioeconomic households, children are 3x more likely to be abused
    - Perpetrator
      - Often known to child
      - Male
        - 50% of abusers being the father, stepfather, or male friend of mother

(Cramer & Scherl, 2004)
(AAOS, 2016)

Child Abuse

- Red Flags
  - Inconsistencies
    - History not compatible with degree of physical findings
    - History of repeated trauma
    - History not compatible with development age of child
    - Delay in seeking treatment

Child Abuse

- Fracture & pattern
  - Femur or tibia fractures in the non-ambulatory child
    - Child <18 mos with a femur fx has a 1:3 to 1:4 chance of NAT
  - Metaphyseal or epiphyseal fractures “corner fractures”
    - Result often from violent shaking of limbs or trunk thus high association with NAT
  - Rib fractures
  - Skull fractures
  - Scapular fractures
  - Sternal fractures
  - Humerus fractures in child less than 3
  - Multiple and unreported fractures
  - *Single transverse long bone fractures are the most common fracture in abuse-especially in children under 1 year of age*
- Obtain Skeletal survey on any child under 2 years of age with suspicious fractures or other evidence of abuse.

(AAOS, 2016)

Need Help with Child Abuse?

- Contact your closest Child Abuse Pediatrician
  - 1-800-GO-MERCY
  - Triage will answer
  - Ask for “SCAN doctor or Child Abuse Physician on Call”
  - May ask for ER physician if anticipating admission
  - Will provide guidelines for next steps in care

Child Protector App

- The is completely free to download and works with both iOS and android platforms.
  - Located in the app store and search “Child Protector” (pink shield icon and the CMH icon)
- Used by medical professionals and non-medical professionals - you can choose your user role.
- Menu options include “medical evaluation contacts”.
  - If you have chosen the state you practice in (KS, MO, TX) this area will populate with pertinent resources such as how to report abuse/neglect and includes the state hotline phone number, it also lists where you can contact a child abuse expert in your state with practice address and phone numbers.
  - The phone number listed for CMH is the 800-GO-MERCY (800-466-3729) number where they can reach us 24/7
- On the main screen you can choose types of injuries and have the option to look at “forensic decision-making tool” or “table of contents”
  - “forensic decision-making tools”: you can enter details about a patient you are seeing (such as injury type, child age, development etc) and it gives you guidance on recommended next steps including recommended medical evaluation.
  - still contact SCAN team or their local child abuse pediatrician when they have concerns for abuse but this is a great adjunctive tool.
- “Table of contents”
  - you can select any injury type (bruising, fractures, abdominal injuries, head injuries etc..) then the table of contents will take you to further information for education.

Questions

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