Pediatric hip pain

Resident: Crystal Nguyen MD
Attending: Dr. Bajwa MD

Chief complaint

15 week old female brought in by mother for inconsolable crying.

History

Symptoms: mom noticed her crying more often, especially throughout the night was consolable in the beginning but now every time mom attempts to move her around to console her begins to cry again.

Cry when mom moves her legs or has pressure on either side of hip.

Noticed her moving legs less over the past 2 days

Denies fever, change in activity, rash, swelling, redness of joint, go appetite good UOP and BM. bottle fed 4oz every 4h..

History continued

Birth hx: born at 28 weeks via c section due to breech presentation as a twin pregnancy.Apgars 2/2. NICU stay: Acute respiratory failure requiring intubation and placed on PPV discharge on 12/10. During hospitalization required IO access of right lower extremity

Family history: negative for hip dysplasia, autoimmune disease, congenital anomalies

PMH: see birth hx

Medications: none

Developmental milestones:

smiles spontaneously: yes

Follows past midline : yes, ooo,ahh: yes, lift head prone 45 degrees yes

Allergies : NKDA

Social hx: lives at home mom dad twin sister. No pets . no smoking in home.

Differential Diagnosis

Congenital Hip dysplasia

Septic arthritis

Transient synovitis

Child abuse/ neglect

Septic bursitis

Hip dislocation

Hip/joint effusion

Osteomyelitis

Lymes disease

Reactive arthritis

Obturator or psoas muscle abscess

Vitals

Vitals: HR 187

Tempt: 99.1

RR: 40

O2 97% room air

Physical exam

General: Alert and interactive. Well-developed, In no acute distress, Non-toxic appearing, producing tears. Strong cry
Skin: No rash seen, No bruising
Head: Normocephalic, Atraumatic, Anterior fontanelle open and soft, Anterior fontanelle flat
Eyes: Normal red reflex, Normal conjugate gaze, Normal conjunctiva, No discharge, PERRL
Ears: Normal canals, Normal tympanic membranes bilaterally
Nose: Patent, No discharge
Throat: Normal tonsils, No erythema, No exudates
Mouth: Moist mucous membranes, No thrush
Neck: Supple, No suprasternal retractions
Chest: No retractions, Normal symmetry
Heart: Normal rhythm, No murmurs, No gallops, Normal S1 and S2, 2+ femoral pulses
Lungs: Normal breath sounds, No crackles, No wheezes
Abdomen: Normal active bowel sounds, Not distended
Female GU: Normal female external genitalia, Tanner Stage 1
Back: Intact without defects, Straight, Non-tender
Screening DDH: **Ortolani's and Barlow's signs absent bilaterally. Leg length discrepancy: Left leg shorter than right leg. No notable gluteal fold asymmetry. Unable to appreciate clicks in hip.**
Extremities: Warm, Well-perfused, Brisk capillary refill, No edema, No clubbing, No cyanosis, Normal range of motion
Neuro: Conjugate gaze, no facial asymmetry, responsive to sound, intact gag reflex, tongue midline. Normal muscle tone and bulk, no clonus or seizures noted. Decreased movement of BL lower extremities

What would you like to order?

CBC

CRP

ESR

CMP

Blood culture

Xray hip

Ortho consult

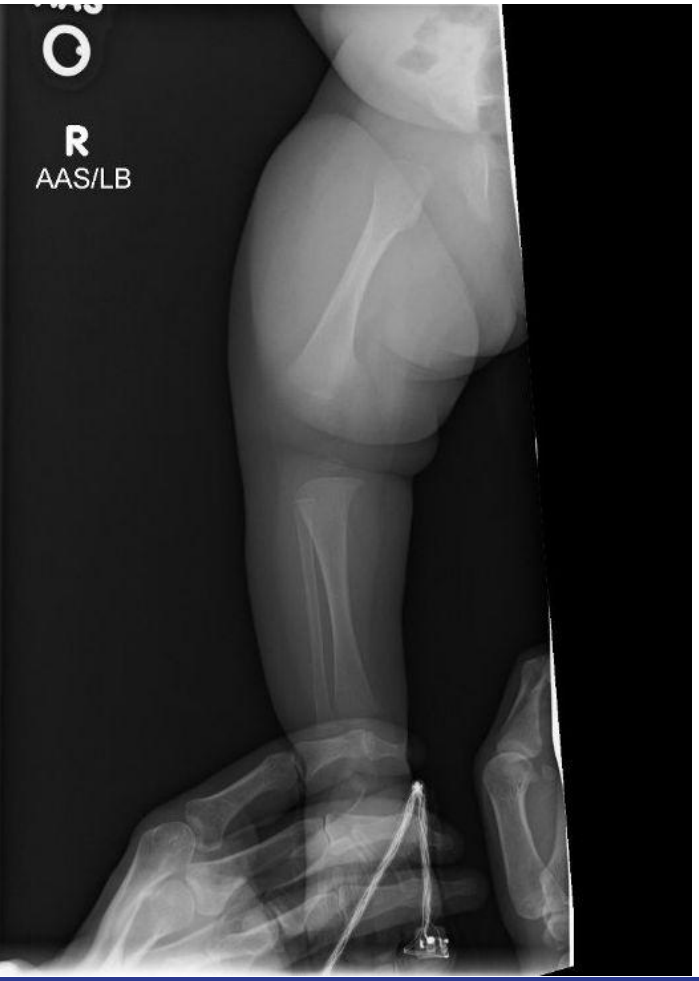
Labs

	Ref Range & Units	1/21/19 1345
WBC (RUH)	4.0 - 10.0 X10e9/L	9.9
Neut % (RUH)	37.0 - 80.0 %	37.7
Lymph % (RUH)	40.0 - 60.0 %	39.7 ↓
Mono % (RUH)	0.0 - 12.0 %	21.0 ↑
Eosin % (RUH)	0.0 - 7.0 %	0.4
Baso % (RUH)	0.0 - 2.5 %	1.2
NRBC % (RUH)	0.0 - 0.4 %	0.0
Neut # (RUH)	2.0 - 6.9 X10e9/L	3.7
Lymph # (RUH)	1.6 - 6.0 X10e9/L	3.9
Mono # (RUH)	0.0 - 0.9 X10e9/L	2.1 ↑
Eosin # (RUH)	0.0 - 0.7 X10e9/L	0.0
Baso # (RUH)	0.0 - 0.7 X10e9/L	0.1
NRBC # (RUH)	0.0 - 0.02 X10e9/L	0.00
RBC (RUH)	3.60 - 4.20 X10e12/L	3.14 ↓
Hgb (RUH)	10.0 - 12.0 g/dL	9.3 ↓
Hct (RUH)	30.0 - 36.0 %	27.9 ↓
MCV (RUH)	70.0 - 90.0 fL	88.7
MCH (RUH)	27.0 - 33.0 pg	29.4
MCHC (RUH)	32.0 - 36.0 g/dL	33.2
RDW (RUH)	11.8 - 14.6 %	14.8 ↑
Plts (RUH)	147 - 409 X10e9/L	694 ↑
MPV (RUH)	7.4 - 10.4 fL	7.8

Specimen Collected: 01/21/19 13:45

Last Resulted: 01/21/19 16:03

Order Details L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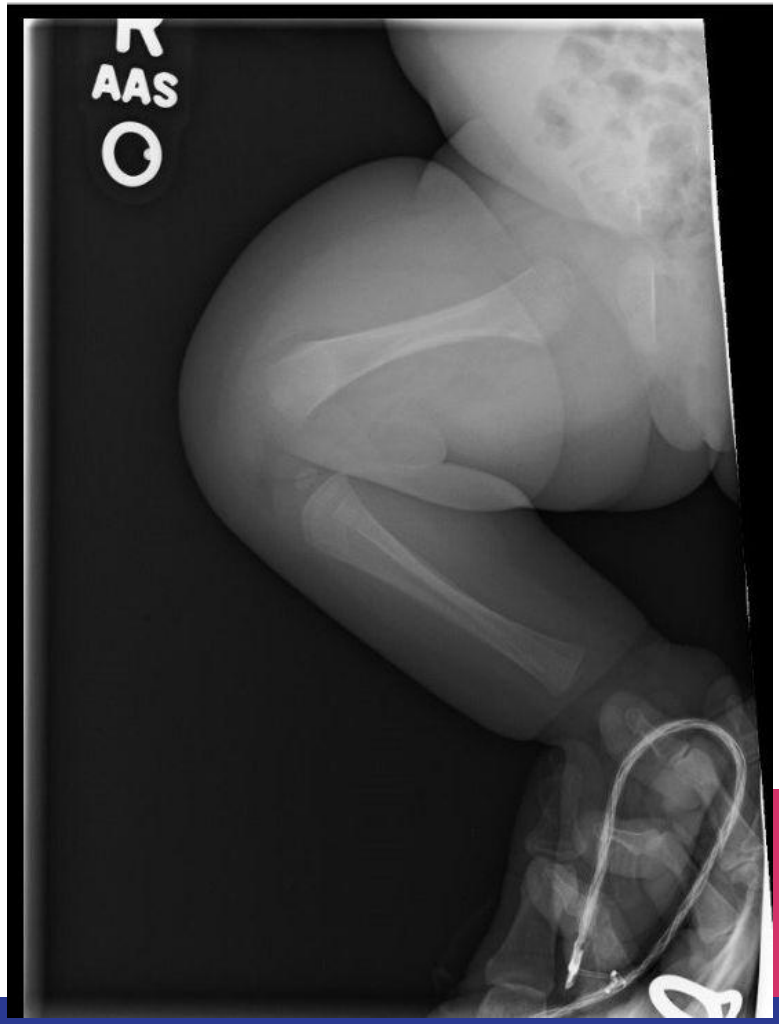
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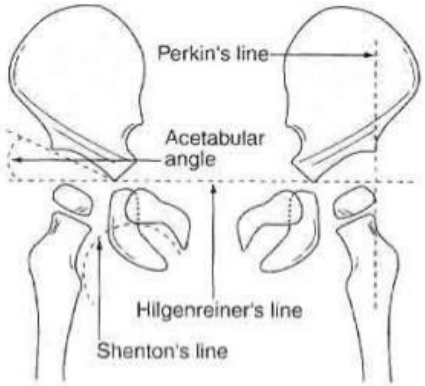
AAS

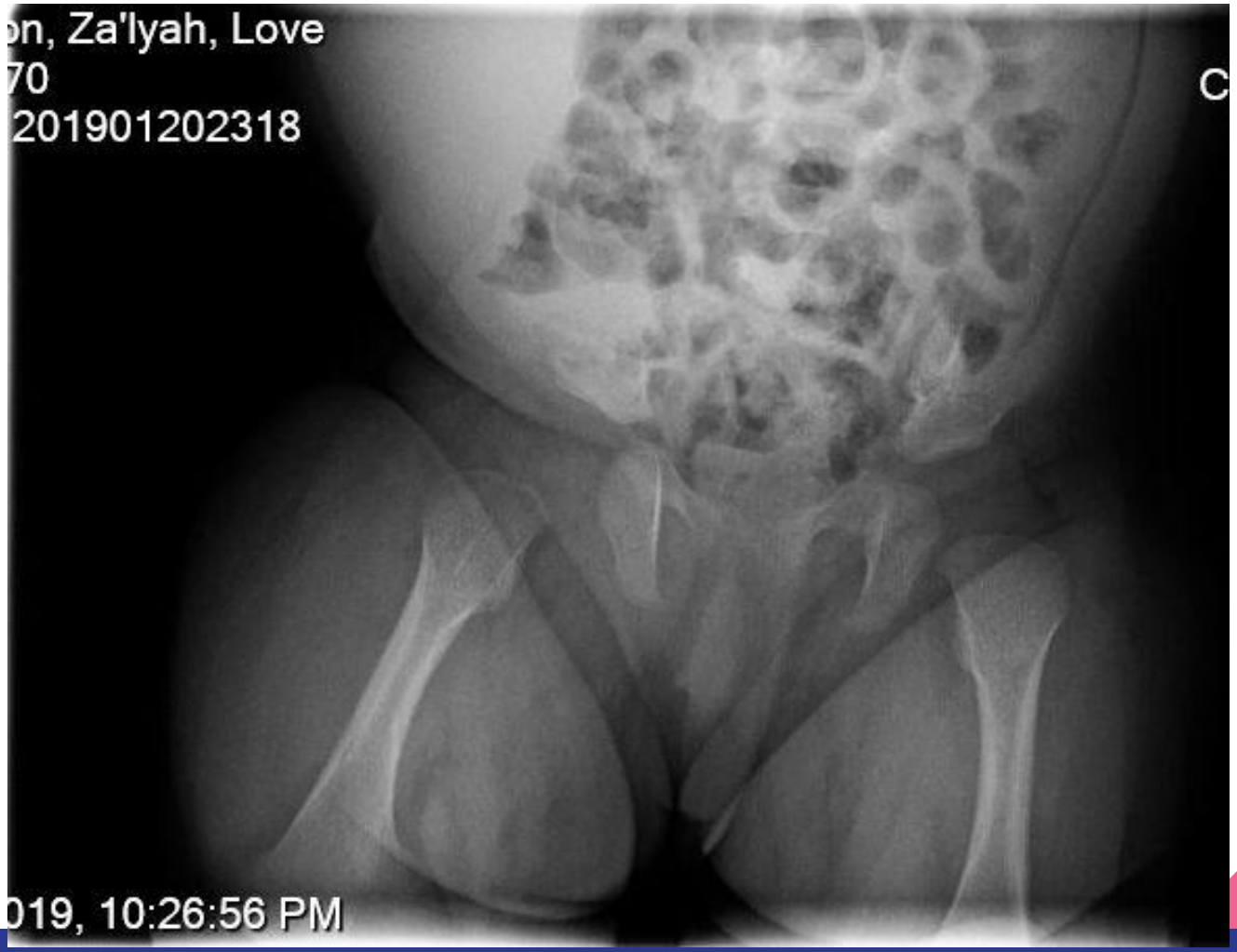
-**Shenton's curve** : smooth curved line connecting medial border of femoral metaphysis with the superior border of the obturator foramen

-**Hilgenreiner's line** : a horizontal line through the triradiate cartilage of the acetabulum

-**Perkin's line** : a vertical line (perpendicular to Hilgenreiner's line) from the lateral margin of the ossified acetabular roof that is normally tangential to the lateral margin of the ossification center of the femoral head

-**Acetabular angle** : angle that the acetabular line makes with Hilgenreiner's line

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Admitted for suspected right hip dysplasia

Ortho consult

Physical Examination:
General: WDWN female
Examination of the right lower extremity:
Skin: No open wounds, skin lesions, scars.
Vasc: DP pulse 2+ PT pulse 2+, cap refill < 2 sec
- equivocal Ortalani and Barlow's
- negative Galleazi sign
- ROM: Abduction of R/L: equal
- apparent limb length discrepancy on Right

Hover for details

ASSESSMENT:
1) R developmental dysplasia of the hip

PLAN:
- Patient requires urgent Pavlik harness - Hangar unable to accommodate special order until 1/21/19 am
- Informed mother need for urgent Pavlik harness
- Patient to be to be fitted for harness
- Further recommendations following Pavlik harness application
- Pain control and DVT prophylaxis as indicated

Evaluation does not end

In the am : ortho rounds on patient and concern for possible septic hip joint ordered ESR and CRP

WEST	--	103*
CRP	--	6.43*

Evaluation does not end

Ortho In am:

1) R developmental dysplasia of the hip vs septic hip

Plan:
Continue pavlik harness 23 hours/day, will consider MRI vs dynamic/static hip u/s to assess for R hip effusion vs DDH with concern as patient has elevated ESR/CRP
- Repeat ESR CRP today
- Pain control per primary

Initial R lower extremity Xray final read.

IMPRESSION:
Impression: Normal right lower extremity.

This report was electronically signed by:

Joel Block MD

Jan 22nd, 2019 3:35:00PM PST

Initial Xray right pelvis read returns

Pelvis single AP view:

A single AP view of the pelvis shows no evidence of fracture. The hip joints appear to be normal. There is no flattening of the acetabulum demonstrated. No findings to suggest congenital hip dislocation.

IMPRESSION:
Impression: Normal pelvis.

This report was electronically signed by:

Joel Block MD

Jan 22nd, 2019 3:22:00PM PST

Any new orders?

Ultrasound of right hip

COMPARISON: Pelvis and right lower extremity radiographs 1/20/2019

PROCEDURE: Gray scale sonographic images were obtained of both hips at rest and with stress maneuvers.

FINDINGS:

Grayscale sonographic images in the transverse and longitudinal plane at the right hip were performed without stress maneuvers. Multiple images demonstrate a very thin amount of fluid at the right hip, within the capsule, which may be within physiologic range. Note drainable fluid collection or effusion is seen.

IMPRESSION:
IMPRESSION: No drainable fluid collection or effusion.

Electronically signed by: Bryon Thomson, DO on 1/22/2019 12:19 PM

MRI of right hip

FINDINGS
Included portions of the abdomen and pelvis: Bilateral kidneys, bladder, spine, and included portions of liver are grossly unremarkable.

Right lower extremity: There is a right hip joint effusion. Soft tissue edema is noted throughout the muscles of the right thigh and pelvis including the rectus femoris, quadriceps, hamstring muscles, gluteus maximum and medius, adductor muscle groups, and included portions of the right iliopsoas. No asymmetric increased bony edema to suggest osteomyelitis. No focal drainable fluid collections identified. Superficial soft tissues appear normal. No knee joint effusion.

Left lower extremity: Soft tissue and osseous structures appear normal..

IMPRESSION:
IMPRESSION:
Right hip joint effusion, cannot exclude septic arthritis.
Myositis of the proximal right lower extremity without asymmetric increased fluid signal within the femur or pelvis to suggest osteomyelitis. No evidence of abscess formation.

This report was electronically signed by:

Alaa Beydoun MD

Jan 22nd, 2019 9:36:00PM PST

Patient transferred to Loma Linda for surgical evaluation overnight.

At Loma Linda

- Joint aspiration done by IR.
- wound culture collected.
- + light growth of GBS started on Rocephin

SEPTIC ARTHRITIS

epidemiology

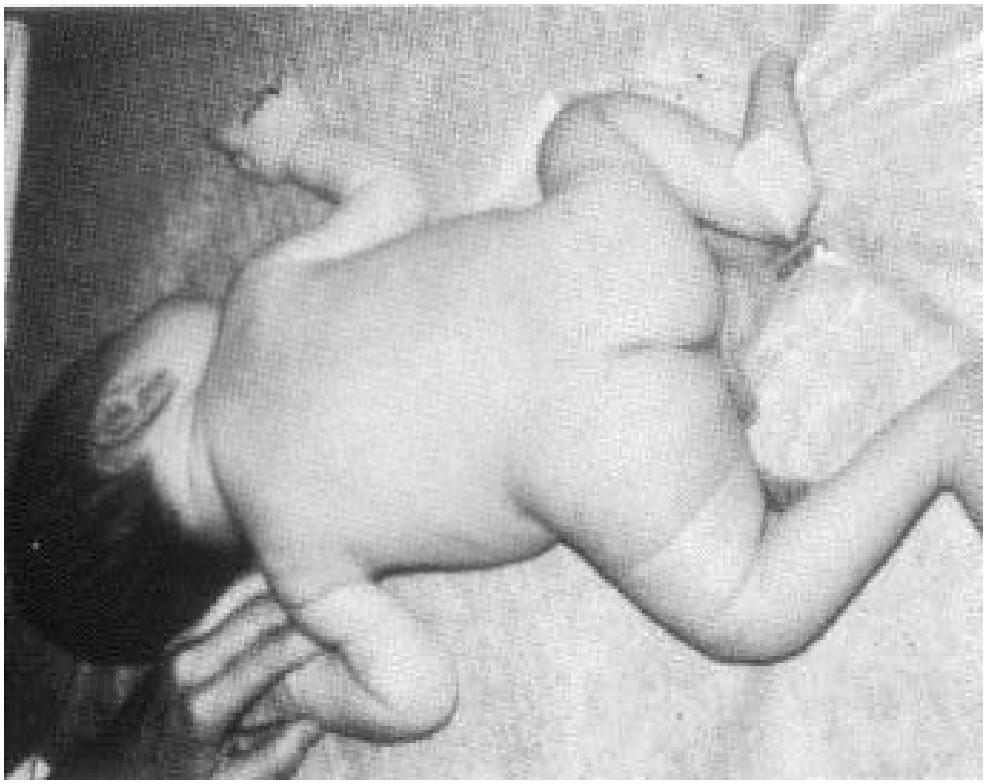
- Peaks in first few years of life
- Age : 50% cases occur in children younger than 2 yrs old.
- Location: hip 35% of cases, knee 35% cases
- RF: prematurity, C section, NICU stay, invasive procedures umbilical cath, venous cath, heel puncture.
- Organism: GBS most common in neonates.

Septic arthritis

- Typical presentation in neonates: irritability, poor feeding, cellulitis , fever without a focus of infection , lack of use, apparent discomfort on being handled (picked up having diaper change, postural changes, unilateral swelling of extremity/buttocks genitalia
- s/s subtle, acute
- More than one joint may be involved
- Micro: GBS, N. gonorrhoeae, gram negative bacilli, S. aures
- HIP specific: holding leg flex with slight abduction and external rotation,
- Swelling in region of thigh or buttocks
- Hx of venipuncture

Physical exam

- Ill appearing
- Tend to maintain the joint in position of max comfort
- Knees flexed, hips flexed, abducted, externally rotated.
- Skin evaluation : clues of bacterial arthritis ie: lyme disease, VZV
- Joint: typically red, swollen, warm tender to palpate, active/ passive range of motion is decreased



Labs

ESR>20mm/hour in most septic arthritis

CRP elevated mean of 8.5mg/ dl. (CRP is a good negative predictor for bacterial arthritis

Septic joint aspirate will show:

-high WBC >50,000 with >75% PMN, glucose 50mg/dl less than serum levels, high lactic acid level with infection due to gram positive cocci or gram negative rods

Imaging

Xrays: suggestive joint effusion/ or bacterial arthritis

Soft tissue swelling

Displacement of muscle surrounding joint

Widening of joint space

Distention of joint capsule

Subluxation

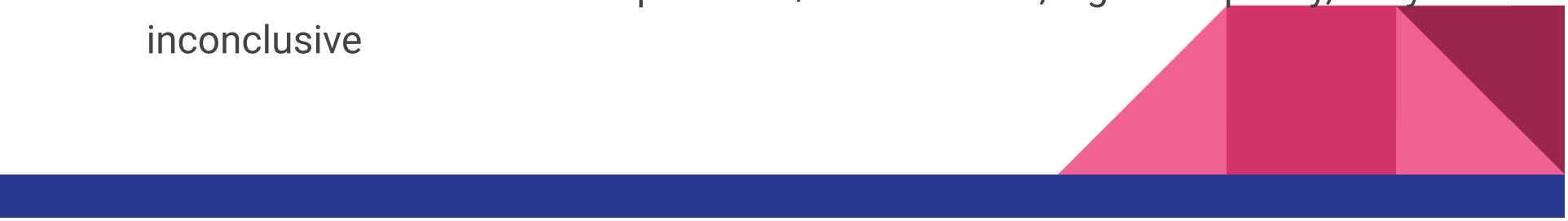
Erosion

Treatment

- Urgent surgical irrigation and debridement followed by IV antibiotics
- Aspiration of fluid

Take home points

- Diagnosis of septic arthritis is based off of physical exam and history however, if information does not correlate search for other differentials
- Always widen your differentials
- What to look for in outpatient setting: vitals, s/s of infection on physical exam, leg discrepancy.
    - Orders to think about: CBC, ESR, CRP, xray/
- When to consult ortho in outpatient: s/s of infection, leg discrepancy, x rays inconclusive



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