Septic Hip Clinical Practice Guideline

Epidemiology:
The majority of limping children who undergo emergency evaluation have a benign cause that is self-limiting. However, some children will require additional diagnostic studies and subspecialty care to diagnose and manage serious underlying etiologies. Differential diagnosis of children presenting with acute onset of limp and/or hip pain can include: transient synovitis, psoas abscess, other muscle abscess, or osteomyelitis. Chronic limps more often arise from overuse syndromes, slipped capital femoral epiphysis (SCFE), or systemic illnesses such as neoplasm or rheumatologic diseases.

- Septic Hip can affect any age group but occurs more frequently in infants and children and has more serious long-term sequelae if untreated
  - 50 percent of cases occur <20 years of age
  - Reported incidence 5 to 37 cases per 100,000
  - Most frequently occurs in children < 3 years, boys > girls (1.2-2: 1)

- Risk Factors in Neonate (< 1 month): Umbilical vein catheterization, central venous catheters, femoral osteomyelitis,

- Special populations are at higher risk for different bacteria
  - Sickle cell = salmonella
  - Infants/sexually active adolescents = N. Gonorrhea

Etiology:
- Hematogenous Spread (MOST COMMON IN CHILDREN)
  - Direct inoculation from injury
  - Spread from contiguous disease

  In infants the joint capsule and associated capillaries can extend to the epiphyseal plate until approx. 18 months so bone infections can quickly spread to the joint.

Physical Exam: (Does not always include all symptoms)
- Complaint of groin pain radiating down the thigh
- Hip is held in a position of flexion and external rotation
- Decreased range of internal rotation can be noted compared to normal hip
Revised March 2012

- Fussy
- Fever
- Child with a limp
- Reluctance to bear weight
- Asymmetry of joints or unequal movement in an infant

**Evaluation:**

If suspected Septic Hip:

1. Make child NPO
2. IV placed and IVF given: consider bolus initially if child clinically appears dehydrated
3. X-rays considered and obtained if needed. However, this should not delay consult to Orthopedics and Radiology for more definitive studies and evaluation.
4. Notify Radiology to prepare for imaging and possible procedure utilizing US
5. Notify Orthopedics of suspicion
6. Labs to obtain; CBC with differential, Blood culture, ESR, CRP
7. Kocher Criteria is utilized to determine risk for Septic Hip:
   a. non-weight-bearing on affect side
   b. sedimentation rate greater than 40 mm/hr
   c. fever
   d. WBC >12,000
8. Kocher Criteria met = probability child has septic arthritis
   4/4 -- 99%
   3/4 -- 93%
   2/4 -- 40%
   1/4 -- 3%
9. Joint aspiration is warranted if there is suspicion for a septic joint. Cell count, glucose, protein, gram stain and cultures should be sent to the lab. *Currently, this is performed by radiology under US guide, but can be done with fluoroscopy in the OR.* Depending on the age of the child, procedural sedation will be needed.

**************************************** TREATMENT ****************************************

1. Joint aspiration in a suspected joint can be both diagnostic and therapeutic.
2. Infants and children with bacterial arthritis of the hip require prompt surgical drainage and irrigation of the hip in addition to diagnostic aspiration. The clinical picture, labs and results from joint aspiration will help determine need for opening the hip joint in the operating room

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3. Delayed drainage increases the likelihood of adverse outcome. *Delay can cause destruction of articular cartilage. Increased intra-articular pressure can compromise the blood supply to the femoral head, resulting in avascular necrosis as well.*

**Empiric Antibiotic Therapy**

- Toxic appearing children need to be treated with antibiotics in a timely fashion, however, consider waiting until the evaluation is completed before delivering antibiotics to non-toxic appearing patients.
- All patients need anti-staphyloccocal coverage:
  - Toxic appearing: *Vancomycin and Oxacillin*
  - Non-toxic appearing: *Clindamycin (or vancomycin)*
- Special situations:
  - Neonates (≤ 3 Months): risk for group B Streptococcus, Gram negative rods
    - Add *Cefotaxime* (<1mo) or *Ceftriaxone* (>1mo)
  - Children 3mo – 3 yr: risk for Kingella kingiae
    - Add *Ceftriaxone*
- Sexually active teenaged: risk for Neiserria gonorrhoeae
  - Add *Ceftriaxone*
- Gram negative rod seen on Gram stain:
  - Add *Ceftriaxone*
- Direct inoculation (penetrating trauma):
  - Consider ID consult for additional empiric therapy
- Immunocompromised patient:
  - Consider adding *Cefazidime* for broader coverage
  - Consider ID consult
REFERENCES


