IMAGING INFANT HIPS AND THE LIMPING CHILD

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In continued support of the Image Gently Campaign, the Radiology Department at Children’s Mercy continues this newsletter series entitled “Commonly Requested but Misunderstood Studies” with a discussion on imaging infant hips and the limping child.

The most common reason for hip imaging in the newborn is hip dysplasia. Risk factors include being female, breech presentation, firstborn and family history of hip dysplasia (1).

Due to patient size and lack of epiphyseal ossification, ultrasound is the initial study of choice for possible hip dysplasia in children less than 6 months of age. After 6 months, radiographs of the pelvis are indicated.

In children with a limp or hip pain, the appropriate study (plain radiographs vs. ultrasound vs. MRI vs. bone scan) is strongly determined by the clinical history and physical exam. Specifically, one must know: (1) The child’s age (2) If a fever is present, how high (3) If there is hip pain with manipulation (4) Does the child refused to bear weight and (5) If there are positive lab inflammatory markers (ESR, CRP) and if so, how positive? Using this information, it may be possible to distinguish viral versus bacterial joint infection versus osteomyelitis and determine the appropriate imaging.

Children with transient (toxic) synovitis, are generally 3 to 8 years of age, present with a limp and less often refusal to bear weight. Symptoms usually resolve spontaneously within a few days. A low grade fever may be present or the child may be afebrile. Moderate pain is associated with passive motion of the hip on physical exam. NO IMAGING or HIP ASPIRATION is needed in children with toxic synovitis although many will have hip effusions. If symptoms persist, pelvic radiographs may be useful to evaluate for avascular necrosis.

Children with septic arthritis present at any age with a severe limp or inability to bear weight, fever, and guarding or severe pain with passive motion of the hip. In such cases, with a high suspicion of a septic joint, the child should be referred to an orthopedic surgeon, who will usually aspirate the joint. Orthopedic surgery will determine whether to obtain an ultrasound (will show an effusion) or plain radiograph prior to hip joint aspiration.

Children with osteomyelitis of the hip are the trickiest because symptoms can mimic a septic hip joint in many ways. Osteomyelitis should be suspected when a child has a fever and positive inflammatory markers typical of septic joint; however, the degree of hip pain is mild to moderate with passive motion causing the child to limp rather than refuse to bear weight. Reactive joint effusions are often present with hip osteomyelitis, thus an ultrasound may be misleading. The modality of choice to evaluate osteomyelitis is MRI (2).

If there are concerns regarding imaging approach or modality to be used, the ACR appropriateness criteria may be found on line at http://www.acr.org/Secondary MainMenu Categories/quality_safety/app_criteria/pdf.aspx or you may contact the Department of Radiology at Children’s Mercy Hospitals and Clinics.

To learn more about the Image Gently Campaign and take the pledge to reduce radiation in children, please visit http://www.pedrad.org/associations/5364/ig/.

References