Neonatal Transphyseal Fracture
Joseph Junewick, MD FACR
09/16/2010

History
Newborn with knee swelling.

Diagnosis
Neonatal Transphyseal Fracture

Discussion
Physeal fractures in neonatal period are rare. As a result, diagnosis is often delayed. Consideration of specific high-risk perinatal factors (breech presentation, macrosomia, difficult vaginal delivery or precipitous delivery) may lead to earlier diagnosis. Septic arthritis and osteomyelitis are the main differential considerations. Conditions which predispose to neonatal sepsis (maternal chorioamnionitis, prolonged rupture of membranes, and maternal chills and fever), should be sought although infection is unlikely for to present on the first day of life. Specific local signs suggesting trauma include swelling and bruising, with pain and limitation of motion. However, rarely an infant may develop infection concurrent with physeal fracture. Acutely, often only clue to the radiographic diagnosis is malalignment of the epiphysis if it is ossified or malalignment at the joint. If the fracture extends through part of the metaphysis, a tiny bone fragment may be evident. Recent utilization of ultrasonography or and magnetic resonance imaging have facilitated diagnosis; both US and MR allow visualization of the epiphyseal cartilage relative to the metaphysis.

Findings
US-Linear high resolution images reveal periosteal elevation and malalignment of the epiphysis relative to the metaphysis.
CR-Radiographs 1 week after the US show exuberant periosteal callus related to healing.

Reference

Contributor
Linda Woolpert, RT RDMS