

Leukemia

Joseph Junewick, MD FACR

12/28/2009

History

4 year old with several week history of arthralgias and pancytopenia.

Diagnosis

Leukemia

Additional Clinical

Bone marrow biopsy-Acute lymphoblastic leukemia with precursor B

Discussion

Patients with bone pain and leukemia often have normal or nearly normal hematological studies and consequently osseous manifestations are still often a key to diagnosis. Approximately 20% of patients have musculoskeletal symptoms (limp, bone pain and arthralgias) at presentation although osseous lesions are most common less than 5 years of age.

Radiographic abnormalities include osteoporosis, transverse lucent metaphyseal bands, focal destruction, periostitis, permeative osteolysis and diffuse osteosclerosis. Metaphyseal lucent bands may be related to metabolic dysfunction or leukemic infiltration and are most commonly seen around the knee. Focal destruction (chloroma) is related to focal accumulations of leukemic cells. Chloromas can occur in any bone (usually the metaphysis) as a result of myeloid type leukemia. Periostitis is the result of leukemic extension from the marrow to the cortex through the Haversian canals and/or subperiosteal hemorrhage. Osteosclerosis is associated with myelogenous leukemia is likely related to activation of marrow derived osteoblasts.

Other less commonly osseous manifestations include permeative osteolysis, cortical erosions, pathologic fractures (vertebra plana), and avascular necrosis. Osseous manifestations of leukemia are not specific; similar abnormalities are seen with other malignancies (e.g., neuroblastoma), metabolic disease, and infection.

Findings

CR-Permeative osteolysis of the proximal metaphysis of the fibula and associated periostitis. Also note the subphyseal metaphyseal lucent bands of the distal femur, proximal tibia and proximal fibula.

Reference

Strouse PJ. Bone changes in hematologic disease. Caffey's Pediatric Diagnostic Imaging, 11th Ed. 2008.



Educational Use Only

SPECTRUM HEALTH



Educational Use Only

SPECTRUM HEALTH

Sponsored By



Disclaimer

This teaching site is partially funded by an educational grant from GE Healthcare and Advanced Radiology Services, PC. The material on this site is independently controlled by Advanced Radiology Services, PC, and GE Healthcare and Spectrum Health have no influence over the content of this site
Content Download Agreement

The cases and images on this website are owned by Spectrum Health. Permission is granted (for nonprofit educational purposes) to download and print materials to distribute for the purpose of facilitating the education of health professionals. The authors retain all rights to the material and users are requested to acknowledge the source of the material.

Site Disclaimer

This site is developed to reach healthcare professionals and medical students. Nothing this site should be considered medical advice.

Only your own doctor can help you make decisions about your medical care. If you have a specific medical question or are seeking medical care, please contact your physician.

The information in this website is provided for general medical education purposes only and is not meant to substitute for the independent medical judgment of a physician relative to diagnostic and treatment options of a specific medical condition.

The viewpoints expressed in these cases are those of the authors. They do not represent an endorsement. In no event will Advanced Radiology Associates, PC, Spectrum Health Hospitals (Helen DeVos Children's Hospital) or GE Healthcare be liable for any decision made or action taken in reliance upon the information provided through this website.