Leukemia and Lymphoma: Abdominal Imaging Manifestations of Hematologic Malignancies and their Mimickers

Andrew Kesselman, Anju Dubey, Jason Gonsky, Patrick Hammill

Purpose
1. To highlight the abdominal imaging characteristics of Leukemia and lymphoma in solid and hollow viscous organs
2. Review specific cases with emphasis on major teaching points
3. Demonstrate unique conditions which may mimic Leukemia and lymphoma

Background/Epidemiology
- Leukemia, lymphoma, and other hematologic malignancies together accounted for about 9.4% of cancer related deaths in 2012, with an even higher percentage in children.
- Extranodal involvement more common in immunosuppressed patients and suggests advanced disease.

Imaging Characteristics
- GI Tract: Gastric > Small Bowel > Colon > Esophagus
- Liver and Spleen: Usually results in nonspecific organomegaly but can cause uni- or multifocal masses
- Kidney/adrenals: Multifocal pattern most common
- Lymph node enlargement most common yet nonspecific

Main Teaching Points
1. Abdominal leukemia and lymphoma are a heterogeneous group of hematologic malignancies of lymphoid or myeloid origin with both nodal and extranodal clinical and radiological manifestations.
2. Lymph node enlargement is the most common finding, although the most non-specific sign of abdominal involvement. Extranodal involvement can be seen throughout the solid and hollow viscous organs with classic and sometimes bizarre imaging appearances.
3. Various mimicking lesions mirror the radiologic characteristics of abdominal lymphoma and leukemia ranging from other malignancies, tuberculosis, opportunistic infections, sarcoidosis and benign lymphoproliferative disorders.

References:

#1 – Chronic Myelogenous Leukemia vs. Sarcoidosis
Multiple hypodense lesions within the splenic parenchyma
Differential Diagnosis: Metastatic disease, Pneumocystis carinii, Histoplasmosis, Kaposi sarcoma, Tuberculosis

#2 – Adult T cell Leukemia/Lymphoma vs. Hepatic Candidiasis
Multiple hypodense lesions throughout the hepatic parenchyma
Differential Diagnosis: Metastatic disease, Multifocal abscesses, Kaposi sarcoma, Sarcoidosis

#3 – Diffuse B cell Lymphoma vs. Typhilitis
Small bowel wall thickening is noted on these images
Differential Diagnosis: Inflammatory bowel disease, Bowel wall hemorrhage, Enteritis, Amyloidosis

#4 – Hodgkin’s Lymphoma vs. Castleman’s Disease
Images demonstrate diffuse abdominal lymphadenopathy
Differential diagnosis: Metastatic disease, Tuberculosis, Nontuberculous mycobacterial infection, mesenteric infiltrates

#5 – Peri-renal Lymphoma vs. Peri-renal Hematoma
Amorphous high density surrounding the left kidney
Differential Diagnosis: Hemorrhagic: Angiomyolipoma, metastatic disease, renal cell carcinoma, Post-traumatic