

CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Medical Imaging Quiz – Case 77

A 73-years-old man admitted to the hospital due to leukocytosis (WBC 65,000/mL). The patient underwent a chest computed tomography (CT) scan (fig. 1). Due to laboratory and radiological findings, he underwent a sternal aspiration.

Comment

Chronic lymphocytic leukemia (CLL) is a hematological malignancy characterized by the proliferation of mostly mature but abnormal leukocytes. Chronic lymphocytic leukemia is considered the most common type of leukemia in the Western hemisphere; its prevalence in Europe and North America ranges from 29–38% of all leukemias. It primarily affects adults 65–70 years of age.

The diagnosis is generally established by a bone marrow biopsy and immunophenotyping. Up to half of the patients can be asymptomatic with the disease being incidentally discovered by routine blood workup. Patients may sometimes present with hepatomegaly, splenomegaly or both, and or hemolytic anemia. It is a B-cell lineage neoplasm of prefollicular center cells that is usually associated with circulating neoplastic small lymphocytes. From a morphologic and immunophenotypic perspective, the malignant cells of CLL tend to be identical to those of nodal-based small lymphocytic lymphoma (SLL), and these two malignancies are thought to represent different manifestations of the same disease.

Imaging may identify various features of the disease, such as splenomegaly, hepatomegaly, lymphadenopathy, although these are not specific to the disease.

Over one third of chronic lymphocytic leukemia patients have pulmonary involvement. Pathologic pulmonary leukemic infiltration occurs in roughly 18% of cases and can present with different radiographic features. Other pulmonary manifestations include

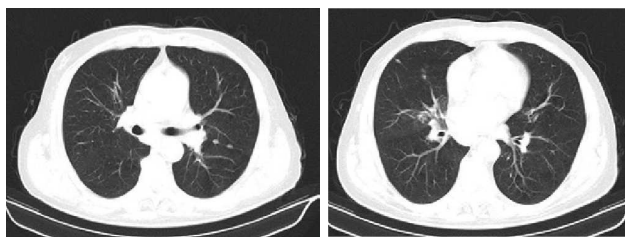


Figure 1. Chest computed tomography (CT) scan revealed smooth nodular opacities of approximately 1 cm diameter on all interlobar fissures.

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hilar and mediastinal lymphadenopathy, pleural effusion, and rarely endobronchial involvement. Radiographic findings of pulmonary involvement include interstitial thickening, parenchymal nodules, and centrilobular tree-in-bud opacities. Atelectasis and airway obstruction can be noted if an endobronchial involvement is present. While endobronchial involvement is uncommon in non-Hodgkin's lymphoma, it is particularly rare in CLL. Severe bronchial narrowing from friable edematous mucosa and formation of intrabronchial plaques have been reported. However the radiographic abnormalities are usually due to leukemic infiltrations and mostly are related to hemorrhage (74%), infection (67%) and edema (57%). The radiographic appearance of pulmonary leukemic infiltration mainly consist of bilateral reticular changes (thickened interlobular septa) and in lesser degree of small pulmonary nodules and focal homogenous opacities.

As with other types of bone marrow infiltrative disease, it is possible to see a diffusely hypointense signal of bone structures on T1, easier to see on spinal magnetic resonance imaging (MRI).

References

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Diagnosis: Chronic lymphocytic leukemia