CHEST

A 74-Year-Old Man Presenting With Cough, Malaise, and Mediastinal Lymphadenopathy

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CASE PRESENTATION: A 74-year-old white male farmer was admitted from his primary care physician's office after he presented with symptoms of cough productive of clear sputum, malaise, weakness, fatigue, and shortness of breath on exertion for 3 weeks. He was an ex-smoker with a history of hypertension, hyperlipidemia, and coronary artery bypass graft surgery. He did not report any chills, night sweats, or fevers during this presentation.

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Physical Examination Findings

On examination, the patient appeared distressed with shortness of breath, his respiratory rate was 18 breaths/min, oxygen saturation was 92% on oxygen supplementation at 3.5 L/min via nasal cannula, heart rate was 74 beats/min, blood pressure was 134/64 mm Hg, and body temperature was 36.9°C. He had bibasilar inspiratory crackles on auscultation of his lungs and bilateral peripheral edema but no jugular venous distension, cardiac murmurs, or neurologic deficits on his systemic examination.

Diagnostic Studies

On laboratory testing, his WBC count was 38,700 cells/μL (monocytes 46%, blasts 12%, myelocytes 4%, neutrophils 10%, atypical cells 4%, lymphocytes 22%, and eosinophils 2%), hemoglobin level was 7.4 g/dL, platelet count was 43,000 cells/μL, and serum creatinine was 2.2 mg/dL. There were no prior baseline studies available for comparison. Bibasilar interstitial changes were seen on the initial chest radiograph (Fig 1). CT scan of the chest showed prominent mediastinal lymphadenopathy (Fig 2), mainly involving the right pretracheal and subcarinal lymph nodes along with small bilateral pleural effusions. In addition, bilateral alveolar ground glass densities involving the upper and lower lobes of the lungs were seen (Fig 3). His N-terminal pro-brain natriuretic peptide was elevated at 9,381 pg/mL (normal < 900 pg/mL). He had moderate mitral regurgitation on transthoracic echocardiogram

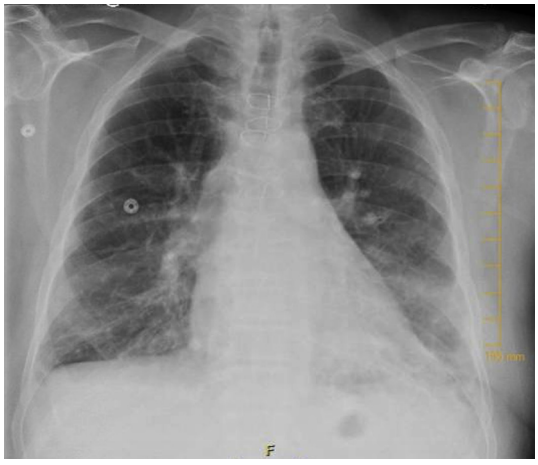

Figure 1 – *Chest radiograph with bibasilar interstitial infiltrates.*

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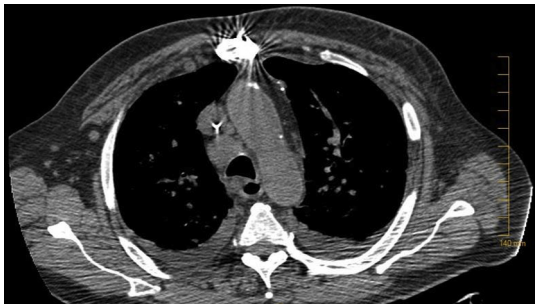

Figure 2 – *Chest CT scan (mediastinal window) showing right pretracheal lymphadenopathy.*

with normal left ventricular systolic and diastolic function. Prior cardiology consultation reports were not available to determine if the mitral regurgitation was acute or chronic, and the patient himself was unaware of any previous cardiac valvular problems. A bone marrow aspirate showed 26% myeloid blasts with monocytic differentiation, confirming the diagnosis of acute myeloid leukemia (AML). Karyotype was normal on cytogenetic studies.

On the clinical suspicion of decompensated congestive heart failure based on the bilateral alveolar ground glass opacities on CT scan, elevated N-terminal pro-brain natriuretic peptide, and echocardiogram findings, and a possibility of opportunistic infections, the patient was started on diuretics and broad-spectrum antibiotics, respectively. In addition, decitabine chemotherapy was initiated for his AML. Over the course of the next few days, the patient's symptoms of cough, malaise, and fatigue improved; his oxygen saturations were 99% on 3 L/min of supplemental oxygen via nasal cannula; and he started to ambulate without any shortness of breath. The mediastinal lymphadenopathy persisted despite an improvement in alveolar opacities on repeat CT chest scan done after 9 days from the previous study.

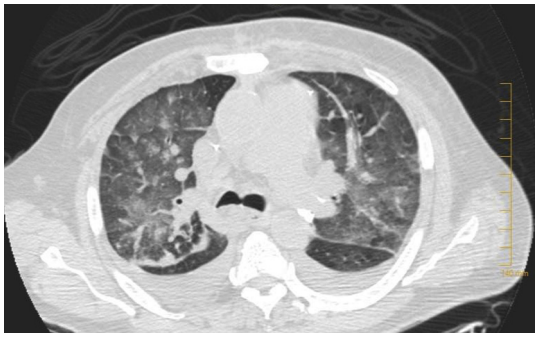

Figure 3 – *Chest CT scan (lung window) with bilateral ground-glass opacities.*

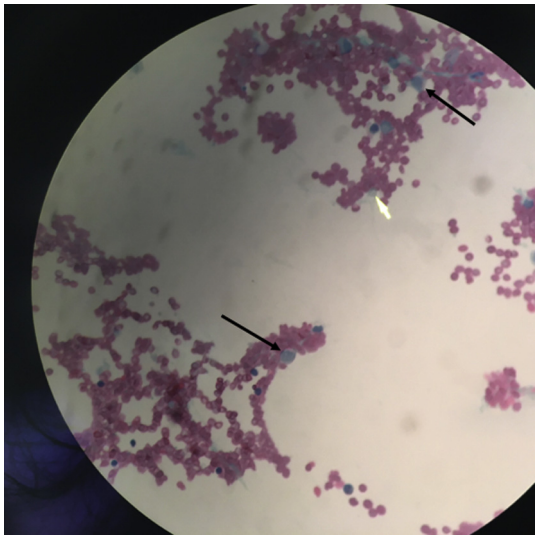

Figure 4 – *Cell block of the transbronchial needle aspirate sample from the mediastinal lymph node (hematoxylin-eosin stain, original magnification ×40).*

Bronchoscopy with BAL, transbronchial biopsy from the left lower lobe, and transbronchial needle aspiration (TBNA) of the right pretracheal and subcarinal lymph nodes under endobronchial ultrasound guidance was performed. Findings from the cell block prepared from the TBNA specimen are as shown (Fig 4, arrows).

What is the diagnosis?