

A 62-Year-Old Woman With Wheezing, Respiratory Failure, and an Abnormal CT Scan



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CASE PRESENTATION: A previously healthy 62-year-old woman was transferred to the ICU from the medical ward with acute bronchospastic respiratory failure requiring intubation and mechanical ventilation. Four weeks before, the patient was vacationing in Arizona and acquired a mildly productive cough as well as mild dyspnea. She presented to an urgent care facility and was diagnosed with community-acquired pneumonia. She received a 5-day course of azithromycin, with partial improvement of her symptoms. The patient returned home 1 week prior to admission, reporting worsening dyspnea, chest pressure, cough, and fever. The patient was admitted to the medical ward, and treatment for unresolved pneumonia was begun with levofloxacin, an inhaled short-acting beta agonist, and oral prednisone. Despite this treatment, the patient experienced severe respiratory distress with audible wheezing as well as increased work of breathing. She was intubated for acute hypoxemic respiratory failure and transferred to the ICU. CHEST 2017; 152(3):e73-e76

Physical Examination Findings

On physical examination, the patient was afebrile, with a heart rate of 109 beats/min, a BP measurement of 103/66 mm Hg, a respiratory rate of 25 breaths/min with labored breathing, and oxygen saturation of 95% on 40% fraction of inspired oxygen. Diffuse bilateral end-expiratory wheezing was present on lung auscultation. Cardiac examination revealed tachycardia with a regular rhythm. The abdomen was soft, not distended, and without tenderness to palpation or organomegaly. A skin examination did not reveal any rashes. There was no evidence of lower-extremity edema. The neurologic examination was unremarkable.

Diagnostic Studies

Pertinent laboratory findings included leukocytosis (WBC count, $12.1 \times 10^3/\mu\text{L}$) with 16% eosinophils and an absolute eosinophil count of $1.9 \times 10^3/\mu\text{L}$. Chest CT (Fig 1) angiography was obtained after intubation and was negative for pulmonary embolism but demonstrated bilateral diffuse centrilobular and “tree-in-bud” opacities, diffuse bronchial wall thickening, and a well-circumscribed 1.6-cm round nodule in the posterior segment of the right lower lobe. Bronchoscopy revealed extensive endobronchial edema, erythema, dynamic collapse, and mucosal inflammation throughout the tracheobronchial tree as shown in Figure 2. Additionally, thick copious mucopurulent secretions were present. BAL fluid from the right middle lobe was significant for elevated WBCs to $2,800 \times 10^3/\mu\text{L}$ with 65% eosinophils. Gram staining and routine bacterial culture results, as well as fungal staining and culture results, were negative. Serologic samples for coccidioidomycosis testing were sent for IgG and IgM testing.

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Figure 1 – CT image of right middle lobe bronchus with diffuse thickening of the airway.

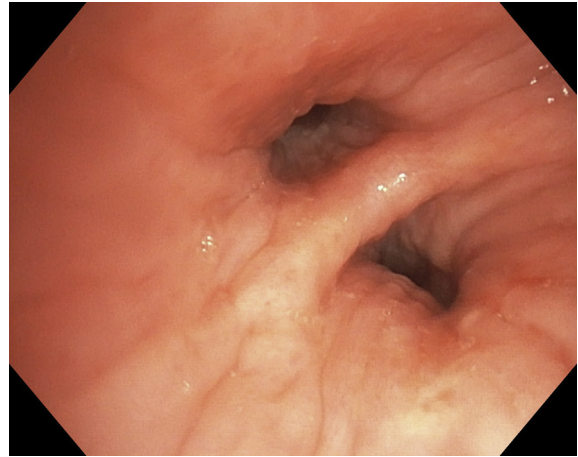


Figure 2 – Right middle lobe bronchus showing edema, erythema, dynamic collapse, and mucosal inflammation.

What is the diagnosis?

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