Crohn’s disease is a chronic inflammatory disorder commonly involving the gastrointestinal tract. However, Crohn’s disease may also have several extraintestinal manifestations, such as pyoderma gangrenosum, erythema nodosum, polyarthritis, episcleritis, pericholangitis, and thromboembolism. Pulmonary involvement, although rare, has also been reported in association with inflammatory bowel disease.

We report a patient with Crohn’s ileocolitis who presented with multiple pulmonary nodules on chest radiograph, nonproductive cough, and shortness of breath. The diagnosis of pulmonary Crohn’s disease was established by histological examination of the pulmonary nodule following open lung biopsy. The patient was treated with infliximab infusion with a successful clinical outcome and radiographic resolution.

CASE REPORT

A 66-year-old female was hospitalized with shortness of breath and palpitations. She also complained of mild nonproductive cough for the past several weeks. She denied any history of chest pain, fever, or hemoptysis. There was no history of paroxysmal nocturnal dyspnea or pedal edema. She was diagnosed with Crohn’s ileocolitis three years ago, when she presented with abdominal cramps and diarrhea. At that time, computed tomography of the abdomen showed thickening of the terminal ileum and ascending colon. Upper gastrointestinal and small bowel series showed nodularity and thickening of the terminal ileum suggestive of Crohn’s ileitis. Colonoscopy with distal ileum visualization revealed mucosal edema, nodularity, and ulceration involving the terminal ileum, cecum, and ascending colon. Granuloma and chronic inflammatory cells infiltrating the entire mucosa were noted in the biopsies of the ileum and cecum. She was treated initially with oral corticosteroids. However, she suffered debilitating insomnia and mood changes with steroid treatment and was therefore placed on slow-released mesalamine 4 g/day (Pentasa, Hoechst, Kansas City, Missouri, USA). She subsequently presented with pyoderma gangrenosum and polyarthritis involving the knees, elbows, and metacarpophalangeal joints. Rheumatological investigations including rheumatoid arthritis factor and anti-nuclear antibody were negative. Since the patient had moderately severe disease with extraintestinal manifestations and intolerance to corticosteroid therapy, infliximab (5 mg/kg) infusion was given with resolution in arthritis, pyoderma gangrenosum, and gastrointestinal symptoms.

Her past medical history was significant for carcinoma of the breast for which she underwent right mastectomy, coronary artery disease with angioplasty, and ablation therapy for paroxysmal supraventricular tachycardia. Physical examination on this admission revealed tachycardia with heart rate of 190/min with pulse oximetry 96% on 2-liter oxygen per nasal cannula. Chest findings included crackles at the left lung base. Cardiac examination was remarkable only for tachycardia. The abdomen was minimally tender in the right lower quadrant with no distention or organomegaly. Digital rectal examination was normal with no evidence of perianal disease. Skin and joint examination was unremarkable with no evidence of pyoderma gangrenosum or arthritis. Electrocardiogram showed paroxysmal supraventricular tachycardia that was converted to sinus rhythm with intravenous adenosine. Laboratory investigations revealed white blood count of 10.9 × 10^3, hemoglobin of 11.1 g/dl, and erythrocyte sedimentation rate of 43 mm/hr. Chest radiograph revealed multiple pulmonary nodules in the left lung base (Figure 1). Computed tomography of the chest showed multiple nodules in the left lung with no lymphadenopathy.

Given her history of breast cancer, a metastatic lesion in the lung was suspected. Therefore, open lung biopsy was performed; histopathology demonstrated areas of bronchiolitis obliterans with organizing pneumonia consisting of lightly stained elongated areas of fibrosis in the airspaces. The fibrosis was characterized by fibroblasts in the light-staining matrix (Figure 2). Patchy areas with sparse lymphoplasmocytic interstitial infiltrate showing occasional granulomas formed by several epitheliod histiocytes and...
multinucleated giant cells were also present (Figure 3). Chronic inflammatory cell reaction and granuloma were similar to that observed in the ileal biopsies.

As pulmonary involvement of Crohn’s disease was suspected and the patient had a severe adverse reaction to corticosteroids, she was treated with infliximab infusion. Her dyspnea and cough resolved within four weeks. Chest radiograph taken at five weeks showed complete resolution of the pulmonary nodules (Figure 4).

**DISCUSSION**

A variety of extraintestinal manifestations have been described in association with inflammatory bowel disease. Among these, cutaneous manifestations such as pyoderma gangrenosum and erythema nodosum, articular and hepatic involvements are more common. Pulmonary involvement related to inflammatory bowel disease is rare. In 1976, Kraft et al described the possible association of inflammatory bowel disease with bronchopulmonary involvement in six patients who presented with bronchial suppuration and or bronchiectasis (1). Since then several investigators have reported a wide spectrum of bronchopulmonary involvement including bronchitis, tracheal...

---

*Fig 1.* Chest radiograph (PA view) showing multiple nodules in the left lung.

*Fig 2.* Bronchilitis obliterans with organizing pneumonia (BOOP); light staining fibrous plugs obliterating airspace. Hematoxylin and cosin, original magnification ×120.