



Cavitating Lung Lesions in Adults with Crohn's Disease

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Abstract

Different pulmonary changes occur in some patients with Crohn's disease. This study explored literature reports of necrobiotic pulmonary nodules that may present clinically with shortness of breath and dyspnea, or alternatively, be completely asymptomatic and simply detected by radiographic studies. These may be reflective of an extra-intestinal manifestation of Crohn's disease, similar to focal lesions in bone, skin or other urogenital site with accompanying granulomatous inflammation. Frequency of this pulmonary entity may be much higher than clinically appreciated, in part, owing to prior limitations in physician recognition and their reported complete responsiveness to courses of treatment with corticosteroids.

Keywords: Cavitating Lung Lesions; Crohn's Disease; Necrobiotic Pulmonary Nodules

Pulmonary changes in Crohn's disease

Over the past few decades, several reports have noted the development or co-existence of pulmonary changes in patients with inflammatory bowel diseases, including Crohn's disease [1-4].

Previously, alterations in the lungs in adults due to Crohn's disease were thought to be rare, and usually attributed to other co-existent lung diseases although, in some, an overlap with sarcoidosis was also noted [5-7]. In other cases with Crohn's disease, however, airway or interstitial disease was noted, often thought to be related to treatment medications, such as mesalamine [8].

Pulmonary cavitation was also noted to occur but not necessarily directly related to Crohn's disease. In some, cavitation was often attributed to infections, particularly tuberculosis, pneumocystis or fungal infections.

Immune suppression also was known to predispose patients with established Crohn's disease to cavitating lung malignancies, such as lymphoma. In addition, systemic vasculitis [9] involving

the lung or necrobiotic lung nodules in Crohn's disease associated with granulomatous inflammation were believed to produce similar clinical features with cavitation. This last group of localized granulomatous inflammation with necrosis in the lungs, however, was very distinctive owing to its pathologically similar appearance to "localized" extra-intestinal sites of tissue involvement elsewhere in Crohn's disease.

Necrobiotic nodules, as extraintestinal manifestation

In recent decades, there has been enhanced recognition of a long list of extra-intestinal manifestations in up to 40% of all Crohn's disease patients [10]. Some of these were associated with a histopathological "footprint" of Crohn's disease, granulomatous inflammation and multinucleated giant cells. This included unusual sites, such as bone [11,12], skin and the genitourinary tract [13] and, rarely, even pulmonary tissue [14-17]. More specifically, necrobiotic nodules may occur with associated granulomatous inflammation in the lung of adults with Crohn's disease.

Similar changes have been reported in children [18].

Involvement of the lung in Crohn's disease likely also occurs more often than is currently reported, as there is also a high probability of subclinical disease, and in some, symptoms may have been limited or masqueraded by prior or intermittent corticosteroid treatment [17]. At least 4 separate reports [14-17] and possibly others [19-21] have documented necrobiotic nodules in the lung in Crohn's disease, effectively resolved with steroid treatment. In one of these latter cases [21] published earlier by another investigator, mesalamine treatment, interestingly, was also implicated.

Cases of pulmonary necrobiotic nodules in Crohn's disease

Among these earlier cases summarized elsewhere [14-17], there were an equal distribution of males and females, usually presenting clinically with cough or dyspnea. Symptoms or changes caused by Crohn's disease were often present prior to recognition of the pulmonary findings, but may also have been completely absent. Radiographic imaging documented multiple cavitary lesions or nodules, confirmed histologically with necrobiotic nodules and granulomatous inflammation. In each of these individual cases, complete radiographic (along with symptom) resolution appeared to occur with corticosteroid treatment [13-16].

Treatment cautions in Crohn's disease with lung involvement

Pulmonary complications of Crohn's disease appear to readily respond to corticosteroids using radiological re-assessment. Oral steroids or inhaled steroids have been used. In one report, infliximab was also used successfully in children to treat the pulmonary disease [22]. Of course, treatment with monoclonal agents in these cases must be done with caution, especially if other forms of immune suppression are used. Serious infections, some fatal, have resulted after treatment with monoclonal antibody agents, such as infliximab, that have included tuberculosis and other infections. In some instances, sarcoidosis remains a difficult differential diagnostic feature [23] while intestinal and pulmonary tuberculosis could also be present, also sometimes difficult to differentiate [24]. To date, little systematic information is available related to treatment of pulmonary for these newer or novel agents in Crohn's disease. Further studies are needed.

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