Productive Cough and Hemoptysis in Rheumatoid Lung Disease*

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This 50-year-old white man with severe rheumatoid arthritis first presented to the hospital nine years ago with bilateral pleural effusions, left greater than right, which resolved spontaneously. Three years ago, a routine chest roentgenogram showed progressive infiltration in both upper lung zones (Fig 1). His present hospitalization followed a three-month history of hemoptysis and cough productive of foul-smelling sputum. He had noted night sweats, but denied fever, chills, or weight loss. Four months prior to this admission, the patient had extensive dental work, including extractions. He had been a heavy smoker. He was not receiving corticosteroid drugs. Smears for acid-fast bacilli were negative. On admission, posteroanterior and lateral chest roentgenograms were taken (Fig 2A and 2B).

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Diagnosis: Cavitating Squamous Cell Carcinoma Associated with Nodular Rheumatoid Lung Disease

Figure 1 (prior admission) demonstrates multiple nodules in the middle and upper lung zones bilaterally with some coalescence. There is cavitation in the largest nodule in the right upper lobe. Blunting of the left costophrenic angle is present, as well as borderline cardiomegaly. Echocardiogram revealed a pericardial effusion. The roentgenograms from the present admission (Fig 2A and 2B) reveal progression of the upper zone nodular infiltrates. The cavitary lesion in the right upper lobe has contracted, the right hilum has become elevated, and multiple bullae are present, likely due to parenchymal contraction from extensive fibrosis. Left lung biopsy six months earlier had shown these infiltrates to be histologically consistent with rheumatoid lung disease.

Additionally in Figure 2A, there is a 6 cm cavity with an air-fluid level in the left upper lobe. This was attributed to a lung abscess secondary to aspiration of material during the recent oral surgery. At fiberoptic bronchoscopy, no endobronchial obstruction was seen to the level of fourth-order bronchi. A transbronchial lung biopsy under fluoroscopic guidance, taken from the segment containing the abscess, revealed squamous cell carcinoma. Drainage of the abscess ensued following the bronchoscopy with improvement in the patient's general condition and in the roentgenogram. The extensive rheumatoid lung disease precluded surgical resection, so he has been treated with palliative radiation therapy.

During the past nine years, this patient has developed nearly all the thoracic manifestations reported in rheumatoid arthritis, including pleural effusions, intrapulmonary nodules with and without cavitation, diffuse interstitial fibrosis, and pericarditis with effusion.5,6 The association between carcinoma of the lung and rheumatoid lung disease may be more than coincidental. In 1965, Stack and Grant6 reported that two of eight patients with interstitial rheumatoid lung disease died with malignant pulmonary tumors. Both were heavy smokers. Histology of the tumors was not available. Seven additional cases of lung cancer developing in patients with rheumatoid lung disease have been recorded.2,3,5 Carcinoma of the lung has also been reported in 14 patients with idiopathic interstitial lung disease.5 It has been postulated that the seemingly high incidence of cancer in both rheumatoid and idiopathic interstitial lung disease is related to the marked hyperplasia of bronchiolar and alveolar epithelium seen in these conditions.5 This concept is supported in the present case by the previous lung biopsy from the left upper lobe which demonstrated not only definite characteristics of rheumatoid involvement, but also some large hyperchromatic cells. These cells suggested the possibility of a malignancy but could not be differentiated from reaction to an inflammatory process.

An important symptom in this patient was the hemoptysis. This sign was found in only 2 of 49 cases of interstitial rheumatoid lung involvement reported by Walker and Wright.2 Thus, the appearance of hemoptysis in a patient with rheumatoid lung disease is an ominous sign and warrants early evaluation by means of bronchoscopy.

References

1 Levin DC, Wicks AB, Ellis JH Jr: Transebronchial lung biopsy via the fiberoptic bronchoscope. Am Rev Resp Dis 110:4-12, 1974