Local Immunopathologic Findings in Bronchiolitis Associated with Collagen Vascular Diseases

To the Editor:

Laahdensoo et al (Chest 1984; 85:705-08) reported a patient suffering from a classic rheumatoid arthritis and granulomatous bronchiolitis. In addition, immunofluorescence studies showed IgM- and IgG-containing plasma cells in the bronchiolar walls. The authors suggested cell-mediated immune reactions as the cause of this granulomatous lung tissue inflammation. In our opinion, however, it might also be the result of an immune complex (IC)-mediated inflammatory response induced by treatment with antirheumatic drugs.

Recently we described, in a rheumatoid arthritis patient, a rapidly progressive obliterator bronchiolitis.1 The patient was treated with d-penicillamine for the last two years before admission. As described in previous reports,2,3 the histology of the lung revealed the same fibrous, infiltrative narrowing of the small airways and, at some places, obliteration by inflammatory cells. No granuloma was found. Immunofluorescence studies, however, showed granular depositions of IgM, suggesting IC deposits in the lung tissue.

In a further report we described a group of 15 patients with diffuse pulmonary disorders associated with collagen vascular diseases.3 Most (10 of 15) suffered from classic rheumatoid arthritis. At the time of the study, none was being treated with antirheumatic drugs. These studies revealed very high local concentrations of IC in the lungs, but no evidence of granulomatous tissue injury.

Recently, we studied the possible changes in local cellular immune reactions in 13 of these patients compared with eight healthy control subjects. None of the patients or controls was smoking. Bronchoalveolar lavage (BAL) T-cell-subsets were identified with monoclonal antibodies using an immunoperoxidase technique. Results are summarized in Table 1.

The OKT 4+ / OKT 8+ (helper/suppressor) ratio was strikingly decreased in patients compared with control subjects (p<0.001). These results are in contrast with what is reported in granulomatous pulmonary injury in systemic diseases such as sarcoidosis.4 Therefore, we conclude that in lung involvement in rheumatic disorders, local immune complex does not induce granulomatous lung injury nor is the local cellular immune reaction likely to do so.

Table 1—BAL Lymphocyte Subsets (Mean ± 1 SD)

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<th>OKT 3+</th>
<th>OKT 4+ / OKT 8+</th>
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<td>Patients, n = 13</td>
<td>77.7 ± 11.8</td>
<td>0.52 ± 0.23</td>
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<td>Controls, n = 8</td>
<td>76.3 ± 2.2</td>
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Why granulomas can occasionally be seen in rheumatoid lungs is an interesting problem.1,4 In our patient, the speculation about the formation of granulomatous reaction in the bronchioli was based on the report of Spector and Heesom5 who observed granulomas after injection of immune complexes. In addition, it is known that many different pathogenetic processes, infectious as well as noninfectious, immunologic as well as nonimmunologic, can result in the formation of granulomas.6,5

Our immunofluorescence findings seem to be in line with those of Dr. Jansen, both suggesting the phlogistic role of local immune complexes in rheumatoid lung tissue. There is convincing experimental evidence that immune complexes formed in the alveolar interstitium can produce inflammatory reactions.5 Immune complexes, often together with secondary mediatory systems, eg, the complement, are known to be tissue damaging. Because all the common granulomatous diseases could be clinically excluded in our patient, we suggest that the granulomatous reaction seen in the bronchioli of our rheumatoid patient might reflect either cell-mediated component of antigen-induced tissue damage or foreign body reaction to immune complexes.

We are very grateful for the valuable comments and additional information Dr. Jansen has provided about this complex and interesting matter.

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References