Bronchiolitis obliterans organizing pneumonia associated with chlamydial infection


Bronchiolitis obliterans organizing pneumonia (BOOP) is a clinicopathological entity that occurs in response to a wide variety of pulmonary injuries. It is a nonspecific response, which is histologically characterized by intraluminal fibrosis involving the small conducting airways, alveolar ducts and peribronchial alveolar space [1–3]. Primary disease is either idiopathic or is associated with collagen vascular diseases, drugs and toxins, radiation therapy or infections [4–6]. It has been described in a number of pulmonary bacterial, viral, fungal and protozoal infections. BOOP has been described in association with atypical pneumonia as caused by legionella, Coxiella burnetti and viruses [7–11]. However, little mention can be found in the literature of chlamydial infection. We report a case of BOOP, which appeared to be secondary to a pulmonary chlamydial infection.

Case report

A 70 year old man was admitted to our institution with a 10 day history of fever, cough, severe sore throat and increasing dyspnoea. A 7 day roxythromycin treatment had been unsuccessful. At the time of admission, the patient remained febrile and his clinical condition deteriorated. Erythromycin was added to doxycycline. Continuous positive airway pressure (CPAP) was required.

Serological results for chlamydiae during hospitalization and after recovery (IgG titres)

<table>
<thead>
<tr>
<th>Time from admission</th>
<th>Day 0</th>
<th>Day 10</th>
<th>Day 22</th>
<th>Day 120</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlamydiae complement fixation test</td>
<td>1/160</td>
<td>1/160</td>
<td>1/160</td>
<td>&lt;1/10</td>
</tr>
<tr>
<td>C. psittaci (IFT)</td>
<td>1/152</td>
<td>1/1024</td>
<td>1/512</td>
<td>1/64</td>
</tr>
<tr>
<td>C. trachomatis (IFT)</td>
<td>1/512</td>
<td>1/1024</td>
<td>1/512</td>
<td>1/64</td>
</tr>
<tr>
<td>C. pneumoniae (MIFT)</td>
<td>1/2048</td>
<td>1/4096</td>
<td>1/2048</td>
<td>1/28</td>
</tr>
</tbody>
</table>

IFT: indirect immunofluorescence test; MIF: microimmunofluorescence test; IgG: immunoglobulin G.
Bronchoalveolar lavage count revealed $313 \times 10^3$ cells·mL$^{-1}$, with 74% macrophages, 8% lymphocytes and 18% neutrophils. No pathogen was identified. Transbronchial lung biopsies revealed inflammatory nonspecific alveolar lesions. Chest computed tomography showed diffuse alveolar infiltrates that were greater in the right upper and middle lobes and a bronchial wall thickening (fig. 1). A trend to honeycomb changes in the right upper lobe was also noted.

During the following 2 weeks, the patient’s clinical condition improved slightly, but he remained dyspnoeic and febrile and the chest radiograph was unchanged. Repeated transbronchial lung biopsies revealed a typical feature of BOOP, with intraluminal fibrosis of the distal airspaces (fig. 2). No pathogen was identified on direct examination and cultures. Therapy was completed with prednisone at 1mg·kg$^{-1}$·day$^{-1}$, leading to a progressive clinical improvement. Ten days after the onset of corticotherapy, arterial blood gas analysis showed a $P_{a,CO_2}$ of 8.9 kPa (67 mmHg), a $P_{a,CO_2}$ of 4.9 kPa (37 mmHg), and a pH of 7.44 with full clinical and chest radiograph recovery. One year after hospital discharge, prednisone had been progressively reduced to 0.15 mg·kg$^{-1}$·day$^{-1}$. No respiratory symptom was observed and the chest radiograph remained normal.

Discussion

We report the findings in a patient with increasing dyspnoea and acute respiratory failure related to chlamydial pneumonitis on serological grounds, with progressive deterioration despite adequate antibiotic therapy. BOOP was documented by transbronchial lung biopsies and the subsequent course was satisfactory under corticotherapy.

BOOP is currently considered as a nonspecific histopathological feature [1–3, 12]. It is either idiopathic or occurs in association with collagen vascular diseases, hypersensitivity pneumonitis, drugs, toxins, radiation therapy or infections. To our knowledge, there has been a single report of pulmonary chlamydial infection associated with features of BOOP in a patient suffering from Wegener's granulomatosis and with no concurrent pulmonary histological evidence of Wegener's granulomatosis activity [13]. The initial course of our patient was suggestive of atypical pneumonia. The presence of severe sore throat and sinusitis indicated C. pneumoniae rather than other chlamydial species. Mycoplasma or Legionella [14]. C. pneumoniae was also very likely to be responsible because of the lack of exposure to birds, the high prevalence of C. pneumoniae and the highest serological titres [14, 15]. Cross-reactions between species can explain the overall serological results [15, 16].

This observation illustrates that bronchiolitis obliterans organizing pneumonia should be considered in cases of unusual radiographic aspect or of chronic evolution of chlamydial pneumonitis and, conversely, that appropriate serological tests should be part of the aetiological search in cases of bronchiolitis obliterans organizing pneumonia of unknown origin.

References


