Immunological analysis of pleural fluid in post-cardiac injury syndrome

R Shrivastava, S Venkatesh, B B Pavlovich, J Bharadwaj, A Vaz

Post-cardiac injury syndrome (PCIS) is an inflammatory process involving pleura and pericardium secondary to cardiac injury. Even though this clinical entity has been recognised for decades, diagnosis is difficult because of lack of a diagnostic test. Antimyocardial antibody titre in pleural fluid and serum has been proposed to have diagnostic value. However, there are inherent difficulties in measuring and interpreting the role of antimyocardial antibody. A case of PCIS with low pleural fluid complement level is reported, which it is believed can be useful to support the diagnosis of PCIS.

The post-cardiac injury syndrome (PCIS) refers to pleuropericarditis secondary to cardiac injury by various mechanisms. Diagnosis depends upon clinical suspicion and exclusion of other clinical conditions that may mimic this syndrome, such as pulmonary embolism, pneumonia, and congestive heart failure. The injury is believed to be immunological. Kim and Sahn reported immunological assessment of pleural fluid, including antimyocardial antibody testing, in a patient with PCIS.1 We report the results of immunological analysis of pleural fluid in a patient with PCIS. We think that a low complement level in pleural effusion may serve as a potential diagnostic tool.

CASE REPORT
A 60 year old man was admitted with pleuritic chest pain, fever, and shortness of breath of one day's duration. He had undergone redo coronary artery bypass graft surgery six days previously. His past medical history was significant for PCIS 10 years previously after his first coronary artery bypass graft surgery, which required the use of corticosteroids. Physical examination showed low grade fever (37.4°C), decreased breath sounds at lung bases, pleural and pericardial friction rubs. Chest radiography showed moderate size bilateral pleural effusion. A ventilation-perfusion scan was of low probabilistic value. However, there are inherent difficulties in measuring and interpreting the role of antimyocardial antibody. A case of PCIS with low pleural fluid complement level is reported, which it is believed can be useful to support the diagnosis of PCIS.

Table 1 Results of pleural fluid analysis

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Pleural fluid</th>
<th>Serum</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucose (mmol/l)</td>
<td>9.5</td>
<td>2.4</td>
<td>P/S ratio* = 0.59</td>
</tr>
<tr>
<td>Protein (g/l)</td>
<td>31</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Lactate dehydrogenase (µkat/l)</td>
<td>21.41</td>
<td>3.84</td>
<td></td>
</tr>
<tr>
<td>Antimyocardial antibody titre</td>
<td>&lt;1.40</td>
<td>&lt;1.40</td>
<td></td>
</tr>
<tr>
<td>C3 (µmol/l)</td>
<td>3.3</td>
<td>9.8</td>
<td>C3 index† = 0.57</td>
</tr>
<tr>
<td>C4 (µmol/l)</td>
<td>0.55</td>
<td>1.50</td>
<td>C4 index‡ = 0.62</td>
</tr>
<tr>
<td>C1q binding</td>
<td>Present</td>
<td>Absent</td>
<td></td>
</tr>
</tbody>
</table>

Note: pleural fluid cultures were negative.
*P/S ratio = pleural fluid/serum ratio
†C3 or C4 index = (pleural fluid complement/serum complement) ÷ (pleural fluid total protein/serum total protein)
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