Hemorrhagic Pleural Effusion as a First Presentation of Chronic Lymphocytic Leukemia (A Case Report)

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Pleural effusion is a relatively rare complication of Chronic Lymphocytic Leukemia (CLL). In this study, we report an observation with pleural effusion as first symptom of CLL. A 43-year-old man having been diagnosed with CLL presented with hemorrhagic pleural effusion. The differential diagnosis of hemorrhagic pleural effusion was considered. Pleural effusion as a first sign of CLL is rarely described.

Key words: Pleural effusion, chronic lymphocytic leukemia, malignancy, hematological

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INTRODUCTION

Pleural effusion as a first sign of Chronic Lymphocytic Leukemia (CLL) is rarely described (Zeidman et al., 1995; vanden Berge et al., 2001; Alexandrakis et al., 2004) However, pulmonary complications account for significant morbidity and mortality in patients with CLL and pneumothorax is the most common pulmonary complications (Ahmed et al., 2003).

Pleural effusion can be the result of primary pleural involvement. Awareness of this occurrence is essential to appropriate therapy of patients with CLL. (Ben-chetrit et al., 1985; Alexandrakis et al., 2004). We report a case of hemorrhagic pleural effusion in a 43 year old man with CLL. The first presentation of this case was pleural effusion.

Case report: He presented with pain in the right chest, dyspnea on exertion, weight loss (20 kg within 2-3 month), anorexia, malaise and fatigue. Physical examination revealed enlarged spleen without lymphadenopathy, there was dullness to percussion, with decreased breath sounds over the lower two thirds of the right posterior chest. A chest X Ray revealed a large right-sided pleural effusion. Right thoracentesis were done and the pleural effusion was exudates. The specific gravity was 1.034, protein was 5.6 g dL, glucose was 84 mg dL\(^{-1}\) and LDH was 365 uM mL\(^{-1}\). Serum LDH was 433. The leukocyte count of fluid was 4400 mm\(^{-3}\) with 85% lymphocytes and RBC count was 15600 mm\(^{-3}\). Cytological examination was negative for malignancy. Other laboratory data has been shown in Table 1.

Smear and culture of pleural fluid for Mycobacterium Tuberculosis (MTB) was negative. Tuberculin skin test was negative. PCR of pleural fluid and sputum smear for MTB was negative. Chest CT scan showed right-sided pleural effusion with right bronchopulmonary adenopathy with normal parenchyma. Peripheral blood smear showed leukocytosis with predominance of small lymphocytes. A relatively large number of basket cells were also observed. Red blood cells had normal morphology. Platelets were observed in normal numbers and morphology.

<table>
<thead>
<tr>
<th>Laboratory tests</th>
<th>Value</th>
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<tbody>
<tr>
<td>White blood cell count</td>
<td>10000 mm(^{-3})</td>
</tr>
<tr>
<td>Lymph</td>
<td>70%</td>
</tr>
<tr>
<td>Hemoglobin</td>
<td>13.5 mg dL(^{-1})</td>
</tr>
<tr>
<td>Platelet count</td>
<td>190000 mm(^{-3})</td>
</tr>
<tr>
<td>Erythrocyte sedimentation rate</td>
<td>47 mm h(^{-1})</td>
</tr>
<tr>
<td>Tuberculin skin test</td>
<td>5 mm</td>
</tr>
</tbody>
</table>

Bone marrow aspiration (Fig. 1) showed normal constituents of the marrow (erythroid, myeloid and megakaryocytic lineages) admixed by a large number of small lymphocytes (about 50% of all nucleated cells) and rarely prolymphocytes (about 1 to 2% of all nucleated cells).

Marrow sections (Fig. 2) revealed focal involvement of bone marrow by leukemic cells. The leukemic cells occurred in relatively well-demarcated foci, which were randomly distributed and surrounded by normal appearing marrow.

DISCUSSION

Nearly all hematological malignancies can occasionally present with or develop pleural effusions during the clinical course of disease. Among the most
common disorders are Hodgkin and non-Hodgkin lymphomas, with a frequency of 20 to 30%, especially if mediastinal involvement is present. Acute and chronic leukemias and myelodysplastic syndromes, are rarely accompanied by pleural involvement (Ben-chetrit et al., 1985; Zeitman et al., 1995; Ahmed et al., 2003; Alexandrakis et al., 2004).

Pleural involvement is a rare complication of chronic lymphocytic leukemia (Swerdlow et al., 1986; Dhodapkar et al., 1993; Szalay et al., 1994). It can be the result of primary pleural involvement, central lymphatic blockage, infection or changes induced by previous irradiation or chemotherapy (Ben-chetrit et al., 1985).

According to our medical literature search, this is the third case of CLL who presented with pleural effusion as the first symptom. The first case was reported by Van den Berg et al. (2001), a 73 year old man with CLL and a hemorrhagic pleural effusion. The second case was reported by Zeitman et al. (1995).

Because lymphocytic pleural effusions indistinguishable from those in CLL are well known in tuberculous and other non-neoplastic conditions (Swerdlow et al., 1986) and leukemoid reaction is also one of the hematologic manifestations of TB, we ruled out tuberculosis by pleural fluid PCR and sputum and pleural fluid smear and culture for MTB. Finally bone marrow biopsy confirmed diagnosis in this case.

It should be emphasized that, early detection of this complication is essential for appropriate therapy. Some authors believe that the pleural effusion probably reflected an advanced and refractory disease in patients with CLL (Ben-chetrit et al., 1985; Swerdlow et al., 1986; Szalay et al., 1994; Zeitman et al., 1995).

In conclusion, because small lymphocytic infiltrations of the pleura are difficult to evaluate histopathologically and over diagnosis of tuberculous pleural effusion in patients with undiagnosed (or incompletely researched) pleural effusion is also a problem in Iran and other endemic countries for TB, it is necessary to exclude this diagnosis before Anti tuberculous trial treatment.

REFERENCES


