Clinical picture

Myelomatous pleural effusion

A 67-year-old woman of stage IIa IgA λ-type multiple myeloma (MM) was hospitalized because of progressive dyspnea for 1 month. Physical examination showed pallor and decreased breath sounds over the left lower lung field. Renal and cardiac systolic functions were normal by biochemistry studies and echocardiogram. A chest X-ray showed left pleural effusion (Figure 1). A diagnostic thoracocentesis was performed and revealed exudative effusion without microorganism. Microscopic examination showed many immature plasma cells (Figure 2), and immunohistochemical staining for anti-λ antibody demonstrated monoclonality (Figure 3). A final diagnosis of myelomatous pleural effusion (MPE) was made.

MM is a malignant proliferation of abnormal plasma cells with overproduction of monoclonal immunoglobulin or light chain.\(^1\)-\(^3\) It affects mainly bone marrow, but may involve other organs as well and relate to advanced disease.\(^1\) The typical clinical manifestations include anemia, fractures, hypercalcemia and renal failure, but pleural effusions uncommonly.\(^2\) Pleural effusions are represented in \(\sim 6\%\) of patients with MM and resulted from several etiologies requiring different types of therapy. These are, most commonly, heart failure secondary to

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Figure 1. Chest X-ray on admission showing left-sided pleural effusion.

Figure 2. Giemsa-staining of the pleural effusion showing infiltration of malignant immature plasma cells with prominent nucleoli and bi-nucleated forms (×1000).

Figure 3. Immunohistochemical staining for anti-λ antibody. The cells with brown cytoplasm are abnormal monoclonal plasma cells producing λ light chain (×1000).
amyloidosis, followed by pulmonary embolism, chronic renal failure, nephrotic syndrome, second neoplasm, tuberculosis and very rarely MPE (<1%).\textsuperscript{1–3} Approximately 80 cases have been reported till 2005,\textsuperscript{2,3} and 80% of MPE are due to IgA MM in the previous literature.\textsuperscript{1,3}

The pathogenesis of MPE is unclear, but direct extension of skeletal lesions or chest wall plasmacytoma to the pleura has been suggested.\textsuperscript{2} In addition, diagnostic criteria consist of a monoclonal protein in pleural fluid electrophoresis and detection of atypical plasma cells in pleural fluid and biopsy.\textsuperscript{1} Resolving of MPE can be achieved by pleurodesis and aggressive chemotherapy, but survival duration is still short (~4 months).\textsuperscript{1–3} Therefore, the etiology is very important in MM patients with pleural effusions. If the fluid is exudative, the next step should be cytologic examination of the pleural effusion to exclude MPE.\textsuperscript{1} Novel agents, like Bortezomib and autologous stem cell transplantation are considered as salvage therapy, especially in patients with good performance status.

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References

