

Case Report

Myeloma Presenting as Bilateral Pleural Effusion - A Cytological Diagnosis

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Abstract

Multiple myeloma presenting as a pleural effusion is extremely rare. It is usually a late complication and is associated with a poor prognosis. A 40-year-old male presented with dyspnea and fever of six months duration. Clinical diagnosis of pulmonary tuberculosis was considered. Chest radiograph showed bilateral pleural effusion. Pleural cytology revealed numerous plasma cells, some of which were binucleated and atypical. Cytological differential diagnosis included myelomatous effusion and non-Hodgkin's lymphoma (immunoblastic type) deposit. Bone marrow biopsy, serum protein electrophoresis and bone scan confirmed the diagnosis of multiple myeloma (plasmablastic type). Myelomatous pleural effusion as an initial presentation although extremely rare, should always be considered in presence of atypical plasma cells in body fluids irrespective of age.

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Key Words : Malignant effusion, myeloma, plasmablast.

Introduction

Malignant pleural effusion in multiple myeloma (MM) is rare and is seen in less than 1% of MM cases.¹ Identification of the atypical plasma cells in body fluids is important and may be missed when these are scant and mature appearing. Recognition of atypical plasma cells in fluids is critical for therapeutic and prognostic considerations as this feature indicates a poor prognosis.² There have been very few cases reported so far, in which pleural effusion was the initial presentation.²⁻⁷ We report atypical presentation of MM as bilateral pleural effusion at a younger age.

Case Report

A 40-year-old male presented with fever and dyspnea since six months. Clinical examination and chest radiographs suggested bilateral pleural effusion. A diagnostic bilateral pleural aspiration was performed and cytospin preparation was made. Giemsa stained smears were cellular, comprising of many mature and immature plasma cells in a proteinaceous background. These cells had abundant dense blue cytoplasm and a large eccentric nucleus. Frequent binucleated and multinucleate forms, mitotic figures and

scattered plasmablasts with prominent nucleoli were also seen (Fig. 1). A diagnosis of plasma cell dyscrasia versus non-Hodgkin's lymphoma (NHL-Immunoblastic type) was suggested. Skeletal survey, serum immunoelectrophoresis, bone marrow aspiration and biopsy were advised to confirm the diagnosis. Radiological investigations revealed multiple osteolytic punched out lesions in the axial skeleton. Patient's haemoglobin was 55 g/l; ESR was 85 mm fall at the end of first hour by Wintrobe's method, and the peripheral smear showed marked rouleaux formation. Serum electrophoresis showed a sharp M-spike in the IgG region. Bone marrow aspirate smears showed plasmacytoid cells with many binucleate forms. Bone marrow biopsy showed suppressed hematopoiesis with thinned out bony trabeculae. Marrow was almost totally replaced by plasma cells, which comprised more than 95% of nucleated marrow cells; about half of these were plasmablastic type (Fig. 2). Based on the above features, a final diagnosis of multiple myeloma- plasmablastic type (MMPT) was made.

Discussion

Malignant myeloma is a clonal proliferation of plasma cells with multiple osteolytic lesions. It usually occurs in elderly patients (mean age 71 years) and presents with bone pains along with pathological fractures.⁸ Malignant pleural effusion is usually a rare

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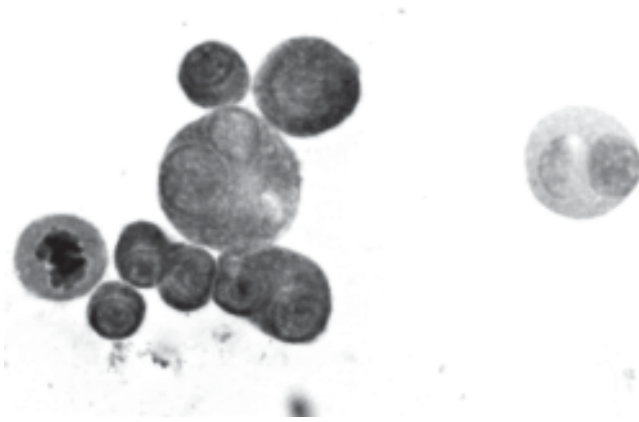


Fig 1 : Pleural fluid cytology- Many atypical plasma cells with prominent nucleoli and binucleate forms are seen (Giemsa, x 400).

and late complication in the course of the disease.⁹ Hence other etiologies of reactive pleural effusions like congestive heart failure, pneumonia, tuberculosis, collagen vascular disease, carcinomatosis, AIDS, other viral illness and pulmonary thromboembolism should be excluded before a diagnosis of malignant myelomatous effusion is made.⁹ Cytologically, these cases can have a predominant lymphocytic infiltrate with scattered plasma cells showing atypical nuclear features. Other differentials include non-myelomatous effusions that present with pleural effusion e.g. NHL, acute and chronic lymphoid leukemias, especially those with concomitant mediastinal involvement.⁶ The cytomorphology of the plasma cells along with the clinical profile are helpful in differentiating reactive from malignant plasma cell infiltrates. High cellularity with a predominant plasma cell population in a haemorrhagic or necrotic background favours a malignant effusion. Morphological features of malignant plasma cells are nuclear pleomorphism, prominent nucleoli, frequent mitosis and asynchronous maturation of the nucleus in relation to the cytoplasm. Pleural fluid electrophoresis, flow cytometry and immunocytochemistry aid in confirming the monoclonality of the plasma cells.⁹ Malignant effusions in myeloma patients are usually resistant to treatment and often relapse in spite of aggressive chemo-radiotherapy necessitating pleurodesis.² This is an alarming presentation, signifying dismal prognosis. Death usually occurs within a few months. Therefore, recognition of the atypical plasma cells in the fluid is critical for therapeutic and prognostic considerations.⁹

The present case is rare because the diagnosis was

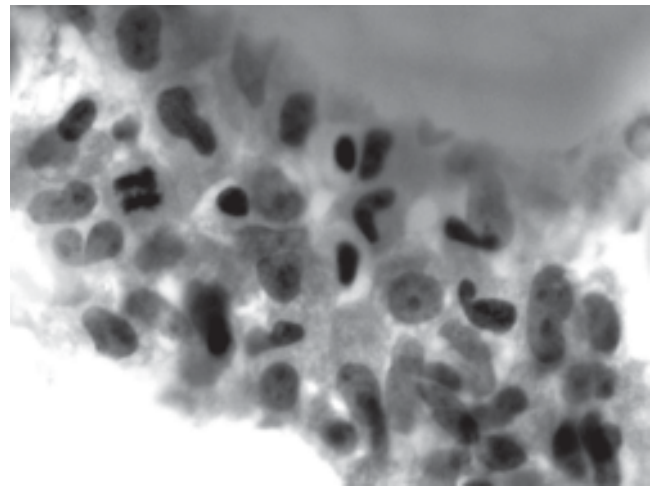


Fig 2 : Bone marrow biopsy- sheets of plasmablasts with suppressed hematopoiesis (H&E x 400).

unsuspected in a younger patient presenting with bilateral pleural effusion. The presence of atypical plasma cells in the body fluids should be carefully interpreted irrespective of the age and, the patient should be thoroughly assessed for MM.

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