Case Report

Multiple Myeloma Presenting with Multiple Thoracic Manifestations

L. Fekih[1], S. Fenniche[1], H. Hassene[1], H.Abdelghaffar[1], S. Yaalaoui[2], F. EL Mezni[3], D. Belhabib[1], A. Zidi[1] and M.L. Megdiche[1]

Ibn Nafiss Division[1], and Departments of Biological and Immunological Medecine[2] and Pathology[3], Abderrahmen Mami Hospital, Ariana, Tunisia

ABSTRACT

Multiple myeloma is a malignant proliferation of plasma cells that affects mainly bone marrow but may also involve other organs as well. We report thoracic involvement in the form of left-sided pleural effusion, osseous lesions, bronchial infiltration, and mediastinal lymphadenopathy in a 61-year-old woman, non-smoker presented with chest pain, dyspnoea, cough and deterioration in general health over the preceding seven months. Immunoelectrophoresis and immunofixation showed raised kappa-light chain immunoglobulin G (IgG) in serum and pleural fluid. Bronchial and pleural biopsies documented myelomatous infiltration and bone marrow aspirate revealed extensive plasma cell infiltration. At eight months, following the fourth cycle of melphalan, endoxan and prednisone based chemotherapy, the patient died.

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Key words: Multiple myeloma, Pleural effusion, Bronchial neoplasm, Mediastinal lymph nodes, Lytic lesion.

INTRODUCTION

Multiple myeloma is a malignant proliferation of plasma cells that affects mainly bone marrow but may also involve other organs as well. It causes extra-osseous manifestations especially renal failure, neurological signs and haemorrhagic mani- festations.[1] Thoracic involvement in the form of osteolytic lesions is common in patients with multiple myeloma. A pulmonary, bronchial and pleural involvement is rare and occurs most frequently during the evolution of the disease. We report the rare occurrence of multiple thoracic manifestations at initial presentation in a patient with multiple myeloma.

CASE REPORT

A 61-year-old woman who was a non-smoker, presented with complaints of chest pain, dyspnoea, cough and deterioration in general health for the last seven months. Physical examination and chest radiography showed a left pleuro-pulmonary retractile lesion and lytic lesion in the third rib (Figure 1).

Cytological examination of pleural fluid revealed an increased cell number with 70% lymphocytes and presence of dystrophic plasma cells. Serum immunoelectrophoresis, in 2% agar gel with anti-serum proteins immunoglobulin (Ig) A, IgG, IgM and kappa-lambda-light chain, showed raised kappa-light chain IgG (546.3mg / dL), confirmed in immunofixation (Hydragel IF K20-Sebia). The same results were found on pleural fluid analysis. There was no Bence-Jones proteinuria (Figure 2).

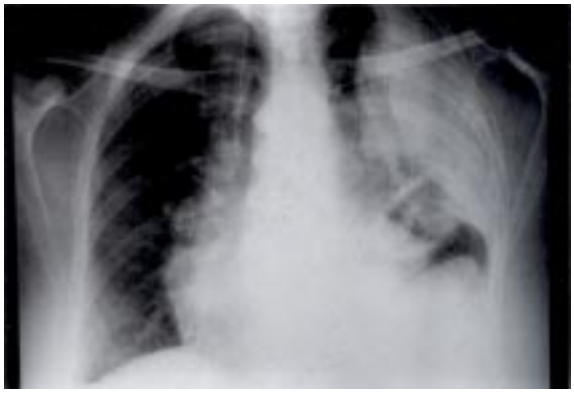

Figure 1. Chest radiograph (postero-anterior view) showing a left-sided pleuro-pulmonary retractile opacity and lytic lesion in the third rib.

Fibreoptic bronchoscopy (FOB) showed infiltrative stenosis of the left proximal bronchial tractus, and bronchial biopsy specimen revealed myelomatous infiltration (Figure 3). Pleural biopsy also demonstrated the same pattern. Bone marrow aspirate suggested

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Correspondence and reprint requests: Dr Leila El Fekih, Ibn Nafiss Division, Abderrahmen Mami Hospital, Ariana 2080-TUNISIA; Phone: 0021698342299; Fax: 0021671821184; E-mail: leila.fekih@laposte.net

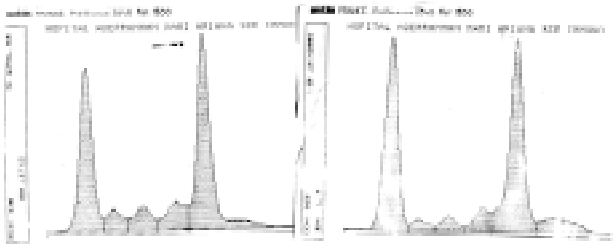

Figure 2. Serological and pleural immunoelectrophoresis showing arising of kappa-light chain.

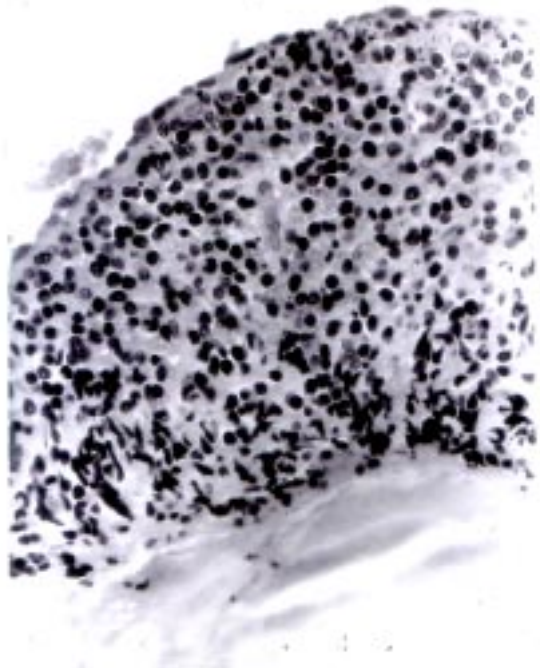

Figure 3. Bronchial biopsy showing myelomatous infiltrate dissociating massively bronchial mucosa with abrasion of epithelioma.

extensive plasma cell infiltration. Radiograph of skill revealed multiple lytic lesions in the cranial vault.

Computed tomography (Figure 4) and magnetic resonance imaging of thorax showed a mediastinal lymph node swelling with pulmonary collapse and a lytic lesion of sternum and rib, in addition to the left pleural effusion.

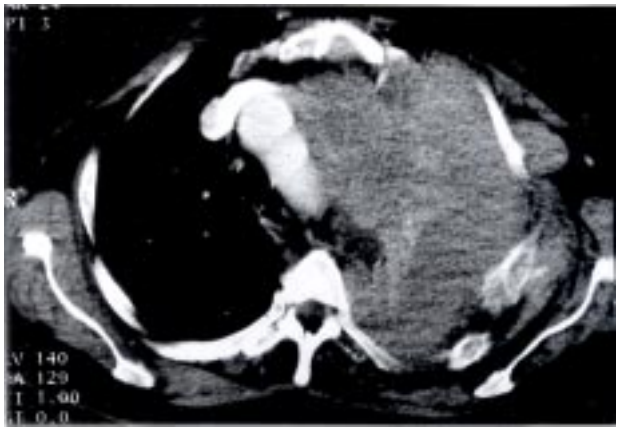

Figure 4. CT of the thorax showing left pleural effusion, mediastinal lymph node swelling, pulmonary collapse and lytic lesion of sternum and ribs.

Systemic chemotherapy with melphalan, endoxan and prednisone was administrated with four week intervals. After the fourth cycle, no clinical, radiological and other biological improvement has been noted. The patient developed neutropenia with renal failure and died eight months after the diagnosis.

DISCUSSION

Despite the common occurrence of osseous lesion in multiple myeloma, the other chest manifestations have not been reported very frequently.[2] Lymph node involvement is frequent in multiple myeloma. Intrathoracic plasmocytoma could have present as an extra-pulmonary mass developed from mediastinal lymph nodes,[2] even though this was not confirmed histologically in the present patient. Primary bronchial infiltration has rarely been reported previously in the literature;[2,3] however, extension of plasma cell infiltration from mediastinal lymph nodes is a more frequent cause of bronchial involvement. Pleural effusion secondary to pleural myelomatous involvement have also rarely been reported in the literature. The incidence of myelomatous pleural effusion was estimated to be slightly less than 1% in a review of 958 cases at the Mayo Clinic from 1960 to 1974.[2] In most of the reported cases, the effusion was found on the left side and was under evolution.[2] In our case, multiple myeloma was also revealed by a left-sided pleural effusion.

Pleural myelomatous involvement proceeds from adjacent skeletal or parenchymatal tumours, direct implantation of tumour nodules on the pleura, and mediastinal lymph node infiltration with lymphatic obstruction. In our case, the patient had osseous and mediastinal lesion linked to a direct extension. In front of these thoracic extensions, FOB showed infiltrative stenosis of the left proximal bronchial tractus, and bronchial biopsy specimen revealed myelomatous infiltration.

In the literature, 80% of myeloma pleural effusion is due to IgA multiple myeloma, perhaps as a result of a major tendency to invade extra-osseous structures.[6] In our patient, serum and pleural protein electrophoresis showed gamma-globulin band kappa-light chain IgG. Pleural effusion, which is probably a late manifestation in the natural history of myeloma[7,8] or an expression of the aggressive behaviour of a disease, is associated with a poor prognosis, with survival usually less than four months even when chemotherapy is given.[7,9,10] Our patient had a somewhat longer survival (8 months) after chemotherapy.

In conclusion, this case of multiple myeloma has

many particularities. Clinically, it is revealed by thoracic manifestations especially pleural effusion and includes numerous and uncommon chest abnormalities like bronchial involvement. Biologically, its serum and pleural protein electrophoresis shows gamma-globulin band kappa-light chain IgG. Finally, it is characterised by an exceptionally long survival (8 months after diagnosis).

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