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Multiple Myeloma with Lung Plasmacytoma

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Abstract **Case Report**

Multiple myeloma (MM) is a clonal proliferation of malignant plasma cells mainly affecting the bone marrow. Most common sites of extramedullary dissemination reported in the literature are skin, liver, kidneys and central nervous system. The presentation of MM with lung plasmacytoma is found to be very uncommon. We present a case of multiple myeloma associated with lung plasmacytoma. A 53-years-old man with history of shortness of breath and lung opacity visualized on a chest X-ray. Careful integration of clinical manifestations with radiological and biological data led to the diagnosis of multiple myeloma with pulmonary plasmacytoma.

Keywords: Multiple myeloma, lung, plasmacytoma.

INTRODUCTION

Multiple myeloma is a hematologic malignancy characterized by the neoplastic proliferation of a single clone of plasma cells derived from B-cells [1]. This is responsible of osteolytic lesion appearance, bone marrow infiltration, abnormal protein production, installing of immune deficiency.

Uncommonly, myeloma cells may be extramedullary located due to extramedullary plasmacytoma or extramedullary dissemination of MM; Association of MM with lung plasmacytoma is found to be extremely rare [2, 3]. Only 5% of patients with extramedullary plasmacytomas have coexistent multiple myeloma [4]. Unfortunately, patients with extramedullary localization of MM have a poor prognosis as it is an aggressive and most often treatment-resistant entity [5]. Here we report a case of multiple myeloma with lung plasmacytoma in a 53 year-old male.

CASE REPORT

A 53-year-old male, with no history of respiratory hospitalization and relatively good past health presented to our hospital for shortness of breath, associated to significant weight loss and weakness. Physical examination found a pale patient with an increasing respiratory rate. His chest radiograph revealed opacity in the lung with many visible osteolytic lesions. Laboratory blood workup showed a normocytic normochromic anemia (hemoglobin of 7 g/dL, mean cell volume of 92,5 fl, mean cell hemoglobin of 30,8 pg, mean cell hemoglobin concentration of 33.3 g/dL), elevated white blood cell at 11930 cells/mm3 with 9690 neutrophils, 1520 lymphocytes, platelets were 175,000 cells/mm3, and erythrocyte sedimentation rate of 88 mm/hour. Total serum proteins were 59 g/l with serum albumin at 22,8 g/l. Renal function was disturbed with serum creatinine at 53,3 mg/dl and urea at 1,12g/L. The patient had also a hypercalcemia and elevated CRP. Other laboratory examinations including a kidney function test at the time of presentation showed no obvious abnormalities. A brain computed tomography (CT) scan was performed because bone pain, revealing multiple lytic lesions in the skull (Fig 1).

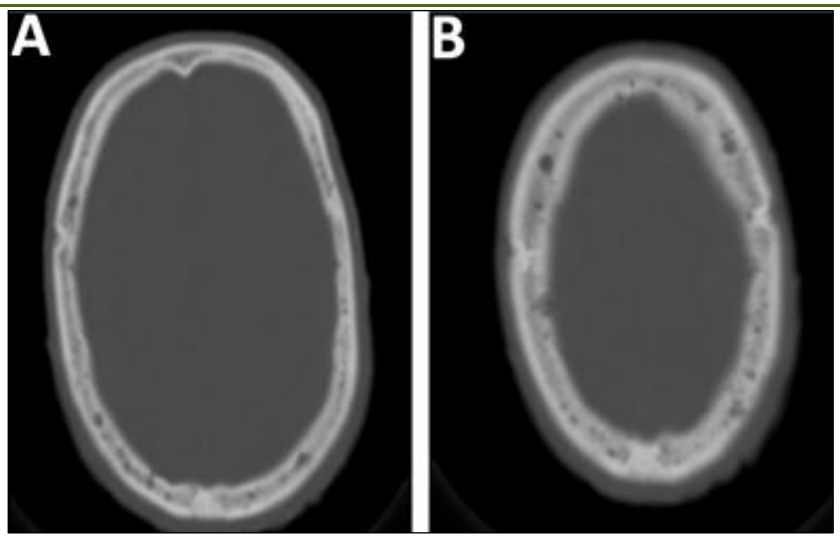

Fig 1 (A)/(B): Computed tomographic scan of the skull revealing multiple lytic lesions

The investigations were completed with bone marrow aspiration that showed a rich marrow with rare megakaryocytes and infiltration by 67% of plasma cells with high number of plasmablasts (Fig 2).

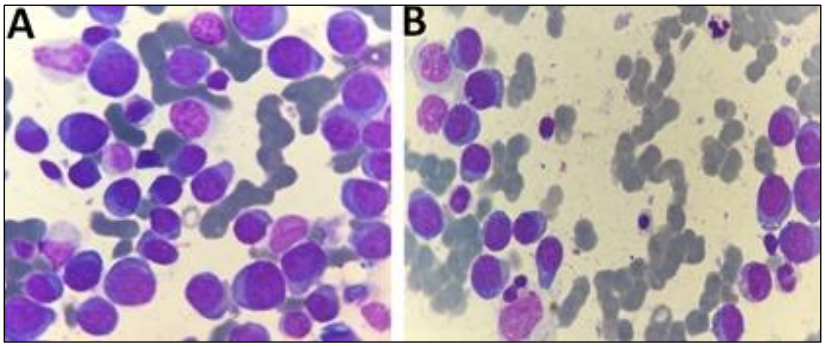

Fig 2 (A)/(B): Bone marrow aspiration at high magnification ×100 showing bone marrow infiltration by plasmablasts and some dystrophic plasma cells

The patient was transferred to the nephrology department for management of renal failure before starting chemotherapy, but unfortunately died.

DISCUSSION

The relationship between multiple myeloma, and extramedullary plasmacytoma is not well understood. In a study of 958 cases of multiple myeloma, only 6 patients presented with an extramedullary plasmacytoma in the lung [6]. In another study, 19 (4.4%) out of 432 patients of multiple myeloma were identified as having extramedullary disease, common sites being the lymph node, pleura and soft tissues with only 3 cases occurring within the lung parenchyma [7].

In our manuscript, we reported a case of MM in which a lung lesion was an initial clinical presentation of the disease. According to Koss *et al*., after the diagnosis of plasmacytoma, extensive investigation for multiple myeloma is crucial, as the treatment is completely different for both types of plasma cell disorders [8].

In multiple myeloma, bone marrow is infiltrated with aggregates of abnormal plasma cells and that leading to multifocal destructive bone lesions. It accounts for 10% of hematologic cancers. Presentation is usually seen at age of 65 with only 2% of patients presenting between 40 and 49 years. Thirty percent of patients are diagnosed incidentally and another 30% are diagnosed after pathologic fractures or history of bone pain. Besides the bone pain and pathologic fractures, other modes of presentation are infection, weight loss, anemia, hypercalcemia, spinal cord compression or renal failure [9, 10].

Dissemination of MM involves the spleen, liver, lymph nodes, thyroid, adrenal, ovary, testis, lung, pleura, pericardium, gastrointestinal tract and skin. The most typical thoracic manifestations of multiple myeloma are bony involvement of the thoracic cage. While other manifestations are pneumonia, intra-parenchymal mass lesions, mediastinal lymphadenopathy interstitial pattern and intrapulmonary calcification [11].

For plasmacytoma, it's a monoclonal proliferation of plasma cells in soft tissues or an organ. It accounts for about 3% of plasma cell malignancies and approximately 80% of which, in the upper respiratory tract (commonly in oropharynx, paranasal sinuses [11,12] and more rarely in the larynx [13]). The diagnosis of thoracic plasmacytoma can be determined by bronchoalveolar lavage (monclonale plasma cells are found) or lung biopsy (interstitial infiltrate of plasma cells), While the radiologic appearance is nonspecific, with findings on a CT scan or MRI mimicking those of primary or metastatic carcinoma, sarcoma, neuroendocrine or neuroectodermal tumour and lymphoma [14, 15].

The prognosis of patients with pulmonary plasmacytoma and multiple myeloma is poor and although there have been many advances in the treatment. Regardless of the treatment regimen or initial response to treatment, the disease follows a high relapsing rate in the majority of the patients.

CONCLUSION

It is very important for clinicians to consider multiple myeloma as a differential diagnosis in older patients presenting a bony lesion. Extramedullary dissemination of multiple myeloma in the lung is uncommon and very rare. In most cases MM with lung plasmocytoma manifests in the form of pulmonary nodules. Etiology identification of pulmonary nodules found in patients with multiple myeloma is necessary to ensure adequate and timely therapy. Pulmonary MM is associated with rapid progression of the disease unlike isolated primary pulmonary plasmacytoma that has good prognosis.

Declaration of Interest: All authors declare no conflicts of interest in relation to the subject matter.

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