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Case Report

A case of multiple myeloma with unusual presentation

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Abstract
Extramedullary plasmacytoma is a rare and unusual complication of multiple myeloma (MM). Some sites for the extramedullary involvement of MM are the liver, spleen, lymph node, lung, and skin. Renal failure is another complication of MM due to myeloma kidney, uric acid nephropathy, hemoconcentration, or light chain disease. This study reported a case of MM with unusual presentation. She was a 61-year-old woman who was admitted to the internal ward due to severe renal failure, anemia, mild proteinuria, hypertension, thrombocytopenia, and soft tissue mass in both lungs in the spiral computed tomography (CT) scan. In the skull X-ray, there was not any lytic lesion. Further, plasma cells greater than 30% were observed in serum protein electrophoresis pick of gamma region and in the bone marrow aspiration, so the final diagnosis of the patients was MM with extramedullary plasmacytoma.
Keywords: Multiple myeloma, Soft tissue mass, Renal failure

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Introduction

Multiple myeloma (MM) is characteristic of neoplastic proliferation of plasma cells in bone marrow which is manifested with anemia, bone lytic lesions especially in the skull, hypercalcemia, monoclonal gammopathy (pick of gamma globulin in serum protein electrophoresis), acute or chronic renal failure, and elevated erythrocyte sedimentation rate (1,2).

Extramedullary plasmacytoma is a malignant proliferation of plasma cells outside of bone marrow. Plasmacytoma could be as plasmacytoma alone (solitary extramedullary plasmacytoma) or a character of MM (3). The most common site of solitary extramedullary plasmacytoma in the upper respiratory tract (4). Dissemination of MM as plasmacytoma is an unusual presentation of the disease (5). This study reported a case of MM with severe acute renal failure, normal skull X-ray, and thoracic soft tissue masses (probably extramedullary plasmacytoma).

Case Presentation

A 61-year-old woman was admitted for evaluation of renal failure. She had a history of hypertension, but she did not have any history of diabetes mellitus. She had anorexia and nausea and vomited once before hospitalization; however, she had no symptoms of post renal injury or taking nonsteroid anti-inflammatory drugs. Laboratory examination data of the patient at the admission time were as follows: serum creatinine (4.6 mg/dL), blood urea nitrogen (66 mg/D), K (3.3 mg/dL), Na (136 mEq/L), white blood cells (4500/mm^2), hemoglobin (10.1 g/dL), platelet (133 000/mm^2), calcium (9.3 mg/dL), phosphorus (6.3 mg/dL), albumin (5 g/dL), erythrocyte sedimentation rate (95), blood sugar (129 mg/dL), *lactate dehydrogenase* (308 mg/dL), urinalysis (red blood cells = 1-2 and white blood cells = 4-5 with trace proteinuria), venous blood gas (pH = 7.40, PCO2 = 34.2, and HCO3 = 20.8), 24-hours urine (V = 1300 mL, protein = 520 mg, and Cr = 747 mg). Liver function tests and thyroid function tests were normal. In her chest X-ray, right lung opacity on the lateral side was seen (Figure 1). A high-resolution chest computed tomography scan was done and plural base right side soft tissue mass with the erosion of adjacent ribs (Figure 2) and apical left lung density (Figure 3) was seen. In radiology and pulmonology consult, mesothelioma, osteosarcoma, or fibrosarcoma were mentioned. Right internal jugular permanent catheter was inserted, and hemodialysis was begun. For evaluation of thrombocytopenia and proteinuria, anti nuclear antibody (ANA), hepatitis B surface antigen, hepatitis C virus antibody, and HIV Ab were done which were negative, but in serum protein electrophoresis, a pick of gamma globulin was revealed (Figure 4). The skull x-ray of the patient was normal without any bone lytic lesion (Figure 5). In addition, bone marrow aspiration and biopsy were done, and more than 30% of bone marrow cells were occupied by plasma cells (Figure 6), so the diagnosis of MM was done. Finally, renal failure of the patients was considered as a complication of MM, and soft tissue masses of the thorax as extramedullary disease or plasmacytoma were

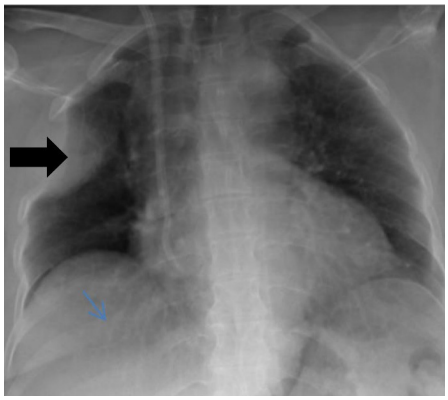

Figure 1. Right side sub plural opacity in *chest x-ray*.

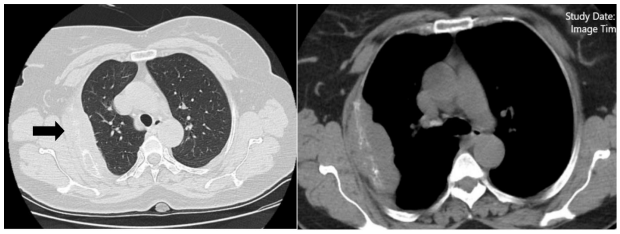

Figure 2. Spiral chest CT: sub plural soft tissue mass with rib destruction. *Note.* CT: Computed tomography.

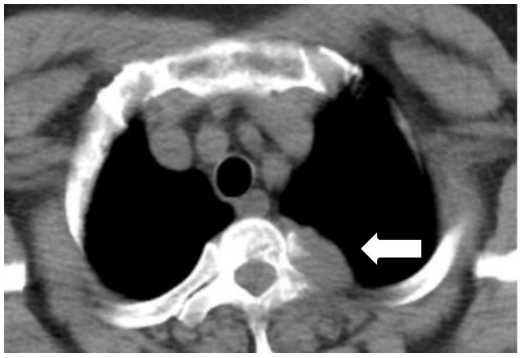

Figure 3. Apical Left Lung Soft Tissue Mass.

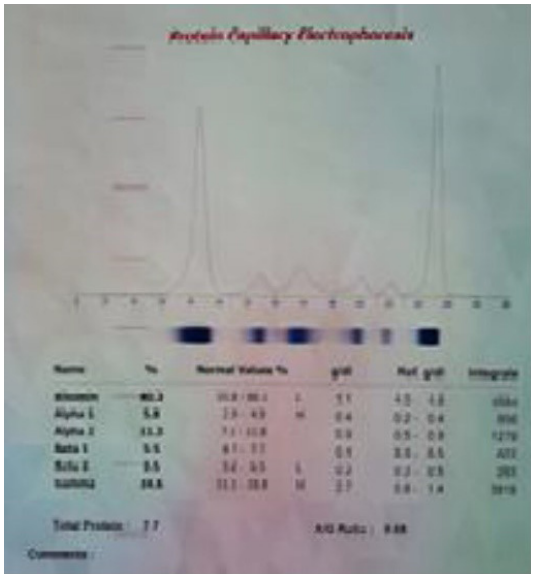

Figure 4. Serum protein electrophoresis of patients showing pick of gamma region.

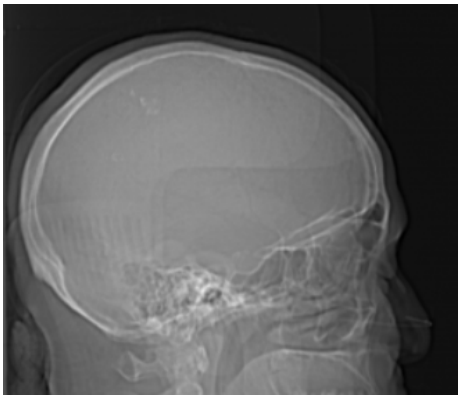

Figure 5. Normal skull x-ray.

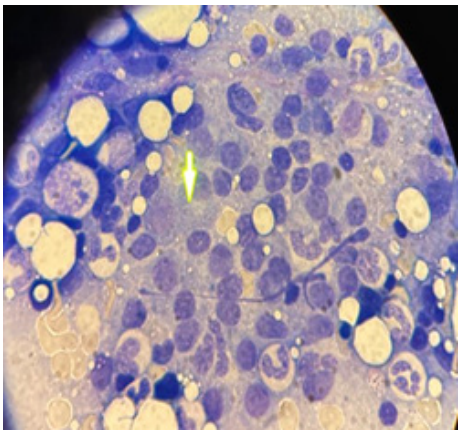

Figure 6. bone marrow aspiration showing plasma cells greater than 30% of cellularity.

diagnosed. Accordingly, chemotherapy was started, and hemodialysis was continued.

Discussion

This study presented a case of MM with extramedullary dissemination as thoracic soft tissue mass and severe renal failure. Renal failure occurs commonly in MM but the extramedullary involvement is an unusual presentation of the disease. Some causes of renal involvement in MM are acute uric acid nephropathy, myeloma kidney, cast nephropathy, dehydration and hemoconcentration, hypercalcemia, and chronic tubulointerstitial nephritis. Renal biopsy was not performed on the patient of this study; however, because of normal serum uric acid and serum calcium as well as near normal urinalysis, the myeloma kidney or cast nephropathy is the probable cause of renal failure in the patient.

In the literature review, there have been some cases of solitary extramedullary plasmacytoma of the lung or thorax. For example, the study by Hwan Kim et al reported solitary 5th thoracic spine plasmacytoma in a 54-year-old man who was admitted with right side chest pain (6). Kumar et al conducted a study on a 32-year-old female patient with bilateral paraparesia and myelopathy and found extramedullary epidural plasmacytoma of the thoracic spine associated with normal renal function and normal bone marrow biopsy results (7). Furthermore,

some reports of MM and thorax or lung plasmacytoma have been documented; for example, Velasco-Álvarez, et al reported a 67-old male with MM and extramedullary plasmacytoma in the plural cavity (8). In addition, Saha et al reported a 60-year-old man with chest pain and weight loss, left upper lobe mass with a lytic lesion of adjacent rib and vertebra, and a final diagnosis of MM with extramedullary plasmacytoma (9). Likewise, Prasad et al presented a case of 45-year-old woman who was admitted with chest pain, weight loss, and renal failure, so her *chest x-ray* and chest CT showed a right lung tumor with a lytic lesion of the ribs. Further, the results of lung mass biopsy and bone marrow biopsy revealed extramedullary plasmacytoma and MM (10), right lung plasmacytoma, rib erosion, and renal failure which were similar to the results of the present study.

Conclusion

In conclusion, we reported a case of MM with severe renal failure and thorax soft tissue masses without lytic lesion of the skull. Diagnosis of MM and thoracic plasmacytoma were confirmed due to the presentation of gamma globulinemia and plasma cells greater than 30% of bone marrow cellularity in bone marrow aspiration and biopsy. Therefore, evaluation of MM should be carried out in patients with unexpected renal failure or proteinuria.

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Author contributions

Conceptualization: Ali Momeni, Rooholah Masoomi.
Investigation: Rooholah Masoomi.
Methodology: Ali Momeni.
Project administration: Ali Momeni.
Writing – original draft: Rooholah Masoomi.
Writing – review & editing: Ali Momeni.

Conflict of Interests

The authors declare that they have no conflict of interests.

Ethical Approval

This case report was approved by the ethics committee of Shahrekord University of Medical Sciences (IR.SKUMS.REC.1400.228).

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