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An Unusual Presentation of Multiple Myeloma

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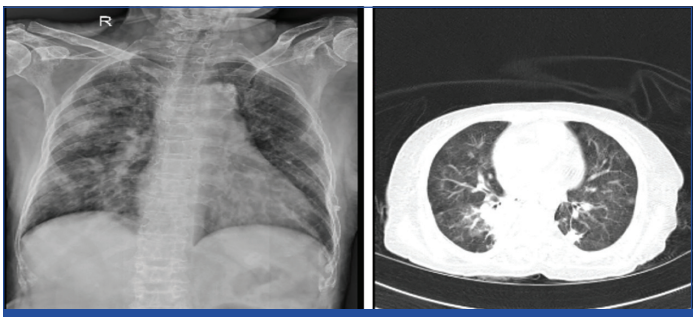
A 62-year-old female presented to the Outpatient Department (OPD) of respiratory medicine with complaints of breathing difficulty, dry cough, and chest pain for the past two days. The patient was normal two days ago, following which she developed a dry cough that was insidious in onset and progressive in nature, associated with breathlessness on exertion and progressed to breathlessness at rest. The chest pain was diffuse, dull aching, and non radiating. She had no similar illness in the past, no significant family history, and no history of any deleterious habits.

On examination, the patient was conscious and oriented, with a height of 152 cm, weight of 40 kg, Body Mass Index (BMI) of 17.78 (underweight), a pulse rate of 120 beats per minute, a respiratory rate of 34 breaths per minute, a blood pressure of 110/70 mm Hg, an oxygen saturation of 75% on room air, 96% with Non Invasive Ventilation (NIV) support with FiO_2 100% and Positive End Expiratory Pressure (PEEP) 5 cmH_2O. Bilateral crepitations were heard in all areas on auscultation. Tenderness was present over the lumbar region, and other systemic examinations were normal.

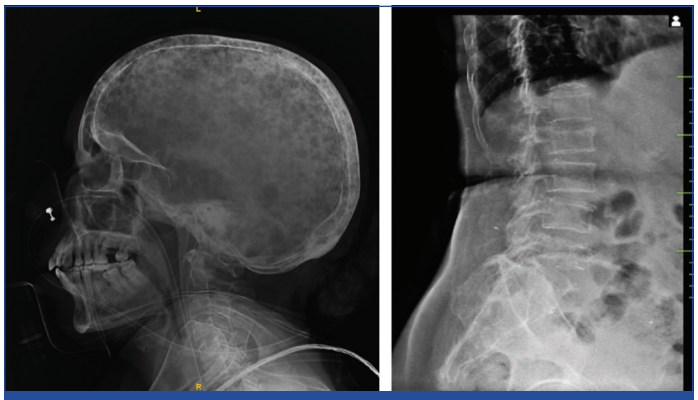
The 12-lead Electrocardiogram (ECG) was within normal limits. Arterial blood gas analysis suggested Type I respiratory failure. The chest X-ray showed bilateral bronchopneumonia [Table/Fig-1]. The High-Resolution Computed Tomography (HRCT) of the thorax showed bilateral patchy consolidation with cardiomegaly [Table/Fig-2].



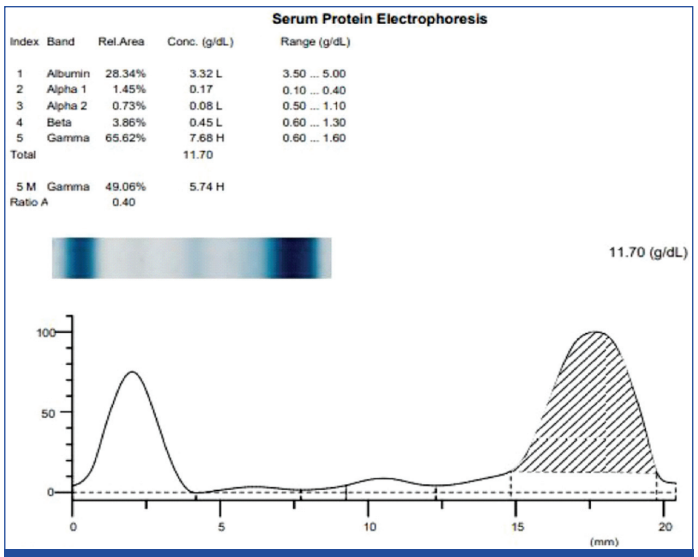
[Table/Fig-1]: Chest X-ray showing bilateral bronchopneumonia.
[Table/Fig-2]: Computed Tomography (CT) of chest showing bilateral patchy consolidation. (Images from left to right)

Blood investigations revealed normocytic normochromic anaemia (haemoglobin 8.5 g/dL), an elevated serum calcium level (serum calcium 14 g/dL), hyperglobulinaemia (globulin 8.0 g/dL), renal failure (urea 90 mg/dL, creatinine 2.5 mg/dL). All these findings were indicative of Multiple Myeloma (MM) as the diagnostic CRAB criteria (Calcium elevation, Renal insufficiency, Anaemia, and Bone abnormalities) were fulfilled [1]. Based on this, an X-ray of the skull was also performed, which showed punched out osteolytic lesions [Table/Fig-3]. A lateral X-ray of the lumbar spine revealed a compression fracture of the L5 vertebra [Table/Fig-4]. Serum protein electrophoresis showed a spike in the gamma M band (gamma M spike 5.74 H), and the serum free light chain assay showed elevated levels of free lambda light chain (4.40 g/dL) [Table/Fig-5].

Based on all the findings, a diagnosis of MM with bronchopneumonia was made. The patient was treated with intravenous antibiotics,



[Table/Fig-3]: X-ray of skull showing punched out lytic lesions.
[Table/Fig-4]: Lateral X-ray of lumbar spine showing compression fracture of L5 vertebra. (Images from left to right)



[Table/Fig-5]: Serum protein electrophoresis showing spike in gamma globulin region with M band.

intravenous fluids, loop diuretics, and other supportive measures. A medical oncologist's opinion was sought in view of MM, and the patient was transferred to their department for a bone marrow biopsy, cytogenetic study, followed by chemotherapy.

DISCUSSION

MM is a plasma cell proliferative disease characterised by increased levels of monoclonal protein [2]. The average age at diagnosis is 70 years, with a male-to-female ratio of 1.4:1. Diagnostic criteria include: 1) clonal bone marrow plasma cells > 10% or biopsy-proven extramedullary plasmacytoma along with; 2) evidence of end-organ damage due to plasma cell proliferative disorder, such as hypercalcaemia >11 mg/dL, renal failure creatinine >2 mg/dL, anaemia haemoglobin <10 g/dL, or one or more osteolytic lesions on skeletal radiography or clonal bone marrow >60% or uninvolved serum free light chain ratio >100 [3]. The differential diagnosis in such cases can be amyloidosis, metastatic bone disease,

lymphoma, and Waldenstrom's macroglobulinemia. Amyloidosis was ruled out as there was no proteinuria, and echocardiography was normal. Metastatic bone disease was not considered as there was no evidence of any osteoblastic lesion on CT. The peripheral smear of blood also showed no signs of lymphoma in this case, and Waldenstrom's Macroglobulinemia was excluded as there was no thrombocytopenia or associated haemolytic anaemia. By using serum protein electrophoresis, a monoclonal (M) protein in the serum or urine is a crucial indicator of MM. About 50% of the M protein type is made up of IgG, 20% of IgA, 20% of immunoglobulin light chain, 2% of IgD, and 0.5% of IgM. Approximately 2-3% of MM are classified as non secretory MM since they do not have any detectable M protein [4].

In the case study by Bonilla-Valentín FJ et al., a 64-year-old man with IgM lambda monoclonal gammopathy was initially assumed to have Waldenstrom macroglobulinemia-like signs, symptoms, lab results, and imaging [5]. The unusual diagnosis of IgM MM was confirmed after additional testing, which included bone marrow biopsy, flow cytometry, immunohistochemistry, fluorescence in situ hybridisation, and the study of MYD88 (L265P) gene mutations. The diagnosis of IgM MM can be challenging, as this patient's case illustrates. Accurate diagnostic techniques and a strong index of suspicion are needed. Chen CT et al., described a case report of an IgD myeloma patient who presented with bi-cytopenia and renal failure [6]. A bone marrow biopsy sample revealed the presence of homogenous plasma cells, which were positively stained for light chains and IgD. Ryu MH et al., presented a case of a 27-year-old man who presented with back pain after a fall from a ladder [7]. Excruciating pain led to the identification of numerous axial and appendicular lytic osseous lesions as well as a sizable pelvic plasmacytoma by imaging and biopsy.

In this article a case of a 62-year-old female who presented with bronchopneumonia, but on further evaluation was found to have MM. Another such case having an unusual presentation was reported by Parekh I et al., [8]. The patient initially presented with recurring epistaxis, and later myasthenia. He was not diagnosed with MM until four months after his initial epistaxis presentation when he developed acute kidney injury.

Joint illness is an uncommon manifestation of MM. The case of a person with symmetrical severe seronegative polyarthritis, joint swelling, and progressing bilateral carpal syndrome was documented by Molloy CB et al., [9]. Bone marrow biopsy and serum protein electrophoresis were used to make the diagnosis of MM (with secondary amyloidosis).

In this report, the patient was diagnosed with MM by serum protein electrophoresis. Further evaluation and its division into a particular type could not be done due to limitations of resources. The patient was referred to a medical oncology department at a higher centre for a bone marrow biopsy, flow cytometry, immunohistochemistry, a study of gene mutations, and the initiation of chemotherapy. The 5-year relative survival rate among all patients with MM is 55.6%. Treatment regimens for MM include multiple triple drug regimens, which include a monoclonal antibody with an immune modulator and steroid. Without treatment, a patient with aggressive myeloma has a median survival of approximately six months. Oral Melphalan and Prednisone therapy increase survival to three years. Supportive therapy comprises the management of hypercalcaemia, anaemia, infections, and pain [10].

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