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Case Report

Plasmacytoma Presenting as Lung Mass

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Abstract

Background: Extra medullary plasmacytoma comprises 3 to 5% of all plasma cell tumors. Solitary plasmacytoma presented as solitary lung mass or nodule and diffuse alveolar consolidation is very rare. Expression of CD138 is highly specific for diagnosis of plasmacytoma. Treatment of choice is surgical resection alone or followed by radiation.

Case Study: A 70 Year female presented with complaints of breathlessness for 2 months, chest pain and bilateral shoulder pain for 1 month. CT scan thorax revealed massive left side pleural effusion and peripheral left lung mass with bony erosions. CT Thorax guided transthoracic biopsy and histopathological examination was done and tissue showed sheets of atypical plasma cells separated by fibrous septa and these findings supported the diagnosis of plasmacytoma of lung which is rare.

Discussion: Etiology of plasmacytoma is not well understood but viral pathogenesis and chronic irritation are probable contributary factors. Histopathological examination shows dense plasma cells and different level of diffuse proliferation and infiltration with mature nucleus which are round and ovoid are of same size with spoke shaped chromatin cells have less cytoplasm with peripheral nucleus surrounded by perinuclear hallows.

Conclusion: We presented and discussed a rare case of stage 3 Plasmacytoma of lung which presented as lung mass and pleural effusion of left side, with lytic lesions on bones with no lymph node involvement. Bone marrow and other parameters, did not suggest or support any alternative diagnosis. Histopathology of tissue establishes the diagnosis of Plasmacytoma.

Keywords: *Plasmacytoma; Extramedullary; Lytic Lesions*

Background

Extra medullary plasmacytoma comprises 3 to 5% of all plasma cell tumors.

Case Report

A female patient aged 70 years, presented with complaints of breathlessness for 2 months which was increased for last one week, chest pain for 1 month and bilateral shoulder pain (more on left side) on movements for 1 month. She had no history of recent or past trauma to chest.

On admission, her vital parameters were stable and on physical examination she was having tenderness on left shoulder. Auscultation of chest revealed that breath sounds were decreased, on left side of chest. She was not having any signs of cardiac decompensation. Blood examination found that her hemoglobin was 8.9 gm/dl, while other hematological parameters were within normal limits.

Troponin-I, Brain Natriuretic Peptide and ECG were done at the time of presentation, and they did not reveal any significant abnormality. Chest radiograph, posteroanterior view (Figure 1) showed left side massive pleural effusion and lytic lesions on left 3rd rib and both side of clavicle and humerus.

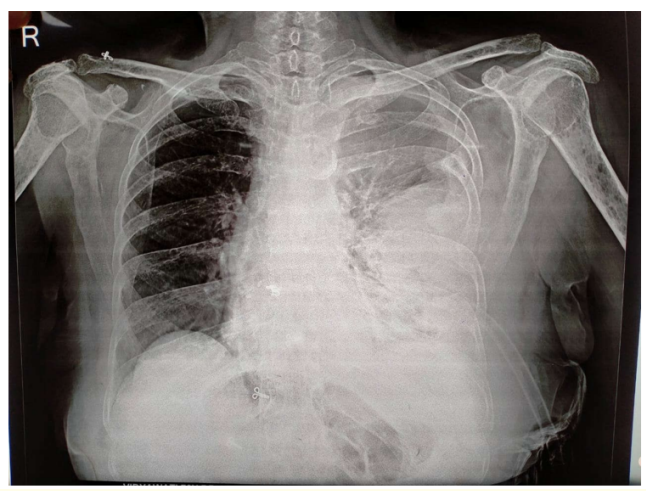

Figure 1: *Chest radiograph shows left side massive pleural effusion along with bony lytic lesions in ribs, clavicle and humerus.*

Thoracocentesis was done and 4 liters of hemorrhagic fluid was aspirated, in different settings, due to rapid refilling of fluid. Analysis of pleural fluid was suggestive of exudative etiology and cytology was suggestive of lymphocytic rich effusion.

Intercostal tube was inserted with palliative intent, in left 5th intercostal space in midaxillary line, for symptomatic relief and continuous drainage of fluid.

She later underwent computerized tomographic (CT) scan of thorax (Figure 2), which revealed massive left side effusion and a peripheral left lung mass with bony erosions. For further evaluation of lung mass, CT thorax guided transthoracic biopsy was taken and histopathological examination was done. Tissue pieces showed sheets of atypical plasma cells separated by fibrous septa (Figure 3). These cells display eccentrically placed hyperchromatic nuclei and moderate amount of amphophilic cytoplasm (Figure 3). At few places these cells also display conspicuous nucleoli. All these findings supported the diagnosis of Plasmacytoma.

To rule out the possibility of coexistent multiple myeloma, bone marrow examination, serum electrophoresis for M protein, and urine analysis for Bence-Jones light chains was done and was found to be normal, and not suggestive of multiple myeloma.

Patient was transferred to department of Oncology for further management.

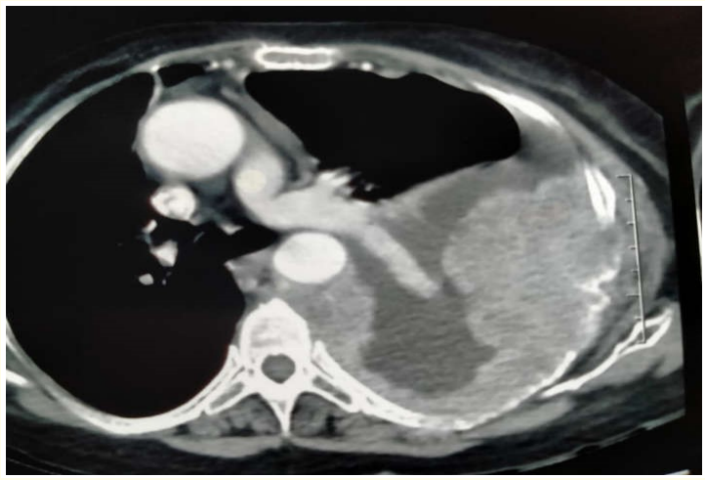

Figure 2: *Axial HRCT thorax shows left lung mass and pleural effusion, with rib erosion.*

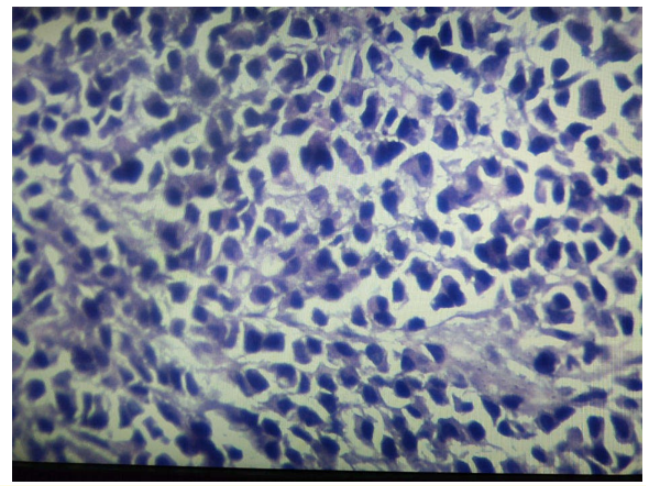

Figure 3: *Section shows atypical plasma cells having eccentrically placed hyperchromatic nuclei and moderate amount of amphophilic cytoplasm.*

Discussion

Most of the extramedullary plasmacytoma is a plasma cell tumor, usually arised outside of bone marrow and occurs as solitary tumor in upper respiratory tract [1] and in rare cases in lymph nodes, skin, gastrointestinal tract, genitourinary tract, lungs and other sites [2].

Extramedullary plasmacytoma comprises 3% to 5% of all plasma cell tumors out of which 80% occurs in head and neck region [3]. 5% of extramedullary Plasmacytoma has coexistence with Multiple Myeloma [4]. Solitary Plasmacytoma located in lung is very rare [5].

Primary pulmonary plasmacytoma presenting as solitary lung mass or nodule, and diffuse alveolar consolidation of the disease, is very rare [6]. Plasmacytoma presenting as lung mass, mimics primary lung malignancies, lymphomas and metastatic carcinomas [7].

Symptoms of presentation are not very specific, such as cough, breathlessness, wheezing and hemoptysis. Symptomatic presentation is mainly related to location of the tumor, within the thorax [8].

Etiology of the disease is not well understood but viral pathogenesis and chronic irritation are probable contributary factors [9].

Clinically primary pulmonary plasmacytoma is divided in three stages according to Wilshow method [8]:

1. Stage-1 tumor confined to primary site.
2. Stage-2 tumor invades local lymph node.
3. Stage-3 obvious wide spread metastasis.

Associated Multiple myeloma is more common than solitary plasmacytoma of lung [8]. Thus, in order to differentiate it, from multiple myeloma, bone marrow examination is required which shows lower than 5% of plasma cells with no dyscrasia and normal skeletal survey, and it may not have serum M protein or Bence-Jones light chains in urine [8].

Pulmonary plasmacytoma is associated with urinary excretion of kappa light chain portion of immunoglobulin which declines, following surgical resection [10].

Histopathological examination shows dense plasma cells and different level of diffuse proliferation and infiltration with mature nucleus, which are round and ovoid, are of same size with spoke shaped chromatin. Cells are primarily basophilic and minority are eosinophilic. Cells have less cytoplasm with peripheral nucleus surrounded by perinuclear halo [8].

Immunohistochemical staining shows single light chain expression. Tumor cells are CD20, CD79a, CD138 and CD38 positive. expression of CD138 is highly specific for diagnosis of plasmacytoma [8].

It is treated by surgical resection alone or followed by radiation. Diffuse pulmonary infiltration and multiple lung nodules need chemotherapy along with surgery and radiation [2].

Conclusion

We presented and discussed a rare case of stage 3 Plasmacytoma of lung which presented as lung mass and pleural effusion of left side, with lytic lesions on bones with no lymph node involvement. Bone marrow and other parameters, did not suggest or support any alternative diagnosis. Histopathology of tissue establishes the diagnosis of Plasmacytoma.

Learning Points

1. Extramedullary plasmacytoma comprises 3% to 5% of all plasma cell tumors.
2. Solitary plasmacytoma located in lung is very rare.
3. Expression of CD138 is highly specific for diagnosis of plasmacytoma.
4. Treatment of choice is surgical resection alone or followed by radiation.

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