Bronchogenic Adenocarcinoma with Bone Marrow Involvement: An Unusual Presentation

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Introduction

Adenocarcinoma is the most frequently diagnosed histological subtype of bronchogenic carcinoma in women and nonsmokers [1]. Extrathoracic metastasis is found at autopsy in over 80% of patients with adenocarcinoma. Metastasis to bones is common occurrence in patients with advanced carcinomas, particularly in those with lung, breast or prostate [2]. Metastasis to bone marrow from prostate, breast, pancreas, gastric adenocarcinoma and small cell carcinoma lung have been frequently reported. Bone marrow involvement in pulmonary adenocarcinoma is rare [1]. Here we are reporting a case of adenocarcinoma lung with bone marrow involvement as its first manifestation.

Case Report

A 51 year old male was admitted with 9 months history of gradually increasing pain abdomen. Pain was dull aching in nature and was in left hypochondriac and epigastric region. There were no complaints of cough, dyspnoea, orthopnea or paroxysmal nocturnal dyspnoea, vomiting or hemoptysis. Patient was chronic smoker and alcoholic. On examination patient was afebrile and his vitals were normal. He had severe pallor and mild icterus. However no cyanosis, clubbing or lymphadenopathy was detected. Respiratory system, cardiovascular system and per abdomen examination were within normal limits. Clinical diagnosis of acute

pancreatitis with anemia was thought. Laboratory reports showed hemoglobin of 4.8 gm%, total leucocyte count of 6,800 cells/cumm, Erythrocyte sedimentation rate of 50 mm at the end of one hour and serum lipase of 96.70 U/L. Chest X-ray and ultrasound abdomen was normal. Peripheral smear showed leukoerythroblastic anemia with evidence of hemolysis. Reticulocyte count was 8% and serum bilirubin of 3.6 mg/dl with increase in indirect bilirubin. Hence bone marrow study was advised. Bone marrow aspiration showed erythroid hyperplasia with megaloblastic maturation and metastatic deposits of adenocarcinoma (Fig. 1). Bone marrow biopsy confirmed the above finding (Figs 2 and 3). Later computerised tomography(CT) chest was done, revealed 4×3 cm enhancing right hilar mass having irregular margins with lymphangitis carcinomatosa changes.(Fig. 4) CT abdomen showed no metastatic deposits in liver and spleen. Aspiration cytology of right hilar mass showed features of bronchogenic adenocarcinoma. Immunohistochemically marrow tumour cells were positive for TTF 1. Final diagnosis of bronchogenic adenocarcinoma with bone marrow metastasis was made. Patient was treated with palliative chemotherapy [Pemetrexed 500 mg/sqm² and carboplatin (AUC 5) regime] and the patient has tolerated the chemotherapy well without any complication. However after 3 months of treatment due to advanced disease state, patient succumbed to death.

Discussion

Pulmonary carcinoma is now the second common cancer in the world, with 51% of cases occurring in developed countries and 75% in men. In India, its incidence is 6.62/100,000 population in male [3, 4]. Most patients present with cough, loss of weight, dyspnoea and hemoptysis [3,

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Fig. 1 Bone marrow aspirate showing metastatic tumor cells forming vague glands (X 400, Leishman)

4]. Majority of the patients are chronic smokers. The diagnosis is usually suspected after having abnormal chest radiograph and confirmed by CT guided aspiration cytology/ biopsy. The extent of cancer spread is assessed by CT chest and abdomen. Our case had an interesting presentation of bronchogenic adenocarcinoma, which was diagnosed after bone marrow aspiration with metastatic deposits, later confirmed by bone marrow biopsy.

This case presented significant diagnostic difficulties. This patient with known history of smoking, alcoholism and pain in abdomen with high serum lipase and severe pallor led us to make an initial diagnosis of acute pancreatitis with anemia. Peripheral smear showed leukoerythroblastic anemia with evidence of hemolysis, hence bone marrow evaluation was done. The finding of bone marrow deposits of adenocarcinoma with CT chest showing right hilar mass later confirmed by lesional aspiration as bronchogenic adenocarcinoma led us to the diagnosis of adenocarcinoma lung with bone marrow metastasis. Koluz M et al. reported a case of pulmonary adenocarcinoma with bone marrow involvement [1]. One of the clinical problems related to metastatic pulmonary carcinoma includes bone marrow invasion with cytopenias or leukoerythroblastic

Fig. 2 Bone marrow biopsy showing metastatic adenocarcinoma (X100, H&E)

Fig. 3 Bone marrow biopsy showing metastatic adenocarcinoma (X400, H&E)

anemia, and is quite rare [1, 5]. Bone metastasis usually occurs late in the course of the disease, but in some patients it may be the first manifestation of lung cancer [5]. Tzaveas et al. have reported metastasis of bronchogenic lung cancer to the 5th metacarpal [6]. The bronchogenic adenocarcinoma usually erodes the pulmonary veins and thus access to systemic circulation and consequently shows wide spread metastasis [6]. Our case is an unusual presentation of adenocarcinoma lung with the diagnostic difficulties due to non specific presentation and by absence of an obvious mass lesion in chest X ray.

In this case, biopsy of the lung mass was not done as the lesion was central and perihilar in location. Lung carcinoma with bone marrow involvement is considered as stage IV. Hence the patient was treated with palliative chemotherapy [Pemetrexed 500 mg/sqm² and carboplatin (AUC 5) regime] and the patient has tolerated the chemotherapy well without any complication. However after 3 months of treatment due to advanced disease state, patient succumbed to death. This case highlights the importance of marrow evaluation in elderly patients with anemia and bronchogenic adenocarcinoma may manifest with marrow involvement as its initial manifestation.

Fig. 4 CT Thorax (contrast) showing spiculated growth in the right hilar region with lymphangitis carcinomatosa changes

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Conflicts of interest Nil

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