Osteosarcoma mimicking fibrous pleurisy with dystrophic calcification!!!

Sir,

A 63-year-old man, taxi driver by profession, presented with neck and lower back pain after his car was hit from the back. He also had a history of dry cough for the last few months with occasional shortness of breath and intermittent localized pain in the left lower chest wall. He worked in a shipyard for few years before taking up the current job. Physical examination, including lungs, was normal and laboratory tests were normal. Chest radiograph showed irregular opacities in the left upper thorax with ill-defined borders [Figure 1a]. These were not previously seen in prior chest radiograph taken 4 years ago. Further evaluation with computed tomography (CT) of the thorax revealed a densely calcified pleural-based mass along the left posterior chest wall with extension into the adjacent chest wall [Figure 1b], worrisome for a tumor rather than chronic pleural calcification which would be expected to be confined within the pleural cavity. CT-guided core biopsy of the pleural mass was performed 2 days later, which revealed fibrous pleurisy with dystrophic calcification with no evidence of malignancy.

Two months later, the patient presented again with similar symptoms of intermittent localized left lower chest wall pain and breathlessness, which was not relieved with symptomatic treatment. There was no associated fever, cough, or weight loss. Chest radiograph showed persistent ill-defined opacities in the left hemithorax [Figure 1c]. CT pulmonary angiogram on the same day revealed no evidence of pulmonary embolism. However, there was a significant interval increase in the soft-tissue component and possibly marginal increase in the calcified component of the left posterior pleural mass [Figure 1d].

A month later, the patient underwent video-assisted thoracoscopic surgery for biopsy of the left pleural lesion. During surgery, a hard tumor was found with mild adhesions between left lung and chest wall. A diagnosis of mesothelioma with osteosarcoma component was made, given the patient's asbestos exposure. This was followed by a fludeoxyglucose positron emission tomography (FDG-PET)-CT study which revealed a hypermetabolic activity corresponding to the lobulated soft tissue mass in the left posterior pleura with calcification [Figure 1e]. There is associated mixed erosive-sclerotic change of the adjacent left sixth rib and extension of the mass into the posterior chest wall through the intercostal space. In addition, there are several mildly FDG avid mediastinal, left hilar, and upper abdominal nodes seen, which are of indeterminate

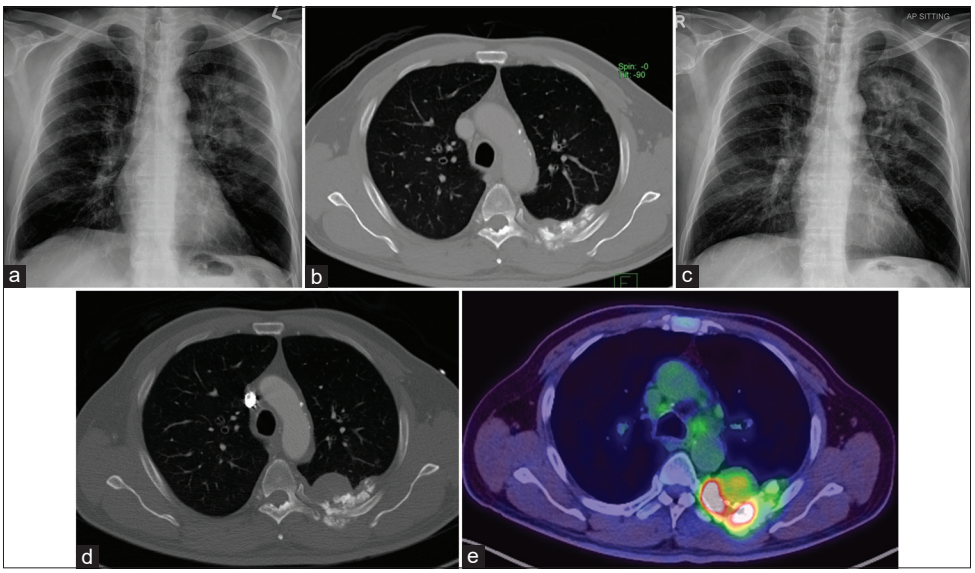

Figure 1: (a) Initial radiograph showing mass-like opacities in left upper lobe with ill-defined borders. (b) Initial computed tomography confirms a densely calcified pleural mass along the left posterior chest wall with extension into the adjacent chest wall. (c and d) Follow-up radiograph and computed tomography pulmonary angiogram, 2 months later show interval increase in the size of the mass. (e) Fludeoxyglucose positron emission tomography-computed tomography study revealed a hypermetabolic activity corresponding to the lobulated pleural mass

significance. The decision to start the patient on chemotherapy was made.

Malignant mesothelioma is an uncommon neoplasm that arises from the pleura or rarely the pericardium or periosteum. Majority of these are associated with prior asbestos exposure. The patient frequently presents with dyspnea, chest pain, cough, and weight loss. The tumor can invade both visceral and parietal pleura and frequently extends to adjacent structures. Chest wall involvement may manifest as obliteration of extrapleural fat planes, invasion of intercostal muscles, displacement of ribs, or bone destruction.[1] Mesothelioma usually progresses in a circumferential pattern around the hemithorax, rather than focal expansile manner. Calcified pleural plaques are seen to indicate prior asbestos exposure, which is the primary risk factor for mesothelioma.

The radiological differential diagnoses of malignant mesothelioma include osteosarcoma, chondrosarcoma, aggressive osteomyelitis, plasmacytoma, and bone metastases. Chondrosarcoma typically has stippled and arc-like calcifications, whereas osteosarcomas tend to have dense foci of calcification located predominantly in the central portion of the tumor. In osteomyelitis, bony destruction and fat stranding are usually the predominant features, associated with systemic clinical features.[2] Most plasmacytomas arising from bone are osteolytic and expansile and usually do not contain intralesional calcifications. Expansile osteolytic metastases, such as those resulting from primary renal or thyroid malignancy, could cause similar appearance. This case highlights the limitations of imaging alone and the importance of definite histological diagnosis in the management of the chest wall mass. Chest wall masses are often amenable to percutaneous biopsy under ultrasound and CT guidance. In addition to its role in diagnosis and staging, FDG PET/CT may be helpful in targeting biopsy towards metabolically active areas to have a better diagnostic yield. The correlation of clinical, radiological, and pathologic data is required for optimal treatment planning of chest wall masses.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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