A massive intrathoracic mass lesion due to giant cell tumor of pleura

Sir,

Giant cell tumor represents 5% of all primary bone tumors. It typically occurs in the age group of 20-40 years. The most common location for giant cell tumor to arise is distal femur. It is rare to have giant cell tumor arising in thorax (1% of all giant cell tumor cases) and if does it is usually from rib. We report a case of giant cell tumor of pleura who presented with minimal symptoms.

A 38-year-old male laborer from Bihar, was admitted with complaints of mild pain and chest discomfort in left side of chest for last 7 months. The pain had become continuous for last 6 days. However, there was no history of shortness of breath, palpitations, sweating episodes, loss of appetite or weight loss. On examination, patient was thin built, and had normal vital signs. There was no lymphadenopathy and jugular venous pressure was normal. Systemic examination was normal.

Blood investigations (complete blood counts, liver and renal function tests) were normal. Chest radiograph showed large homogenous density in left mid zone [Figure 1]. PET-CT revealed large heterogeneous mass abutting the left aorta and inferior pulmonary vein and there was no erosion of ribs. The mass was FDG avid [Figure 2].

Excision of the mass lesion was done under general anesthesia. It was possible to remove the mass in toto. There was no local metastasis or neurovascular bundle invasion. The mass was adherent to pleura and lung was normal. The gross size of mass was $20 \times 16 \times 4$ cm.

Histological section showed a benign neoplasm consisting of two cell populations. One cell population was composed of round to oval cell with plump vesicular nucleoli and conspicuous nucleoli at places and the second cell population formed multinucleate osteoclastic giant cells. The nuclei of which had similar morphology as mononuclear cells. Focal areas of hemorrhage, cystic changes and necrosis were seen. There was no significant mitotic activity. Immuno-histochemistry of the tumor revealed positive expression for smooth muscle actin in mononuclear tumor cells. CD68 was positive in multinucleate cells as well as mononuclear cells [Figure 3]. At 1-year follow-up, patient was doing fine and was asymptomatic and his repeat chest radiograph was normal.

Giant cell tumor of soft tissue is a rare tumor. It was first described in 1972 by Salm and Sissons. Folpe et al. proposed terming giant cell tumor of soft tissue as “giant cell tumors of low malignant potential” and viewed them as soft tissue analog of giant cell tumor of bone because of their histological and immunohistochemical similarity. There is no sex predilection for such tumors. The tumor has low malignant potential and commonly affects the
lower limbs, trunk and upper limbs. The origin of giant cell tumor from pleura and chest wall is extremely rare. The first case of giant cell-associated malignant mesothelioma was reported by Itami et al. in 2010. However, in our case there was no underlying pleural pathology. To the best of our knowledge this is the first case of giant cell tumor of pleura to be reported.

Histologically, all tumors consist of a mixture of mononuclear cells showing vesicular, round to oval nuclei and osteoclast like, multinucleated giant cells distributed uniformly throughout the tumors. There can be foci of stromal hemorrhage and areas of necrosis which can be seen and are consistent feature of this tumor. These neoplasms have low malignant potential (nuclear atypia, pleomorphism and mitosis are rare) but can be locally aggressive. In a case report by Kim et al., he recommended to keep primary giant cell tumor of soft tissue as differential diagnosis of bland-looking giant cell-rich lesions. Distant metastasis is extremely rare in this tumor.

Surgical excision of tumor is necessary to determine the nature (benign or malignant) of tumor since chest radiograph or computed tomography (CT) cannot differentiate between benign and malignant tumor. There is no role of chemotherapy and radiotherapy in management of tumor. Incomplete surgical excision can lead to recurrence.

Giant cell tumor usually arises from bones of upper and lower limbs. Its origin from pleura/chest wall is extremely rare. However, in contrast to bony origin, pleural-based giant cell requires only debulking and close follow-up.

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There are no conflicts of interest.

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