A 45-year-old man presenting with chest pain

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CASE SUMMARY

A 45-year-old ex-smoker male presented with gradual onset of left side dull-aching chest pain for 1 year. He developed gradual onset of dyspnea and dry cough for 6 months. He also suffered from the loss of appetite and weight. He worked as a driver and was also involved in loading and unloading of cement bags. Physical examination revealed clubbing, decreased chest movements, dull note on percussion, and absence of air entry on the left side of the chest.

Chest X-ray [Figure 1] revealed homogeneous opacity involving the left lower lung fields with shift of the mediastinum and trachea to the opposite side. Computed tomography (CT) of the chest revealed left-sided homogeneous lobulated pleural-based mass [Figure 2] involving the costal, mediastinal, and diaphragmatic pleura.

QUESTIONS

1. What is the provisional diagnosis in this case?
2. What should be the next investigation?
3. What is the complication of the investigation mentioned above?

Figure 1: Chest X-ray reveals homogeneous opacity involving the left lower lung fields with shift of the mediastinum and trachea to the opposite side. The upper and medial margins of the opacity are lobulated, and there is apparent cardiomegaly

Figure 2: Contrast tomography of the chest reveals left-sided homogeneous lobulated pleural-based mass (a and b) involving the costal, mediastinal, and diaphragmatic pleura. A pleural-based lesion with area of calcification is seen on the right side (a)
ANSWERS

1. Provisional diagnosis – Left-sided pleural-based mass with pleural plaque present on the right side (Likely mesothelioma due to exposure to asbestos while carrying cement bags). Malignant mesothelioma is a rare tumor involving the serosal linings of the body and may affect the pleura, peritoneum, pericardium, or tunica vaginalis.[1] The above-mentioned case probably had been having inadvertent asbestos exposure while loading and unloading cement bags over the years. Asbestos is a component of cement, and World Health Organization has recently termed all types of asbestos fibers as Type I carcinogens.[2] Not only the persons who are exposed to asbestos at work but also their family members have risk of mesothelioma. The average duration after which mesothelioma has been reported after asbestos exposure is 20–40 years.[3] The symptoms of pleural mesothelioma are chest pain, shortness of breath, cough, and loss of weight.

The tumor engulfs the lung causing loss of volume and same side mediastinal shift.[4] However, in the present case, there was mediastinal shift toward the opposite side with apparent cardiomegaly. The probable cause for this incongruity was the high tumor bulk which was infiltrating toward the opposite side. CT chest can estimate the extent of disease and the invasion of nearby structures. The tumor has soft-tissue density and invades the fissures, chest wall, diaphragm, mediastinal structures such as heart, great vessels, and lymph nodes. Benign pleural plaques which are caused due to asbestos exposure may also be visualized.

2. Next investigation – Open pleural biopsy was performed from the left-sided lesion. The tumor cells were composed of epithelial-like cells growing in the linear and glandular pattern. Moderate pleomorphism was noted focally with the presence of occasional giant cells. The likely pathology in this case was epithelioid subtype of malignant mesothelioma [Figure 3] Immunohistochemistry revealed that tumor cells were positive for calretinin and negative for cytokeratin, carcinoembryonic antigen and Wilm’s tumor-1 protein.

3. Complication – Malignant mesothelioma is known to invade pleural biopsy and intercostal tube tracts. In such cases, prophylactic radiotherapy (RT) is administered at these sites. In our case also, the patient received RT at the site of biopsy along with chemotherapy.

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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