Pictorial Quiz

Mediastinal mass mimic

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A 21-year-old nonsmoker man presented with low-grade fever, cough, and streaky hemoptysis for the past 1 month. His medical history and general examination were unremarkable. Respiratory examination revealed rhonchus in the left interscapular area. Hemogram and blood biochemistry were normal. Enzyme-linked immunosorbent assay for human immunodeficiency virus was negative. The chest radiograph showed a heterogeneous opacity in the left lower zone [Figure 1]. The contrast-enhanced computed tomography (CT) scan images are given in Figure 2.

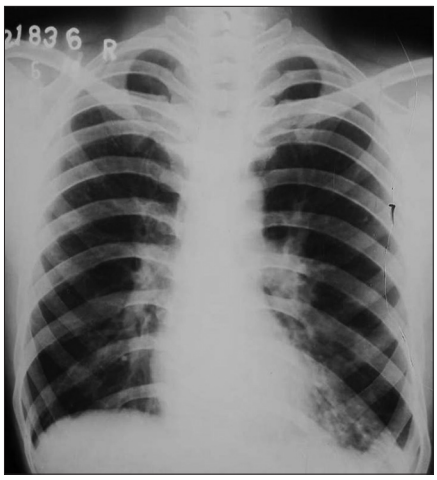

Figure 1: Chest radiograph in posteroanterior projection showing heterogeneous opacity in the left lower zone

QUESTIONS

1. What are the findings on the CT scan?
2. What is the radiological diagnosis based on the CT scan findings?

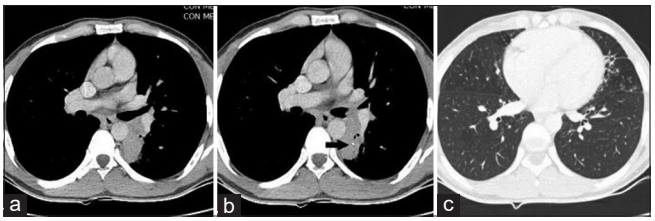

Figure 2: Contrast-enhanced computed tomography of chest: (a) transverse section mediastinal window at the level of carina, (b) transverse section mediastinal window at the level of the left and right main bronchus, (c) transverse section lung window showing lingular lobe

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ANSWERS

1. The CT scan shows a heterogeneous-enhancing posterior mediastinal mass with a tiny calcific focus extending from left hilum to left paravertebral region, encasing the descending aorta, left main pulmonary artery, left inferior pulmonary vein, and the subsegmental bronchus of superior segment of left lower lobe [Figure 2a and b]. Multiple centrilobular nodules and fibrobronchiectatic changes are seen in lingula [Figure 2c].
2. Posterior mediastinal mass is due to granulomatous fibrosing mediastinitis (FM).

The differential diagnoses of a posterior mediastinal mass are metastatic carcinoma, lymphoma, neurogenic tumors, and rarely fibrosing medistinitis. Since our patient was young without any smoking history, malignancy was unlikely. The presence of calcification in the lesion and absence of lymphadenopathy made lymphoma unlikely. The neurogenic tumor, i.e., nerve sheeth tumor, sympathetic ganglia tumors, and paraganglioma were also unlikely. The peripheral nerve sheath tumor manifests radiologically as a well-circumscribed mass with well-defined margins, which displaces adjacent structures without direct invasion. The benign sympathetic ganglionic tumors, i.e., ganglioneuromas, are also well marginated. The malignant sympathetic ganglia tumors which can invade the surrounding structures are seen only in children.[1] Paragangliomas have avid contrast enhancement due to a rich capillary network and delayed washout.[2] Since our case did not have any of the typical characteristics of neurogenic tumors, lymphoma, and carcinoma lung, FM was most likely.

There are two radiological subtypes of FM; granulomatous and nongranulomatous variety. The granulomatous variety shows focal, localized mass of soft-tissue attenuation with dense or stippled calcification. The nongranulomatous variety shows diffuse and infiltrative homogenous soft-tissue masses throughout the mediastinum involving multiple compartments without calcification.[3,4] Secondary lung parenchymal changes, such as atelectasis, consolidation, nodules, and infiltrations, can also be found with granulomatous variety.[5] Thus, the radiological findings in our patient were consistent with granulomatous FM.

A fiber optic bronchoscopy was performed to prove the diagnosis and determine the etiology. It showed extrinsic compression of superior segment left lower lobe bronchus. Transbronchial lung biopsy revealed epithelioid cell granuloma with caseation necrosis. The special stains for fungus including histoplasma were negative. He was thus diagnosed with granulomatous FM due to tuberculosis and started on antitubercular treatment. The follow-up CT scan after 2 months showed regression of the lesion [Figure 3].

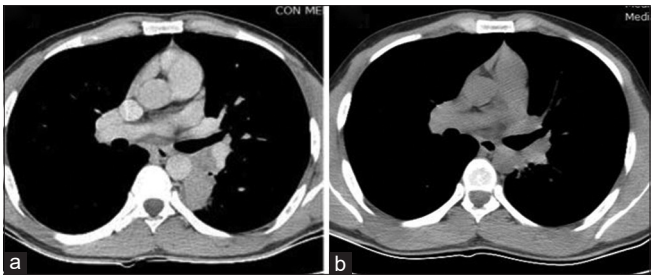

Figure 3: Comparison of computed tomography image before and after treatment: (a) initial computed tomography, same as Figure 2a, (b) follow-up image after 2 months of antitubercular treatment

DISCUSSION

FM, also known as mediastinal fibrosis or sclerosing mediastinitis, is a rare, benign but progressive condition characterized by proliferation of the fibrous tissue within the mediastinum.[6] It ranges from a benign clinical course to complications, such as obstruction of vascular, airway, and esophageal structures.[3] The granulomatous variety can be due to histoplasmosis, sarcoidosis, tuberculosis, and other fungal infections, such as aspergillosis, blastomycosis, cryptococcosis, and mucormycosis.[6] In our case, although the biopsy specimen demonstrated granuloma, the residency in nonendemic area, absence of fungal element and stain for histoplasmosis, immunocompetent status of the patient, and presence of caseation ruled out histoplasmosis, other fungal etiology, and sarcoidosis. Bronchoscopy may reveal extrinsic compression of the large airways, but bronchoscopic biopsy usually fails to give accurate histological diagnosis. It was a rare case where transbronchial lung biopsy proved the diagnosis.

The literature on granulomatous FM due to tuberculosis is scant.[7,8] The treatment options range from medical, surgical, to palliative care only. Antitubercular therapy should be given in cases where definite diagnoses have been established. Corticosteroid has limited benefit.[4,7,9] Our patient responded to antitubercular therapy without steroids.

To conclude, granulomatous mediastinal fibrosis is a radiological diagnosis. Tuberculous granulomatous FM, one of the rare differential diagnoses, should be kept in mind while dealing with posterior mediastinal 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.

REFERENCES

1. Pavlus JD, Carter BW, Tolley MD, Keung ES, Khorashadi L, Lichtenberger JP 3rd. Imaging of thoracic neurogenic tumors. AJR Am J Roentgenol 2016;207:552-61.
2. Baez JC, Jagannathan JP, Krajewski K, O'Regan K, Zukotynski K, Kulke M, *et al*. Pheochromocytoma and paraganglioma: Imaging characteristics. Cancer Imaging 2012;12:153-62.
3. Jain N, Chauhan U, Puri SK, Agrawal S, Garg L. Fibrosing mediastinitis: When to suspect and how to evaluate? BJR Case Rep 2016;2:20150274.
4. Parish JM, Rosenow EC 3rd. Mediastinal granuloma and mediastinal fibrosis. Semin Respir Crit Care Med 2002;23:135-43.
5. Lima TC, Marchiori E, Capone D, Barreto MM, Rodrigues RS, Zanetti G. FM: A case report. Radiol Bras 2009;42:337-9.
6. McNeeley MF, Chung JH, Bhalla S, Godwin JD. Imaging of granulomatous fibrosing mediastinitis. AJR Am J Roentgenol 2012;199:319-27.
7. Wu Z, Jarvis H, Howard LS, Wright C, Kon OM. Post-tuberculous fibrosing mediastinitis: A review of the literature. BMJ Open Respir Res 2017;4:e000174.
8. Hu Y, Qiu JX, Liao JP, Zhang H, Jin Z, Wang GF, *et al*. Clinical manifestations of fibrosing mediastinitis in Chinese Patients. Chin Med J (Engl) 2016;129:2697-702.
9. Kuranga AO, Eubank AM, Bowling MR. FM: A review of epidemiology, diagnosis and management. Int J Respir Pulm Med 2018;5:079.