Castleman Disease Masquerading as the Posterior Mediastinal Mass on ^{18}F-Fluorodeoxyglucose-Positron Emission Tomography/Computed Tomography

Abstract

A 28-year-old female presented with an incidentally detected mediastinal mass, found on routine chest X-ray. ^{18}F-fluorodeoxyglucose-positron emission tomography/computed tomography (FDG-PET/CT) was advised to plan course of further management. FDG-PET/CT findings were suggestive of an FDG-avid soft-tissue mass in the left posterior mediastinum in paravertebral location with left pleural effusion. Overall, PET/CT scan findings favored the possibility of a nerve sheath tumor. However, histopathology along with immunohistochemistry confirmed the diagnosis of Castleman disease.

Keywords: *Castleman disease, fluorodeoxyglucose-positron emission tomography/computed tomography, lymphoproliferative disorder, posterior mediastinal mass*

Vanshika Gupta, Ritu Verma, Dharmender Malik, Ethel Shangne Belho, Sunila Jain[1], Harsh Mahajan

Department of Nuclear Medicine and PET/CT, Centre for Advanced Research in Imaging, Neuroscience and Genomics, [1]Department of Pathology, Sir Ganga Ram Hospital, New Delhi, India

A 28-year-old female presented with an incidentally detected mediastinal mass on routine chest X-ray. ^{18}F-fluorodeoxyglucose-positron emission tomography/computed tomography (^{18}F-FDG-PET/CT) was advised to plan further course of management. ^{18}F-FDG-PET/CT revealed a well-defined, lobulated, heterogeneously enhancing, FDG-avid soft-tissue mass lesion in the left posterior mediastinum in paravertebral location, extending into the spinal canal at the level of D1/D2 intervertebral foramen; however, fat planes with the spinal cord were preserved [Figure 1]. Overall, scan findings were suspicious for either a neurogenic tumor (most common posterior mediastinal mass) or primary lung cancer. No FDG-avid mediastinal lymph nodes were noted. Subsequently, excision of the mass was performed. Histopathological analysis of hematoxylin and eosin staining showed lymphoid tissue with effaced architecture of the lymph node with numerous lymphoid follicles, hyalinized atrophic germinal centers with prominent concentric rim of small lymphocytes (onion skinning in mantle zone), and eccentrically placed blood vessels [Figure 2]. Immunohistochemistry confirmed the diagnosis of Castleman disease (CD).

CD is a rare lymphoproliferative disorder with uncertain and poorly understood etiology.[1] About 70% cases of CD are in the chest, although it can occur in other areas such as the pelvis, neck, retroperitoneum, and muscles.[2] It is often misdiagnosed as lymphoma or primary solid malignancy when encountered at unusual sites.[3] The two clinicoradiological subtypes of CD are unicentric and multicentric.[4] The unicentric variant presents as well-circumscribed lesions, while the multicentric variant is frequently difficult to distinguish from a lymphoproliferative disorder. ^{18}F-FDG-PET gives valuable information regarding the metabolic status of lymph nodes. ^{18}F-FDG-PET helps in localization of disease in unicentric CD and in disease mapping and extent in cases of multicentric CD, which can later be used for response evaluation also. It has been documented that standardized uptake values of FDG-avid lymph nodes in CD are often less than that of active lymphomas.[5] Unicentric CD is often curable with surgery; however, multicentric disease may require steroids, chemotherapy, antiviral medication, or the use of antiproliferative drugs.[6] Follow-up is important to detect recurrence or

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Address for correspondence:
Dr. Dharmender Malik, Department of Nuclear Medicine and PET/CT, Centre for Advanced Research in Imaging, Neuroscience and Genomics, Sir Ganga Ram Hospital, New Delhi, India. E-mail: dharmendermalik0123@gmail.com

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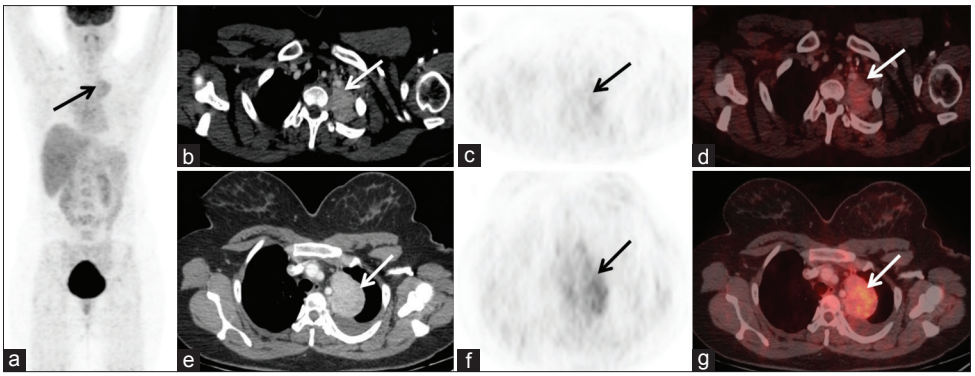

Figure 1: ^{18}F-fluorodeoxyglucose-positron emission tomography/computed tomography shows mild fluorodeoxyglucose uptake in the mediastinum in the left chest region (a). Axial views of contrast-enhanced computed tomography, ^{18}F-fluorodeoxyglucose-positron emission tomography and fused ^{18}F-fluorodeoxyglucose-positron emission tomography/computed tomography (b-g) show a well-defined, lobulated, heterogeneously enhancing, fluorodeoxyglucose-avid (maximum standardized uptake values-4.3) mass in the left posterior mediastinum, measuring approximately 5.8 cm × 4.9 cm × 5.9 cm in size. The mass was extending into the spinal canal (b-d; arrow) at the level of D1/D2 intervertebral foramen; however, fat planes with the spinal cord were preserved. The lesion was also closely abutting the left subclavian artery with preserved fat planes (e-g; arrow)

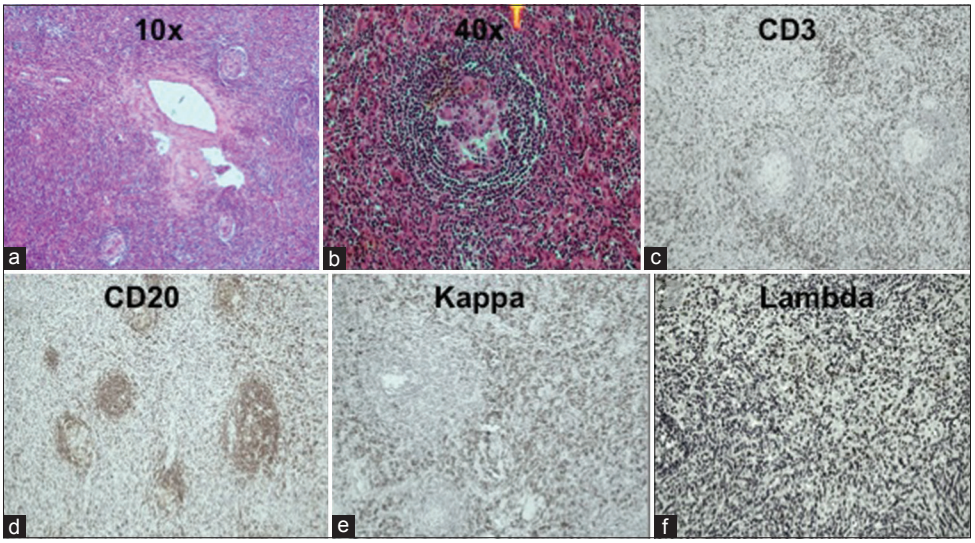

Figure 2: Histopathological analysis with hematoxylin and eosin staining (×10 and × 40 views; a and b) revealed lymphoid tissue with effaced architecture of the lymph node with numerous lymphoid follicles, hyalinized atrophic germinal centers with prominent concentric rim of small lymphocytes (onion skinning in mantle zone) and eccentrically placed blood vessels. On immunohistochemistry (c and d), CD3 and CD20 showed admixture of B- and T-cells with polyclonal plasma cells, kappa more than lambda (e and f) suggestive of Castleman disease

conversion to lymphoma, as a small risk exists. CD should be considered in the differential diagnosis of well-defined mediastinal masses in asymptomatic patients with no known comorbidities.

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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