Case Report

Broncho-esophageal fistula leading to lung abscess: A life-threatening emergency detected on FDG PET/CT in a case of carcinoma of middle third esophagus

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ABSTRACT

Sinister undesirable pathologies often accompany malignancies. Though the entire emphasis is on cancer management, these benign conditions are more life-threatening than the primary malignancy itself. We report an interesting imaging finding of broncho-esophageal fistula leading to lung abscess on ^{18}F– fluoro-deoxy-glucose positron emission tomography/computed tomography (FDG PET/CT) in large middle esophageal cancer, which due to early detection, was promptly managed.

Keywords: Broncho-esophageal, computed tomography, endoscopy, esophageal cancer, fistula, fluoro-deoxy-glucose positron emission tomography

INTRODUCTION

Secondary implications of malignancies are often more life-threatening than the malignancy itself and need early detection and urgent intervention. We report a similar case of a young gentleman, with a bulky friable middle esophageal mass, which invaded the bronchus, resulting in a broncho-esophageal (BE) fistula, resulting in lung abscess. This early detection on FDG PET/CT led to immediate management. This highlights the importance of FDG PET/CT in detecting associated life threatening condition in an oncological setting.

CASE REPORT

A 37-year-old male presented with grade III dysphagia. He also had recent onset high grade fever with chills. Nasogastric tube (NGT) was placed. Upper gastro-intestinal endoscopy (UGIE) showed friable mass in the middle third of esophagus, biopsy from which showed adenocarcinoma cells. Staging FDG PET/CT study was done. Maximum intensity projection image showed an hypermetabolic area in mid-thorax [Figure 1a-thick arrow] with diffuse low grade uptake around it [Figure 1a-thin arrow]. Axial fused PET/CT image [Figure 1b and c- arrow] showed a large intensely FDG avid soft-tissue mass in the middle third of esophagus, closely abutting the right main and segmental bronchi, measuring 32 mm × 32 mm, with maximum standardized uptake value of 27.2. Abutting this mass, a centrally necrotic ill-defined mass, with air pockets within and peripheral low intensity FDG uptake in the thick walls; was seen in the right lung parenchyma, in the lower lobe [Figure 1b and c-arrow heads]. Minimum intensity projection (minIP) reformatted sagittal [Figure 2a] and axial CT [Figure 2b] images showed a definite communication (arrow-head) between the mass (thick arrow) and the right lower lobar bronchus (thin arrow). Patient, when again asked for any complaints, said to have coughing immediately after swallowing. On collating history and imaging findings and also considering the fact that the patient underwent interventions like NGT placement and UGIE, a diagnosis of lung abscess secondary to BE fistula was made. Patient was started immediately on antibiotics and underwent esophageal stenting. Radiotherapy, though indicated, was ruled out due to presence of BE fistula.

DISCUSSION

BE fistulas in adults have not been commonly reported in literature. Most common cause of BE fistula is malignancy involving the esophagus and adjacent structures. These are frequently misdiagnosed. They present as bouts of

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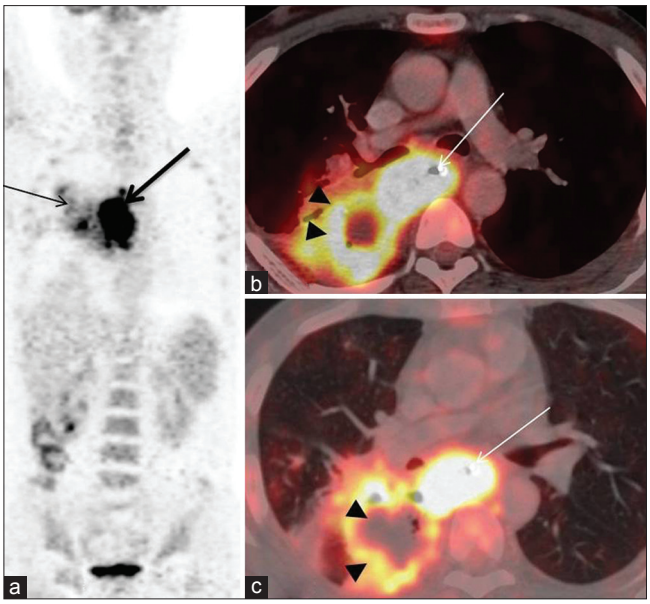

Figure 1: (a) MIP image showing intense FDG uptake in mid-thorax (thick arrow) with an area of low grade uptake abutting it (thin arrow), (b and c) Axial PET/CT images show large middle esophageal mass with bronchial invasion (arrow) with a centrally necrotic ill-defined mass adjacent to it (arrow heads)

coughing while eating or drinking, known as Ohno's sign and sometimes with recurrent pulmonary infections.[1] FDG PET/CT is routinely used for staging of esophageal cancers.[2] Characteristically FDG localizes in neoplastic as well as inflammatory cells.[3,4] In our case, difference in density and FDG uptake intensity of the two adjacent lesions on CT and PET images respectively and radiological features of central necrosis with few air-pockets in the lung parenchymal lesion, confirmed it to be an abscess.[5] Also, reformatted images showed a fistulous communication between the mass and the bronchus. Following interventions, especially in the presence of a large tumor with friable margins in close proximity with bronchi, there is a greater risk of perforation and fistula formation.[6] This is of particular importance in cancers involving middle third of esophagus, where there is close proximity of primary mass to trachea and bronchus.[7] Since the entire focus is on tumor staging and management, specific symptoms as seen in our patient are often ignored. However,

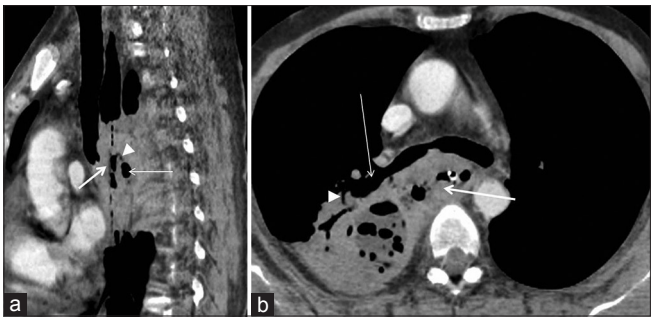

Figure 2: Sagittal (a) and axial (b) reformatted CT images in MinIP window showing definite communication (arrow head) between the mass (thick arrow) and right lower lobar bronchus (thin arrow)

proper assimilation of history and imaging findings, with use of reconstruction techniques on PET/CT helped us pick up this life threatening condition in a case of esophageal cancer, which led to urgent intervention and also a drastic change in the management of primary malignancy.

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