IMAGING CORNER

Coexistence of Lung Cancer and Warthin Tumour in a Smoker: Importance of Accurate Interpretation of ^{18}F-FDG-Avid Parotid Lesions

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Abstract

Warthin tumour is a benign salivary gland neoplasm strongly associated with smoking and known for avid ^{18}F-FDG uptake. We report a 53-year-old male chronic smoker presenting with tinnitus and ear pain. A resected brain mass demonstrated metastatic carcinoma (TTF-1 positive, CK7 diffuse). ^{18}F-FDG PET/CT revealed a moderately ^{18}F-FDG -avid left upper lobe pulmonary nodule and a small ^{18}F-FDG -avid intraparotid lesion. Given the smoking history and imaging characteristics, Warthin tumour was favoured over metastasis. Lung biopsy confirmed moderately to poorly differentiated adenocarcinoma; parotid FNAC confirmed Warthin tumour. This case highlights the diagnostic pitfall of ^{18}F-FDG -avid benign salivary lesions during lung cancer staging

Keywords: ^{18}F-FDG PET/CT; Warthin Tumour; lung cancer; smoking

DOI: https://doi.org/10.47391/JPMA.26-66

Case Report

A 53-year-old male chronic smoker presented with tinnitus and ear pain. A surgically resected brain mass revealed poorly

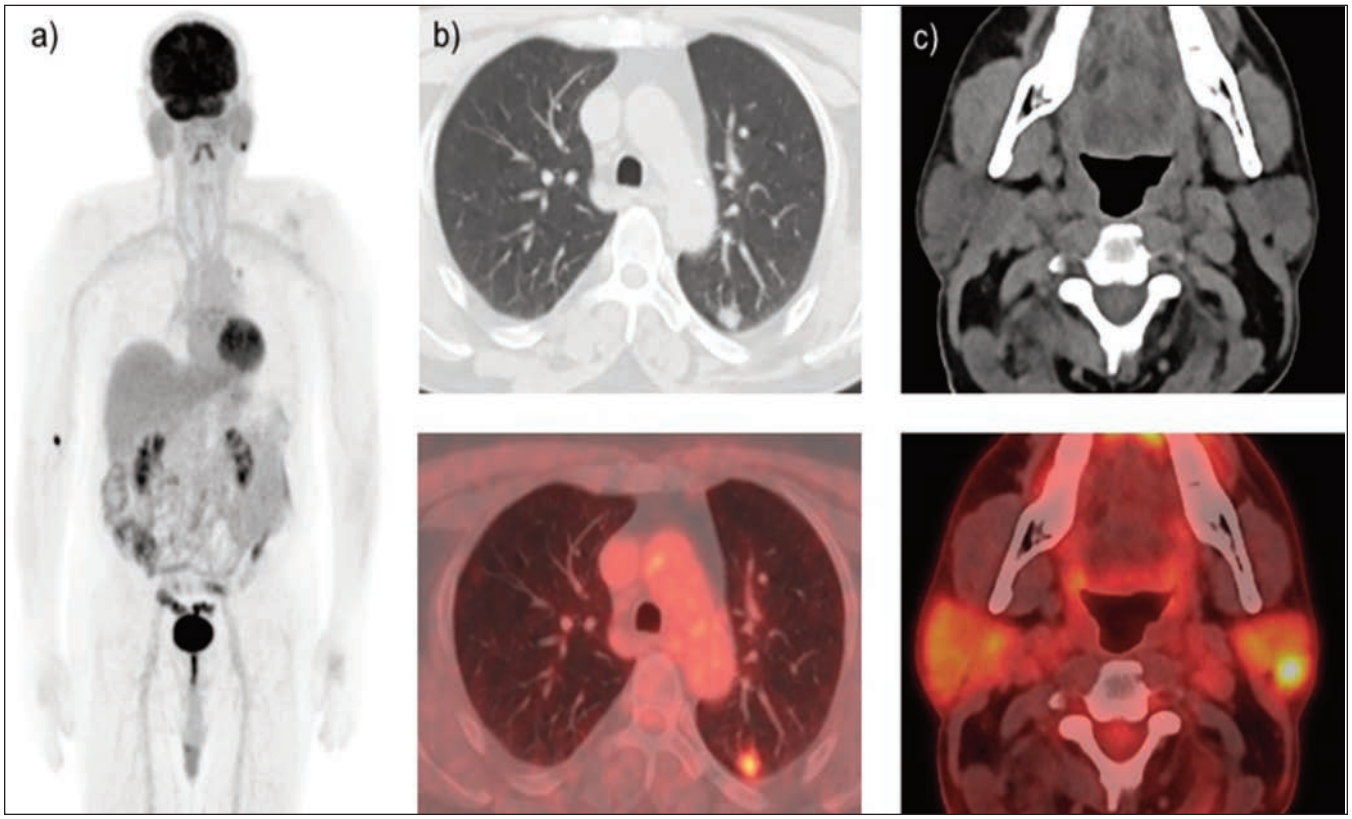

Figure: ^{18}F-FDG maximum intensity projection (MIP) and (b) CT lung window and fused PET/CT images demonstrate a mildly to moderately FDG-avid, ill-defined pulmonary nodule in the left upper lobe, suspicious for a primary lung malignancy. (c) CT neck and fused PET /CT images; A small FDG-avid intraparotid nodular lesion is also identified. In view of the patient's smoking history and the characteristic imaging appearance, a Warthin tumour was favored over metastatic disease. Ultrasonography-guided fine-needle aspiration cytology (FNAC) of the parotid lesion confirmed the diagnosis of Warthin tumour.

differentiated metastatic carcinoma (TTF-1 focal positive, diffuse CK7 expression). ^{18}F-FDG PET/CT demonstrated a mild-to-moderate FDG-avid ill-defined left upper lobe pulmonary nodule, consistent with primary lung malignancy, and a small FDG-avid left intraparotid nodular lesion (Figure 1). Given the smoking history and imaging characteristics, Warthin tumour was favoured over metastasis. Lung biopsy confirmed moderately to poorly differentiated adenocarcinoma and ultrasonography-guided FNAC confirmed Warthin tumour.

Warthin tumour, or papillary cystadenoma lymphomatosum, is the second most common benign parotid neoplasm, comprising 5–15% of parotid tumours, predominantly affecting middle-aged to elderly males.[1] Its strong association with cigarette smoking explains the increasingly recognized co-occurrence with lung cancer, as both conditions share a common etiological link to smoking.[2] On CT, Warthin tumours appear as well-defined oval parotid lesions with heterogeneous enhancement and occasional cystic components. MRI typically demonstrates low to intermediate signal intensity on T1-weighted images, variable but often heterogeneous T2 signal, and restricted diffusion due to high cellularity.[3] On ^{18}F-FDG PET/CT, Warthin tumours characteristically show intense FDG uptake, reflecting high mitochondrial content of oncocytic cells and lymphoid tissue activity. This pronounced FDG avidity makes Warthin tumour a well-recognized cause of false-positive findings in oncologic PET/CT imaging.[4] The coexistence of lung cancer and Warthin tumour is uncommon but clinically important, particularly in smokers, where both entities share a common risk factor.[5] In smokers with lung cancer, incidental FDG-avid intraparotid lesions should be interpreted with caution, as over staging can significantly alter management and prognosis.

References

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