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IMAGE IN CLINICAL MEDICINE

Incidental Hemi Diaphragmatic FDG Uptake in a Patient with Lung Cancer

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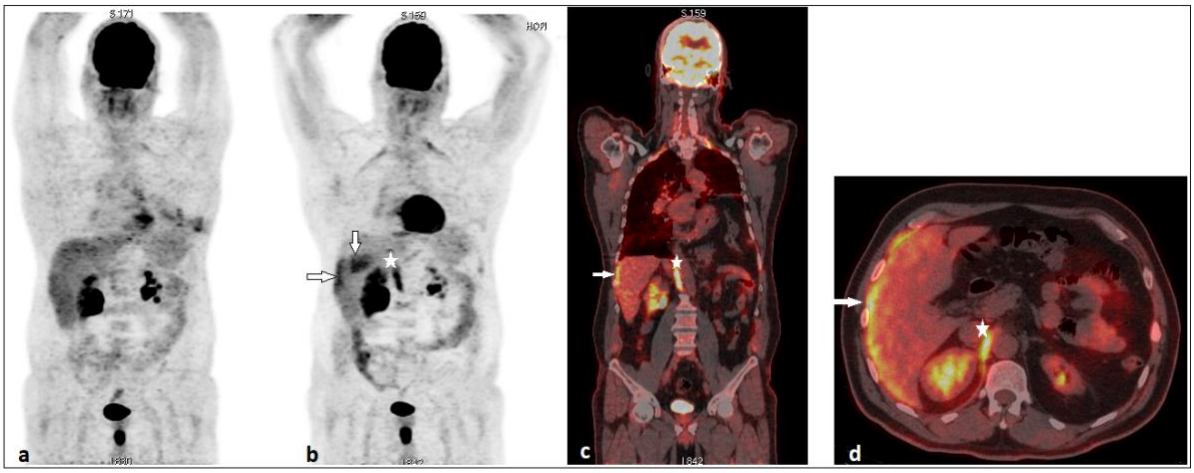

A 65-year-old man underwent a first F-18 fluorodeoxglucose positron emission tomographic scan after surgery for non-small cell lung cancer of the lower left lobe, which was without abnormalities. Another FDG-PET/CT done after adjuvant chemotherapy revealed an unusual isolated FDG uptake only in the right hemidiaphragm and the left hemidiaphragm was elevated suggesting a compensatory increased workload related to contralateral left diaphragmatic paresis. The left diaphragmatic paresis was hypothesized to be caused by phrenic nerve palsy by left lung neoplasm surgery.

Increased FDG uptake observed in the diaphragm is mostly supposed to be secondary to hyperventilation in patients with pulmonary pathology (1). The high FDG uptake in these situations is usually bilateral (2), rarely unilateral, as in 5 of the 6 patients described by Chander et al. the common factor was also hyperventilation (3).

Unilateral diaphragmatic FDG uptake is most often secondary to diaphragmatic paralysis (4) and the contralateral hemidiaphragmatic uptake represents compensatory physiological uptake that should not be misdiagnosed as malignant (5). Diaphragmatic metastasis is extremely rare, and takes more the aspect of focal FDG uptake than diffuse hypermetabolism (6).

We present PET/CT findings in a case of lung carcinoma, where increased FDG uptake was noted in the right hemidiaphragm. As in our case, this intriguing uptake pattern could be an ancillary finding to contralateral diaphragmatic paralysis. In known cases of a lung/mediastinal neoplasm, phrenic nerve palsy can be the cause of such a pattern.

This benign and uncommon pattern is important to recognize during interpretation of an FDG PET study.

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KEYWORDS: FDG PET/CT, diaphragmatic FDG uptake, muscle uptake of fluorodeoxyglucose, phrenic nerve palsy.

PATIENT'S CONSENT : Written informed consent was obtained from the patient for the publication of this case report.

COMPETING INTERESTS : The authors declare no competing interests with this case.

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