Metastatic Adenocarcinoma and Raised Serum CA-125 Levels: Looking Beyond the Ovaries with ^{18}F-Fluorodeoxyglucose Positron Emission Tomography/Computed Tomography

Sir,

CA-125 is widely employed as a tumor marker for gynecological cancers, including ovary and endometrium. However, certain nongynecological malignancies can have elevated CA-125 too. We present such a case here. A 48-year-old postmenopausal woman presented with progressively increasing abdominal and bone pain of 4 months duration. Ultrasound of the abdomen revealed hepatic space occupying lesions suspicious for metastases. Bilateral ovaries and uterus were normal. No ascites was seen. Fine-needle aspiration cytology from the hepatic lesion showed metastatic adenocarcinoma. Serum tumor marker evaluation was done which showed normal levels of serum CA-19.9, CEA, CA-15.3 and acute flaccid paralysis, but serum CA-125 levels were elevated (338 IU/dL, normal <35 IU/dL). Suspecting a small ovarian/endometrial malignancy, the patient underwent contrast-enhanced computed tomography (CT) of abdomen which showed no definite ovarian or endometrial lesion. It showed additional bone metastases, apart from already known liver metastases. Endometrial curettage and cytology were also done and were negative for malignancy. The patient was then advised for ^{18}F-fluorodeoxyglucose (^{18}F-FDG) positron emission tomography/CT (PET/CT) for localization of primary tumor. Maximum intensity projection PET Figure 1a showed multiple hypermetabolic foci in thorax, abdomen, and bones. Transaxial PET/CT image of the thorax showed a spiculated ^{18}F-FDG avid mass [Figure 1b, arrow] in left lung upper lobe (SUVmax - 14.1) with pleural tagging, suspicious for primary tumor. Furthermore, hypermetabolic metastatic mediastinal and hilar lymphadenopathy [Figure 1c, arrow], liver metastases [Figure 1d, arrow], and bone metastases [Figure 1e, arrows] were noted. No space-occupying lesion or focal ^{18}F-FDG uptake is seen in bilateral ovaries [Figure 1f and g, arrows]. Based on PET/CT findings, a diagnosis of primary adenocarcinoma of left lung with metastases was made. Biopsy from the left lung lesion confirmed adenocarcinoma and was positive for thyroid transcription factor-1 and epidermal growth factor receptor. The patient was started on palliative chemotherapy.

CA-125 is a repeating peptide epitope of the mucin MUC16, which promotes cancer cell proliferation and inhibits anticancer immune responses.[1,2] It is predominantly employed as a tumor marker in patients with ovarian cancer.[3] However, elevated levels of CA-125 can be seen in cancers of other sites such as endometrium, fallopian tube, lung, breast, pancreas, and gastrointestinal tracts,[4] and in some benign diseases such as endometriosis, cirrhosis, and even in pregnancy.[5] In menopausal women without ovarian cancer, carcinoma lung was found to the second most common associated primary (after endometrium) and most common cause of cancer-related death.[6] Hence, lung cancer should always be considered as a possible diagnosis in patients with elevated CA-125 and no definite ovarian/endometrial malignancy. Therefore, looking beyond ovary is mandatory in such patients. ^{18}F-FDG PET/CT being a highly sensitive whole-body imaging technique is very helpful in this regard and can prevent many unnecessary downstream investigations. Elevated levels of CA-125 are usually associated with aggressive and advanced disease in lung cancer as was the case in the present report and heralds a poor prognosis.[7]

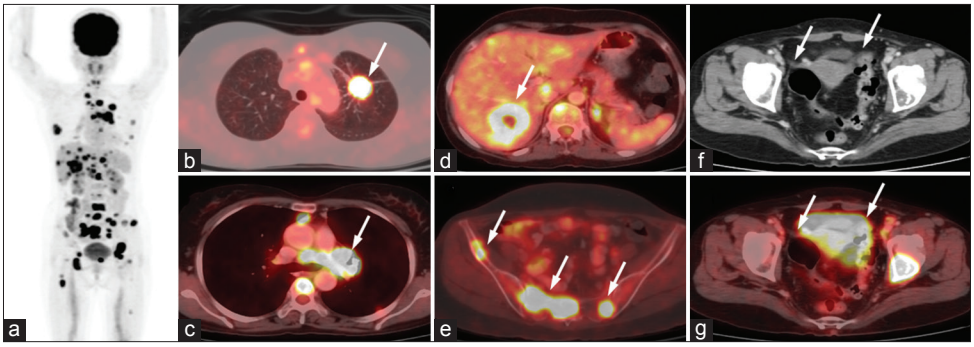

Figure 1: Maximum intensity projection positron emission tomography image (a) multiple hypermetabolic foci in thorax, abdomen, and bones. Transaxial positron emission tomography/computed tomography image of the thorax showed a spiculated ^{18}F-fluorodeoxyglucose avid mass (b, arrow) in left lung upper lobe (SUVmax - 14.1) with pleural tagging, suspicious for primary tumor. Other lesions seen are hypermetabolic metastatic mediastinal and hilar lymphadenopathy (c, arrow), liver metastases (d, arrow) and bone metastases (e, arrows). No space occupying lesion or focal ^{18}F-fluorodeoxyglucose uptake is seen in bilateral ovaries (f and g, arrows)

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Conflicts of interest

There are no conflicts of interest.

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