

Clinical note

Primary epithelioid trophoblastic tumor with a synchronize breast carcinoma detected only with FDG-PET/CT Scan

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ABSTRACT

Epithelioid trophoblastic tumor is a recently described, rare and distinctive type of gestational trophoblastic tumor. We report the case of a 31-year old patient who had a full-term pregnancy 18 months before presentation. She had a right axillary lymph node metastasis and was referred for FDG-PET/CT scan for evaluation of distant metastasis and to detect primary malignancy. The axillary lymph node biopsy revealed metastatic breast carcinoma. FDG-PET/CT revealed increased uptake of right axillary lymph node, soft tissue density lesion with a diameter of 24 mm on left cervical region with increased FDG uptake, increased uptake on cervical region and left inguinal lymph node with increased uptake. Pelvic MRI imaging and ultrasonography were negative for malignancy in cervical region. Biopsy of the lesion was consistent with epithelioid trophoblastic tumor in cervical region. Gestational trophoblastic tumor was not suspected because she had no signs such as abnormal vaginal bleeding. FDG-PET/CT demonstrated the primary lesion in cervical region. We report a rare case of primary epithelioid trophoblastic tumor detected only with FDG-PET/CT scan which synchronized with breast carcinoma.

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Tumor primario trofoblástico epitelióide con un carcinoma sincrónico de mama detectado sólo con FDG-PET/CT

RESUMEN

El tumor trofoblástico epitelióide es un raro tumor gestacional recientemente descrito. Una paciente de 31 años, que tuvo un embarazo a término hace 18 meses, presentó una adenopatía axilar derecha. Se realizó una gammagrafía PET/TAC con FDG (FDG PET/TAC) para evaluar metástasis a distancia y para detectar el tumor primario. La biopsia de la adenopatía axilar demostró metástasis por carcinoma de mama. La FDG PET/TAC identificó aumento de captación en la adenopatía axilar derecha, una lesión de densidad de partes blandas con diámetro de 24 mm en la región cervical izquierda con captación de FDG aumentada, captación cervical aumentada y en una adenopatía inguinal izquierda. La RNM y la ecografía pélvicas fueron negativas para malignidad. La biopsia de la lesión en cérvix se informó de tumor trofoblástico epitelióide. Clínicamente, el tumor no se sospechó por la ausencia de signos como el sangrado vaginal anómalo. La FDG PET/TAC descubrió la lesión primaria en el cérvix. En este caso clínico, presentamos un raro tumor trofoblástico epitelióide detectado por FDG PET/TAC sincrónico con un cáncer de mama.

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Introduction

The incidence of multiple primary cancers is reported to be between 0.3% and 4.3%.¹ The second primary lesion is identified either simultaneously with the primary lesion (synchronous) or after a period of time (metachronous). Epithelioid trophoblastic tumor is a rare type of gestational trophoblastic tumor which is seen among reproductive age group. It can be associated with any gestational event in women.

We report a rare case of primary epithelioid trophoblastic tumor detected only with Fluorine-18 Fluorodeoxyglucose (¹⁸F-FDG)

positron emission tomography/computed tomography (PET/CT) scan which synchronized with primary breast carcinoma. To best of our knowledge synchronous presentation of breast cancer and epithelioid trophoblastic tumor has not been reported previously in the literature.

Case report

A 31 year-old female diagnosed of axillary metastases from breast carcinoma 18 months after a pregnancy was referred for FDG-PET/CT scan for evaluating distant metastases and detecting primary malignancy. The patient's pregnancy was full-term at 40 week, with caesarean section. She had delivered her forth child. Biopsy of the axillary lymph node was diagnosed as metastatic breast carcinoma (fig. 1A) Immunohistochemically axillary node

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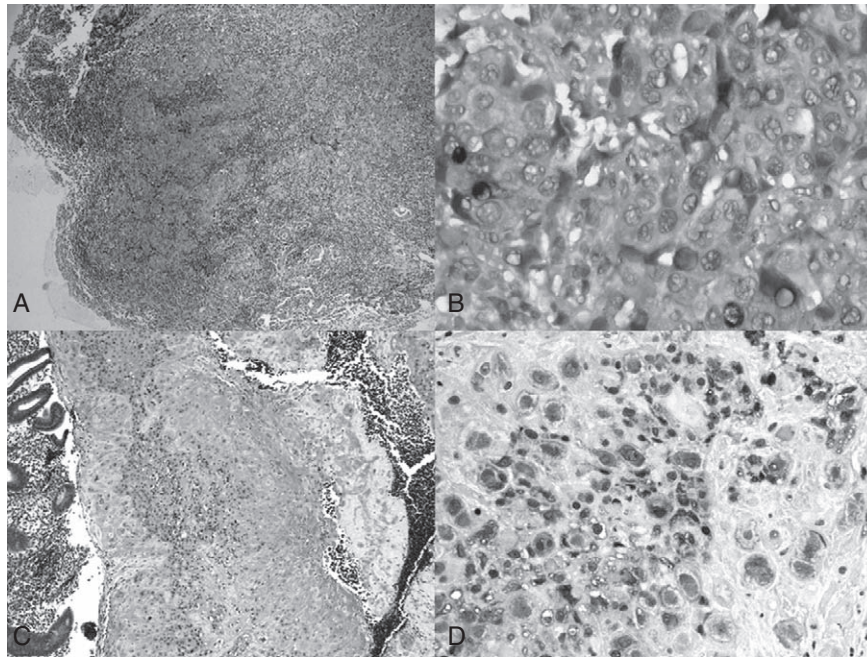


Figure 1. Biopsy of the axillary lymph node was diagnosed as metastatic breast carcinoma (A). Immunohistochemically axillary node was negative for ER, PR, CEBB B2 and positive for Pan CK, EMA, mammoglobin and GCDFP-15 (B). The histological specimen revealed a tumoral lesion composed of round intermediate trophoblastic cells with hyperchromatic pleomorphic nuclei and light eosinophilic cytoplasm (C). Tumor cells are positive immunohistochemically for inhibin- α (D).

was negative for ER, PR, CEBB B2 and positive for Pan CK, EMA, mammoglobin and GCDFP-15 (fig. 1B). Triple negative infiltrating ductal carcinoma with columnar cell change was diagnosed. Dual-modality FDG-PET/CT imaging was performed after intravenous injection of 370 Mega Becquerel (10 mCi) ^{18}F -FDG with a PET/CT scanner (Biograph, Siemens) from the top of the head to the feet. PET attenuation correction was based on the CT data and coregistered attenuation corrected PET image and CT image were reviewed (figs. 2 and 3). FDG-PET/CT revealed increased uptake of right axillary lymph node with a diameter of $22 \times 32 \times 36$ mm (fig. 2A and fig. 3A-arrows). Maximum calculated standardized uptake value (SUVmax) of the lesion was 8.45. Additionally, soft tissue density lesion with a diameter of 24 mm on left cervical region with increased FDG uptake (SUVmax: 6.88), increased uptake on cervical region (SUVmax: 9.21) and left inguinal lymph node with a diameter of 12 mm (SUVmax: 2.73) were observed on FDG-PET/CT imaging (fig. 2B, figs. 3B, C, D, E-arrows). No additional findings were observed in FDG-PET/CT. Pelvic MRI imaging and ultrasonography were found negative for malignancy in cervical region. Figure 4 illustrates sagittal MRI image. Bone scintigraphy was negative for bone metastasis. The patient was diagnosed of epithelioid trophoblastic tumor in cervical region on fractional curettage. The histological specimen revealed a tumoral lesion composed of round intermediate trophoblastic cells with hyperchromatic pleomorphic nuclei and light eosinophilic cytoplasm (fig. 1C). Immunohistochemistry showed the tumor cells were negative for β HCG, mammoglobin and GCDFP and positive for Pan CK, EMA and inhibin- α (fig. 1D). Axillary lymph node specimen was also stained with inhibin- α and β HCG and found to be negative. FDG-PET/CT demonstrated the primary lesion in cervical region. Pelvic radiation and chemotherapy were initiated after abdominal hysterectomy. Although axillary lymphadenopathy was consistent with metastatic breast carcinoma histopathologically and immunohistochemically, the primary focus of breast wasn't detected with mammography, breast MRI and FDG-PET/CT scan. So mastectomy is planned after chemotherapy.

According to our knowledge, this is the first report describing FDG-PET/CT findings of primary epithelioid trophoblastic tumor.

Discussion

Gestational Trophoblastic disease (GTD) is a heterogeneous group of diseases including hydatidiform mole, invasive mole,

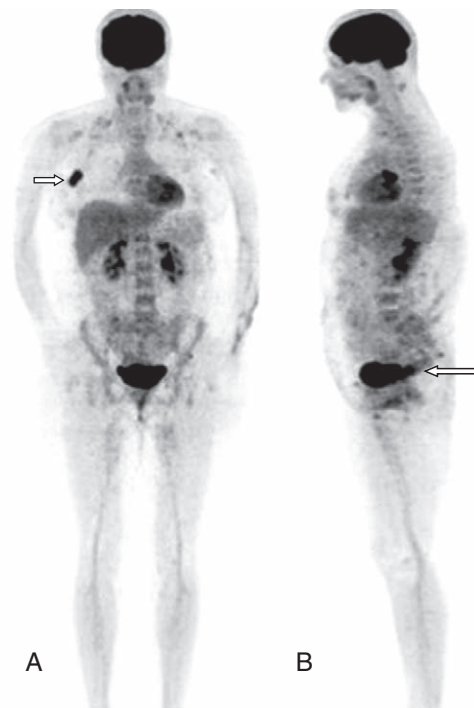


Figure 2. Maximum intensity projection image (MIP) illustrates axillary lymph node FDG uptake (arrow) (A). Sagittal whole-body PET/CT image shows an area with increased uptake in cervical region (arrow) (B).

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