

Isolated Splenic Metastasis and the Role of Positron Emission Tomography/Computerized Tomography (PET/CT) in Recurrent Ovarian Cancer: Case Report

Tekrarlayan Over Kanserinde İzole Dalak Metastazı ve Pozitron Emisyon Tomografisi/Bilgisayarlı Tomografi (PET/BT)'nin Rolü

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ABSTRACT Ovarian cancer is the leading cause of death among gynecological cancers. Spleen is an infrequent site of the tumor metastases as isolated parenchymal splenic metastasis occurs rarely in ovarian cancer. Metastatic splenic involvement usually indicates an extensive tumor dissemination through retroperitoneal lymph nodes or the peritoneum in ovarian cancer. In this case, 3 years after the initial diagnosis, although conventional imaging methods reported the splenic lesion as suspicious for malignancy, positron emission tomography/computerized tomography (PET/CT) reported it as malignant despite a normal CA 125 level. In this paper, we reviewed the literature for isolated splenic metastases, and stressed the role of PET/CT in recurrent ovarian cancer.

Key Words: Ovarian neoplasms; spleen; neoplasm metastasis; positron emission tomography

ÖZET Over kanseri jinekolojik kanserler arasında en sık ölüm nedenidir. Dalak, tümör metastazlarının sık görülmediği bir bölgedir. İzole dalak parankim metastazı over kanserinde seyrek görülür. Over kanserindeki metastatik dalak tutulumu genellikle retroperitoneal lenf nodlarıyla veya periton boyunca olan yaygın tümörü belirtmektedir. Bu olguda, tanıdan 3 yıl sonra konvansiyonel görüntüleme yöntemleri dalak lezyonunu şüpheli olarak değerlendirirken, pozitron emisyon tomografisi/bilgisayarlı tomografisi (PET/BT) lezyonu normal CA 125 düzeylerine rağmen malign olarak değerlendirmiştir. Biz izole dalak metastazları ve tekrarlayan over kanserindeki PET/BT rolü hakkındaki literatürü derledik.

Anahtar Kelimeler: Over tümörleri; dalak; tümör metastazı; pozitron emisyon tomografi

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Ovarian cancer is the leading cause of death among gynecological cancers.¹ Recurrence is often a major problem for these patients. Spleen is an infrequent site of tumor metastases. Metastatic splenic involvement usually indicates an extensive tumor dissemination through retroperitoneal lymph nodes or the peritoneum.² Solitary parenchymal metastases are quite rare, they may occur as late recurrences and are mostly seen in breast and lung cancer.³⁻⁵ Splenectomy should be applied as a part of initial cytoreductive surgery particularly in patients with limited isolated recurrences after a long disease-free interval and a long survival.^{4,6}

Several studies have demonstrated the utility of positron emission tomography/computerized tomography (PET/CT) for the evaluation of re-

current ovarian cancer.⁷⁻⁹ In our practice, PET/CT is has its widest use in suspected ovarian cancer recurrences, particularly in patients with high CA-125 levels who are negative on conventional imaging. Here, we report a case in whom CA125 level was normal and the conventional imaging methods were suspicious for a new lesion, however PET/CT suggested a malignant lesion.

CASE REPORT

A 55-year-old woman underwent total abdominal hysterectomy, bilateral salpingo-oophorectomy, parapelvic lymph node dissection and omentectomy due to right ovarian mass in 2003. She was diagnosed with stage IIA serous papillary ovarian cancer. She received six cycles of adjuvant docetaxel- carboplatin combination. She did not have any co-existing chronic diseases. In May 2006, although she was in complete remission, 1.5 cm e (accessory spleen?) and 1.6 cm new elesions in the posterolateral upper part of the spleen which were commented as infarcts and a 1.2 cm diametered lymph node were detected on computerized tomography (CT) scan. Abdominal magnetic resonance imaging (MRI) detected a peripheral lesion with a size of 1.8 cm resembling the accessory spleen and a hypointense lesion with a size of 18x14 mm that could not be distinguished from the peripheral ea. CA 125 level was in normal range (15.5 U/mL). Pathological increased fluoro-deoxyglucose (FDG) uptake was detected in superoposterior margin of the spleen in PET/CT (Figure 1) and interpreted as a malignant lesion. Then, the patient underwent splenectomy. Histopathologic examination showed mucinous poorly differentiated serous papillary adenocarcinoma metastasis, and confirmed to be the splenic metastasis of the ovarian cancer. The patient received six courses of chemotherapy with docetaxel and carboplatin for three weeks, and no pathological uptake was detected in the control PET/CT. After one year of treatment, the disease progressed to mediastinal lymph nodes. The patient was treated with topotecan and consequent partial remission was achieved. The is no progression in her follow-up.

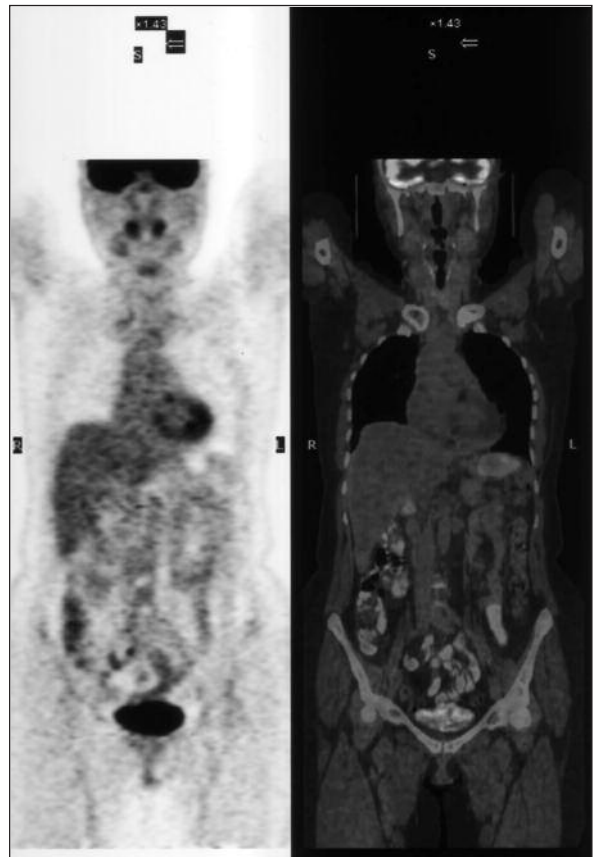


FIGURE 1: Pathological ¹⁸F-FDG uptake was detected in superoposterior margin of spleen by PET/CT.

DISCUSSION

Splenic metastases were thought to be unusual due to rhythmic contractile nature of the spleen, the anatomy of splenic artery, absence of afferent lymphatics and antitumor activity due to high lymphoid tissue amount of the spleen.⁴ Breast, lung, colorectal, ovarian carcinomas and melanoma are the most common primary cancers that metastasize to spleen. Colorectal and ovarian carcinomas cause solitary splenic lesions.^{10,11} Most splenic metastases are together with multivisceral metastatic disease due to hematogenous or peritoneal dissemination.¹¹ Our case was asymptomatic with a normal CA125 level, nevertheless recurrence was pictured by PET/CT imaging after an unusual long disease-free interval.

Eighteen ovarian cancer cases have been reported from 93 solitary splenic metastases cases. The median time from the diagnosis of primary

tumor to the solitary splenic metastasis was 28 months. When isolated, more than 60% of splenic metastases are asymptomatic.¹² In 14-year follow-up of 59 ovarian cancer patients, splenic metastases developed in seven patients.¹⁰ In a recent study, 3 of 4 patients were free of disease at 6 to 36 months after splenectomy with recurrent solitary metastasis of epithelial ovarian cancer.⁴ Another study included 50 patients of whom five (10%) had extra-abdominal lymph nodes and splenic metastases. Median survival from diagnosis to distant disease was 12 months.¹¹ Our case's latent period, from diagnosis to splenic metastasis, was one of the longest in the literature as 36 months.

Previous studies evaluating PET/CT in recurrent ovarian cancer provide sensitivity and specificity values as 83–95% and 71–100%, respectively, which are superior to conventional imaging.^{9,13,14} A recent PET/CT study was performed in 19 patients who had been treated for ovarian cancer previously. Suspicion of relapses were due to the elevation of CA125 levels in 16 cases and abdom-

inal CT findings in 5 cases. PET/CT detected the recurrence in 19 cases with a sensitivity of 100% and accuracy of 90%.⁸ Twenty four PET/CT scans were performed in 22 patients who had previously negative or indeterminate CT scans, however rising CA-125 levels provided a sensitivity of 90% for localizing disease. In the same study, 9 PET/CT scans were performed in 8 patients with clinical symptoms of recurrence but normal CA-125 levels.⁹ In a study with 19 ovarian cancer patients, 11 recurrent cancers were found. Recurrence was diagnosed by CT and PET/CT in 8 patients. In the remaining 3 patients, PET/CT showed a recurrent tumor, although CT was negative.¹⁵ Another study showed that PET/CT could change clinical management by detecting new lesions in 44% of the cases being followed by the conventional methods.¹⁶

PET/CT can be used for identification of recurrent/metastatic ovarian cancers and should be an essential part in evaluation of patients with ovarian cancer.

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