

Uterine pseudotumor detected in F-18 FDG PET/CT: dead fetus and intrauterine pregnancy products

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Background

F-18 fluorodeoxyglucose-positron emission tomography-computed tomography (F-18 FDG PET/CT) is frequently used in oncology patients. F-18 FDG PET/CT plays an important role in the detection and management of gynecological cancers, as in many different organ cancers. In addition, PET/CT helps the differentiation of benign and malignant gynecological lesions [1]. While evaluating uterine-derived lesions in premenopausal women, fetal and pregnancy-related structures should also be considered, and the patient should be evaluated in the terms of the possible FDG accumulation due to benign changes [2]. We present a case of pseudotumor in uterus with irregular vaginal bleeding and biochemical pregnancy.

Case report

A 31-year-old female patient with regular menstrual cycles, who had her last menstrual period on January 20, 2022 and whose vaginal bleeding continued until March 08, 2022, applied to the obstetrics outpatient clinic. Detailed system examination does not show any problems. She has a cesarean section on her resume. Beta-human chorionic gonadotropin hormone (beta HCG) value is 39 mIU/ml. After the beta HCG value is detected as 39 mIU/ml, the anamnesis is deepened. In the previous clinic, the patient was performed with pelvic computerized tomography (CT). In contrast-enhanced pelvic CT, an uterine mass lesion, which may originate from the endometrial cavity, which significantly thins the myometrium, shows significant contrast material uptake, and contains internal thick septa structures, was observed. The mass lesion described was primarily thought to be of a malignant nature. At that time, beta HCG measurements made with two-day intervals were 959 mIU/ml and 713 mIU/ml (Table 1). Hence, hysterectomy is recommended to the patient in previous clinic. The patient does not accept the surgery and applied to the our clinic in the university hospital. In the vaginal USG, the endometrium was observed irregularly, and hyperechoic and hypoechoic

lesion areas were observed in the uterine cavity (Figure 1A). Based on pelvic CT findings, F-18 FDG PET/CT is performed on the patient due to the suspicion of a malignant mass. Since the beta HCG value was found to be 3.41 the day before, it is thought that the patient is not an active pregnancy and PET/CT examination is performed. In F-18 FDG PET/CT, metabolic activity is not detected in the area of the mass lesion in the uterus and the defined lesion is thought to be primarily benign (Figure 2). Tumor markers were normal (CEA:0,82 ug/L, CA 19-9: 2 U/ml, CA 15-3: 17,8 U/ml, CA 125: 19,9 U/ml). In addition, it is stated in pelvic MRI that the lesion in the uterus does not show malignant features, and may primarily be hematoma, hemorrhagic cervical pregnancy or degenerated cervical myoma. In the light of all examinations, curettage is applied to the patient. In the pathological examination, endometrium and degenerated villi structures showing decidualization signs between the areas of widespread bleeding and necrosis were observed, and Beta HCG (+) is detected immunohistochemically in the trophoblastic cells around these villi. Pathological diagnosis is expressed as the product of intrauterine pregnancy. In the control vaginal USG performed one month after the endometrial biopsy, no lesion was observed (Figure 1B). It was thought that pregnancy products were spontaneously resorbed and excreted through the vaginal route.

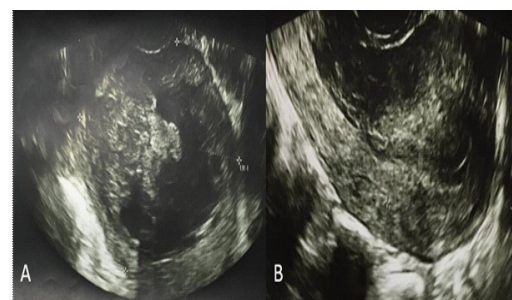


Figure 1: First USG images. The endometrium was observed irregularly, and hyperechoic and hypoechoic lesion areas were observed in the uterine cavity (A). Control USG images. No lesion was observed (B).

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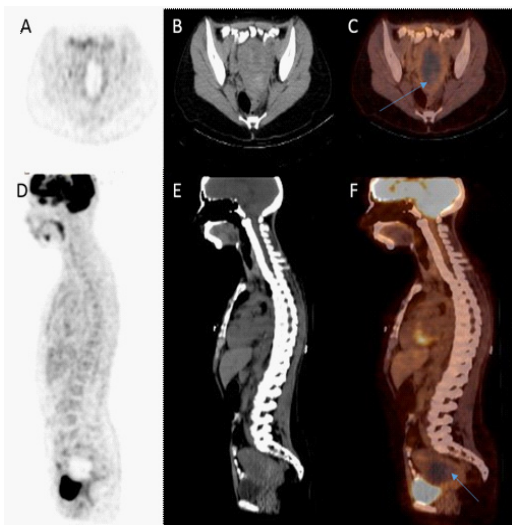


Figure 2: PET, CT and fusion PET/CT axial imagings (A,B,C). PET, CT and fusion PET/CT sagittal imagings (D,E,F). F-18 FDG uptake is not observed in hypodense-hyperdense mass lesion filling the uterine cavity (blue arrows).

Table 1: Beta HCG values over time.

Date	24 February	26 February	7 March	14 March	17 March	5 April
Beta HCG (mIU/ml)	959	713	39	6,53	3,02	0,5

Discussion

Uterine and cervix cancers usually show intense F-18 FDG uptake. In a meta-analysis, F-18 FDG PET/CT showed good sensitivity (81.9%) and specificity (89.8%) for primary endometrial cancer [3]. However, especially in the premenopausal period, while physiological processes related to the menstrual cycle may cause problems in the evaluation of the examination, benign lesions with myomatous and cystic nature generally do not show F-18 FDG uptake [3]. The incidence of cancer in pregnant women is not lower than in non-pregnant women. For this reason, the number of radiological examinations in pregnant women is increasing. These imagings are often performed without knowing the pregnancy of the patient, and the fetus may be exposed to radiation [4]. In our case, the beta HCG value was found to be high after the patient's last menstruation and pregnancy was considered, but the continuation of vaginal bleeding make the radiological imagings necessary. Radiological imagings suggested the prediagnoses of gestational trophoblastic disease, hematoma, hemorrhagic cervical pregnancy, degenerated cervical myoma and endometrial cancer. During the follow-up period, the beta HCG values of the patient also decreased rapidly (Table 1). When the beta HCG value decreased, the patient was accepted for F-18 FDG PET/CT examination. The fact that the uterine lesion did not show F-18 FDG uptake on PET/CT, ruled out the possibility of uterine cancer. The pathological result also confirmed this. Gestational trophoblastic disease was excluded because the expected beta HCG values were much higher and trophoblast hypertrophy was not observed in the pathological evaluation. Since the existing lesion was not observed in the control USG and no myomatous formation was observed in the pathologi-

cal evaluation, the possibility of degenerated myoma was also excluded. In conclusion, endometrial pregnancy occurred in the case, and it was thought that the pregnancy process did not progress normally, and that the hematoma and coagulums formed in the uterine cavity after the death of the fetus gave a mass-like appearance. In the literature, there are case reports regarding the findings of the live fetus in F-18 FDG PET/CT [2, 5, 6]. In F-18 FDG PET/CT, mild F-18 FDG uptake is defined in general in the living fetus and focally prominent in the heart and kidney of the fetus [7]. In the literature, this is the first case showing the appearance of dead fetus and pregnancy products in PET/CT.

Conflict of interests: The authors declare that they have no conflict interests.

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