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Case Report

Preoperative Diagnosis of Fallopian Tube Malignancy with Transvaginal Color Doppler Ultrasonography and Magnetic Resonance Imaging after Negative Hysteroscopy for Postmenopausal Bleeding

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A B S T R A C T

Primary Fallopian tube carcinoma is a rare malignancy and is not often diagnosed preoperatively. We present a case of a 67-year old woman who complained of postmenopausal vaginal bleeding. After a negative hysteroscopy, transvaginal ultrasound showed a well vascularized solid-cystic tumor in the adnexal region separate from the ovary. The presence of an adnexal mass was confirmed by MR imaging. Total abdominal hysterectomy with bilateral salpingoophorectomy, omentectomy and appendectomy, as well as pelvic and para-aortic lymphadenectomy was performed. The pathohistological diagnosis was poorly differentiated serous adenocarcinoma of the Fallopian tube, FIGO stage IA. The patient was subsequently treated with platinum based adjuvant chemotherapy.

***Key words**: Fallopian tube carcinoma, postmenopausal bleeding, transvaginal color Doppler ultrasonography, magnetic resonance imaging*

Introduction

Primary Fallopian tube carcinoma is extremely uncommon and accounts for approximately 1% of female genital tract malignancies[1]. The incidence of Fallopian tube carcinoma is probably underestimated, as the histologic appearance and clinical behavior resemble that of primary ovarian carcinoma, and therefore many advanced cases are mistakenly attributed to ovarian cancer. Even so, the incidence of primary Fallopian tube carcinoma has been rising during the last decades and varies between 2.9/1,000,000 and 5.7/1,000,000[2].

Fallopian tube malignancy is seldom diagnosed preoperatively. It mainly presents with abnormal vaginal bleeding, excessive vaginal discharge, abdominal pain, and a pelvic mass. The disease has also been reported as an incidental finding during surgery[3]. An elevation of serum CA 125 level may herald the presence of tubal as well as ovarian carcinoma. Rarely patients with tubal carcinoma present in the manner of acute pelvic inflammatory disease[4,5].

Recently, ultrasonography (US) has been recommended for the preoperative detection of Fallopian tube malignancy[6,7]. Magnetic resonance (MR) imaging may be useful to assist in the diagnosis of this rare disease[8,9].

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Case Report

A 67-year-old postmenopausal woman, gravida 5, para 3, complained of postmenopausal vaginal bleeding lasting for two weeks.

The patient was admitted for hysteroscopy. Atrophic endometrium with thin adhesions and areas of petechial hemorrhage was seen and biopsy was performed (Figure 1). The pathohistologic specimen was negative for malignancy. On transvaginal ultrasound (US) the uterus measured 37x26x32 mm with the endometrial layer of 1.2 mm. There was a small amount of fluid collection in the uterine cavity. In the left adnexal region there was a solid-cystic tumor with the solid part measuring 68x28 mm and the cystic part measuring 46x17 mm (Figure 2). Although US demonstrated the presence of a solid mass in the adnexal region the ovary could be seen separately. The tumor was well vascularized with a PI of 0.41 and an RI of 0.34.

For further investigation, MR imaging was performed with a 1.5 Tesla superconducting unit. Sagittal and transverse T_2-weighted images demonstrated a circumscribed solid-cystic adnexal mass measuring 70 mm in diameter. Associated findings included hydrosalpinx and intrauterine fluid (Figure 3).

Preoperative serum cancer antigen 125 level was 301.4 U/mL (normal range 0–35 U/mL).

At surgery, a solid-cystic tumor measuring 80x60 mm was found within the ampular part of the left Fallopian tube with intact serosal surface (Figure 4). The left ovary appeared normal. Frozen section revealed poorly differentiated tubal carcinoma. Total abdominal hysterectomy with bilateral salpingoophorectomy, omentectomy, appendectomy, pelvic and para-aortic lymphadenectomy was performed. The pathohistological diagnosis was poorly differentiated serous adenocarcinoma of the Fallopian tube. There were no malignant cells present in peritoneal washings, nor in the 36 pelvic and 10 para-aortic lymph nodes evaluated. The uterus, the left ovary, the right adnexa, the omentum and the appendix were all free of the disease. The final diagnosis was Fallopian tube adenocarcinoma of serous cell type, International Federation of Gynecology and Obstetrics stage IA. Platinum based adjuvant chemotherapy was initiated on the ninth postoperative day.

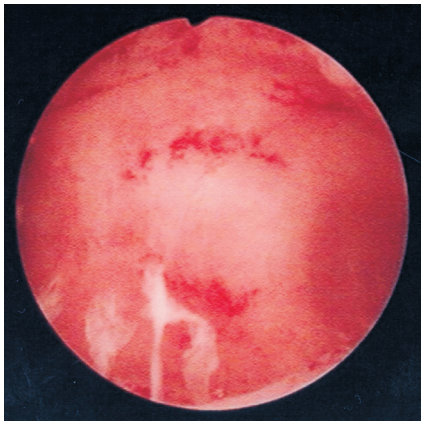

Fig. 1. Hysteroscopy showing atrophic endometrium, thin adhesions and areas of petechial hemorrhage.

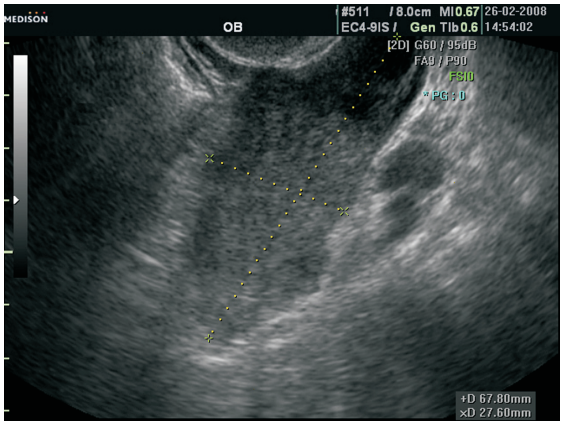

Fig. 2. Transvaginal ultrasonography showing a solid-cystic tumor in the left adnexal region with the solid part measuring 68x28 mm.

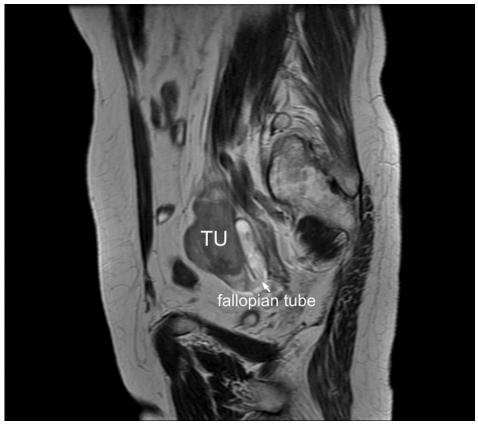

Fig. 3. Fallopian tube carcinoma. A sagittal T2-weighted FRSE image. The Fallopian tube is shown as a dilated tubular structure that contains solid tumor components.

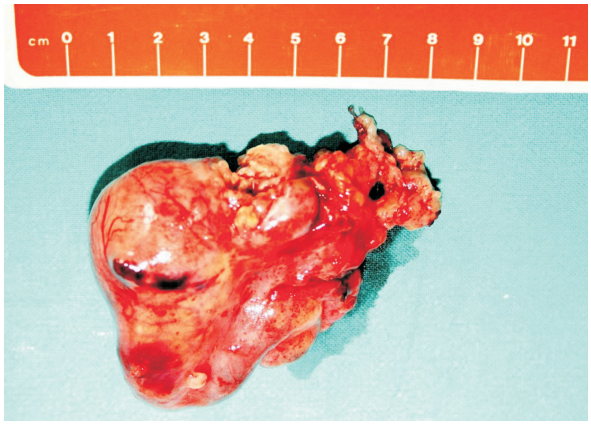

Fig. 4. Excised tumor, measuring 80x60 mm.

Discussion

The diagnosis of tubal malignancy, overall, is made preoperatively in less than 5% of cases[10]. The preoperative diagnosis is usually difficult, and most patients with tubal carcinoma undergo laparotomy with the presumed diagnosis of ovarian carcinoma according to the presence of an adnexal mass[11,12]. In many cases the disease is an incidental finding during surgery for unrelated conditions.

Carcinoma of the Fallopian tube affects mainly women of 60+ years. The median age at diagnosis of 17 cases with primary Fallopian tube carcinoma evaluated by Liapis et al. was 62 years[13]. At the diagnosis our patient was 67 years old.

Pain, bleeding, and discharge were once said to be the triad characterizing the Fallopian tube carcinoma, but abnormal vaginal bleeding has generally been reported as the chief symptom[14].

Preoperative diagnosis of tubal cancer is difficult and the sonographic appearances of Fallopian tube malignancy can be equivocal. Transvaginal US is superior to transabdominal scan in detection of Fallopian tube malignancy. In 2004 the preoperative diagnosis of Fallopian tube malignancy was established by the presence of an adnexal mass with an incomplete septation on transvaginal US by Haratz-Rubinstein et al.[6]. In the majority of published cases a cystic mass next to the normal-looking ovary and the clinical presentation allowed to make an accurate preoperative diagnosis. Moreover, the sonographic appearance of free fluid in the uterine cavity is assumed to represent the watery vaginal discharge, which is clinically associated with this tumor[15].

Kurjak et al. and Yuen et al. used Doppler transvaginal ultrasonography for the diagnosis of primary Fallopian tube cancer[16,17]. Neovascularization in tumors consists of pathologic and tortuous, dilated and saccular blood vessels. These newly formed blood vessels lack a muscular layer in the vessel walls, which maintains a relatively high resistance in normal tissues. Due to their lack of regulatory function, these vessels may demonstrate a continuously high diastolic flow, a smaller difference between systolic and diastolic peaks and low pulsatility. Therefore low vascular impedance on Doppler US strengthens the sonographic diagnosis. In our patient PI of 0.41 and RI of 0.34 were present.

The use of MR imaging in the diagnostic evaluation of pelvic disease allows an objective diagnosis and better characterization of adnexal neoplasms[18].

Due to the low incidence of the disease, there is no consensus about therapeutic management, especially regarding the usefulness of extensive lymphadenectomy[19]. The patterns of spread of this tumor have long been considered similar to those of epithelial ovarian cancer[20]. In patients with primary tubal carcinoma, the left para-aortic chain above the level of the inferior mesenteric artery is the most frequently involved. A complete lymphadenectomy (including all pelvic and para-aortic chains up to the level of the left renal vein) should be performed in patients with primary tubal carcinoma, even in patients with stage I disease[21].

Although our patient was diagnosed with FIGO stage IA disease we decided to perform adjuvant platinum-based chemotherapy due to the poor differentiation of the carcinoma. It seems that the combination of complete surgical resection with adjuvant chemotherapy is still the best option for patients with primary Fallopian tube carcinoma. The 5-year survival rate is 56.4% and survival per stage is now rather similar to the survival of ovarian carcinoma[22]. Some authors recommend second look laparotomy after the completion of primary therapy[23]. In patients with Fallopian tube carcinoma the majority of authors recommend platinum-based chemotherapy[24]. Patients with recurrent Fallopian tube cancer have limited therapeutic options. After treatment with nanoparticle albumin-bound paclitaxel Teneriello et al. reported the objective response rate to be 64% in the group of patients with recurrent Fallopian tube cancer[25].

In conclusion, we presented a very rare case of primary Fallopian tube malignancy in a patient with postmenopausal bleeding after negative hysteroscopy. The diagnosis was established preoperatively with the use of imaging techniques, namely transvaginal color Doppler sonography and magnetic resonance imaging, as well as elevated tumor marker CA 125, and confirmed by laparotomy.

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PREDOPERACIJSKA DIJAGNOZA MALIGNITETA JAJOVODA S DOPLERSKIM ULTRAZVUKOM I MAGNETSKOM REZONANCIOM, NAKON NEGATIVNOE HISTEROSKOPIJE ZBOG POSTMENOPAUZALNOG KRVARENJA

S A Ž E T A K

Primarni rak jajovoda je rijetka maligna bolest, a često nije dijagnosticiran preoperativno. Prikazujemo slučaj 67-godišnje žene koja se žalila na postmenopaualnoi vaginalno krvarenj. Nakon negativne histeroskopije, transvaginalni ultrazvuk pokazao je dobro vaskuliziran čvrsti cistični tumor u adneksalnoj regiji zasebno od jajnika. Prisutnost adneksalne mase potvrdila je magnetska rezonanca. Provedena je totalna abdominalna histerektomija s bilateralnom salpingofrectomijom, omentektomijom i apendektomijom, kao i zdjeličnom i para-aortnom limfadenektomijom. Patohistološka dijagnoza slabo je razlikovala serozan adenokarcinom jajovoda, FIGO stadij IA. Pacijentica je nakon toga bila na terapiji mješanom kemoterapijom.