



Tubo-Ovarian Abscess Misdiagnosed Ovarian Malignancy

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Abstract

Tubo-ovarian abscess (TOA) is a severe sequelae of pelvic inflammatory disease. The diagnosis is dependent on the aspects of medical history, physical examination, laboratory tests and imaging. However, the dilemma exists in differentiation of TOA and ovarian malignant tumor sometimes. We present a case of TOA misdiagnosed as pelvic malignancy because of its untypical clinical features, malignant features of imaging and high level of serum CA125, further discuss the importance of medical history, physical examination and imaging for correct diagnosis of TOA.

Keywords: Tubo-ovarian abscess; Diagnosis; Imaging; CA125

Introduction

The dilemma exists sometimes in differentiation of Tubo-ovarian abscess (TOA) and ovarian malignant tumor. We present a case of TOA misdiagnosed as pelvic malignancy and discuss the importance of subtle features in medical history and role of imaging for correct diagnosis of TOA.

Case Presentation

A 37 years old woman, gravida 2, para 1, was admitted with a complaint of persistent lower abdominal pain for one week. She started to feel lower abdominal pain, which was dull and continuous in nature, complicated with a sensation of pelvic distention and inability of passing flatus or feces a week before. Her abdominal pain was aggravated radiating to the back accompanied with nausea and lack of appetite the day after. She visited the hospitals successively in Beijing and her hometown near to Dalian, where she was suspected of having pelvic masses according to findings from the ultrasonography and an elevated serum level of CA125 to 832.5U/L. The patient was referred to the First Affiliated Hospital of Dalian Medical University for further diagnosis and management. She had been feeling lassitude and lost about 10 kg of weight over the week. She denied history of fever and had not taken any antibiotics. Her menstrual cycle was regular and last menstrual period was 4 weeks previously with a prolonged duration of vaginal bleeding for about 20 days. Her past medical history was unremarkable.

On arrival, the patient was slightly pale, T: 37.4°C. Her abdomen was soft with mild tenderness in the lower quadrants, no rebound tenderness and guarding resistance. Gynecologic examination discovered bloody discharge and mild tenderness on cervical motion. The uterus was anteverted and slightly enlarged. Two mildly tender cystic masses around 7 and 6 cm respectively, one was located in the right adnexal area behind the uterus, and the other was in the left above the uterus. The masses were fixed to the uterus and pelvic side walls. Blood routine test showed white blood cell count $10.2 \times 10^9/L$ with 73% neutrophils, hemoglobin 81g/dL. Transvaginal ultrasonography (TU) revealed two cystic masses with an internal septation and papillomatous nodule. Uterus was slightly enlarged with endometrial thickness of 15 mm. Contrast-enhanced tomography (CT) further demonstrated two masses with hypoechogenicity, 5.82 x 8.77cm and 4.24 x 8.07cm, located in right and left adnexal areas respectively. The masses had irregular thickened and ill-defined wall with an internal septation and mural nodule. A small amount of ascites was noted (Figure 1). Serum level of CA125 was increased to 916.7 U/mL and β -HCG was unexpectedly elevated by 110 IU/L.

After six days of antibiotic therapy with ceftriaxone sodium IV 3g daily, abdominal pain was persisted and temperature was fluctuated between 37~38°C. A repeated TU reported no changes in size of the pelvic masses. Laparotomy was performed showing hyperemic uterus, two para-uterine masses of 8 and 6 cm both adherent to surrounding tissue, including omentum, ascending and rectosigmoid colon, pelvic side walls and the retro-peritoneum. The adhesions were released and grayish pus spill out from ovaries and fallopian tubes, suggesting formation of TOA. The pockets of pus were opened and drained followed by abundant lavage. A pelvic drainage tube was retained

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Figure 1: CT image displaying ovarian masses (short arrows) and structural tubes of fallopian tubes (triangle arrows).



Figure 2: CT image displaying ovarian masses of thickened cystic walls with regular/smooth inner margins (triangle arrows).

in cul-de-sac. A sample of pus was referred for culture and sensitivity test and found no growth of any microbial. A biopsy of the cystic wall confirmed fibrosis with acute inflammatory changes. The patient was continuously put on intravenous ceftriaxone sodium daily after the surgery. She recovered well and was discharged home on the 7th day.

Discussion

TOA is a severe sequela of pelvic inflammatory disease (PID). The diagnosis is dependent on medical history, physical examination, laboratory tests and imaging. The present case was misdiagnosed to malignant tumors of ovaries because of atypical history of PID and similar presentations of the CA125 level and the imaging of masses to ovarian malignancy.

The diagnosis of pelvic infection is most often made clinically, based on a combination of pelvic pain, fever and leucocytosis. TOA is one of sequelae of PID. However not all cases of TOA are associated with classical features of fever, pelvic pain. In the case, the patient had no pyrexia and pelvic tenderness. Therefore, TOA should not be excluded even one or two clinical signs are absent [1]. Some factors are associated with an increased risk for development of TOA, i.e. predisposing factors, including multi-sexual partners, peri- menstruation /- induced abortion and low socioeconomic status etc [2]. Taking consideration of the factors is very helpful in making correct diagnosis of TOA. In the present case, we ignored the evidence of a slightly elevated β -hCG level, partly because the patient did not disclose the earlier history of medical abortion, and the low socioeconomic status. These factors were subtle and valuable information for the correct diagnosis.

Sometimes the infectious episode may have gone unnoticed, and the patient presents with an undetermined pelvic mass that needs to be characterized, where the challenge in that situation is not to confuse it with ovarian cancer [3]. In our case, the images of masses from TU and CT were indicative of ovarian malignancy reported by the sonographer and radiologist at our hospital. However, it has been reported that the image of TOA from TU may not be specific. It may present as cystic or cystic solid or multiple internal echoes [4]. A report on imaging of TOA emphasized that CT imaging may play an important role in the diagnosis of TOA because they observed typical signs of imaging in 22 cases, [1] cystic/ cystic solid masses with ill-defined walls, and no enhancement of cystic component but enhancement of walls [2] tubular structure or sausage changes of fallopian tubes next to pelvic masses [3] thickened cystic walls with regular/smooth inner margins [5,6]. We re-reviewed the imaging

of our case and indeed found these signs (Figure 1 and 2). MRI can be a valuable alternative to the CT examination for distinguishing a tubo-ovarian abscess from ovarian cancer depending on T1-, T2- and diffusion- weighted images [7].

Though CA125 is elevated in a number of benign conditions such as endometriosis, PID and adenomyoma, however if the level is up to 1000 U/mL, the specificity for ovarian cancer reaches 99% [8]. CA125 was reached by 916.7 U/mL in the case. It is emphasized further that the image and CA125 level may aid in a correct diagnosis but should be combined with clinical features and other laboratory tests.

Conclusions

Clinical features of TOA might not be classical however subtle medical history and predisposing factors are valuable information for correct diagnosis. Furthermore, CT imaging is helpful but needed to be characterized in the diagnosis of TOA.

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