Journal of Obstetrics, Gynecology and Cancer Research | ISSN: 2476-5848

Tubo-Ovarian Abscess with Highly Elevated CA125 Level is Misdiagnosed as Ovarian Cancer: A Case Report

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Article Info

10.30699/jogcr.9.4.471

Received: 2023/12/20;
Accepted: 2024/03/09;
Published Online: 07 July 2024;

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ABSTRACT

Complex pelvic masses with elevated CA125 could be due to malignant and benign condition. Tubo-ovarian abscess, with irritation of the peritoneum, could increase the level of CA125 and mimic advanced ovarian cancer. Preoperatively, high accuracy radiological evaluation can reduce the high risk and unnecessary laparotomies. The patient was a 50-year-old near menopause woman with abdominal pain, fever and recent vaginal bleeding with highly elevated CA125(>4000 u/ml) and complex pelvic mass, suspected of ovarian cancer with final pathology of tubo- ovarian abscess (TOA). Misdiagnosed TOA with ovarian cancer only based on highly elevated CA_125 and performing upfront radical surgery in stable patients could result in visceral injury.

Keywords: Tubo-Ovarian, Ovarian Cancer, CA125, Radical, Case Report

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Introduction

In complex pelvic masses with elevated serum CA-125 level, it is preferred to consider malignant conditions to work up. But particularly in reproductive age, some benign conditions including endometriosis, pelvic inflammatory disease, fibroma, tubo-ovarian abscess and any peritoneal irritation may be because elevated serum CA_ 125 and mimick adnexal malignancy.

Due to both malignant and benign conditions, facing with this kind of complex pelvic masses in imaging study with elevated CA-125 is challenging for performing surgery or conservative treatment **(1, 2)**. In tubo-ovarian abscess based on inflammatory symptoms, laboratory evaluation and radiological findings, mainly magnetic resonance imaging (MRI) with contrast and diffusion weighted imaging (DWI) could reduce the number of high risk and unnecessary laparotomies, and provide appropriate planning such as antibiotic therapy with or without intervention radiologic drainage **(3, 4)**. The present study identified a case of tubo-ovarian abscess with high level of CA-125 that is suspected ovarian cancer.

Case Presentation

A 50-year-old near-menopausal woman, (gravida 1, live:1) with abdominal pain, bimonthly vaginal bleeding and pelvic mass was referred to the oncology department. Her previous history included cesarean section and myomectomy. On admission, the patient was febrile with temperature of 38 °C (axillary) and other vital signs were unremarkable. Pelvic examination revealed bloody discharge, bilateral tenderness with firmly fixed pelvic mass up to the umbilical part that was not separate from the uterus.

Sonographic findings were limited to bilateral multiloculated cystic adnexal masses with a normal uterus that were propounded malignant adnexal masses. Non contrast axial CT scan revealed 11× 12 cm, well-defined multiloculated cystic pelvic mass with thick wall and thick septations without solid component. There was no calcification and no fat density within in this mass (Figure 1).

Laboratory evaluation showed a leukocyte count of, 31800 with a left shift (neutrophilia :95%), hemoglobin of 10.5 g/dl, platelet count. 643000, ESR: 105 mm/hr and serum tumor markers were as follows: CA-125 >4000 u/ml, CA19-9:19u/ml, CEA: 6 ng/ml, LDH:566 u/l. Considering the abdominal pain, fever, high level of ESR, CA-125 and imaging reports, a complicated adnexal mass with infection was suspected, subsequently, the patient underwent exploratory laparotomy with the findings of extensive pelvic adhesions. The bilateral adnexal complex masses were densely adherent to the uterine, rectosigmoid, bladder, and the side wall appeared inflammatory and purulent material that exiting from left adnexa, was evacuated amount of 300 ml (Figure 2). These adhesions were released and the ureterolysis was done and freed the involved part, then total hysterectomy with bilateral salpingo-oophorectomy was performed and due to the appendix involvement, it was removed too. Excessive irrigation was performed, and an intraperitoneal catheter was implanted. On the opening of the surgical specimen, both adnexal mass were multilocular cystic lesion containing purulent material accompanied by endometriosis. Postoperatively, recovery was afebrile and uneventful. The patient was on Meropenem and Vancomycin therapy. On the fifth day after surgery, laboratory serial evaluation showed dramatically remission in leukocyte count of 7600 (neutrophilia: 75%), platelet count: 479000, and ESR:71 mm/hrs. After one week, the patient was discharged with Metronidazole and Doxycycline and after two weeks she was free of disease with decreased level of CA-125 to 118 u/ml. The final pathology report noted endometriosis of both adnexa and appendix with acute and chronic inflammation and abscess formation, in both ovaries (Figure 3).

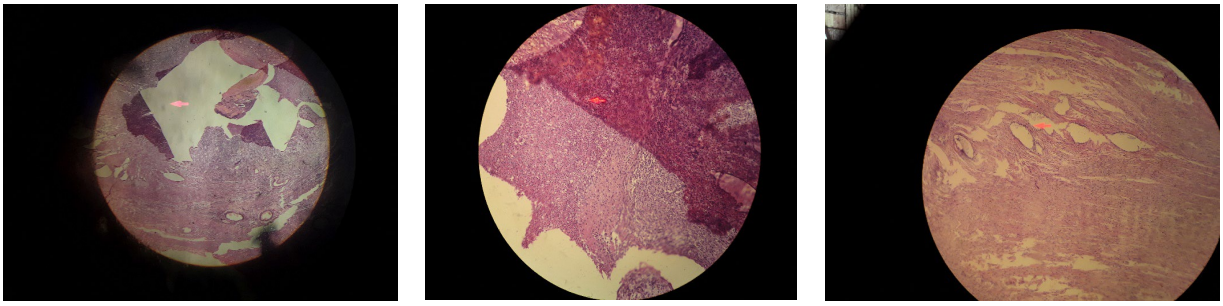


Figure 1. Adnexal sections show endometriosis, acute and chronic inflammation and abscess formation

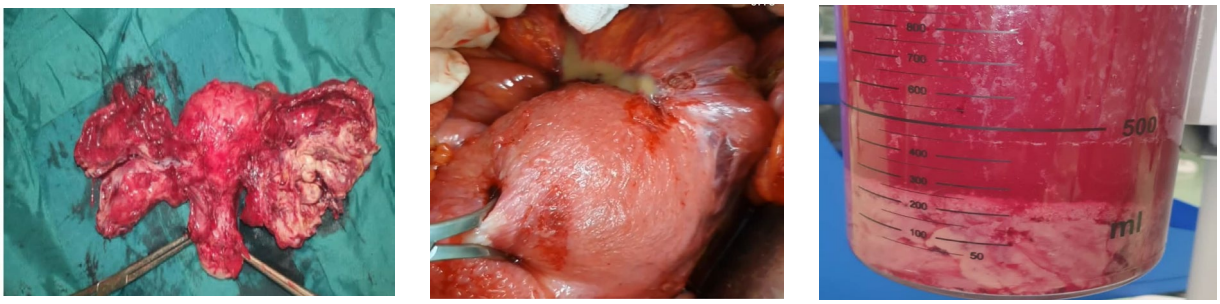


Figure 2.A: TAH BSO after drainage of adnexal pus contents, B: Complex of tubo-ovarian abscess with surrounded tissues adhesions, C: Drainage of 300 cc pus



Figure 3. In non-contrast axial CT scan there is a 104 ×117 mm pelvic well-defined multiloculated cystic mass with thick wall and thick septations without solid component. There is no calcification and no fat density within the mass

Discussion

complex pelvic masses with elevated tumor markers due to both malignant and benign causes including endometriosis, and tubo-ovarian abscess (TOA) can be challenging, particularly in reproductive age **(1)**.

In our near-menopause patient with recent abdominal pain and fever, imaging studies reported probable ovarian malignancy, and highly elevated CA-125 (>4000 u/ml), ESR and leukocytosis that led to complicated ovarian malignancy diagnosis and the patient underwent surgical intervention and despite imaging reports and elevated CA-125, its final pathology report revealed benign condition. Ultrasound as an initial modality for suspected pelvic mass can be inconclusive, and thick-walled mass with internal septation in the TOA and haziness of pelvic fat due to edema are not specific on CT scan. Magnetic resonance imaging, particularly with contrast and DWI has more advantage than both ultrasound and CT scan, whereas accessibility can help to high accuracy diagnosis of benign and malignant masses **(5, 6)**.

The cancer antigen (CA-125) can be elevated in malignant epithelial adnexal tumor and inflammation of the peritoneum and there is no strict cutoff for those conditions **(1, 7, 8)**, as in our patient, markedly elevated CA- 125 mimicked advanced ovarian cancer. In post menopause women with imaging findings based on complex pelvic mass in conjunction with elevated CA125 and ESR, co-existing cancer with TOA should be considered **(6, 9, 10)**. Due to the high risk of underling malignancy in post-menopausal women, there is a lower threshold for surgical intervention, but this kind of surgery can be technically difficult and may result in visceral injury due to fragility and fibrosis **(5)**.

Yaron et al. reported that the risk of malignancy is lower than previously described in post-menopausal TOA **(9)**. The association between TOAs and endometriosis has been identified in previous investigation **(11, 12)**. Due to surrounded structure edema and inflammation in both TOAs and endometrioses, it could be presented with highly elevated CA-125 and ESR; thus, in such cases, clinically stable image-guided drainage could be suggested instead of potentially difficult surgery. After interventional radiologic approach, if radical elective surgery was considered for residual disease or other problems, it seems that, it will be technically easier than upfront radical surgery due to decreased inflammation and tissue fragility.

Conclusion

The value of elevated CA-125 level in complex pelvic mass without peritoneal seeding in high accuracy imaging study that is suspected to TOA or endometriosis is not reliable, but it can present the severity of peritoneal irritation and inflammation to avoid high risk upfront radical surgery in stable patients. But in concurrent malignancy-suspected patient based on imaging, it is inevitable to do upfront radical high-risk surgery.

Acknowledgments

The authors thank all the staff members of the obstetrics and gynecology department of Dr. Mahzad Hospital, Urmia for their help and suggestions.

Authors' Contributions

Study concept and design: BN and SN; Drafting of the manuscript: BN and SN; Critical revision of the manuscript: BN and MA; Statistical analysis: SN. All the authors have given final approval of the version to be published.

Conflict of Interest

The authors have no conflicts of interest relevant to this article.

Informed Consent

Written informed consent was obtained from the patient.

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How to Cite This Article:

Ghasemian Dizajmehr, S., Mohammadi Irvanlou, M., Asadi Rad, V., Rashidi Fakari, F. Tubo-Ovarian Abscess with Highly Elevated CA125 Level is Misdiagnosed as Ovarian Cancer: A Case Report. J Obstet Gynecol Cancer Res. 2024;9(4):471-4.

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