https://proscholar.org/jcis/
ISSN: 2559-5555

J Clin Invest Surg. 2019; 4(2): 108-113
doi: 10.25083/2559.5555/4.2/108.113

Received for publication: March 3, 2019
Accepted: June 11, 2019

Case report

Suspicious adnexal mass mimicking an ovarian malignancy; Case presentation

Irina-Adriana Horhoianu[1,2], Răzvan V. Scăunașu[1,3], Mirela Moarcăs[2], Mihai Cristian Dumitrașcu[1,2]

[1]Carol Davila University of Medicine and Pharmacy, Bucharest, Romania
[2]Emergency University Hospital Bucharest, Department of Obstetrics and Gynecology, Bucharest, Romania
[3]Colțea Clinical Hospital, Department of Surgery, Bucharest, Romania

Abstract

Introduction. Adnexal masses represent a diagnostic dilemma judging from the imaging and serum markers point of view. Making a correct diagnosis is of utmost importance as ovarian cancer represents a real health issue in the entire world nowadays with diagnosis in more advanced stages with low survival rates.

Case presentation. Herein we present the case of a 44-year-old patient who arrived at the emergency ward for asthenia, loss of appetite, weight loss and severe dyspnea. When making the clinical examination a nontender distended abdomen was discovered with a large rather irregular mass in the left iliac fossa. An emergency computed tomography and ultrasound was solicited rendering a high suspicion of malignancy. Further analyses rendered an elevated carcinogenic antigen125 marker with high adnex model risk of malignancy and high risk of malignancy assessment score. A scheduled laparotomy was undertaken in a mixed team of gynecology and oncology surgeons discovering an intense pelvic inflammatory disease with good recovery.

Conclusions. Ovarian masses represent a diagnostic dilemma as neither the imagistic evaluation nor serum markers represent absolute accuracy. A high degree of suspicion is thus imperative and whenever necessary when scheduling laparotomy a specialized oncology surgeon has to complete the surgical team.

Keywords : carcinogenic antigen 125, adnex model, cancer, pelvic inflammatory disease

Highlights

- ✓ Ovarian masses still represent a diagnostic dilemma as neither the imagistic evaluation nor serum markers represent absolute accuracy.
- ✓ Special attention is therefore necessary, as not al suspicious adnexal masses are cancers and, in turn, some benign aspects may hide microscopic malignancies.

To cite this article: Horhoianu IA, Scăunașu RV, Moarcăs M, Dumitrașcu MC. Suspicious adnexal mass mimicking an ovarian malignancy; Case presentation. *J Clin Invest Surg*. 2019; 4(2): 108-113. DOI: 10.25083/2559.5555/4.2/108.113

*Corresponding author: Irina-Adriana Horhoianu, Carol Davila University of Medicine and Pharmacy, Emergency University Hospital Bucharest, Bucharest, Romania
E-mail: irinah7@gmail.com

Introduction

Correct diagnosis of adnexal masses is of utmost importance as ovarian cancer represents a real health issue in the entire world nowadays; despite the fact that it constitutes the 7th most common cancer in women and the 8th most common cause of death from cancer its survival rate is sparse at time of diagnosis, the worst one among all gynecologic cancers (5 year survival rate of 46%) (1-3). This is mostly due to the fact that a positive diagnosis is made in advanced stages where the survival rate steeply descends. The one-year survival rate is over 90% for stage FIGO I but with only 14.9% of cancers being in that stage at diagnosis and 50% for stage Figo IV (1, 3). Also, the 5-year relative survival rate for epithelial ovarian cancer is 90% in stage I, 70% in stage II, 39% in stage III and only 17% in stage IV (1, 2). There is also a 56% death rate for those diagnosed in an emergency setting perhaps due to cancer spread, complication occurrence and last but not least surgery in unexperienced oncologic hands with suboptimal initial emergency surgery (1).

Case report

Herein we present the case of a 44-year-old patient who arrived at the emergency ward for asthenia, 3 weeks onset, loss of appetite with progressive weight loss (8 kg in 6 months) and severe dyspnea in the last months. Upon blood workup severe hypochromic anaemia was discovered (3.7 g/dl haemoglobin level, haematocrit of 17.1%) with normal leukocyte and platelet counts (8.11 thousand and respectively 166 thousand respectively), normal clotting times and biochemistry except hypoalbuminemia of 2.3 g/dl hyperglycemia (200 mg/dl) and elevated glycosylated haemoglobin (6.2%). Immediate blood transfusion was initiated with 2 iso group iso rhesus units. When making the clinical examination a nontender distended abdomen was discovered with a large rather irregular mass in the left iliac fossa extending upward in the left flank. The patient didn't accuse any fever, chills, former abdominal pain and had normal micturition and stools. Also, she informed the staff of her psychiatric disorder and the needed medication being in a stable state. An emergency computed tomography and ultrasound was solicited rendering the following aspects: a left latero uterine formation was discovered with nodules and septations, relatively well defined, in close contact with the uterus which was thus pushed in the right lateral fossa, almost without any demarcation line between the two (Figure 1).

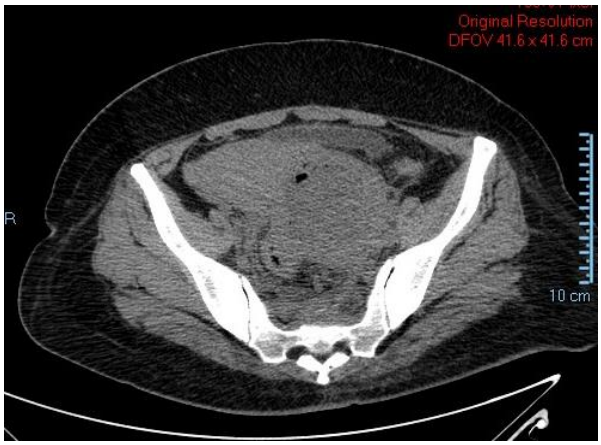

Figure 1. Pelvic computed tomography. Left latero uterine most probably adnexal tumoral formation, in close contact with the uterus which is pushed in the right lateral fossa, no demarcation line between the two is seen.

There was also close contact with a sigmoid loop and posterior wall of the bladder. The sigmoid colon had a thickened wall with positive iodophilia needing a colonoscopy examination in the thought of invasion. The mesenteric fat in the inferior abdomen was dense and retracted with the presence of small iodophilic nodules. Bilateral ureteral hydronephrosis grade 2 was discovered with increased left ureteric caliber throughout is trajectory until the iliac region where it appeared to be engulfed in the ovarian formation with slightly reduced and tardied left secretion and excretion. Numerous lymphadenopathies in the lombo-aortic region of about 13mm diameter and also in the mesenteric fat, common left and right iliac and right external iliac regions were found. Important collateral circulation in both flanks was noticed with pericardial but no pleural effusions nor osseous tumoral aspects were found. The ultrasound examination revealed a left parauterine large, thick walled, solid fluid formation of about 10/8 cm, with thick septations some of which vascular, papillary projections, hyperechoic content in the fluid part, coming in close contact with the cervix without being able to describe the uterine or ovarian involvement. Small amounts of free fluid were diffusely dispersed inside the abdomen, especially in the Douglas pouch. After anaemia correction the haemoglobin raised up to 7.8 g/dl without any inflammation persistence. Also, further analyses rendered an elevated carcinogenic antigen125 (CA125) marker of 219 U/ml and a negative colonoscopy - without any endoluminal lesions until the splenic flexure. After patient stabilization a scheduled laparotomy was undertaken in a mixed team of gynecology and oncology

surgeons as the features described above suggested a malignant aspect of the pelvic tumor. A median incision was made with discovery of numerous intense adhesions especially at the level of the left adnexa, epiploon and colon. The left adnexa was enlarged, about 9/9 cm and transformed into a thick walled septated abscess with numerous micro abscesses surrounding it of about 1cm diameter including a larger retro uterine one. Patient evolution was favourable after the surgical involvement and parenteral antibiotic therapy with rapid recovery and diabetic referral for chronic therapy.

Discussions

Envisioning that, a series of diagnostic models like Risk of Malignancy Index (RMI) or Risk of Ovarian Malignancy Assessment (ROMA) score, Copenhagen index (CPHI), International Ovarian Tumor Association (IOTA) Adnex model and "simple rules" ultrasound, have been formed comprising not only adnexal imaging features but also blood workup as serum carcinogenic antigen 125 (CA125) and human epidydimal protein 4 (HE4) (4-8). Judging by their criteria the imaging morphology patterns of our adnexal tumor in association with the serum markers were suggestive for a malignant aspect. In the following below we describe and discuss the results.

According to the IOTA simple rules guidelines, the imaging aspects of the tumor encompassed 3 malignant features: (1) irregular multilocular solid tumor with largest diameter of 10 cm with 4 or more papillations (2) and high colour content at colour doppler (3) with no benign features thus classifying the tumour as a suspected adnexal malignancy. Also using the Adnex model the specific risk of the patient was as follows: 15.3% chance of a benign tumor, the baseline risk being 68.2%; 84.7% risk of malignancy (baseline risk 31.8%) with the greatest risk being for a borderline tumor, 58.9% (4% stage I ovarian cancer, 19.6% stage II-IV ovarian cancer, 2.2% risk of metastatic cancer to the adnexa) (5). In our case the anatomical topography of the tubo-ovarian abscess, with the adnexa turned around its axis, intensely adherent to the surrounding organs by inflammation, neovascularization and fibrosis formation with multiple small abscesses suggestive of a former localized pelviperitonitis were the aspects which on ultrasound resembled a malignant tumor with increased vascularity, irregularity, solid components, multilocular cysts and multiple papillations (4). Also, the computed tomography with its description of a nodular septated tumor without any demarcation line from the uterus or sigmoid colon with bilateral hydronephrosis the left ureter being engulfed in the formation with increased caliber and multiple adenopathies and densified mesenteric fatty tissue was also highly suggestive of a neoplastic tumor. Despite that the patient didn't present with 2 typical aspects - pleural effusion nor large ascites, signs which could have been the hallmark of a malignant Meigs syndrome. As stated above, the quantification of the risk of malignancy based on the ultrasound and complex imaging features were suggestive of a neoplastic tumor and judging by that, being at risk, the patient benefited from an operative laparotomy in a high gynecologic setting involving an oncology surgeon as our hospital has these specific features (4). The ultrasound adnex model though, was more accurate than the computed tomography suggesting a borderline tumor rather than a certified malignant one, so in conclusion it is better to have an objective means of assessment rather than a subjective one where some signs can elicit a response with more or less ponder. Also, it appears that ultrasound in experienced hands can be an important and perhaps a better tool of assessment than the remaining imaging options (9).

Also, in the need for a higher diagnostic outcome, specific serum markers such as CA125 and or HE4 have been proposed and embedded in various risk scores like RMI, ROMA, Copenhagen Index (6, 8). There are many studies which argue against or for their positive predictive value, for example according to Gentry-Maharaj and col. (10) the human epididymis 4 has been found to have little added value to the concurrent use of CA125 in association with transvaginal ultrasound in regards to the differential diagnosis of adnexal masses but, according to Park and col. (11), combining CA125 and HE4 might be more advantageous than either one alone.

Also, further addition of multiple biomarkers to CA125 and HE4 has been proposed along time in the hope of improving the assessment of ovarian tumors among which as follows: YKL-40, transthyretin, apolipoprotein A1, beta 2 microglobulin, transferrin and lipoprotein A (7). According to (7) by using logistic regression analysis the combination of multiple markers with menopausal status in comparison to the simple CA125 and HE 4 addition achieved a higher area under the curve 94.6% (95% confidence interval: 90.1–99.2) in comparison to 91.2% (95% confidence interval: 86.0–96.4) but it was not proven to significantly better ($p = 0.078$). Thus, the addition of more complex biomarkers does not appear to have a greater diagnostic weight nor does it add performance to the dual marker combination of HE4 and CA125 (7).

Despite all efforts it seems that these tumor scoring systems do not contribute significantly in the overall

diagnosis of malignant ovarian tumors, the ultrasound aspect remaining superior in differentiation as when comparing ultrasound to RMI and especially ROMA scoring systems (P < 0.0001) as the imagistic assessment had the highest area under the curve (0.968, 95% confidence interval: 0.945–0.984, P < 0.0001) , being followed by the RMI scoring system (0.931, 95% confidence interval: 0.901–0.955, P = 0.0030) and last by ROMA score (0.893, 95% confidence interval: 0.857–0.922) (6).

In our case the blood workup with normal leukocytes and absent inflammation markers did not raise any suspicions towards a pelvic inflammatory disease despite the final intraoperative results most probably due to an already cooled down process of localized pelviperitonitis despite the fact that the patient didn't claim any previous pain nor fever nor purulent discharge. These facts might be explained by the concurring patient pathology, severe anemia, an undiagnosed and uncontrolled diabetes type II until the emergency ward presentation and the antidepressive treatment, the patient having a psychiatric disease. Serum CA 125 was obtained, and the elevated value of 219 U/ml combined with the ultrasound aspect led to a high RMI score of 657 points (high risk of malignancy, 71% sensitivity, 92% specificity) and high adnex model score of 84.7% risk of malignancy, facts which were reassuringly leading towards an oncologic pathology denied intraoperatively. But according to literature search, serum CA125 is not only elevated in oncologic diseases like ovarian or pancreatic cancers. It is also elevated in benign pathologies, especially fibrosis or serositis related such as: cirrhosis, lung fibrosis, nephrotic syndrome, smoking, endometriosis especially stage III and IV, uterine leiomyomatosis, ovarian benign pathology like fibroma-thecoma, struma ovary – teratoma, cardiac failure, hemodialysis with serositis, peritoneal tuberculosis or physiologic aspects like menstruation or pregnancy (12-17). Ca125 is elevated also in chronic pelvic inflammatory diseases in 5% of patients (18) as in our patient with presenting inflammation, fibrosis and serosal peritoneal and cardiac effusion. In conclusion an elevated serum CA125 does not always indicate malignancy. Furthermore Ca125, in the case of pelvic inflammatory disease, has been associated with conservative treatment failure as higher levels upon patient admission were discovered in the patients who required an invasive intervention (57 versus 30 U/ml, p = 0.02), so CA125 levels were found to be an independent risk factor associated with conservative parenteral antibiotic treatment failure (odds ratio; 95% confidence interval, 1.27, 1.08–1.48, p = 0.03) (19). Despite the discovery as in our case of macroscopic pelvic inflammatory disease, oncology suspicion needs to be eliminated only after a thorough histopathologic evaluation as tuboovarian abscesses especially in postmenopausal women have a high degree of malignancy, 13.1% according to Gockley and col. (20).

Conclusions

Not all suspicious tumors are cancers. In conclusion, whenever the risk of potential ovarian malignancy arises, it is better to take action than to have an expectancy period as the vast majority of suspicious tumors indeed also have histopathologic confirmation. In rare cases with confounding factors a benign or borderline tumor can be discovered. This is why a high degree suspicion is imperative in the case of adnexal masses and whenever necessary when scheduling laparotomy a specialized oncology surgeon has to complete the surgical team. Ovarian masses represent a diagnostic dilemma as neither the imagistic evaluation nor serum markers represent absolute accuracy. Sonographic findings add greater value than the rest of imagistic means. Special attention is needed as not al suspicious adnexal masses are cancers and some benign aspects may hide microscopic malignancies.

Conflict of interest disclosure

There are no known conflicts of interest in the publication of this article. The manuscript was read and approved by all authors.

Compliance with ethical standards

Any aspect of the work covered in this manuscript has been conducted with the ethical approval of all relevant bodies and that such approvals are acknowledged within the manuscript.

References

1. Frances Reid (Study Director), Expert Advisory Panel Co-Chairs: Professor Neerja Bhatla and Annwen Jones. World Ovarian Cancer Coalition 2018, April 2018. https://worldovariancancercoalition.org/wp-content/uploads/2018/10/THE-WORLD-OVARIAN-CANCER-COALITION-ATLAS-2018.pdf

2. Torre LA, Trabert B, DeSantis CE, Miller KD, Samimi G, Runowicz CD, Gaudet MM, Jemal A, Siegel RL. Ovarian cancer statistics 2018. *CA Cancer J Clin*. 2018; 68(4): 284-296. DOI: 10.3322/caac.21456
3. Shetty M. Imaging and Differential Diagnosis of Ovarian Cancer. *Seminars in Ultrasound, CT and MRI*. 2019; 40(4): 302-318. DOI:10.1053/j.sult.2019.04.002
4. Timmerman D, Van Calster B, Testa A, Savelli L, Fischerova D, Froyman W, Wynants L, Van Holsbeke C, Epstein E, Franchi D, Kaijser J, Czekierdowski A, Guerriero S, Fruscio R, Leone F, Rossi A, Landolfo C, Vergote I, Valentin L. Predicting the risk of malignancy in adnexal masses based on the Simple Rules from the International Ovarian Tumor Analysis group. *Am J Obstet Gynecol*. 2016; 214(4): 424-437. DOI: 10.1016/j.ajog.2016.01.007
5. Van Calster B, Van Hoorde K, Valentin L, Testa AC, Fischerova D, Van Holsbeke C, Savelli L, Franchi D, Epstein E, Kaijser J, Van Belle V, Czekierdowski A, Guerriero S, Fruscio G, Lanzani C, Scala F, Bourne T, Timmerman D. International Ovarian Tumour Analysis group. Evaluating the risk of ovarian cancer before surgery using the ADNEX model to differentiate between benign, borderline, early and advanced stage invasive, and secondary metastatic tumours: prospective multicentre diagnostic study. *BMJ*. 2014. 349: g5920. DOI: 10.1136/bmj.g5920
6. Van Gorp T, Veldman J, Van Calster B, Cadron I, Leunen K, Amant F, Timmerman D, Vergote I. Subjective assessment by ultrasound is superior to the risk of malignancy index(RMI) or the risk of ovarian malignancy algorithm (ROMA) in discriminating benign from malignant adnexal masses. *Eur J Cancer*. 2012. 48(11): 1649-1656. DOI: 10.1016/j.ejca.2011.12.003
7. Moore RG, Blackman A, Miller C, Robison K, DiSilvestro PA, Eklund EE, Strongin R, Messerlian G. Multiple biomarker algorithms to predict epithelial ovarian cancer in women with a pelvic mass: Can additional makers improve performance? *Gynecol Oncol*. 2019. 154 (1): 150-155. DOI: 10.1016/j.ygyno.2019.04.006.
8. Karlsen MA, Høgdall EVS, Borgfeldt C, Kalapotharakos G, Zdrazilova-Dubska L, Chovanec J, Lok CAR, Stiekema A, Mutz-Dehbalaie i, Rosenthal AN, Moore EK, Schodin BA, Sumpaico WW, Sundfeldt K, Kristjansdottir B, Zapardiel I, Høgdall CK. A novel diagnostic index combining HE4, CA125 and age may improve triage of women with suspected ovarian cancer — An international multicenter study in women with an ovarian mass. *Gynecol Oncol*. 2015; 138(3): 640-646. DOI: 10.1016/j.ygyno.2015.06.021
9. Thomassin-Naggara I, Daraï E, Lécuru F, Fournier L. Diagnostic value of imaging (ultrasonography, doppler, CT, MR, PET-CT) for the diagnosis of a suspicious ovarian mass and staging of ovarian, tubal or primary peritoneal cancer: Article drafted from the French Guidelines in oncology entitled "Initial management of patients with epithelial ovarian cancer" developed by FRANCOGYN, CNGOF, SFOG, GINECO-ARCAGY under the aegis of CNGOF and endorsed by INCa. *Gynecol Obstet Fertil Senol*. 2019. 47(2): 123-133. DOI: 10.1016/j.gofs.2018.12.012.
10. Gentry-Maharaj A, Burnell M, Dilley J, Ryan A, Karpinskyj C, Gunu R, Mallett S, Deeks J, Campbell S, Jacobs Sundar S, Menon U. Serum HE4 and diagnosis of ovarian cancer in postmenopausal women with adnexal masses. *Am J Obstet Gynecol*. 2019 Jul 24. pii: S0002-9378(19)30936-6. DOI: 10.1016/j.ajog.2019.07.031
11. Park Y, Lee JH, Jin D, Eun H, Lee Y, Kim HS. Diagnostic performances of HE4 and CA125 for the detection of ovarian cancer from patients with various gynecologic and non-gynecologic diseases. *Clin Biochem*. 2011. 44(10-11): 884-888. DOI: 10.1016/j.clinbiochem.2011.04.011
12. Buyukberber S, Sari R, Turk HM, Ates M. Elevated Serum CA-125 Levels in Hemodialysis Patients with Peritoneal, Pleural, or Pericardial Fluids. *Gynecol Oncol.* 2000. 77(2): 254-257. DOI: 10.1006/gyno.2000.5776Get.
13. Bokhari A, Rosenfeld GS, Cracchiolo B, Heller DS. Cystic struma ovarii presenting with ascites and an elevated CA-125 level. A case report. *J Reprod Med*. 2003; 48(1): 52-56.
14. Zhang M, Zhang Y, Fu J, Zhang L, Chapter Thirteen - Serum CA125 levels are decreased in rectal cancer but increased in fibrosis-associated diseases and in most types of cancers. *Prog Mol Biol Transl Sci*. 2019; 162: 241-252. DOI: 10.1016/bs.pmbts.2018.12.012
15. Sengupta S, Lalit N, Srivastava. Elevated tumour marker CA125: Interpretations in clinical practice. *Current Medicine Research and Practice*. 2014; 4(5): 214-218. DOI: 10.1016/j.cmrp.2014.09.004
16. Jones OW 3rd, Surwit EA. Meigs syndrome and elevated CA 125. *Obstet Gynecol*. 1989. 73(3 Pt 2): 520-521.

17. Bilgin T, Karabay A, Dolar E, Develioğlu OH. Peritoneal tuberculosis with pelvic abdominal mass, ascites and elevated CA 125 mimicking advanced ovarian carcinoma: A series of 10 cases. *Int J Gynecol Cancer*. 2001. 4(11): 290-294. DOI: 10.1136/ijgc-00009577-200107000-00006
18. Barbieri RL, Niloff JM, Bast RK, Schaetz E, Kistner RW, Knapp RC. Elevated serum concentrations of CA-125 in patients with advanced endometriosis. Fertil Steril. 1986; 45(5): 630-634.
19. Levin G, Herzberg S, Dior UP, Shushan A, Gilad R, Benshushan A, Rottenstreich A. The predictive role of CA-125 in the management of tubo-ovarian abscess. A retrospective study. *Eur J Obstet Gynecol Reprod Biol*. 2019; 238: 20-24. DOI: 10.1016/j.ejogrb.2019.05.004
20. Gockley AA, Manning-Geist BL, Boatin AA, Gu X, Cohen S. Tubo-ovarian abscesses in postmenopausal women: Clinical presentation and outcomes. *Maturitas*. 2019. 125: 20-26. DOI: 10.1016/j.maturitas.2019.04.206