Original Paper

Diagnosis Correlations in Ovarian Tumors

LORENA DIJMARESCU, CARMEN GHETA, FLORENTINA TANASE, COMANESCU A ,MAGDA MANOLEA, LILIANA NOVAC

Department of Obstetrics and-Gynecology, University of Medicine and Pharmacy, Craiova

ABSTRACT Background. Alongside with understanding physiological phenomena that occur in the ovary, both during the menstrual cycle, and pathological processes, including the mechanisms of carcinogenesis ovarian, the ability to discriminate benign lesions from the malignant ones has acquired a new importance. **Patients and method**. Assessment of patients was based on a diagnostic algorithm - RMI, which included clinical examination, ultrasound examination (internal wall structure, formation wall thickness, presence of septa and echogenicity) and serological testing for CA125.After obtaining the results patients were classified in the benign / malignant groups. Correlations were then made with the results of histopathological examination.**Results.** The results of the MRI correlation with histopathology were also framed in three categories: overvaluation, undervaluation and diagnosis. We recorded a 0.2% rate of undervaluation (tumors that have proven to be malignant), 65% overvaluation (tumors that proved to be benign) and a 33.8% rate of correct diagnosis. **Conclusions.** The results of this study show that preoperative accurate diagnosis in ovarian tumors is difficult, which is uncorrelated with histo-pathological results. They failed to establish reproducible ultrasound features of these tumors, therefore the recommendation for histopathological examination for a suspected ovarian masses remains valid.

KEY WORDS*: ovarian lession, diagnostic algorithm, overvaluation, overtreatment*

Introduction

Alongside with understanding physiological phenomena that occur in the ovary, both during the menstrual cycle, and pathological processes, including the mechanisms of carcinogenesis ovarian, the ability to discriminate benign lesions from the malignant ones has acquired a new importance.

Ovarian cancer is the most lethal gynecological malignancy and surface epithelial tumors (carcinomas) are the most common type of ovarian cancer (90%) [1]. Despite considerable efforts aimed at elucidating the molecular mechanisms of ovarian carcinomatosis, its pathogenesis is still unknown.

Pathogenesis of ovarian carcinoma is unknown due to lack of a tumor progression pattern.

Based on a review of recent clinicopathological and molecular studies, surface epithelial malignancies fall into two broad categories: type I and type II, which correspond to two main pathways of tumorigenesis.

Type I tumors fall under lower-grade malignant tumors that occur in a gradual way from limit tumor and type II tumors employing high-grade malignant tumors where the morphologic precursor lesions were not identified, being classified as the so-called "de novo" growing [2,3]. Now, that the risk that the serous cystadenoma develop into chistadenocarcinom is demonstrated, rigorous analysis of the possibilities and limits of the positive differential diagnosis and therapy of ovarian lesions is needed, the success consisting of a close preoperatory and postoperatory monitoring.

The diagnosis of ovarian cancer is not easy because of of the multitude of clinical and histopathological aspects, lack of precursor lesions and their evolution. There is is an inverse reciprocal relationship between the frequency of ovarian cancer and the infaust, lethal prognosis greater than in uterine and breast cancers considered together [4]. There is no targeted screening test for ovarian cancer, early detection being a real problem.

A major stress in determining progression of aggression on the ovary is the accurate recognition and characterization of ovarian lesions.

Patients and method

The study was performed on 28 cases that were selected and subjected to surgery between November 2010 - April 2011, in the Obstetrics-Gynecology clinics of Philanthropy and County Emergency Hospital of Craiova.

Assessment of patients was based on a diagnostic algorithm - RMI, which included clinical examination, ultrasound examination (internal wall structure, formation wall thickness, presence of septa and echogenicity) and serological testing for CA125.

After obtaining the results patients were classified in the benign / malignant groups. Correlations were then made with the results of histopathological examination.

Results

Prior to the serum CA125 level determination there were obtained high values (>35U/ml) [5], indicative of ovarian lesion evolution in 7 cases, only one correlating with the histopathology examination.

There was thus a 86% rate overvaluation, an undervaluation rate of 0% and a correct diagnosis in 14% of cases.

The results of the MRI correlation with histopathology were also framed in three categories: overvaluation, undervaluation and diagnosis. We recorded a 0.2% rate of undervaluation (tumors that have proven to be malignant), 65% overvaluation (tumors that proved to be benign) and a 33.8% rate of correct diagnosis.

Tabel 1. MRI = ultrasound score x menopausal score x level CA125 (U/ml)

ULTRASOUND: *multilocular cysts* *solid tumor areas* *bilateral lesions* *ascites* *intra-abdominal metastases*	0 = no ultrasound abnormality 1 = one abnormality 4 = 2 or more abnormalities
PREMENOPAUZAL POSTMENOPAUZAL	1 4
CA 125	U/ml

By using further corroborated tests respectively the MRI score a correct diagnosis rate improved by 33.8% was obtained as compared to 14% obtained only by using the unique tumor marker CA125. The overvaluation rate improved, this decreasimg from 86% to 65%.

Case 1. Patient aged 61, serum level of CA125-63.2U/ml, MRI score -1011.2, result of histopathology mixed mucinous cystadenoma, surgery based on the high risk given by the level of CA125, but especially the value MRI score: over-diagnose. (Fig 1 and Fig 2)

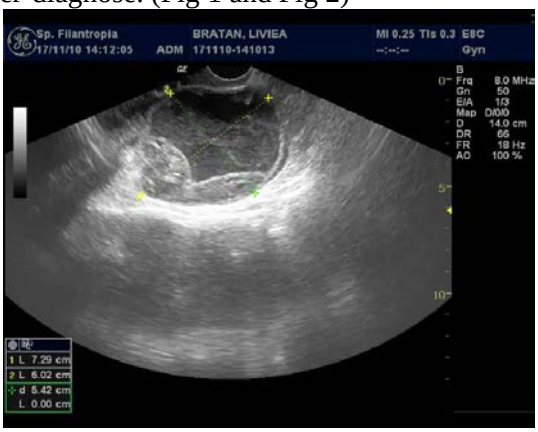

Figure 1

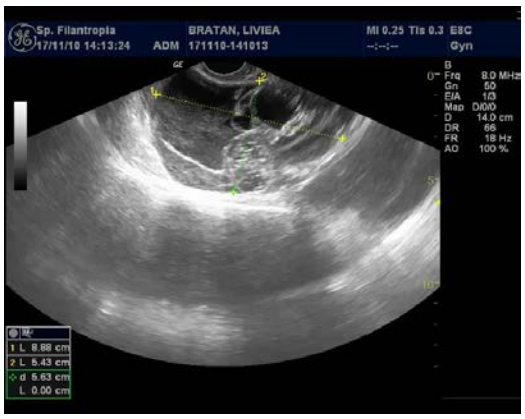

Figure 2

Case 2. Patient aged 64, CA125-73.4U/ml, MRI-587 score, histopathology, hypertrophic chronic salpingitis, surface papillary stromal proliferation, serous cystadenoma -over-diagnose. (Fig 3)

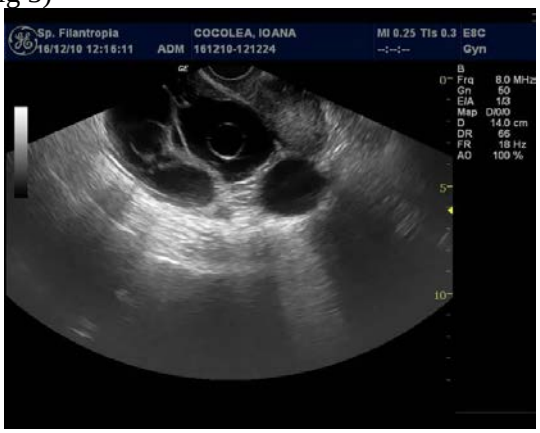

Figure 3

Case 3. Patient aged 24, CA125-93.7U/ml, MRI score -374.8, histopathology ovarian mature teratoma, struma ovarii - accurate diagnosis. (Fig 4)

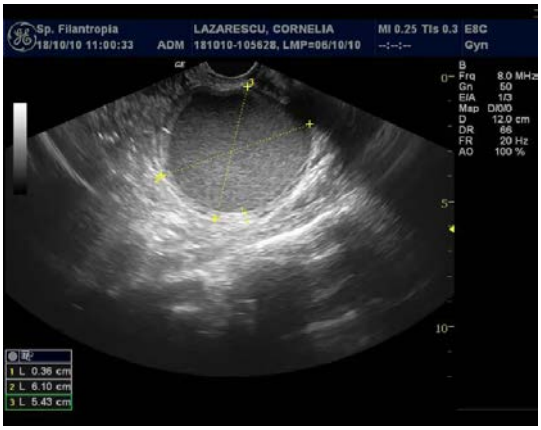

Figure 4

Case 4. Patients aged 44 , CA125-100.18U/ml, MRI score -400.72, histopathology - hemorrhagic

corpus luteum cyst, mucinous cystadenoma borderline Brenner mixed type, ADK well-differentiated -correct diagnosis. High value of CA125 may be related to endometrial pathology. (Fig. 5)

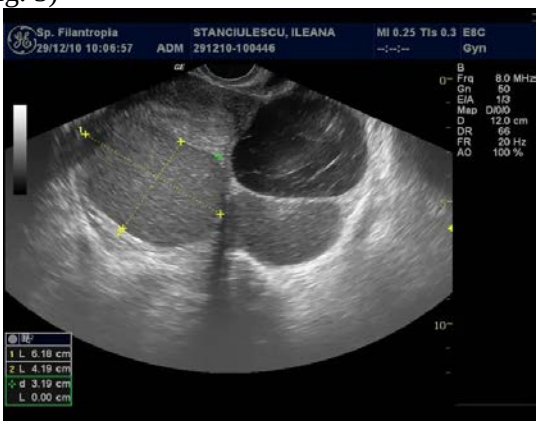

Figure 5

Case 5. Patient 19, CA125-123.2U/ml, MRI score 492.8, histopathology, luteal hemorrhagic hipereaction follicle cysts - overevaluation. (Fig. 6)

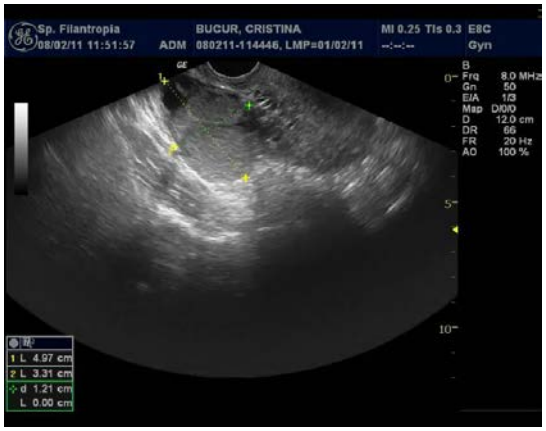

Figure 6

Discutions

Serum CA-125 is commonly grown in association with peritoneal irritation and mesothelioma caused by benign conditions such as menstruation, pregnancy and postpartum state [6,7]. Furthermore, high concentrations in serum CA-125 are often seen in other diseases such as liver disease (eg cirrhosis), congestive heart failure and primary liver cancer, especially in the presence of ascites. In addition, women with non-malignant gynecological pathology including benign ovarian cysts and endometriosis tend to have CA-125 serum concentrations greater than the upper limit, arbitrarily set at 35 U/ml. [8]

CA125 positive predictive value was 94% for postmenopausal women with a negative predictive value of 80%, with no statistical differences in correlation with other studies. [9]. In premenopausal patients, CA125 detection had a 85%sensitivity with a specificity of 88% and positive predictive value of 83%.

Nevertheless, given that the undervaluation was 0%, we can say that *normal levels of serum marker is a clear predictor for certain nonmalignant ovarian lesions.*

This study adds to the existing literature by showing that a simple ovarian cyst should be properly investigated and mostly watched in evolution, before surgery. [10]. Obviously, each case must be evaluated individually. Patient reproductive history, family environment and genetic predisposition should be also considered. Women with low risk with a simple cyst and low levels of tumor markers can be watched by repeating these tests at intervals of 3-6 months. Patients at increased risk based on risk factors or high levels of tumor markers must undergo surgery after framing them in a risk group for malignancy using complex scores.

Conclusions.

The results of this study show that preoperative accurate diagnosis in ovarian tumors is difficult, which is uncorrelated with histo-pathological results. They failed to establish reproducible ultrasound features of these tumors, therefore the recommendation for histopathological examination for a suspected ovarian masses remains valid.

The use of serum CA125 levels in preoperative evaluation of tumor masses may not be used as the only means in malignancy prediction. It can be used as an sensitivity indicator of neoplasia progression and recurrence when serum levels correlate with ultrasound diagnosis, which increases its ability to discriminate between benign and malignant ovarian pathology.

An ideal therapeutic management of a simple ovarian cyst is less standardized. Concern about the development into a malignant lesion can lead to an overstatement of the case sanctioned by unnecessary therapeutic surgery, because in most cases, histopathological results indicate a benign lesion.

Time will determine the definite encoding in ovarian tumors issue. For now sundry controversies and comebacks on early diagnosis, show prognostic uncertainty and the need for surgical prudenceaccording to the principle of *Primum non nocere*.

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Correspondence Address: *Lorena Dijmarescu MD, PhD Student, University of Medicine and Pharmacy of Craiova, Str Petru Rares No 4, 200456, Craiova, Romania, e-mail: lorenadijmarescu@yahoo.com*