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Ovarian torsion as an emergency clinical entity

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Abstract

In this study, we aimed to evaluate the diagnostic characteristics of ovarian torsion cases. This study was conducted between December 2017 and December 2019 by examining the records of patients diagnosed with ovarian torsion in Firat University Hospital at Emergency Department. Age, number of pregnancy and birth numbers and clinical (symptoms and findings) and laboratory parameters (hemoglobin, hematocrit, platelet and white blood cell count) supporting ovarian torsion were evaluated. Symptoms and symptoms such as preoperative nausea, vomiting, tenderness, defense and rebound presence were recorded. Ultrasonographic parameters (ovarian size, presence of ovarian cysts, peripheral sequenced follicles, presence of vascular flow in doppler ultrasonography, presence of free fluid in the pelvic region) were evaluated. Descriptive statistics were used in the statistical evaluation of the data. In this study, the following parameters of 15 patients were evaluated retrospectively. Mean age, 26.02±5.3 years; mean number of gravidas, 2,21±1.35, mean White blood cell count 13250±2600 (/L), mean hemoglobin and hematocrit values were 12.4±2.5 (gr/dL) and 35.0±4.2 (%) respectively. All patients with ovarian torsion had pelvic pain (100 %) and 61% had nausea and vomiting. The most prominent feature of the examination was defensive rebound with 43% and tenderness with 76 %. Enlargement of ovarian (>5 cm) were present in 86 % of the patients and accompanying ovarian cysts and fluid in pelvis were found in 80 % of the cases. Additionally, in 73 % of the patients loss of blood flow on Doppler examination was observed. 5 cases (25 %) were single and 4 patients (25 %) had concomitant pregnancy. Three pregnant were in 1st trimester (7,9 and 13 weeks of gestation), one of them was 34 weeks of gestation. There is no clinical or laboratory findings specific to ovarian torsion. Therefore, all signs and symptoms of the patients should be carefully evaluated. Evaluation of the symptoms, clinical and laboratory findings together will increase the diagnostic accuracy.

Keywords: Ovarian torsion, clinical evaluation, white blood cell, ultrasonography

Introduction

Ovarian torsion refers to the total or partial twisting of the ovary and almost always involves part of the fallopian tube and its vascular axis that may cause an interruption in the ovarian blood and lymphatic flow [1]. The estimated prevalence is 2–3% of all acute gynecological emergencies and it is the fifth most common surgical emergency [2]. Ovarian torsion occurs at any age from pre-puberty to post-menopause with the greatest incidence in women reproductive years [3]. Ovarian torsion may also occur during pregnancy and post-hysterectomy [4,5].

Early diagnosis is essential in preserving ovarian and tubal function and preventing adnexal necrosis. Unfortunately, diagnosis of an ovarian torsion is challenging due to lack of sensitivity and

specificity of its clinical signs [6]. Currently, the diagnosis of ovarian torsion is based on clinical findings such as pelvic pain, nausea and vomiting, and defense-Rebound [4]. Because of the diagnostic difficulties of ovarian torsion, mortality and morbidity may develop. Therefore, signs and symptoms of torsion should be evaluated carefully and diagnostic problems should be prevented. This often requires detailed examination.

In this study, we aimed to obtain diagnostic clues by evaluating cases of ovarian torsion.

Materials and Methods

Clinical data, study population and definitions

This study was conducted between December 2017 and December 2019 by examining the records of patients diagnosed with ovarian torsion in Firat University Hospital at Emergency Department. Between the dates of the study, 125 patients were followed up for pelvic pain due to gynecological reasons. The diagnosis of ovarian cyst rupture in 36 patients, pelvic inflammatory disease in 41

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patients, primary dysmenorrhea in 26 patients and ovarian torsion in 22 patients were diagnosed. Twenty-two patients who presented to the emergency department with pelvic pain, nausea and vomiting or defensive rebound in the pelvic region were evaluated. Seven patients whose pain had decreased after admission to the emergency department, ovary was detected less than 5 cm or no significant pelvic pathology were detected were excluded from the study.

Patients who were followed up as ovarian torsion were determined according to the following criteria [4];

- Patients with pelvic pain, tenderness, nausea-vomiting and/or defense-rebound,
- Those with ovary greater than 5 cm in pelvic ultrasonography and those with ovarian flow loss or decrease in Doppler ultrasonography and
- Cases with increased WBC in laboratory tests.

Fifteen cases with suspected torsion and confirmed by surgery were recorded.

Age, gynecological and obstetric characters of patients (such as number of pregnancy, parity, curetages, menstrual cycle pattern etc.) and clinical (symptoms and findings) and laboratory parameters (hemoglobin, hematocrit, platelet and white blood cell count (WBC)) supporting ovarian torsion were evaluated retrospectively. Symptoms such as preoperative nausea, vomiting, tenderness, defense and rebound presence were recorded.

Ultrasonographic parameters (ovarian size, presence of ovarian cysts, peripheral sequenced follicles, presence of vascular flow in doppler ultrasonography, presence of free fluid in the pelvic region) were evaluated. Statistical analysis was performed using SPSS 21.0 program. Descriptive statistics were used in the statistical evaluation of the data.

Results

Twenty-two cases were identified for the study, seven cases were excluded from the study because they were excluded from ovarian torsion parameters. Fifteen patients underwent surgery for suspected ovarian torsion. The diagnosis of ovarian torsion was confirmed by surgery in all cases.

In this study, the following parameters of 15 patients were evaluated retrospectively. Mean age, 26.02 ± 5.3 years; mean number of gravidas, 2.21 ± 1.35 , mean WBC 13250 ± 2600 (/L), mean hemoglobin and hematocrit values were 12.4 ± 2.5 (gr/dL) and 35.0 ± 4.2 (%) respectively.

All patients with ovarian torsion had pelvic pain (100%) and 61% had nausea and vomiting. The laboratory and obstetric parameters of the patients are shown in Table 1.

The most prominent feature of the examination was defense-rebound with 43% and tenderness with 76%. Enlargement of ovarian (>5 cm) were present in 86 % of the patients and accompanying ovarian cysts and fluid in pelvis were found in 80 %

of the cases. Additionally, in 73 % of the patients loss of blood flow on Doppler examination was observed. 5 cases (33%) were single and 4 patients (27%) had concomitant pregnancy. Three pregnant were in 1st trimester (7,9 and 13 weeks of gestation), one of them was 34 weeks of gestation. The symptoms and findings of the cases are shown in Table 2.

Table 1. The laboratory and obstetric parameters of the patients

Parameters	Minimum	Maximum	Mean $\pm$ SD
Age (year)	16	47	26.02 $\pm$ 5.3
Gravidy (number)	0	5	2.21 $\pm$ 1.35
Parity (number)	0	4	1.61 $\pm$ 1.81
Abortus (number)	0	3	31 $\pm$ 0.52
Curretage (number)	0	2	02 $\pm$ 0.11
Hemoglobin(gr/dl)	8.1	13.7	12.4 $\pm$ 2.5
Hematocrit (%)	24	43.1	35.0 $\pm$ 4.2
White blood cells (/L)	7100	16000	13250 $\pm$ 2600
Platelets (/L)	110000	260000	146000 $\pm$ 3700

SD: Standart Deviation.

Table 2. The symptoms and findings of the cases

Symptoms and Signs	%
Pelvic Pain	100
Ovarian Enlargement	86
Tenderness	76
Nause-Vomiting	61
Defense-Rebound	43
Current Pregnancy	27
Dysuria	20
Menses Irregularity	7

%; Percent

Discussion

Despite the improved diagnostic methods, the diagnosis of ovarian torsion is the most difficult in gynecological emergencies. There is no clinical or laboratory findings specific to ovarian torsion. Therefore, all signs and symptoms of the patients should be carefully evaluated. The typical presentation of ovarian torsion is acute pelvic pain, adnexal mass, nausea, vomiting, fever, and abnormal genital tract bleeding [4]. We also encountered these symptoms and signs in different rates in our patients.

In adults, functional cysts or neoplastic cysts are encountered in 50-80% of cases with ovarian torsion [7]. In our study, the presence of ovarian cyst was present in 80% of the cases. We did not find any malignant mass in our cases. However, ovarian torsion can be observed without any mass. Ovarian torsion seen in the adolescent group is observed in normal ovarian tissue. In normal adnexal torsion, the twisted adnexa do not have any visible morphologic

pathology and is very rare, occurring in about 8%–18% of all cases of torsions [8]. Our two patients had enlarged and torsioned ovaries due to stromal edema.

Ovarian torsion encountered during pregnancy is problematic. Diagnosis is more difficult because of an enlarged uterus. Among pregnant women, the most common symptom related to adnexal torsion was lower abdominal pain, regardless of the gestational week. Adnexal torsion frequently occurs either in the first or early second trimester, rather than in the third trimester [9,10]. Our study found that the most of the pregnant were in their first trimester of pregnancy.

One of the diagnostic difficulties of ovarian torsion is the inadequacy of imaging methods. The most commonly used tool for imaging is ultrasonography. Ultrasound has the same diagnostic performance as CT scans and magnetic resonance imaging (MRI) and is less expensive [11]. The most common ultrasonographic finding is ovarian enlargement. An adnexal mass equal to or greater than 5 cm is strongly associated with adnexal torsion [12]. However, its specificity is low (approximately 63%) [13].

Doppler ultrasonography provides useful information in diagnosis. However, over-flow loss cannot always be observed on ultrasonography. Persistence of adnexal vascularization does not exclude torsion. In one study, doppler flow was found to be normal in 61% of right-sided torsions and 27% of left-sided torsions [14].

Ovarian torsion is one of the most common causes of acute abdomen that should be kept in mind because it is the 5th most common surgical cause. If patients are suspected after being evaluated clinically and radiologically, diagnostic surgery should not be taken without waiting for intervention and should not be given the opportunity to delay. Once ovarian torsion is highly suspected or confirmed, a quick surgical management should be obtained. Laparoscopic evaluation and detorsion are preferred and associated with fewer side effects. However, laparotomy can be performed in unstable cases.

The retrospective nature of the study and the limited number of cases seem to be the limiting factor. Further studies are needed on this area.

Competing interests

The authors declare that they have no competing interest.

Financial Disclosure

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Ethical approval

This study was approved by the Institutional Ethics Committee and conducted in compliance with the ethical principles according to the Declaration of Helsinki.

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