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## CLINIC AND ULTRASOUND PARALLELS OF OVARIAN INTRA- ABDOMINAL BLEEDINGS IN THE WOMEN OF REPRODUCTIVE AGE

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### SUMMARY

CLINIC AND ULTRASOUND PARALLELS OF OVARIAN INTRA-  
ABDOMINAL BLEEDINGS IN WOMEN OF REPRODUCTIVE AGE

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**Introduction.** Diagnosis of ovarian apoplexy is based on the data of clinical, laboratory and ultrasound investigations. However the criteria for selecting the optimum method of treatment are not determined for the different clinical situations. **The aim** of our study was to identify clinical, laboratory and ultrasound diagnostic features that allow to select among patients with ovarian apoplexy patients with intra-abdominal bleeding over 300 ml. **Materials and methods.** 110 women of reproductive age have been operated on by laparoscopic access because of ovarian apoplexy. The Military Medicine Clinical Center of the Southern region was the operative site, the operations were performed in 2008-2009. The patients have been divided into two groups, depending on the volume of intraperitoneal bleeding: the first group included 67 (60.9%) patients with the volume of blood in the abdomen not more than 300 ml, the second group consisted of 43 (39.1%)

patients with the haemoperitoneum volume more than 300 ml. All the patients were examined sonographically. Surgical intervention was performed either immediately after the diagnosis of ovarian apoplexy assessment and the patient's hospitalization or after conservative treatment attempts. Statistical processing of the results was performed with the software Statistica 5.5 (Stat Soft Inc., USA).

**Results.** The study identified the clinical, laboratory and ultrasound characteristics of apoplexy patients' with ovarian bleeding over 300 ml. The distinctive diagnostic features include: the presence of a significant pelvic ache, decreased hemoglobin (to 100 g / l ), free liquid level rising above the bottom of the uterus on transvaginal sagittal echograms. The rating diagnostic signs of hemoperitoneum in patients with ovarian apoplexy can be used for the patients' selection either for conservative or surgical treatment. If the amount of intra-abdominal bleeding does not exceed 300 ml a conservative treatment is recommended.

**Key words:** ovarian apoplexy, diagnosis, hemoperitoneum.

**Introduction.** Diagnosis of ovarian apoplexy is based on the data of clinical, laboratory and ultrasound investigations [1-3]. The main factors that determine the need for urgent intervention are ongoing intra-abdominal bleeding from ovarian tissue and the presence of a significant volume of haemoperitoneum. In most clinical cases at the time of hospitalization there is occurred the independent hemostasis in the area of apoplexy, so the volume of haemoperitoneum becomes the main factor determining the need for surgical treatment of patients with ovarian apoplexy. Some gynecologists believe that in cases of stable hemostasis body patient resorbable 300 ml of blood from the abdominal cavity, against the backdrop of conservative treatment, without any pathological effects [8, 9].

The only diagnostic method that allows getting up 100% for diagnosis of ovarian apoplexy and determine the volume of intra-abdominal bleeding is a diagnostic laparoscopy [1-3]. Obviously, when haemoperitoneum in hemodynamically stable cases of ovarian apoplexy does not exceed 300 ml, allowed a course of conservative therapy, on the background of dynamic monitoring.

**The aim** of our study was to identify clinical, laboratory and ultrasound diagnostic features that allow to select among patients with ovarian apoplexy patients with intra-abdominal bleeding volume exceeding 300 ml.

### **Materials and methods**

There were operated by laparoscopic access 110 women of reproductive age on ovarian apoplexy in the Military Medicine Clinical Center of the Southern region in 2008-2009. Patients were divided into two groups, depending on the volume of intraperitoneal bleeding: a group formed and 67 (60.9%) patients, in which the volume of blood in the abdomen did not exceed 300 ml, the second group consisted of 43 (39.1% ) patients with volume haemoperitoneum more than 300 ml.

Sonography was carried out by the standard method for devices: ALOKA-1100 and SA-8000 SE, vaginal transducer with a frequency of 6,0-7,5 MHz. Availability and amount of free fluid in the pelvis was determined by performing transvaginal ultrasound in the sagittal plane. All ultrasound images made in the sagittal plane, boule divided into 4 types depending on the level of the liquid column relative to the uterus. Type 1 - the height of the liquid level is below or at the level of the isthmus of the uterus (Fig. 1), type 2 - echogenic strip liquid reaches the middle of the body of the uterus (Fig. 2), and type 3 - at or above the bottom of the corpus uteri (Fig. 3) , type 4 - free fluid was determined around the ovaries and / or vesico-uterine space (Fig. 4).

Surgical intervention was performed either immediately after the diagnosis of ovarian apoplexy and patient hospitalization or after trying conservative treatment. In our clinic there is allowed conservative treatment of ovarian apoplexy

in hemodynamically stable clinical cases. For patients who received conservative treatment, performed dynamic monitoring with ultrasound monitoring. Laparoscopy is performed by the conventional method under endotracheal anesthesia with the use of mono- and bipolar electrosurgical technology [3].

Statistical processing of the results was performed using the software Statistica 5.5 (Stat Soft Inc., USA).

### Results

Age observed patients ranged from 17 to 55 years (mean -  $(28,3 \pm 5,2)$  years). Most patients (59%) were in the age range from 20 to 30 years. For patients of groups I and II the average age was equal to  $(27,3 \pm 6,8)$  and  $(29,7 \pm 7,3)$ , respectively.

In the study of fertility found that never pregnant 50 (45.4%) patients. Women do not give birth, there were 65 (59.0%). Abortion had a history in 51 (46.3%) patients. Pain in the abdomen in the second phase of the menstrual cycle noted 87 (79.0%) women, and in the first - 12 (10.9%). In 9 (8.1%) cases, the patients had a delay of the next month - from 3 days to a month. Of these, 2 (1.8%) patients revealed the early stage of uterine pregnancy.



*Fig. 1.* Ultrasound scan of 1<sup>st</sup> type: the height of fluid level is under or at the level of isthmus uteri



*Fig. 2.* Ultrasound scan of 2<sup>nd</sup> type: echogenic line at the level of the middle part of uterus

Average systolic and diastolic blood pressure among patients and second groups was  $(117,9 \pm 10,7) / (71,5 \pm 6,9)$  and  $(114,7 \pm 11,3) / (67,8 \pm 6,5)$  mm Hg accordingly. The average heart rate was equal to  $(87,8 \pm 8,9)$  bpm in patients of I group and  $(86,7 \pm 8,5)$  bpm in patients of II Group. The statistical difference was observed in the average hemoglobin level in patients of I and II groups and it was equal to  $(121,4 \pm 2,5)$  and  $(103,7 \pm 3,7)$  g / l, respectively ( $P < 0.05$ ).

In ovarian bleeding the leading clinical symptom was pelvic pain. However intense acute pain often encountered in patients with blood loss more than 300 ml than in patients with haemoperitoneum to 300 ml (53.7 and 21.5%, respectively).

More than an half of patients with haemoperitoneum which did not exceed 300 ml (group I), indicated moderate or mild aching pain in the abdomen, accompanied by fever to subfebrile indicators - 41 (61.1%) patient. Little pelvic pain were observed only in 4 (9.3%) patients, the second group ( $\chi^2 = 14,7$   $p < 0,001$ ).

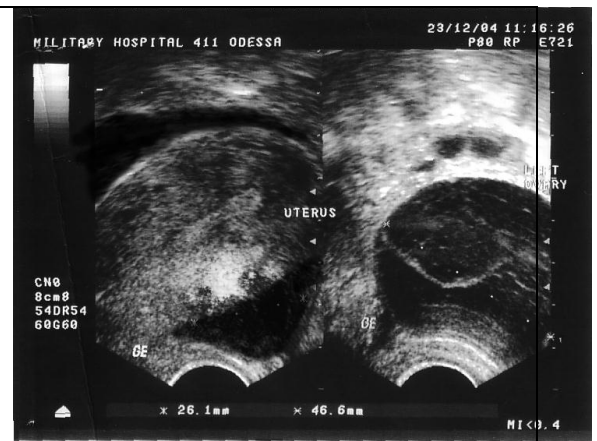
In 30 (69.7%) patients of Group II attack of pain occurred in the second phase of the menstrual cycle, and the 45 (67.1%) women and groups of diseases developed in the middle of the menstrual cycle.

For patients of group with pain syndrome - 51 (76.1%) women - was characterized by an early appeal for medical assistance to the hospital (for the first 2 hours of the beginning of an attack). In every third patient with blood loss exceeding 300 ml ovarian apoplexy developed soon after intercourse, unlike the patients of I group (13,5% of cases).

In analyzing the nature of the echograms there was found scans of 1<sup>st</sup> and 2<sup>nd</sup> types were determined in 61 (91.0%) patients. Among patients of group II during sonography these types were found only in 24 (55.8%) women ( $\chi^2 = 9,6$   $p < 0,01$ ). Echograms of 3<sup>rd</sup> and 4<sup>th</sup> types amongst patients of II group were found in 14 (32.5%) and 9 (20.9%) cases, respectively and amongst the patients of I group - in 5 (7.4%) and 2 (2.9%) cases.



*Fig. 3.* The ultrasound scan of 3<sup>rd</sup> type: the echogenic line at the level or above the level of uterus fundus



*Fig. 4.* The ultrasouns scan of 4<sup>th</sup> type: the fluid deteced around ovaria and/or in the vesicouterine space

There was found that 80% of patients had haemoperitoneum with the volume of 1000 ml which was revealed as hyperechoic free fluid in the vesico-uterine space around the ovaries. It corresponded to the 4<sup>th</sup> type of sonogram, and further demonstrated the formation of irregular shape, increased echogenicity, indicating the presence of blood clots.

During the study there were identified clinical, laboratory and ultrasound features characteristic of patients with ovarian apoplexy haemoperitoneum with volume more than 300 ml. These distinctive diagnostic features include: presence of severe pelvic pain, decrease in hemoglobin level of 100 g / l, increased echogenic strips fluid to the level of the uterus on the pelvic sonogram performed vaginal probe in the sagittal plane.

### **Discussion.**

Determination of volume haemoperitoneum needed because the fluid in Douglas space may be present in almost all cases of ovarian apoplexy, but the need for surgical treatment of patients with intra-abdominal bleeding volume [1-3]. Determination of the amount of free fluid, according to transvaginal ultrasound pelvis in the sagittal plane, correlated with the volume haemoperitoneum defined intraoperatively. Other existing methods for determining the amount of free fluid

in the pelvis characterized by smaller diagnostic accuracy. Previously Fernandez H. et al. differentiated three types haemoperitoneum: less than 10 ml, 10 to 100 ml and 100 ml, without any precise ultrasound criteria. Atri M. et al. described the volume of intraperitoneal fluid as small, moderate or large. These techniques are often used in practice, to describe the volume haemoperitoneum.

The proposed accounting for features haemoperitoneum volume determination in patients with ovarian apoplexy can be used for differential selection of patients for conservative or surgical treatment. In cases of ovarian apoplexy, with no specified diagnostic features, the volume of intra-abdominal bleeding exceeding 300 ml, admitting of conservative treatment.

Accounting for selected diagnostic criteria can be used in dynamic observation of patients with ovarian hemorrhages. Where intensification of pelvic pain, improving fluid to the bottom of the body of the uterus on transvaginal sonogram in the sagittal plane, reducing the concentration of hemoglobin should immediately see a treatment strategy toward laparoscopic surgery.

### **Conclusion.**

Thus, the diagnosis of clinical forms of ovarian apoplexy, accompanied intraperitoneal bleeding volume of more than 300 ml, is based on a combined assessment of clinical, laboratory and ultrasound data. Noninvasive diagnosis haemoperitoneum volume in cases of ovarian apoplexy allows a differentiated selection of patients for conservative or surgical treatment.

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