INTRODUCTION

Ectopic pregnancy is the result of inappropria-
te embryo implantation affecting 1 -2% of pregnancies [1]. The frequency of this patho-
ological form of pregnancy has been on the same
level for years and still constitutes one of the
most common causes of women's death in childbearing age
in undeveloped countries [2].

The difficulty in the diagnosis of the above-men-
tioned condition lies in uncharacteristic symp-
toms such as: no period, bleeding from birth
canal, pain and tenderness in under belly area.
The above triad of symptoms occurs with 45%
of patients. Some of them may not present any
symptoms at all. The pregnancy developing in
a Fallopian tube may lead to its breaking, which
will manifest itself with sudden, diffuse pain in
the abdominal area and hypovolemic shock,
which may require immediate surgical inter-
vention [3]. The enumerated symptoms require
differentiate of this condition from other gyn-
ecological diseases (ex. miscarriage, ovarian cyst/
tumor torsion, ovary inflammation), urological
(ex. bladder inflammation) or gastroenterologi-
cal (ex. appendicitis). The basis of well conduc-
ted diagnoses is detailed interview and physi-
cal examination, USG, as well as indication of
chorionic gonadotropin level [4]. In case of lack
the tangible cause of the patient’s complaints,
diagnostics should be repeated deferred for a
few days.

Among the risk factors for ectopic pregnan-
cy are: past pelvic inflammatory conditions (etiologic factors: chlamydia, gonorrhea, myco-
plasma), assisted reproduction (in vitro proce-
dure), patient’s age (over 35), nicotinism, in-
trauterine device (IUD), endometriosis, pelvic surger-
ies [5].

Once an ectopic pregnancy increases the risk
of another one by 7,5% and a double by about
10% [6]. The abovementioned factors are re-
ponsible for the impairment of movements the
fallopian tube and ciliary apparatus. Although in
most cases a factor causing an ectopic pregnan-
cy is unknown, but an attempt of identifying is
extremely helpful in differential diagnosis.
Ectopic implantation of the embryo may take place within the reproductive organ or beyond him. It’s most often located in the tubal tube, which account for 90% of cases, the remaining 10% of locations relate to the cervix, ovary, abdominal cavity and scar after a cesarean section, due to a constant growing percentage of performed cesarean section [7].

Hormonal oral contraception reduces the risk of ectopic pregnancy: using binary tablets. Tablets containing only progestogen carry a greater risk of developing ectopic pregnancy. Intrauterine devices containing copper have a lower risk of implantation an ectopic pregnancy, while those releasing levonorgestrel increases the risk [8].

Pregnancy with an unknown location is a clinical situation in which we get positive pregnancy test results and absence of gestational sac in cavity of uterus during pregnancy transvaginal ultrasound examination. It requires observation and diagnostics to determine final recognition. Serial determination of the HCG ß value is helpful, which should be doubled every 48 hours with normal intrauterine pregnancy. Every deviation can help in the differential diagnosis of ectopic pregnancy, early pregnancy miscarriage and biochemical pregnancy. In case of diagnosed ectopic pregnancy, there are several types of therapy: expectant attitude, pharmacological or surgical treatment [9]. Patient with: ß HCG concentration in the blood is low – less than 1000 mIU/ml in diameter of the gestational sac in the fallopian tube area doesn’t exceed 4 cm and there is no bleeding from the birth canal and symptoms of fallopian tube rupture as well as the pregnancy itself is diagnosed in early stage may decide on repetitive controls combined with transvaginal USG and concentration assessment of ß HCG in serum. This method is used, because a large percentage of ectopic pregnancies is spontaneously absorbed or miscarriage [10]. If the patient’s condition does not improve, stable levels of chorionic gonadotropin are maintained or it is building up, a decision of implementing other treatments must be made. The pharmacological method is the administration of methotrexate. The drug is toxic to rapidly dividing cells including developing embryo cells. The recommended dose is 1 mg/kg body weight. In a single dose regimen, there is no need for folic acid supplementation. Then ß HCG is determined on 4 and on day 7 after methotrexate intake. No decrease of ß HCG by a minimum of 15% on day 7 is an indication for the second dose [11]. Using the described scheme in the patient’s stable clinical condition: no lower abdominal pain, no signs of intra-abdominal bleeding and fallopian tube continuity. Contraindications for methotrexate administration are: HCG ß concentration above 3500 mIU/ml, diameter of fallopian tube changes above 4 cm and confirmation of embryo’s heart function. Side effects

### Tab. 1. Workflow

<table>
<thead>
<tr>
<th>Day 1 – preliminary investigation</th>
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<tr>
<td>ß HCG determination in serum, morphology</td>
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<td>TVS</td>
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<th>Day 3</th>
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<tr>
<td>ß HCG determination in serum</td>
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<tr>
<td>TVS</td>
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<tr>
<td>Laboratory parameters determination (morphology, SPAT, ALT, creatinine, blood group)</td>
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<td>Methotrexate injection at a dose of 1 mg/kg body weight i.m.</td>
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<th>Day 4</th>
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<tr>
<td>ß HCG determination in serum</td>
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<tr>
<td>administration of anti-D 50 µg immunoglobulin to women with a negative Rh factor (in accordance with RCOG guidelines no. 22)</td>
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<td>further outpatient treatment</td>
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<th>Day 7</th>
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<tr>
<td>ß HCG determination in serum</td>
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<tr>
<td>TVS</td>
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<td>Second dose injection with MTX, if the ß HCG level decreases below 25%</td>
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<tr>
<th>Weekly</th>
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<tr>
<td>ß HCG determination in serum until it reaches a level below 15 mIU / ml</td>
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<tr>
<td>TVS</td>
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<th>At any time regardless of MTX treatment</th>
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<tr>
<td>Surgery in case of patients with acute abdominal symptoms</td>
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include: abdominal pain, lack of appetite, nausea, vomiting, difficulties in swallowing, diarrhea, gastrointestinal ulceration, gastrointestinal bleeding, hemorrhagic enteritis, intestinal perforation. The medicine is usually well tolerated by patients, but the most important is strict monitoring of general health [12]. Effectiveness of used pharmacological method is assessed on the basis of the image in transvaginal USG and assessing the dynamics of HCG β changes. Patients who are not eligible for methotrexate or we observe no decrease in chorionic gonadotropin or an increase in its value, surgery treatment remains: laparoscopy or laparotomy.

The study involved 134 patients, diagnosed with ectopic pregnancy of which 126 were located in the fallopian tube, 2 in the cervix, 1 in the cavity peritoneal, 3 in a scar after cesarean section and 2 pregnancies have been reported heterotopic (coexistence of intrauterine and ectopic pregnancy). 39 patients were treated with methotrexate, the remaining 95 were qualified for surgery procedure. Both heterotopic pregnancies were treated laparoscopically, of which in one case intrauterine pregnancy was miscarried, in the second one developed normally and it ended with delivery on time.

Test description: diagnostics, treatment and protocol with MTX

Ectopic pregnancy was diagnosed directly on the basis of transvaginal ultrasound examination associated with the absence of a gestational sac in uterine cavity, positive βHCG and clinical signs. Symptoms of the examined patients overlapped with symptoms characteristic of the ectopic pregnancy picture: pain in the lower abdomen, cessation of menstruation, birth canal bleeding. In our diagnostics, we based on a detailed interview (first day of the last menstrual period, identification of the risk factors), physical examination (exclusion of peritoneal symptoms) and gynecological. Connecting with results of serial βHCG determinations and transvaginal USG allowed to early qualification for pharmacological treatment of ectopic pregnancy. It is assumed that with β HCG ≥ 1500-2000 mIU/ml ectopic pregnancy should be visible during transvaginal USG. All hemodynamically, stable patients who do not found intrauterine pregnancy were referred to observation. Every 48h β HCG level was measured and there were USG control tests performed. Abnormal increase of β HCG concentration in next 2 days and a visible change within the appendages in an ultrasound examination suggests ectopic pregnancy and it is a direct indication for the pharmacological treatment. The occurrence of any contraindications should be considered and the patient’s ability to cooperate should be evaluated (distance from the place of living from hospital) in outpatient observation period.

After termination of MTX treatment, patients were informed about the need of using effective contraception for 6 months, due to an increased risk of miscarriage and fetal malformation.
RESULTS

Over 10 years, ectopic pregnancies were diagnosed and treated in 134 patients: 126 cases of fallopian tube pregnancy and 8 cases of ectopic pregnancy with different location than the fallopian tube of which two were heterotopic pregnancies. Analyzing the tubal pregnancies group (126 women): 72% (91 cases) were treated surgically, the remaining 35 patients (28%) were qualified for pharmacological treatment with MTX.

In the patients group qualified for surgery: the dominant procedure was laparoscopy to which 47% patients were qualified which is 59 cases, during 8 laparoscopies there was a conversion to laparotomy which was mainly due to: heavy bleeding into the peritoneal cavity, obesity and other surgical difficulties. In case of 25% of patients (32 cases), laparotomy was chosen due to indications of life saving.

Patients qualified for pharmacological treatment constituted a group of 39 people: in 31 cases, complete remission was achieved after one dose of MTX, for 8 patients there was need of second dose which help 4 patients with complete remission and remaining 4 patients as a result of ineffective pharmacological treatment were qualified for surgical treatment – laparoscopy. Percentage of patients treated with MTX in proportion to the whole study group is only 28%, but therapeutic success was achieved in this group in 90% of patients.

Fig. 2. Surgical methods in the ectopic pregnancy treatment

![Conversion from laparoscopy to laparotomy (2%)](chart1)

- Laparotomy (35%)
- Laparoscopy (64%)

Fig. 3. Pharmacological treatment for patients with ectopic pregnancy

![Remission after II dose of MTX (10%)](chart2)

- Laparoscopy (10%)
- Single dose of MTX (79%)
CONCLUSIONS

1. Pharmacological treatment is the first-line healing in the group of early ectopic pregnancies and it can be an effective treatment method allowing to avoid surgery.

2. β HCG level and TVS are qualifying methods the early ectopic pregnancy for MTX treatment.

3. Improving recognition and early qualification to pharmacological treatment increases the chance of successful healing and women's fertility preservation.

REFERENCES