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Inhaber: Marina Kisiliuk

Tel.: + 49 51519191533

Fax.: + 49 5151 919 2560

Email: info@dwherold.de

Internet: www.dwherold.de

Chefredakteur/Editor-in-chief:

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Korrektur:

O. Champela

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arngegechkori@yahoo.com

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shota.samsonia@tsu.ge

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tamaz.mdzinarashvili@tsu.ge

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Oncology, Belarus
aprokharau@gmail.com

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Theraphy, Belarus
wlad_cor@mail.ru

Golubev A.P., BD, Prof.
Ecology, Belarus
algiv@rambler.ru

Makarevich A., MD, PhD, Prof.
Theraphy, Belarus
makae@bsmu.by

Kanunnincova N., BD, Prof.
Physiology, Belarus
n.kanunnikova@grsu.by

Giedrius Vanagas, Prof.
Internal Medicine, Lithuania
Giedrius.Vanagas@lsmuni.lt

Armuntas Baginskas, Prof.
Neurofiziologija, Lithuania
Armuntas.Baginskas@lsmuni.lt

Ricardas Radisauskas, MD., Ph.D., Prof.
Cardiology, Lithuania
Ricardas.Radisauskas@lsmuni.lt

Meyramov Gabit, Prof.
Cytology and Histology, Kazakhstan
meyramow@mail.ru

Aisha Mohammed Abd al-salam Shahlol
Ph.D. in Medical Bacteriology, Libya
Ais.shahlol@sebhau.edu.ly

Edmundas Kadusevicius, MD, PharmD, PhD, Prof.
Pharmacology, Lithuania
Edmundas.Kadusevicius@lsmuni.lt

Ivo Grabchev, Prof., PhD.
Chemistry, Bulgaria
i.grabchev@chem.uni-sofia.bg
grabchev@mail.bg

Mariyana Ivanova Lyubenova, Prof., PhD.
Ecology, Bulgaria
ryann@abv.bg
ryana_1@yahoo.com

Tsvetanka Tsankova Marinova, MD, PhD, DMedSci,
Biologv. Bulgaria
tmarinova@yahoo.com

Evgueni D. Ananiev, Prof PhD,
Biology. Bulgaria
evgueni_ananiev@yahoo.com

Plamen G. Mitov, Prof., PhD.
Biology, Bulgaria
mitovplamen@gmail.com

Atanas Dimov Arnaudov, Ph.D.
Physiology, Bulgaria
arny87@yahoo.co.uk

Iliana Georgieva Velcheva, PhD,
Ecology, Bulgaria
anivel@abv.bg

Osman Demirhan, Prof.
Biology, Turkey
osdemir@cu.edu.tr

Jharna Ray, M. Sc., PhD, Prof.
Neurogenetics, India
Indijharnaray@gmail.com

Marián Halás doc. RNDr, Ph.D.
Human geography, Czech
marian.halas@upol.cz

Ayfer Pazarbasi Prof.Dr.
Biology, Turkey
payfer@cu.edu.tr

Tusharkanti Ghosh Prof.
Physiology, India
tusharkantighosh53@yahoo.in

Khudaverdi Gambarov Gambarov, Prof.
Microbiology, Azerbaijan
khuda1949@mail.ru

Rovshan Ibrahimkhalil Khalilov, Prof.
Biophysics, Azerbaijan
hrovshan@hotmail.com

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Stony Brook University, USA
Linguistics

Samuel M.Johnson, Prof.Dr.phil.
Theology, Wells, Maine, USA
djtjohnson@earthlink.net

Satanovsky Leon MD/PhD.
Perio-odontologie, Israel
satleonid@gmail.com

Lists of references are given according to the Vancouver style

**Yasnikovska S.M.,
Hrytsak H.**

Department of Obstetrics, Gynecology and Perinatology, Higher State Educational Establishment of Ukraine "Bukowina State Medical University", Chernivtsi, Ukraine, jasnikovska.svitlana@bsmu.edu.ua

EVALUATION OF CLINIC-LABORATORY AND ULTRASONIC RESEARCH RESULTS IN DIFFERENT FORMS OF THE CHORION'S PATHOLOGY IN THE FIRST THREE-MONTH OF GESTATION

Abstract. *The article presents the results of a retrospective analysis of clinical-laboratory and anamnestic data of 40 pregnant women with chorionic pathology of the chorion development in the form of subchorionic (30) and subamniotic (10) hematomas. It has been established that subchorionic hematomas usually develop on the background of thrombophilic states and immunological disorders, they have smaller size, can be formed or resolved faster, they are combined with hypoplasia of chorion and disorders of hemodynamics in the uterus, what further contributes to the formation of placental dysfunction. Subamniotic hematomas occur more often on the background of chronic bacterial and virus infection which occur 3-6 weeks later than subchorionic, they are larger in size and they can be under reversible development during long period of time and are not accompanied by a violation of hemodynamics in myometrium. The most common complication of chorion (placenta) in the trimester (the first three months) is the development of placenta dysfunction, which requires dynamic monitoring and preventive measures throughout the hematological period.*

Key words: *miscarriage, subamniotic and subchorionic hematomas, ultrasound examination, dopplerometry, placental dysfunction.*

Introduction. The problem of miscarriage is very popular in modern obstetrics, as 20% of clinically diagnosed pregnancies end with spontaneous interruption of pregnancy and 75-80% of cases are done in the first three months. The maternal factor, as a reason of not giving life at the early stages of gestation, is represented by hypoplasia of the endometrium, hemodynamic disorders in the vascular flow of the uterus. Often, these changes are accompanied by infectious conditions, endocrinopathies and hemostasis disorders [1, 3].

Most of all unsuccessful endings of pregnancy in the short term are caused by placental defects, which are characterized by elegant and fragmented trophoblast, by decrease in invasive properties of the cytotrophoblast [2]. Also it is caused by the formation of hematoma. According to many examinations, the frequency of hematoma formation among pregnant women was 3.7%, and during usual miscarriage some partial separation of chorion occurred in 10-15% of patients [4, 7]. Subcortical hematomas are

found more frequently, they can be diagnosed during the 7th-8th week of gestation and can be mostly resolved by the end of the 1st trimester of gestation [5]. Subamniotic hematomas are less common, but if they appear, the probability of death of the embryo is much higher [4]. According to some authors the pathogenetic mechanisms of the appearance of subchorial hematomas are the activation of intravascular coagulation of blood, the presence of antiphospholipid antibodies, and the increased content of proinflammatory cytokines [6].

For the diagnosis of chorionic pathology, ultrasound method is used.

The aim of the research: to evaluate the different variants of chorionic and placental pathologies in the first trimester of pregnancy using clinical-laboratory and ultrasound examination methods.

Material and methods. A retrospective analysis of clinical and anamnestic data in 40 pregnant women with pathology of development of chorion in the form of subchorionic (30) and

subamniotic (10) hematomas has been performed.

The average age of pregnant women was 31.7 ± 0.9 years, the anamnesis of which was built of 1-4 pregnancies, and the usual miscarriage was observed in 30% of observations during the 7th-8th week. There were 19 women which had a delivery (childbirth) in their anamnesis of giving birth, and 4 women of those 19 had a perinatal losses.

The somatic anamnesis of women was burdened with chronic tonsillitis (47.5%), urinary tract (30.0%) and cardiovascular (17.5%) system diseases, gastrointestinal tract diseases (20.0%).

Besides the evaluation of clinical and anamnestic data, a dynamic ultrasound examination was performed with dopplerometry of the blood flow in the uterine arteries, myometrium in the zones of separation and in intact zones. Indicators of blood flow in arcuate (Aa), radial (Ra), basal (Ba) arteries were examined. The size of the embryo (fetus), the location and features of the chorionic structure (placenta) were also examined using ultrasound observation. Hematoma's character (subchorionic, subamniotic, marginal) size dimensions, stages of development were determined during its estimation.

Bacteriological and virological methods (bacteriological hanging from the cervical canal, PCR diagnostics of urogenital infections), hormonal (evaluation of the nature and severity of hyperandrogenism) and hemostasis examinations, determination of the level of antiphospholipid antibodies also were used.

Results of the research and their discussion. A high frequency of mixed bacterial and viral infection (32.5%) was found in the examined women, what can indicate that they have chronic endometritis. Hyperandrogenism of different genesis was registered in 50.0% of cases, antiphospholipid antibodies were found in 62.5% of the examined women. Chronic DIC syndrom with partial chorion separation occurred in each the second pregnant woman during the hypercoagulation stage.

It has been established that subchorionic hematomas are more common than subamniotic hematomas. They can be diagnosed during the $8,3^{\text{th}} \pm 0.4$ weeks of gestation, with an average size of $1,32 \pm 0,25 \text{ cm}^3$. Their size decreased to $1,15 \pm$

$0,34 \text{ cm}^3$ using dynamic ultrasound observation, there was no image of hematoma in 6 (20%) cases, and the formation of hematomas was in 7 (23,3%) cases. The transformation of subchorionic to subamniotic hematoma happened in 5 (16,7%) women. Hypoplasia of chorion was found in the examined women with subchorionic hematomas 4,5 times more often than in the examined women with the subamniotic hematomas. During dopplerometry in women of this group there was a lack of visualization of blood flow in radial and basal arteries and increase of resistance ($0,76 \pm 0,05$ at the norm of $0,60 \pm 0,02$) at the level of arcuate arteries, which can be considered as a compensatory reaction that prevented progression of chorion separation. Increased vascular resistance at the uterine artery level was an adverse factor in the further formation of placenta dysfunction.

Subamniotic hematomas were more often diagnosed during $12,1^{\text{th}} \pm 0,5$ week of gestation and their size was $17,7 \pm 6,0 \text{ cm}^3$, which showed the tendency of decreasing to $11,1 \pm 3,5 \text{ cm}^3$ using a dynamic observation. At the same time there was no complete resorption of such hematomas, and only 3 cases were registered at the stage of the formation. Women of this group had the bacterial-viral infection (genital mycoplasma, ureaplasma, chlamydia, epidermal staphylococcus and streptococcus of group B, herpes) 7,5 times more frequently than patients which had subchorial hematomas. The blood flow in myometrium was not broken in zones of separation during the dopplerometry.

The further course of pregnancy in women with different forms of chorion separation was complicated with the threat of interruption during the first trimester in all examined persons, during the second trimester – in each second pregnant woman, during the third trimester – in 25% of cases. Signs of placental dysfunction occurred in 17.5% of examined pregnant women during the second trimester and in 52.5% – during the third trimester in the period of gestation.

2 out of 30 examined women had premature labors in the case of subchorionic hematomas which had been detected during the first trimester of pregnancy, and 5 out of 10 examined women had premature labors in the case of presence of subamniotic hematomas, which confirmed the

initiating role of infection in the formation of subamniotic hematomas.

Conclusions. As a rule, subchorionic hematomas develop on the background of thrombophilic states and immunological disorders, have smaller size, can be organized or resolved quicker, and can be combined with hypoplasia of chorion and hemodynamic disorders in the uterus, what further contributes to the formation of placental dysfunction.

Subamniotic hematomas often occur on the background of chronic bacterial and viral infection, they occur during the 3-6th weeks later than subchorionic, they are larger in size and are not accompanied by a violation of hemodynamics in myometrium.

The most frequent complication of the chorion (placenta) separation is the development of placenta dysfunction during the first trimester, which requires dynamic monitoring and preventive measures during the gestation period.

Perspectives for further research. Deep

examination of the problem of miscarriage in women with chorion separation during the 1st trimester of gestation and its differentiated correction will have practical importance in the development of complex treatment methods and the prevention of perinatal complications.

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