

CLINICAL AND MORPHOLOGICAL PARALLELS IN PREGNANCY COMPLICATED BY POLYHYDRAMNIOS

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ANNOTATION

Despite the significant breakthrough of obstetric science and practice in the second half of the 20th century and the beginning of the 21st century, the introduction of innovative methods, the rapid development of the pharmacological industry, the problem of obstetric bleeding remains one of the most urgent problems of obstetrics [2,5,7]. Of the 550-600 thousand maternal deaths, about 200,000 die from obstetric bleeding. Bleeding is in the leading positions among the so-called "big five" causes of maternal mortality [1,3,9,10] At the same time, 125 thousand women die due to massive obstetric bleeding, almost half die from uterine hypotension. The main reasons for the development of hypo and atonic bleeding may be the insufficiency of myometrial retraction and thrombosis in the vessels of the placental site, which has from 150 to 200 spiral arteries [4,5]

Keywords: pregnancy, polyhydramnios, postpartum hypotonic bleeding, myometrium, edema and hemorrhage.

I. INTRODUCTION

Intensive retraction of the uterine muscle fibers after the birth of a child contributes to the compression, twisting and retraction of the spiral uterine arteries into the thickness of the muscle, along with which the process of thrombosis begins. The formation of dense, elastic blood clots provides reliable hemostasis. Violations of the coagulation properties of blood, as well as a decrease in the contractility of the myometrium in combination with each other, play a crucial role in the development of postpartum bleeding [7, 10]. Another reason for uterine hypotension may also be connective tissue dysplasia. In connective tissue dysplasia, the frequency of AK is 1.7 times higher than in the general population. Maslyakova G. N. [1,6], in histological studies of queens removed due to hypotonic postpartum bleeding of unclear genesis, showed that the uterus is not able to contract sufficiently with tumors, overgrowth due to multiple births, polyhydramnios, a large fetus. It is believed that the violation of the contractile function of the uterus is associated with overgrowth and "exhaustion" of the contractile ability of the myometrium, with infection, as well as with anatomical/functional features of the uterus, with the delay of parts of the afterbirth or blood clots in the uterine cavity [8,10,11].

One of the causes of reproductive losses is polyhydramnios during pregnancy. The frequency of this complication, according to foreign and domestic authors, ranges from 0.12 to 8.4%. Among the causes leading to polyhydramnios, there are: diabetes mellitus, acute and recurrent chronic infectious diseases, isosensitization by the Rh factor, fetal malformations. An excessive amount of fluid is determined indirectly by ultrasound criteria, usually with the help of IAZH (AFI). AFI is the sum of the vertical depth of the fluid column measured in each quadrant of the uterus. Normally, the AFI is from 5 to 24 cm; values 24 and above indicate polyhydramnios.

Chronic hydramnion is more common, when excess amniotic fluid accumulates gradually [12] In the acute form, the volume of amniotic fluid increases sharply (in a few hours or days). An important role in the development of hypotonic postpartum bleeding is played by the rate of accumulation of amniotic fluid and their volume. Morphological changes in fruit shells, detected during morphological and electron microscopic studies, are very interesting from a scientific point of view. Morphostructural changes of the amnion were revealed, indicating the predominance of the processes of amniotic fluid resorption over the processes of reabsorption, which is a pathogenetic mechanism of excessive accumulation of amniotic fluid [5,7] . At the same time, morphostructural changes occurring in the uterine wall during polyhydramnios remain insufficiently studied.

The purpose of this study was to study the features of the clinic and the morphological structure of the uterine wall in polyhydramnios of varying severity.

II. MATERIALS AND METHODS OF RESEARCH

The peculiarities of the course of pregnancy and childbirth were studied in 49 women who developed polyhydramnios at 32-40 weeks. All the observed patients underwent a full clinical examination in the conditions of the city maternity complex No. 2 of the city of Samarkand for the period 2018 - 2019. The control was the indicators of 40 women of the control group with the physiological course of gestation of the same age and parity. Histological studies of myometrial tissues obtained during cesarean section surgery were performed in 23 patients of the main and 10 patients operated on as planned due to the presence of a scar on the uterus. Clinical (obstetric), laboratory (general clinical and biochemical studies of blood, urine, secretions, coagulogram), functional (ECG, dopplerometry, ultrasound). Special morphological studies were also used. Fragments of myometrium measuring 2x1 cm, obtained during cesarean section, were fixed in 10% neutral formalin, poured into paraffin with wax. The dewaxed sections were stained with hematoxylin and eosin, and the Van Gieson method was used to detect collagen fibers of connective tissue. Based on the results obtained, qualitative and quantitative changes in the myometrium were evaluated. Studies of micro-preparations and photographing were carried out using a light microscope at magnification: About 40, about 10.

III. THE RESULTS OF THE STUDY

The age of the subjects ranged from 20 to 36 years. The main mass -57% were pregnant women in the age group from 21 to 30 years. At the same time, the age groups were representative. We analyzed somatic diseases that could contribute to the development of polyhydramnios and the risk of hypotonic bleeding. It is worth noting that various somatic diseases were observed in 75% of pregnant women. Iron deficiency anemia occupies the leading place in the structure of somatic diseases – 50.3%, varicose veins – 19.4%, digestive diseases – 16.6%, obesity - 31%, inflammatory diseases of the kidneys and urinary tract – 29%. Type 1 diabetes mellitus was diagnosed in 2 women, the second type-in 1. In the structure of concomitant genital pathology, the most common were chronic inflammatory diseases of the uterus and appendages (74.2%), bacterial vaginosis (28.5%), cervical pathology (33.4%), colpitis and cervicitis (43%). In 46% of pregnant women with polyhydramnios, sexually transmitted infections such as CMV, HSV, mycoplasma were detected. It should be noted that in the main group, the frequency of atrial abortions in the anamnesis was 1.5 times higher than in the control group (p In the indicators of anamnestic data of previous pregnancies, it was found that women of the main group were significantly more likely to have spontaneous miscarriages compared to women of the control group (p The diagnosis of polyhydramnios was established at 28-34 weeks of pregnancy in 5 (10.2%), 35-38 weeks - in 23 (46.9%) and at 38-42 weeks in 21 women of the main group (42.8%). Moderate polyhydramnios on the background of chronic hydramnion according to the results of clinical studies (OH, VDM, "fluctuation" symptom) and ultrasound (amniotic fluid volume AFI from 24 to 28 cm.) was diagnosed in 44 (89.9%) pregnant women of the main group. In 5 cases, severe acute polyhydramnios with a volume of amniotic fluid of more than 3 liters occurred. Pregnant women with polyhydramnios were treated according to the standards adopted in the republic. The most frequent complications of pregnancy were hypertensive conditions (14%), premature detachment of the normally located placenta (13%), placenta previa (5%), antenatal fetal death (1%). In 23 women of the main group, pregnancy ended with cesarean section due to the above-mentioned complications of pregnancy and childbirth. 26 women (53%) were delivered through the natural birth canal. In 8 cases of childbirth through the natural birth canal, a manual examination of the uterine cavity was performed in connection with the onset of postpartum bleeding. The average blood loss in childbirth in the main group was 437.7 + - 50.5 ml. In the control group, this indicator reached 258.9+_35.9 ml. In order to stop the bleeding, all women in labor were treated with standard hemostatic therapy with the use of Oxytocin, Methylergometrine, hemostatic drugs. In 7 cases, the PABAL drug was used in standard doses. There were no cases of hysterectomy or other surgical interventions to stop bleeding. During the cesarean section, the myometrial tissue was taken for morphological examination in all women with

polyhydramnios. After suturing the surgical wound, all women in labor with polyhydramnios were subjected to uterine devascularization in order to prevent bleeding by applying nodular sutures to vascular bundles with the capture of the muscular layer of the uterus and round uterine ligaments at the level below the surgical wound and above the internal pharynx. The second pair of stitches was superimposed in the projection of their own ovarian ligaments and fallopian tubes. After the measures carried out, no cases of postpartum bleeding were observed.

IV. DISCUSSION

The morphological studies carried out indicate significant morphostructural changes that the uterine wall undergoes during polyhydramnios. There is a blood filling of the uterine vessels, the shape of red blood cells is uncertain. Hypertrophy of muscle fibers is noted (Fig. 1). The nuclei of myocytes are not visible. There are signs of moderate tissue edema and weakly expressed myometrial imbibition with blood (Fig. 2).

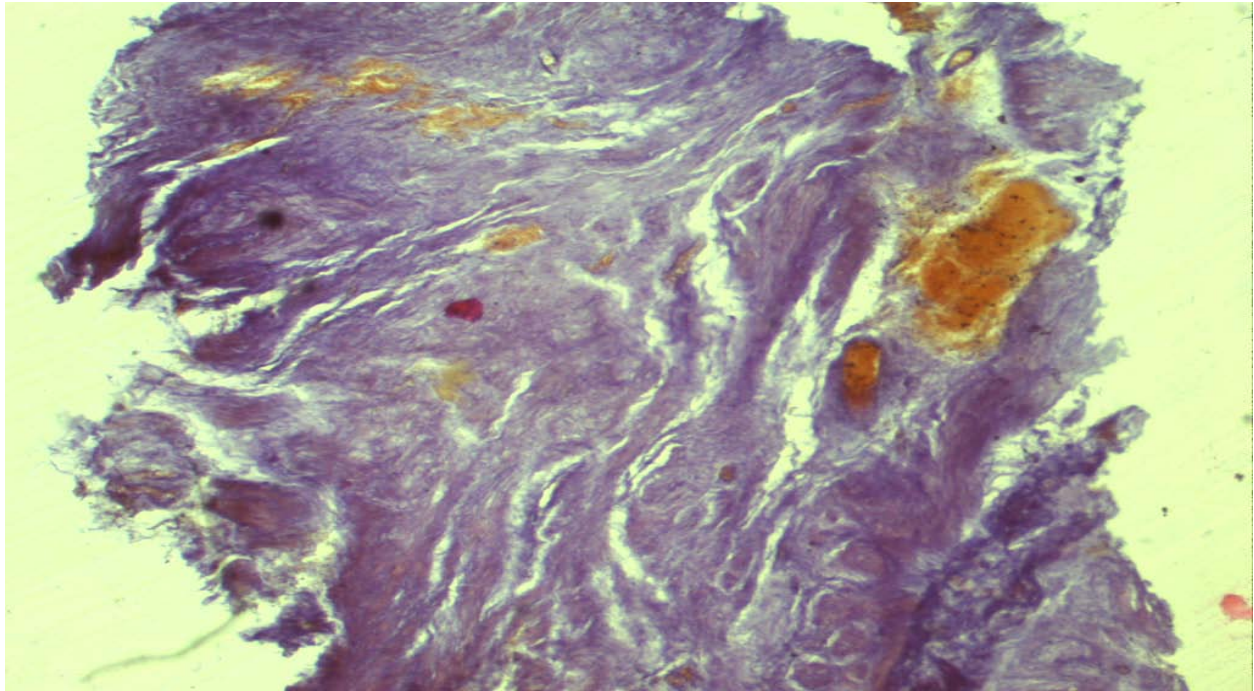


Figure 1. The postpartum uterus. Moderate polyhydramnios. Staining with Hemotoxylin-eosin. Volume 40, approx. 10.

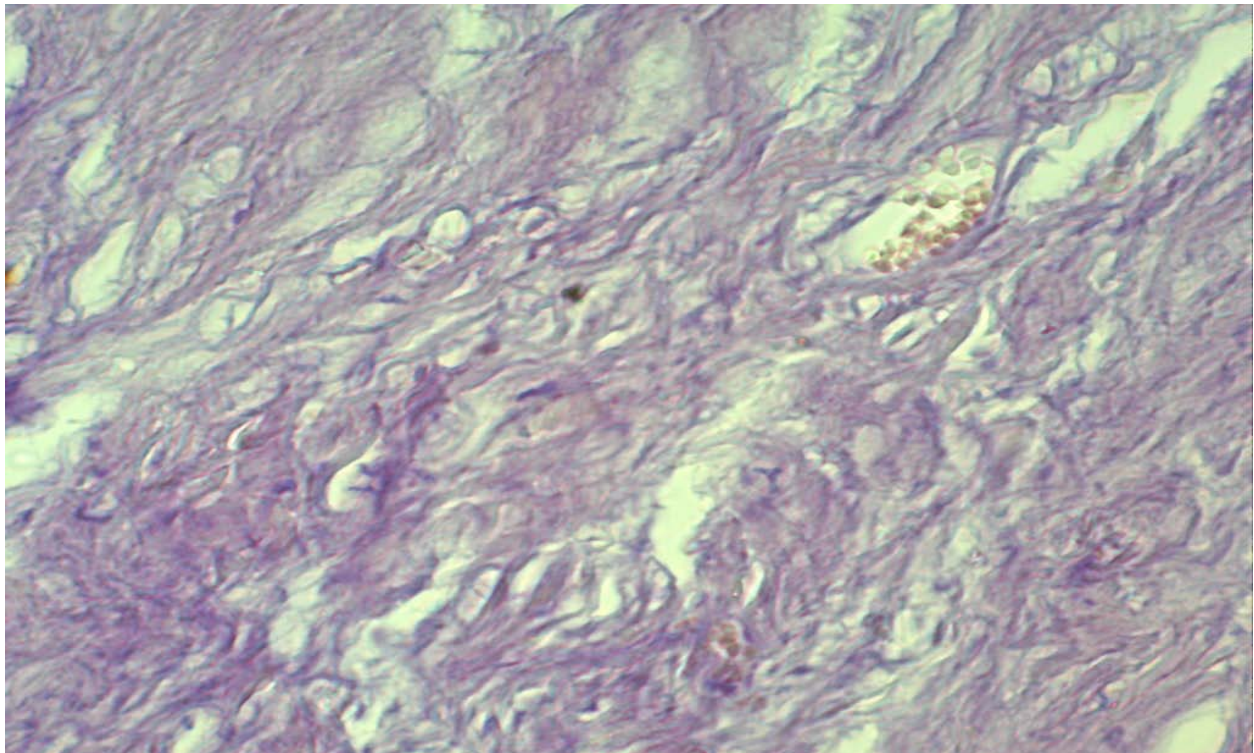


Fig. -2. The postpartum uterus. Moderate polyhydramnios. Staining with Hemotoxylin-eosin. Volume 40, approx. 10.

This figure also shows signs of blood filling and tortuosity of the myometrial vessels, hypertrophy of muscle fibers and swelling of the uterine wall.

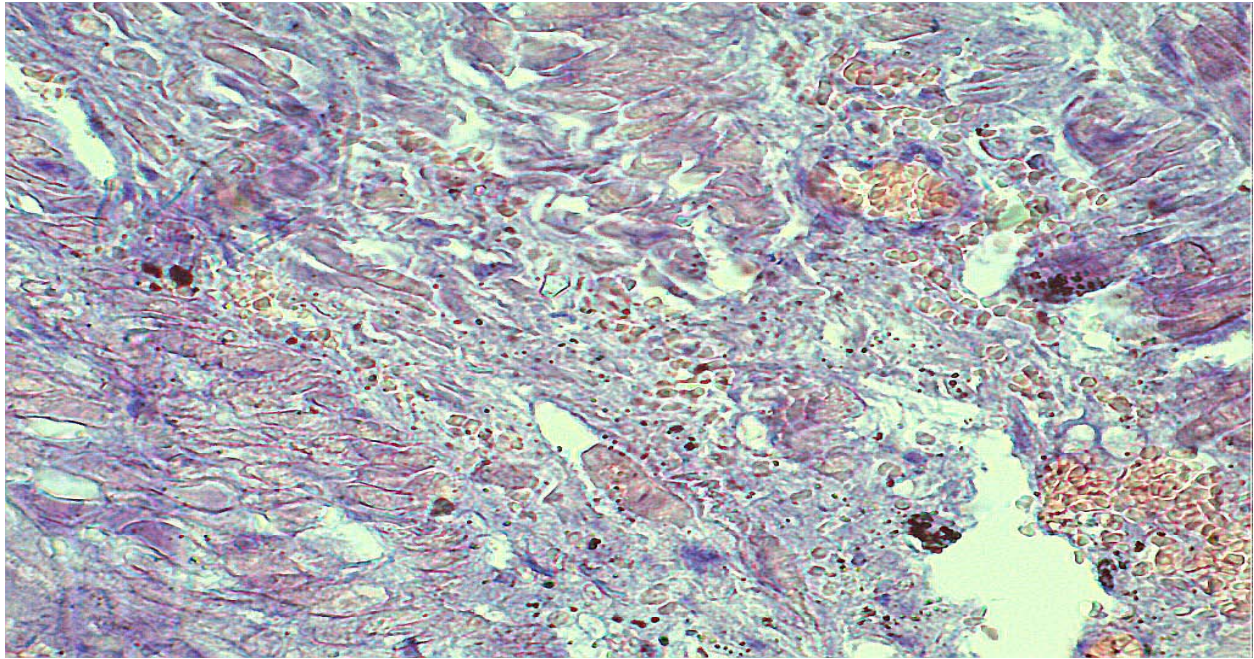


Fig. -3. The postpartum uterus. Pronounced polyhydramnios. Staining with Hemotoxylin-eosin. Volume 40, approx. 10.

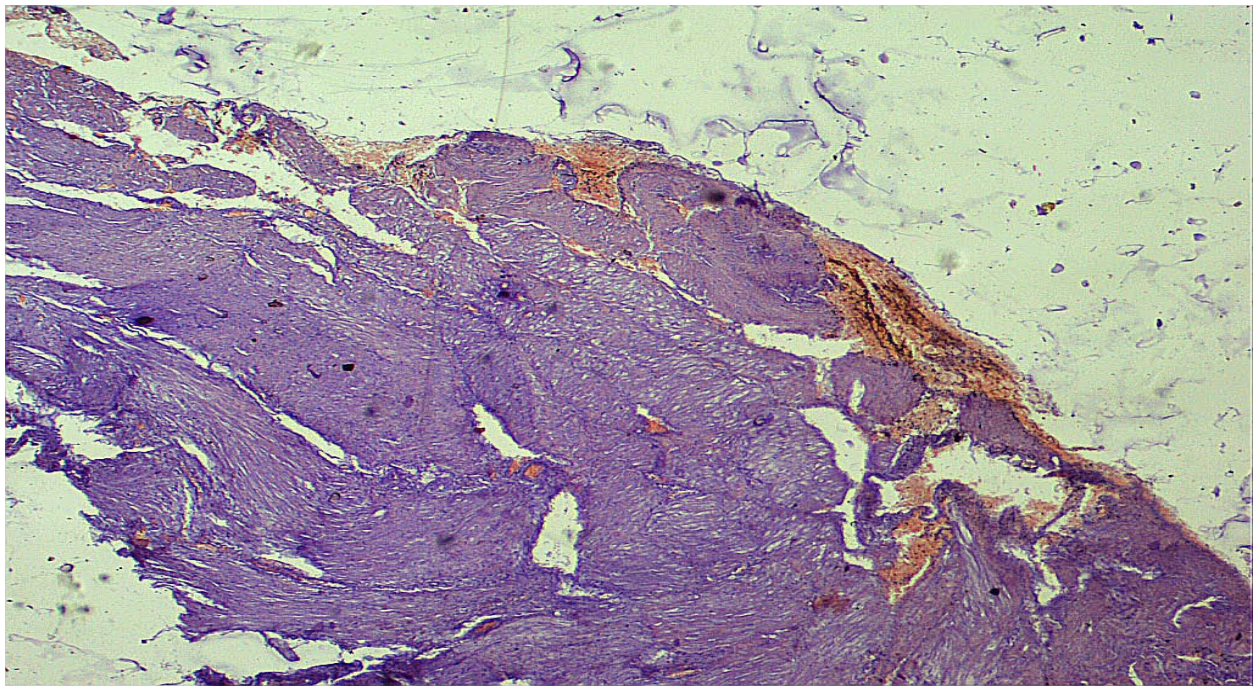


Fig. 4. The postpartum uterus. Acute polyhydramnios. Staining with Hemotoxylin-eosin. Volume 40, approx. 10.

In 5 cases of severe polyhydramnios with an amniotic fluid volume of more than 3 liters, the degree of morphological changes in the uterine wall was even more pronounced.

Along with the obvious blood filling and convoluted structure of blood vessels, hypertrophy of muscle fibers, the nuclei of myocytes are not determined (Fig. 3). The most characteristic for this stage of polyhydramnios is a pronounced edema of the tissues and their hemorrhagic imbibition (Fig. 4).

V. CONCLUSION

The results of the conducted studies indicate that polyhydramnion most often develops when a woman has various somatic diseases: anemia, inflammatory processes of the urinary system, endocrine pathology of the

pancreas and thyroid gland. Of gynecological diseases, they are most often combined with inflammatory diseases of the genital organs caused by viral and bacterial pathogens. In most cases, a picture of moderate polyhydramnios develops against this background, but in 1-2% of cases there is pronounced polyhydramnios with an amniotic fluid volume of more than 3 liters. In 12-15% of cases, along with polyhydramnios, hypertensive syndrome and the threat of premature birth develop. Combined pathologies of pregnancy adversely affect not only the health of the mother, but also the condition of the fetus, leading to cases of intrauterine death in the antenatal period (1%). Despite the implementation of preventive measures to prevent bleeding in the postpartum period, blood loss in polyhydramnion is significantly twice as high as those parameters in physiological pregnancy. The study of the morphostructure of the uterine wall in polyhydramnios indicates the presence of pronounced changes in it. At the same time, there are processes of hypertrophy and elongation, changes in the shape and size of myocyte nuclei, interspersed with areas of decrease in the number of myocytes, changes in blood vessels in the form of tortuosity of their forms, blood stasis with changes in the forms of red blood cells. The most characteristic for this pathology are the processes of edema and hemorrhages of the intermuscular space. All these pathological processes are aggravated directly proportionally with an increase in the amount of amniotic fluid, that is, as the degree of polyhydramnios increases. The listed morphological changes are one of the pathogenetic mechanisms of the development of postpartum hypotonic bleeding in these patients.

Thus, the conducted studies indicate the presence of direct clinical and morphological relationships between the severity of polyhydramnios and the severity of structural changes in the uterine wall. Despite the ongoing preventive measures, the volume of blood loss is twice as high as during physiological pregnancy. All this dictates the need to improve the methods of preventing hypotonic postpartum bleeding in women with polyhydramnios.

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