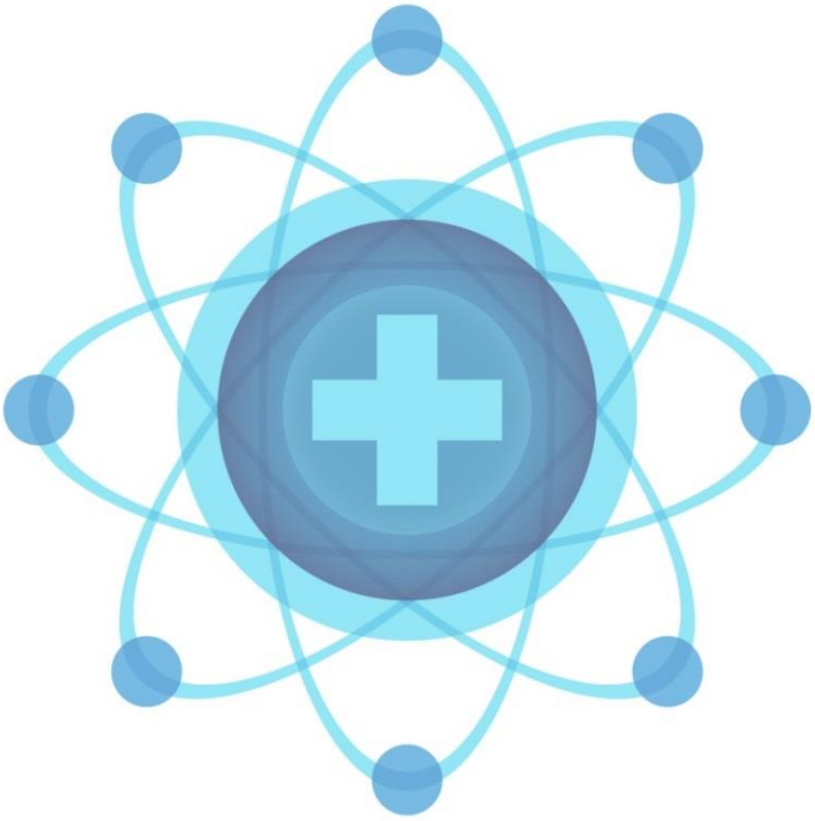

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Morphological characteristics of the placenta in antiphospholipid syndrome and preterm birth.

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Abstract: The article presents data on the study of pathogenetic mechanisms of preterm birth in antiphospholipid syndrome. We prospectively examined 112 pregnant women with 22-36 weeks of gestation, whose gestational period was complicated by spontaneous preterm labor (main group). Of the 112 women, 47 (42%) were admitted to the hospital with the onset of preterm labor. The remaining 65 (58%) patients were treated in the department of pathology of pregnant women for the threat of miscarriage and, despite the treatment, they had a premature birth after a different period of time. The comparison was made with 30 "healthy" women with a physiological course of pregnancy and completed term labor (control group).

Keywords: yolk sac, implantation, morphometry, fetal loss.

Relevance of the topic: Preservation of reproductive health, ensuring the - physiological course of pregnancy and childbirth, the birth of a healthy full-fledged child is one of the primary tasks of obstetrics around the world and is one of the highest priority areas of healthcare in the Republic of Uzbekistan.

Among the problems of modern obstetrics, preterm birth occupies one of the leading places. Despite the well-known successes achieved in perinatology, the frequency of preterm birth does not have a significant downward trend and, according to various authors, is 5-12% [55.89, 90.92].

About 13 million premature babies are born annually in the world, they account for 60-70% of early neonatal and 65-75% of infant mortality [105, 106]. Stillbirth in preterm birth is 8-13 times more common than in timely birth, and surviving premature babies have a high risk of developing chronic psychosomatic pathology [2, 10, 17, 89].

Women with a history of one (or more) preterm births are known to be at the highest risk of preterm birth. The risk of having a premature baby is 36.7% for women with a history of one preterm birth and 70% for those who have had at least two preterm births [2, 93]. Therefore, women with a history of premature termination of pregnancy are at high risk of obstetric and perinatal pathology.

In the presence of a huge number of different tocolytic drugs , the frequency of preterm birth does not decrease, and the decrease in perinatal mortality occurs mainly due to the success of neonatologists in nursing premature babies. However, a surviving premature baby is not a guarantee of success. Such long-term consequences of premature birth in children as blindness, deafness, and psychomotor disorders are well known.

Academician Popernik, one of the world's leading specialists in preterm - birth, who worked in France for more than 20 years and founded the school for

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the care of premature babies, wrote: “At the end of my career, I am disappointed. As much as we have reduced perinatal mortality among premature babies, we have increased disability since childhood.” This once again proves the correctness of the postulate that preterm birth should not be treated, but should be prevented, i.e. prevented, the main effort to prevent preterm birth should be aimed at improving the health of women outside of pregnancy.

Currently, among the causes of early termination of pregnancy, the leading place is occupied by autoimmune factors, one of which is antiphospholipid syndrome (APS). The functional and anatomical state of the endometrium is of undoubted importance, since the foundation of implantation is the interaction of the embryo and the receptor apparatus of the endometrium.

The aim of the study was a prospective analysis of women with preterm birth with antiphospholipid syndrome.

Material and methods

For a more in-depth study of the pathogenetic mechanisms of the development of preterm labor, 112 pregnant women with a gestational age of 22-36 weeks were prospectively examined, whose gestational period was complicated by spontaneous preterm labor (main group). Of the 112 women, 47 (42%) were admitted to the hospital with the onset of premature labor. The remaining 65 (58%) patients were treated in the department of pathology of pregnant women for the threat of miscarriage and, despite the treatment, they had a premature birth after a different period of time. The comparison was made with 30 "healthy" women with a physiological course of pregnancy and completed term labor (control group).

The study did not include women with a threat of preterm labor due to severe somatic pathology, as well as women with no effect from the treatment of severe preeclampsia, with multiple pregnancies and acute polyhydramnios, with Rh-conflict pregnancy, with III degree IUGR, insolvency of the uterine scar, since the above types of pathology in themselves are indications for abortion.

All women of the main and control groups, along with a general clinical - examination, underwent ultrasound examination, bacteriological and bacterioscopic examination of the contents of the urethra, vagina and cervical canal. Dopplerometry of blood flow in the utero-placental- fetal link was performed in 65 pregnant women with the threat of preterm birth.

Immediately after delivery, streak scrapings of the endometrium were made in 63 puerperas with preterm labor to conduct a histological examination and determine the degree of contamination of the endometrium with infectious agents. Morphometric and morphological examination of the placenta was performed in 37 women of the main and 12 women in the control group.

Written consent was obtained from all patients and they were informed about the aims of the study. This study was approved by the committee for the protection of motherhood and childhood of the Andijan State Medical Institute.

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Research result

The study of the state of the placenta, we have traditionally started with ultrasound placentografiya conducted in all examined women.

A decrease in the thickness of the placenta compared with the placenta of women in the control group by 2- 5 ммwas observed in 7 (18.9%) pregnant women of the main group, by 6- 10 ммin 2 (5.4%), an increase in thickness - in 3 (8.1%) pregnant women of the main group. Signs of premature maturation of the placenta were noted in 13 (35.1%) pregnant women of the main group and in 2 (16.7%) in the control group.

Confirmation of the presence of chronic placental insufficiency was also established according to placentometry.

Studies have shown that the values of the mass, volume and area of the placenta in women of the main group were lower than those in the control group. At the same time, the differences were significant in violation of blood flow in the fetal-placental link, as well as in violation of blood flow II and III degree ($P < 0.05$). Thus, the mass of the placenta in violation of blood flow in all parts of the MPPC was the smallest and amounted to 416.55 ± 1,8 г, in violation of I A and I B degrees, the largest mass of the placenta was detected - 464.71 ± 1.82 and 546.05 ± 1,25 г. In 53% of cases, the mass of the placenta corresponded to the gestational norm.

The average placental volume of the main group was 464.7 ±14.82 cm^3, with the minimum values of 398.3 cm^3 and maximum values of 487.7 cm^3, which also had significant differences with the control group ($P < 0.05$).

The area of the placenta in the group with impaired blood flow in PA, MA+PA and MPPC was 279.65±1.69, 260.51±1.04 and 272.00±1.63 cm2 , respectively, and was significantly less than in the control group · group - 337.84 ± 1.50 cm^2 ($P < 0.05$).

In the control group, represented by 12 women, a fairly homogeneous mass of placentas (410 ± 18 г) was found with a spread of this indicator from 380 to 430 г. Most often, the central attachment of the umbilical cord was noted (75%) and occasionally - paracentral (25%). Most placentas were round or oval with thinned edges. On the side of the smooth surface, a main or loose type of branching of the vessels was revealed, which passed as part of the chorionic plate. The length of the umbilical cord varied from 40 to 62 см. In addition to the typical spiral course of the umbilical cord, in 5 out of 12 cases, edema of Warton's jelly and focal varicose veins of the umbilical cord were noted. The maternal surface consisted of 12-15 cotyledons closely approximated to each other, or isolated cotyledons separated by incisures. On linear cuts through the entire thickness of the placental tissue, as a rule, more thickened cotyledons were detected in the center, and, on the contrary, flattened

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closer to the edge of the placenta. Approximately the same feature was found in relation to the plethora of the placental tissue: in the center, the cotyledons were more plethoric than at the edges. In the incisura and on the surface of the cotyledons, small blood clots were visible, which did not penetrate inside and were easily washed off with water. In 4 (33.3%) observations, small foci of dusty calcifications were detected.

Histological study of the degree of maturation of the villi reflected adequate maturity of the villous tree, which corresponded to a gestational age of 38-40 weeks (50.0%). In the remaining placentas, a variant of relative immaturity was revealed - dissociated development of cotyledons (28%) and a variant of intermediate dissected villi (22%) with good vascularization of the supporting and terminal villi.

Table 1

Assessment of the components of placental tissue in the examined women

Structural Components	Control group, n =12	Main group, n= 37
Intervillous fibrinoid	There is no more than 10%	There is fifty%
Pseudoinfarctions	There is	There is
Afunctional zones	There is no more than 10%	There is over 30%
True and infarcts	No	There is
Intervillous hemorrhages	No	There is
Inflammatory changes	There is 33.3%	There is 51.3%
Angiomatosis	There is	Not
syncytial buds	There is	Not
The state of the vessels of the supporting villi	Extension	Constriction
Specialized therm. villi	There is	Not
Intervillous space	Extension	Constriction
Calcifications	25.0%	Significant over 50%

It follows from the table that the placenta of women in the control group in terms of the main structural components are characterized by the absence of signs of placental destruction with the severity of compensatory reactions, such as

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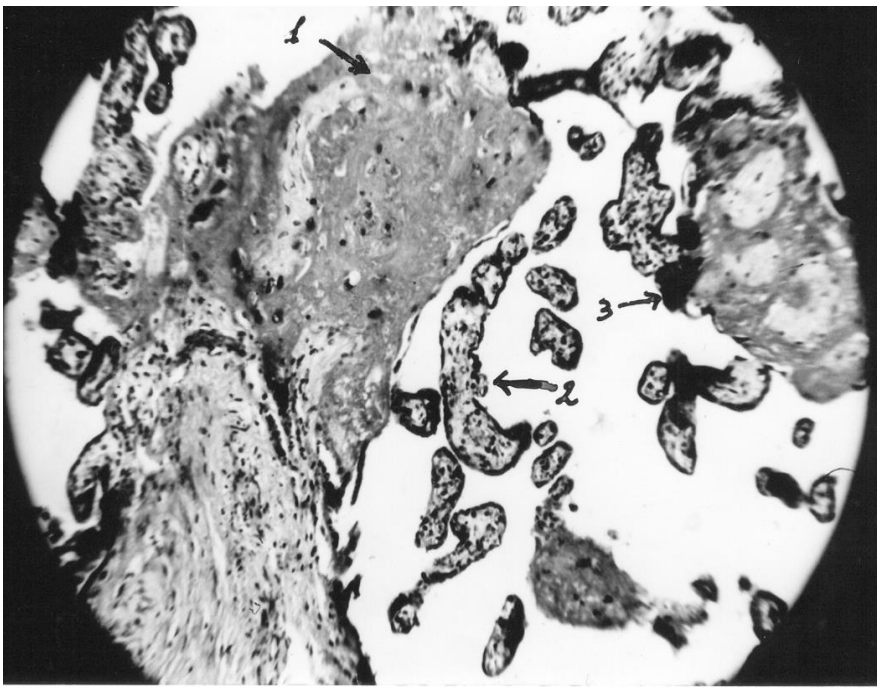
angiomatosis, vasodilatation of the supporting villi, the appearance of specialized terminal villi and syncytiocapillary membranes. Moreover, their volume has significant reserves for increase, ie. the compensatory resource in these placentas is far from exhausted.

Placentas from women with preterm labor differed significantly from placentas from the control group in appearance, histological pattern, and assessment of placental tissue components. Macroscopically, placentas were small, oval or irregular in shape, with additional bulges, thicker in the center and thinner at the edges. The umbilical cord, as a rule, was attached paraplacentally, along the edges and only occasionally in the central zone. The length of the umbilical cord had a significant variation: from 14 to 45 см. False nodes, varicose veins were often noted. On the incision, the placental tissue was uneven in terms of the degree of blood filling. Calcifications were observed in most placentas, sometimes in significant amounts.

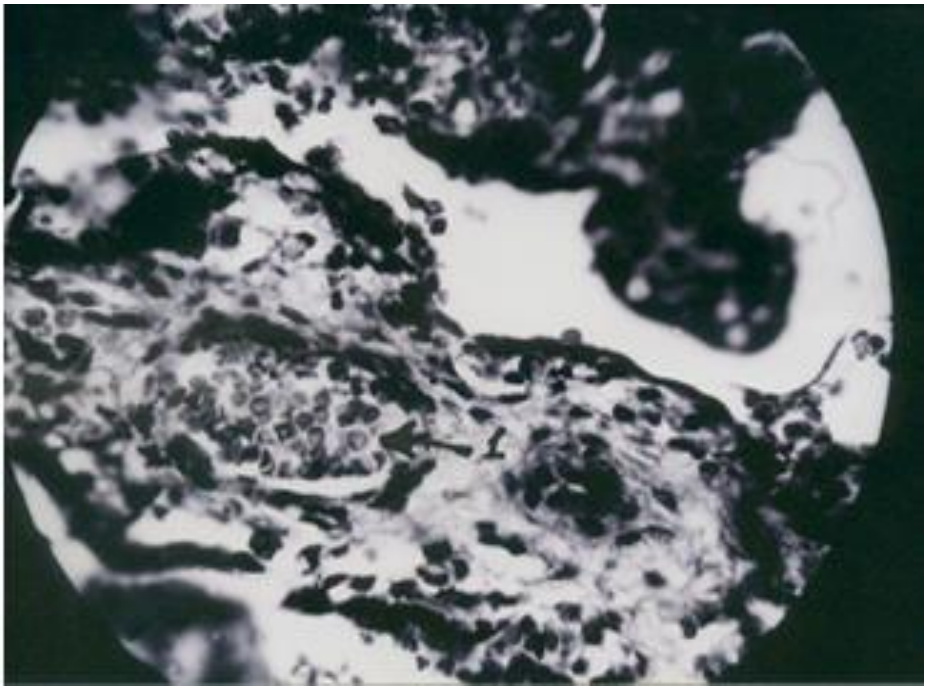
Histologically, in the placentas of women in the main group, a variety of disorders in the development of the villous tree were diagnosed. In 22 placentas, a variant of pathological immaturity was found - the predominance of chaotic sclerosed villi. Instead of normal dichotonic and successive branching from the supporting and intermediate villi to the terminal villi, a few intermediate branches departed from the supporting villi without further distribution to the terminal villi. Among them single narrow capillaries were revealed.

In 50% of cases, a sharp narrowing of the intervillous space was revealed, especially in the peripheral parts of the placenta. In addition, in 50% of cases , an increased amount of fibrinoid was found, including around the chorionic villi, and in the central parts of the placenta, dystrophic changes in the cells of the decidua, numerous small villi, most of which were devoid of chorionic epithelium (Fig. 1). The most characteristic for the placentas of women in the main group were large, of different duration, ischemic infarcts, occupying a total of up to 15% of the maternal surface. Histologically, these are fresh villus necrosis with hemorrhages and old ones with a surrounding ridge of syncytial buds.

In the morphological study of placentas from women who showed a decrease in blood flow in the PBMC, in all cases, pronounced circulatory disorders were found, both in the maternal and fetal parts of the placenta .



Rice. 1. Terminal villi with extensive areas of fibrinoid,
fibrinoid necrosis of the fetal part of the placenta (1), anchor villi (2), focal deposits of calcium salts (3). SW. ×20



Rice. 2. Venous plethora of vessels of the decidua.
Ber. 33 weeks SW. ×40

Decreased blood flow velocity in the intervillous space led to thrombus formation and disruption of microcirculation processes. Deceleration of blood flow in the uteroplacental pool leads to hypercoagulation in the microvascular bed of chorionic villi and increased aggregation of blood cells (Fig. 2).

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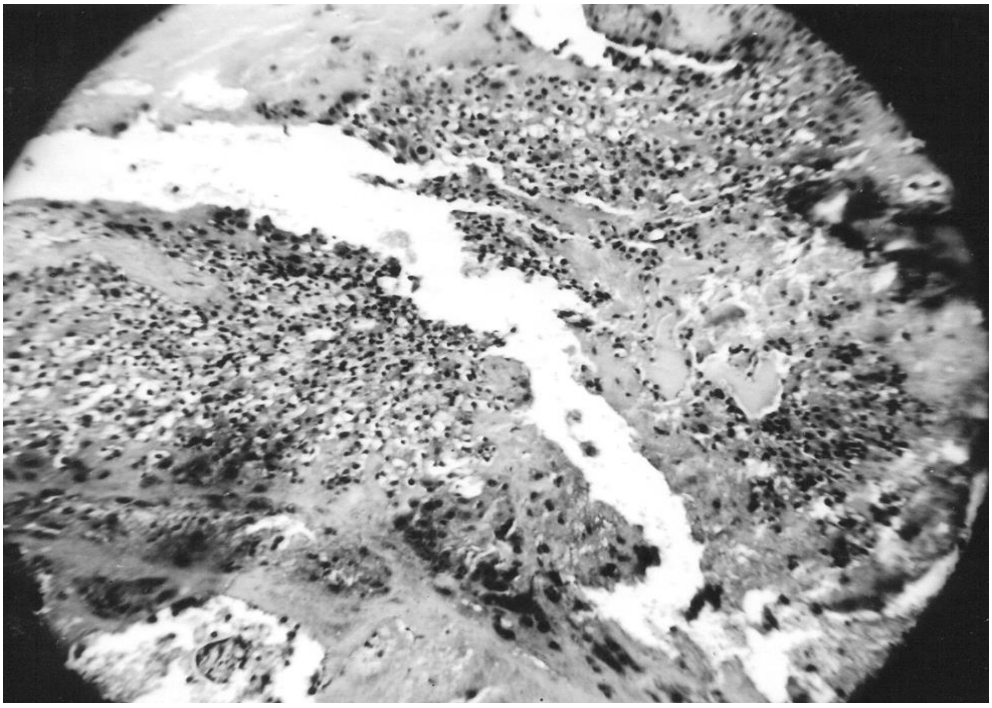
In addition, in the placentas of 4 (33.3%) women in the control group and 19 (51.4%) women in the main group, inflammatory changes of various localization were found. Most often, when the placenta was infected, the decidua was affected (32.8%). In 21.8% of cases, lesions of two membranes were observed in the form of choriodeciduitis or chorioamnionitis (Fig. 3).

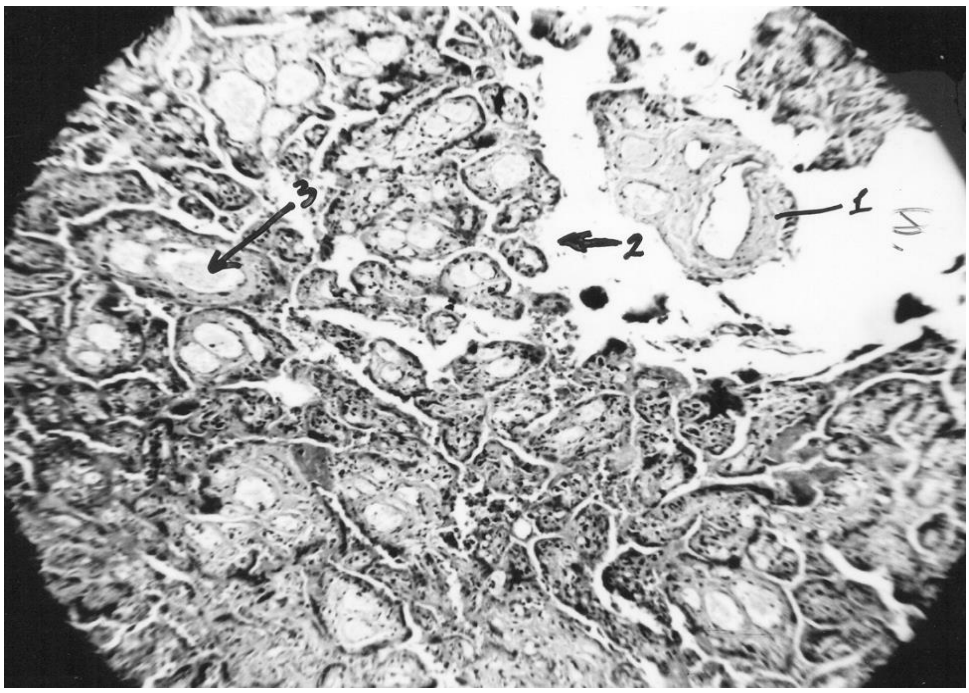
Inflammation of the intervillous space was often observed, with predominant localization under the chorionic plate (28.2%). The overwhelming number of inflammations in the afterbirths were represented by serous and serous-purulent forms.



Rice. 3. Placental chorioamnionitis with subchorial intervillusitis. Diffuse infiltration of lymphohistiocytes, a decrease in the number
chorionic villi, venous plethora of vessels of the basal plate,
degeneration of the cytotrophoblast. Staining with hematoxylin and eosin (80×15)

Localization of inflammation in the placenta in the form of a lesion of the decidua, choriodeciduiitis and intervillezitis with predominant localization under the chorionic plate indicates that infection of the placenta occurs, most likely by an ascending route.

The presence of supporting villi with necrotic epithelium, but intact vessels, with stasis of fetal erythrocytes, as well as the limitation of the prevalence of necrosis of the villi by septa, was also typical for the placentas of women in the main group, which confirms ischemia within the whole cotyledon (Fig. 4). Arteries and veins of the umbilical cord and supporting villi did not differ significantly from the control group. The presence of the so-called "obliterative angiopathy" in the branches of the supporting villi is a structural reflection of the increased resistance to blood flow in the arterial link of the fetal-placental circulation.



Rice. 4. Fibrinoid necrosis of the walls of venous vessels in the area basal plate (1), proliferation of the hairy part of the chorion (2), plethora of vessels (3). Stained with hematoxylin and eosin (20×15).

Thus, the conducted studies have shown that certain pathological changes in the placenta are found in preterm birth. Infectious lesions of the placenta in women with prematurity were almost always combined with involutive-dystrophic, circulatory changes and impaired maturation of the villi.

conclusions

Morphological features of the placenta in preterm birth in women with APS were characterized by inflammatory lesions in 51.3%, pathological immaturity - the predominance of chaotic sclerosed villi in 37.8%, pericapillary sclerosis of the stroma of the villi, which prevents the transformation of narrow capillaries into wide sinusoids in 24.3% , the absence of significant compensatory reactions - angiomatosis of intermediate and terminal villi 62.1%, premature involution of placental tissue under hypoxic conditions in 35.1% of cases.

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