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Preterm Rupture of Membranes, As a Factor in the Development of Obstetrics Complications

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Abstract: Despite numerous scientific and practical studies, the frequency of preterm birth is not decreasing, and in some countries it is even increasing, which necessitates further comprehensive study and improvement of diagnostic and therapeutic measures. This article presents the results of a retrospective study of the history of childbirth in 106 pregnant women, in whom childbirth was complicated by premature rupture of the membranes (PROM), delivered in the Bukhara Regional Perinatal Center for the period 2017-2019. The results indicate a significant role of PROM in the development of obstetric complications, especially in women with a burdened somatic and gynecological history.

Keywords: amniotic membrane, premature rupture of membranes, labor induction, chorionamnionitis.

Annotation. Premature rupture of amniotic fluid during preterm pregnancy is considered the most important risk factor for the fetus and mother, as it determines the high level of perinatal and infant morbidity and mortality. [1,2,3,4,5,6]. Complication of childbirth by premature rupture of membranes is one of the most important problems of modern obstetrics. [7,8,9,10]. PROM (premature rupture of membranes) is the cause of initiation of labor in 8-92% of cases, depending on the duration of pregnancy. The problem of preterm birth (PB) is the leading one in the structure of perinatal morbidity and mortality [11,12,13].

The initiation of perinatal morbidity in most cases are intrauterine infections, prenatal and premature rupture of membranes (PROM), accounting for 24% to 36% of all births [14,15]. PROM is closely associated with perinatal infection, increasing by 10 times the risk of neonatal sepsis, high perinatal and infant mortality, as well as the risk of purulent-septic complications of the mother [16,17]. Often in the anamnesis there was a transferred viral infection; isthmic-cervical insufficiency (ICI); malformations of the uterus; overstretching of the uterus due to polyhydramnios, multiple pregnancy, fetal macrosomia; surgery during pregnancy, especially on the abdominal organs, or trauma [18,19,20]. They also note the role in the genesis of rupture of the membranes in the second trimester of pregnancy of such factors as race or ethnicity, the availability of medical care. Factors contributing to PROM at different stages of pregnancy remain poorly understood [21,22,23,24].

Objective: To study the causative factors, as well as obstetric and perinatal outcomes of childbirth in women with premature rupture of membranes and tactics of labor management.

Material and research methods. The material of the study was the history of childbirth of 106 pregnant women, in whom childbirth was complicated by premature rupture of the membranes (PROM) in terms of 22-36 weeks of gestation, delivered in the Bukhara Regional Perinatal Center for the period 2017-2019. The anamnestic data of the somatic, obstetric and gynecological status of all puerperas were studied. When collecting an anamnesis, the course of the present and previous pregnancies, childbirth and the postpartum period was carefully studied. Laboratory parameters, the

state of the vaginal flora, the degree of readiness of the birth canal according to the Bishop scale according to indications (bleeding, congenital malformations of the fetus, antenatal death of the fetus, signs of chorioamnionitis, inconclusive state of the fetus.) were also analyzed. Ultrasound examination of the uterus and fetus was also performed.

Results and its discussion. The average age of women was 26.5 years. In all women, pregnancy proceeded against the background of a burdened anamnesis with a combination of obstetric, gynecological and somatic diseases. Among patients with PROM, 20.7% (22 women) had a low socioeconomic status; 11.3% (11 women) bad habits (drug and nicotine addiction), 20.7% (22 women) occupational hazards and 30.2% (32 women) aggravated heredity.

In most cases, combinations of several pathologies were identified. Table1 shows obstetric anamnesis data.

The table shows that multiparous women (63 women) prevailed in parity, which amounted to 59.4%. Almost every third multiparous woman (28.6%) had a history of induced abortion. Reproductive losses such as missed pregnancy and miscarriage occurred in both groups. Pregnancy ended prematurely in 81 women, which accounted for 76.4%. In 25 women, pregnancy was prolonged to full term (23.6%).

The study of the gynecological history of the examined showed that more than half of 76 (71.7%) pregnant women had a complicated anamnesis. 27 women (25.5%) indicated past diseases of the genital organs: predominantly cervicitis - in 26 (24.5%), chronic inflammatory diseases of the appendages and vagina - in 40 (37.7%).

Table 1. Obstetric history of examined women (n=106)

Parity estimate			Total in groups	Total
Primiparous	Первобеременные primigravida	26(60,5%)	43 (40,6%)	106 (100%)
	History of artificial abortions	6 (14%)		
	Spontaneous miscarriage	11(25,6%)		
Multiparous	Multiparous	20 (31,7%)	63 (59,4%)	
	Childbirth + artificial abortions	18(28,6%)		
	Childbirth + Spontaneous miscarriage	25(39,7%)		

Sexually transmitted infections (chlamydial, herpetic, ureaplasma) were diagnosed in 8 (7.5%). Ovarian retention formations (cysts) were diagnosed in 3 women (2.8%). Diathermocoagulation of the cervix for erosions was performed in 13.2% of cases (14 women). Various surgical interventions in the genital organs in history were in 11 women, which accounted for 10.4% of cases. Below are the data on the somatic status of the examined women (Table 2).

Table 2. Somatic status of examined women (n=106)

Nosology of diseases	Abs.	(%)	Total
Anemia	82	77,4	106 (100%)
Thyroid diseases	44	41,5	
Diseases of the gastrointestinal tract (gastritis, pancreatitis)	7	6,6	
Diseases of the cardiovascular system (hypertension, hypotension, varicose veins)	13	12,3	
Diseases of the urinary system (pyelonephritis, urolithiasis, cystitis)	31	29,2	
Diseases of ENT organs (tonsillitis, sinusitis)	61	57,5	
Infectious diseases during the current pregnancy	28	26,4	

(ARI, exacerbation of sinusitis)			
Broncho-pulmonary diseases (bronchitis, bronchial asthma)	3	2,8	
Myopia	17	16	
Other	11	10,4	

All pregnant women with PROM had a burdened somatic history. Anemia, diseases of the thyroid gland and the urinary system, as well as diseases of the ENT organs and the gastrointestinal tract prevailed in the structure of extragenital diseases.

The results of the state of the vaginal microflora and the detection of the presence of pathogenic microorganisms were assessed by analyzing the vaginal secretion for the flora. The smear was taken from the mucous membrane of the vagina, cervix or urethra.

The second degree of purity was 31 women (29.2%), in whom the contents of the vagina had an acidic reaction (pH = 5.0-5.5) with vaginal cells and Dederlein sticks to a lesser extent, many bacteria of the commatariabill type (anaerobic curved in the form of a comma stick), many epithelial cells, there were single leukocytes.

The third degree of purity was found in 58 women (54.7%), in whom the vaginal secret had a slightly alkaline reaction (pH 6.0-6.5), vaginal sticks were in a small amount, commatariabill and anaerobic streptococcus dominated, there were many cocci with the presence of a large number of leukocytes.

17 women (16%) were diagnosed with 4 degree of purity of the vaginal smear, which had a slightly alkaline reaction, with the absence of vaginal sticks. commatariabill were in the minority, variegated bacterial flora, anaerobic cocci, bacilli prevailed, Trichomonas or other specific pathogens were encountered singly, and a mass of leukocytes.

According to the National Standard for the Management of Patients with PROM, after amniotic fluid discharge, all women in labor were started on antibiotic therapy (500 mg erythromycin tablet every 8 hours) in order to prevent purulent-septic complications in the fetus. In order to prevent the syndrome of respiratory disorders (SRD), it was prescribed: intramuscular injection of dexamethasone 8 mg every 8 hours N3. In case of a threat of preterm birth, tocolytic therapy was prescribed Tab. Nifedipine 10 mg every 15 minutes up to five tablets.

At a gestational age of 28 to 34 weeks, active expectant management was considered a priority, the purpose of which was: to prevent the development of clinically and histologically significant chorioamnionitis. In 28 (26.4%) women in labor, expectant management was refused in the follow-up period due to the addition of signs of chorioamnionitis or a strong contraindication to prolongation of pregnancy (bleeding, antenatal fetal death, unconvincing fetal condition), which served as an indication for the start of labor induction .

The following signs were considered parameters of an increased risk of developing chorioamnionitis: an increase in leukocytosis by more than 15-20% of the initial level, neutrophils and especially C-reactive protein, the presence of negative dynamics in the functional state of the mother-placenta-fetus system (decrease in the amniotic fluid index, decrease in the cranial index, negative dynamics with dopplerometry in the fetal middle cerebral artery). Before the start of labor induction, a vaginal examination was performed to assess the maturity of the cervix according to the Bishop scale.

It was revealed that 40.6% of the surveyed pregnant women had parameters of dilatation, length, consistency, position of the cervix and the condition of the presenting part of the fetus, points up to 5, which was assessed as "immature cervix". And in 61.3% of women, the birth canal was assessed as a “mature cervix”. Accordingly, the tactics of further management was chosen according to the protocol of the Regional Perinatal Center. In pregnant women with an “immature” cervix in combination with obstetric complications, according to the protocol, induction of labor with Glandin E2, 3 mg, 1 tablet intravaginally, after the informed consent of the pregnant woman and relatives, was proposed. A conversation was held about the possible complications of labor induction. Fetal

heart rate and uterine activity were monitored during induction. The birth canal was re-evaluated at 8 hours to clarify the need for continued induction. In pregnant women with a “mature” cervix, childbirth was carried out by expectant tactics until regular labor activity was played out or the issue of labor stimulation with oxytocin was resolved by a council of doctors. 67.8% of pregnant women were delivered through the natural birth canal. The tactics of pregnancy management and the choice of the method of delivery were discussed in each case collectively by a council of doctors.

With the onset of regular labor activity, the antibiotic was replaced with an injectable form. Given the high sensitivity of vaginal and cervical bacteria to ampicillin, we prefer to use this antibacterial drug in women with premature amniotic fluid.

The nature of labor activity was controlled on the basis of partograms. In the management of labor complicated by PROM, the following were monitored: hemodynamic parameters, T-body every 4 hours, blood for leukocytosis 1 time per day, complete blood count (coagulogram, C-reactive protein, leukocyte intoxication index, urinalysis, blood type and Rh - affiliation, analysis of vaginal discharge (smear), ultrasound of the uterus and fetus, general condition of the woman in labor.

In critical conditions that threaten the life of a woman (severe pre-eclampsia, eclampsia, insolvency of the scar), severe obstetric pathology, with the immaturity of the cervix with the addition of chorionamnionitis, the absence of conditions for urgent delivery, the council of doctors resolved the issue of operative delivery.

Conclusions

1. Thus, in the process of a retrospective study of childbirth histories, it was found that the main factors contributing to PDRPO are a burdened obstetric, gynecological and somatic history, which took place in all cases of the study. The most common background pathology was: anemia, diseases of the urinary system and infections suffered during this pregnancy.
2. Premature rupture of amniotic fluid as a result of pathological growth of conditionally pathogenic cervico-vaginal microflora in 26.4% of cases was the cause of chorioamnionitis, which contributed to a significant increase in the specific frequency of obstetric pathologies.

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