



Original Article

Features of Delivery and Course of Postpartum Period in Women with Uterine Fibroids during Premature Birth

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ABSTRACT

Women's most typical complaints in the early postpartum period are pain and exhaustion. Pain can make it difficult for a mother to care for herself and her child. Untreated pain is linked to an increased risk of opiate usage, postpartum depression, and the development of chronic pain. Postpartum pain management includes both nonpharmacologic and pharmacologic therapy. This study focused on the features of the course of labour and the postpartum period in women with uterine fibroids in preterm labour. A retrospective analysis of 50 birth histories of women with uterine fibroids who delivered prematurely was carried out. During gestation, most pregnant women have a threat of spontaneous abortion and premature birth. In childbirth, most pregnant women experienced complications such as weakness of labour, cervical dystocia, fetal hypoxia, which often led to the need for an emergency caesarean surgery. More than half of pregnant women with uterine fibroids in the successive and early postpartum period experience bleeding due to uterine hypotension. The combination of uterine fibroids with preterm labour is a particular problem, as it often leads to complications in childbirth and the early postpartum period. This group of patients requires careful pre-gravid preparation, as well as special attention of the antenatal clinic doctor with personalized gynecological and obstetric tactics.

GRAPHICAL ABSTRACT

Features of Delivery and The Course of The Postpartum Period in Women with Uterine Fibroids During Premature Birth



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Introduction

Exogenous oxytocin is used in the antepartum phase to start or improve uterine contractions for vaginal birth in cases where the fetal or mother health is at risk. It can be used to induce labor in cases of Rh sensitization, maternal hyperglycemia, preeclampsia at or near term, and when prematurely ruptured membranes necessitate delivery [1-3]. Importantly, oxytocin is not licensed or recommended for labor induction [4]. Oxytocin can be used to encourage labor in some cases of uterine lethargy and as a supplement to other treatments for partial or unavoidable abortions. Oxytocin can be administered in the postpartum period to produce contractions in the third stage of labor and to control postpartum bleeding or hemorrhage [5, 6]. Oxytocin seems to have the potential to considerably reduce the amount of energy required to ablate uterine fibroids, as well as reduce treatment duration and increase treatment efficiency [7-9]. Uterine fibroids are the most common benign tumor in women of reproductive age, occurring in 20-44% of women and in 0.5-6% of pregnant women [10-12]. In recent years, there has been a trend towards an increase in the incidence of uterine fibroids and rejuvenation of the disease [13, 14]. Despite the fact that women with uterine fibroids have difficulties in conceiving and carrying a pregnancy, this pathology is not considered to be an unambiguous cause of impaired fertility [13, 15]. However, pregnancy with fibroids, as well as childbirth and the postpartum period, can occur with complications, and in some cases end in the loss of the fetus and uterus [16-18]. The most frequent complications of gestation are malnutrition of the myxomatous node in the first trimester in 70-80% of women, in the second trimester - in 15-25% of women, the threat of termination of pregnancy (30-50%), spontaneous abortions (14-35%), premature birth (30-40%), almost every birth has manifestations of placental insufficiency, chronic hypoxia and fetal malnutrition [16]. Childbirth and the postpartum period in pregnant women with uterine fibroids are often complicated by early and premature rupture of amniotic fluid, discoordination and

weakness of labor, early postpartum hemorrhage and uterine subinvolution. Thanks to the use of various conservative methods of treating patients with this pathology, the success of pregnancy without complications is achieved [16].

According to the Russian Society of Obstetricians and Gynecologists, uterine fibroids are becoming the main cause of hysterectomy in many countries, for example, in the United States, it is the basis for about 1/3 of all hysterectomies, which is about 200 thousand hysterectomies annually. In Russia, according to various sources, uterine fibroids are the cause of hysterectomy in 50-70% of cases with diseases of the uterus.

The current tendency to plan pregnancy at the age of 30 and older makes the problem of uterine fibroids during pregnancy especially relevant, since the delay in childbirth leads to an increase in the frequency of pregnancy complicated by fibroids or previous myomectomy [13, 19].

According to many authors, the combination of uterine fibroids and pregnancy occurs in 0.4-6.0% of women [20]. Currently, there is a trend towards an increase in the combination of uterine fibroids with pregnancy, which increases the risk of complications during pregnancy and childbirth.

Women with uterine fibroids are at increased risk of obstetric complications. Approximately 10-30% of pregnant women with fibroids have complications during pregnancy, childbirth and the postpartum period. Submucous, retroplacental, large and multiple fibroids have a greater risk of complications. Cervical fibroids, although rare, need careful monitoring [21].

Premature birth is also an important obstetric problem, as it is accompanied by a high risk of morbidity and mortality in newborns, as well as the development of various pathologies in childhood, the most common of which include chronic diseases of the respiratory and nervous systems, and impaired functions of the organs of hearing and vision. The incidence of premature birth is 5-10%, and, despite advances in obstetrics and gynecology, it does not tend to decrease [22]. Premature babies account for 60-70% of early neonatal mortality and 65% of infant mortality. Stillbirth in premature birth is

observed 8-15 times more often than in urgent [23, 24].

However, premature birth entails adverse consequences not only for the newborn, but also for the mother. The course of preterm labor is characterized by rather frequent bleeding as a result of placental abruption, bleeding in the successive and early postpartum periods due to disturbances in the mechanisms of placental abruption and retention of its parts, frequent infectious complications during childbirth (chorioamnionitis) and the postpartum period (endometritis, phlebitis, etc.). Quite often, anomalies of labor activity (weakness, discoordination) occur. Labor is often quick or impetuous with isthmic-cervical insufficiency or protracted due to immaturity of the cervix, unpreparedness of neurohumoral and neuroendocrine mechanisms of regulation of labor forces [25, 26]. Despite the possible complications of premature birth, most often they end happily for a woman.

Risk factors for premature birth are aggravated obstetric and gynecological history, kidney disease, anemia, genital infections, viral infections carried during pregnancy. The above conditions are quite common among women of reproductive age, so the incidence of preterm birth continues to rise [27, 28].

Based on above statements, we can conclude that, separately, childbirth and the postpartum period in women with uterine fibroids and in women who deliver early may be accompanied by various complications, but in most cases they end well. However, the combination of fibroids with preterm labor is of great interest.

Purpose of the study

We aimed at studying the features of the course of labor and the postpartum period in women with uterine fibroids in preterm labor.

Material and methods

A retrospective analysis of 50 medical records of pregnant women with uterine fibroids, who delivered prematurely, were examined and treated at the perinatal center of the State Budgetary Healthcare Institution of the Republic of Moldova "MRCKB".

Results and Discussion

The survey involved pregnant women who delivered early: 19 women (38%) at 30-33 weeks of gestation, 31 (62%) at 34-36 weeks. Analyzing the location and number of myxomatous nodes, it turned out that a single myoma was detected in 38 pregnant women (76%), and in 32 (64%) it was located intramurally, in 2 (4%) - subserously, in 4 (8%) - intramural-subserously. Multiple fibroids were found in 12 pregnant women (24%), and in 3 (6%) of them several intramural-subserous nodes were found, in 6 (12%) - several intramural nodes, in 3 (6%) - both intramural and subserous myxomatous nodes (Table 1).

Table 1: Location of myomatous nodes

Single intramural node	64%
Single subserous node	4%
Single intramural-subserous node	8%
Multiple intramural subserous nodes	6%
Multiple intramural nodes	12%
Multiple intramurals and subserous nodes	6%

The development of complications of gestation depends on the size of myxomatous nodes, their number, localization relative to the layers of the uterus, echogenicity of the structure, and gestational complications - on the peculiarities of localization of fibroid nodes relative not only to the placenta, but also to the lower uterine segment.

Assessment of the somatic status of the examined pregnant women showed that most of them had diseases of various organ systems, especially the cardiovascular and nervous systems.

When analyzing the gynecological status, it turned out that most often uterine fibroids in 33 (66%) pregnant women were combined with other diseases of the reproductive system, such as STIs (urea plasma colpitis, mycoplasma and chlamydial infections), cervical erosion, ovarian cysts, endometrial and cervical polyps.

The above data indicate that uterine fibroids in most cases are combined with various gynecological and extragenital diseases.

When analyzing the obstetric status of patients, the number of primary pregnant women was 11 (22%). 24 (48%) had a history of abortion, 12 (24%) had a miscarriage and 3 (6%) had a history of infertility. Moreover, it should be noted

that all cases of non-developing pregnancy, like most miscarriages, were observed in women with large tumor sizes or its intramural location.

According to the literature data, 55.3% of women with uterine fibroids suffer from infertility, and the share of primary infertility is 23.3%, and the secondary one by 32%. In this case, the presence of a tumor is often accompanied by additional factors.

Implantation failure occurs in tumors that deform the uterine cavity, and the pregnancy rate is almost the same in women after conservative myomectomy and in patients with a tumor that does not deform the uterine cavity: 20.8 and 16.9% [29–32].

Uterine fibroids can be associated with recurrent miscarriage, or early birth, especially submucous nodes, which can disrupt the implantation process, or compete with the fetus for space. Sometimes there is an improvement in the obstetric situation in women with recurrent miscarriage, or a history of early delivery after conservative myomectomy. Conservative myomectomy improves the obstetric prognosis of subsequent pregnancies [33–35].

Considering loss of pregnancy, submucous fibroids are associated with a higher frequency of miscarriages, possibly due to deformation of the uterine cavity, impaired endometrial function, and placentation disorders [36, 37].

When analyzing the literature data in women with multiple nodules, the frequency of miscarriages is higher than in the presence of a single nodule. There has been no association of miscarriages with the size or location of myxomatous nodes, and there is no convincing evidence of an association between the presence of intramural or subserous nodes and the frequency of miscarriages [38].

According to our data, in 32 (64%) women during this pregnancy there was a threat of spontaneous abortion and later premature birth, which is much higher than that in the general population. The threat of termination of pregnancy was encountered in patients in the first and second trimesters with the same frequency. These women received inpatient treatment at different periods of gestation, and

12 (24%) of them more than once. In 12 (24%) patients, ischemic-cervical insufficiency (ICI) was observed, which was eliminated by installing an obstetric unloading pessary.

Most often, the gestation process in this group of women was complicated by moderate preeclampsia - (25 (50%)), placental disorders accompanied by insufficient fetal growth - (37 (74%)), anemia of varying severity (28 (56%)), premature rupture fetal membranes against the background of chronic infection of the genitourinary tract - (11 (22%)).

When analyzing the course of labor, it was noted that in 21 (42%) pregnant women, premature rupture of the membranes was the cause of the onset of labor. In 16 (32%) patients, spontaneous labor began on the whole fetal bladder. Thirteen (26%) women were delivered early according to indications from the mother and the fetus, fetal distress arising from placental insufficiency against the background of the location of fibroids in the placentation zone, as well as a defective scar on the uterus after cesarean section.

The main method of delivery in the examination group was vaginal delivery. They accounted for 28 (56%) cases. The remaining 22 (44%) women delivered by cesarean section (CS): planned CS 11 - (22%), emergency CS - 11 (22%). The causes of emergency CS were complications during childbirth: Fetal hypoxia, weak labor, and cervical dystocia, possibly due to the lack of adequate contractility of the myometrium in the area of the myxomatous node (Table 2).

In some cases, myomectomy for caesarean section may be the only way to reach the uterine cavity. In other cases, this operation may be safe in well-examined patients. There are many case-control studies in the literature, which report that, with the exception of an increase in the operation time by an average of 15 minutes, there are no significant differences in the outcomes of cesarean sections with and without one-stage myomectomy, postoperative complications, changes in pre- and postoperative hemoglobin parameters, frequency of blood transfusions, duration of hospitalization, and other complications of puerperium. These facts indicate that a single-stage myomectomy during cesarean

section is a fairly safe modification of the operation [39].

Table 2: Indications for cesarean section

Indications for surgery	Number of pregnant women
Breech presentation and abnormal fetal position	1
Narrow pelvis and clinical discrepancy between the size of the fetus and the size of the mother's pelvis	2
Age primiparous	1
Large fruit	1
Scar on the uterus after CS	2
IVF pregnancy	2
Scar on the uterus after conservative myomectomy	1
Abnormalities of labor	5
Moderate preeclampsia	1
Placental Disorders	3
Cicatricial deformity of the cervix	1
High myopia	1
Rapid tumor growth at the end of pregnancy with signs of malnutrition	1

In 16 (13.2%) women in labor with fibroids, the scope of the operation was expanded - during the cesarean section, women underwent myomectomy due to subserous localization of myoma nodes. In one woman, a corporal incision was made through the intramural node, which caused bleeding from the incision site, further restoration of tissue integrity was not possible, supra-vaginal amputation of the uterus was performed, and the total blood loss was 1500 ml. A woman was also found with an intramural myxomatous node measuring 9.1 * 8.7 cm, which was located in the placenta projection site. This caused the following pathological conditions, which became indications for operative delivery at 35 weeks gestation: Severe preeclampsia, HELLP syndrome, and premature detachment of a normally located placenta.

It should be noted once again that all women with multiple myxomatous nodes of large sizes were delivered promptly. Thus, the presence of multiple myxomatous nodes increases the frequency of cesarean section.

The volume of intraoperative blood loss in pregnant women who delivered by cesarean section increased. The average volume of intraoperative blood loss was 700 ± 44 ml, in 6 (4.9%) women the volume of blood loss exceeded 1000 ml (1200-1500 ml).

The presence of uterine fibroids does not affect the duration of vaginal delivery. The average duration of labor in primiparous women was 8 hours 19 minutes ± 75 minutes, in multiparous women - 6 hours 26 minutes ± 63 minutes.

In the group of women who gave birth on their own, the following complications were observed: Premature rupture of the membranes - in 20 (30%), and bleeding in the third stage of labor - in 3 (4.44%). Amniotomy was performed in 5 (7.3%) women, episiotomy - in 14 (20.5%). The average volume of total blood loss during labor through the vaginal birth canal was 193 ml.

Only 10% of women in our study had the successive and early postpartum period without complications, and the vast majority of puerperas (90%) developed serious complications that required the use of therapeutic measures. In 25 (50%) patients, uterine hypotension developed, which led to bleeding in the successive and early postpartum period. Other complications in the postpartum period were observed in 19 (38%) patients. These include hematometra - 13 (26%) cases, uterine subinvolution - 5 (10%) cases and postpartum endometritis - 2 (4%) cases (Figure 1).

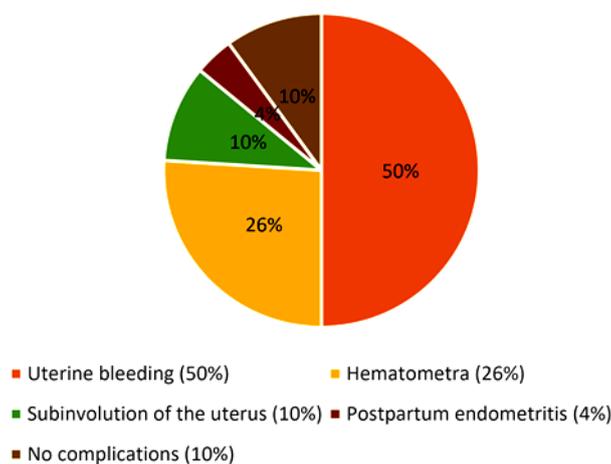


Figure 1: Complications in the successive and early postpartum periods

Conclusion

Uterine fibroids are the most prevalent benign tumor in women, affecting approximately two-thirds of women by the age of 50. Fibroid symptoms include menorrhagia, dysmenorrhea, abdominal pain, bladder dysfunction, and pelvic pressure, all of which can lead to a considerably reduced quality of life. Fibroids can also affect fertility by interfering with fertilization and implantation, resulting in recurrent miscarriages and negative perinatal outcomes. The most prevalent benign neoplasm in women is uterine fibroids. Intravenous oxytocin has been shown to improve the efficacy of a non-invasive thermal ablation approach for treating fibroids. However, it is unclear whether the impact of oxytocin on the myometrium or the fibroid itself causes this behavior. Thus, uterine fibroids affect the course of pregnancy, childbirth and the postpartum period, increasing the risk of complications. Therefore, it is necessary to classify pregnant women with uterine fibroids in the high-risk group, which requires delivery in obstetric institutions of the III group.

Uterine fibroids are significantly more likely to be associated with unfavorable outcomes of previous pregnancies. This pathology increases the risk of developing gestational complications by 10 times. Myoma of the uterus affects the average time of delivery, reducing it. It should be noted that uterine fibroids increase the incidence of preterm birth by 10 times.

The presence of uterine fibroids does not affect the choice of delivery method, but multiple

fibroids increase the frequency of caesarean section. This tumor increases intraoperative blood loss, but does not affect the duration of vaginal delivery.

The study showed that the combination of uterine fibroids with preterm labor carries a high risk of severe pregnancy, complications in childbirth and the early postpartum period. Therefore, pregnant women with uterine fibroids require careful pre-gravid preparation, as well as special attention with a personalized approach to the antenatal clinic and competent obstetric tactics.

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Authors' contributions

All authors contributed toward data analysis, drafting and revising the paper and agreed to be responsible for all the aspects of this work.

Conflict of Interest

The authors have no conflicts of interest to declare. All co-authors have seen and agreed with the contents of the manuscript and there is no financial interest to report.

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