

A MODERN VIEW OF THE PROBLEM OF BIRTH TRAUMA

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Annotation. Birth trauma is a set of pathological conditions arising under the influence of mechanical factors during the labor process. This type of traumatism is an interdisciplinary problem covering such areas of medicine as obstetrics, pediatrics, pediatric neurology, and related sciences.

Birth injuries occupy a significant place in the structure of perinatal morbidity and mortality. The frequency of birth injuries in natural childbirth reaches 3.6%, whereas in cesarean section this figure is about 1.2%. Despite progress in the study of this problem, the level of traumatism among newborns remains at a relatively high level.

Keywords: birth trauma, episiotomy, pelvic floor muscle insufficiency, prevention of soft tissue tears, vaginal microflora.

Introduction. In modern obstetric practice, the problem of ruptures and various methods of dissection of the perineum during childbirth, as well as their impact on the function of the pelvic floor, remains relevant. Despite the introduction of modern methods of labor management, the level of birth trauma remains high. According to M.V. Kazhina, its frequency varies from 10.2% to 39.0%, while L.R. Toktar and co-authors indicate that this figure can reach 85%. Foreign studies also confirm the significant prevalence of this problem: about 30% of births are accompanied by traumatic injuries. To reduce the risk of spontaneous perineal ruptures and reduce the frequency of neonatal injuries, an episiotomy technique was developed, which is widely used in obstetric practice throughout the world. The frequency of its use varies from 15% to 80%, which means that every third or fourth woman undergoes this surgical intervention [5]. In a number of clinical situations (e.g., fetal distress, risk of perineal rupture, breech presentation), episiotomy can actually prevent serious injuries. However, practice shows that the frequency of surgical dissection of the perineum significantly exceeds the frequency of spontaneous ruptures, which calls into question the validity and appropriateness of the widespread use of this procedure. Birth trauma, both natural and iatrogenic, can lead to the development of serious complications. Ruptures and surgical dissection of the perineum create conditions for infection, and despite modern advances in the treatment of soft birth canal injuries, infectious complications are recorded in 19.3% of women in labor. Violation of the healing process can lead to suture divergence, suppuration, healing by secondary intention, weakening of the vulvar ring and pelvic floor muscles, as well as cicatricial deformation of the vulva, causing a gaping of the genital slit.

The formation of secondary intention predisposes to functional insufficiency of the pelvic floor muscles, which over time can lead to pelvic organ prolapse [6]. In the long term, complications such as ectropion and leukoplakia of the cervix, dyspareunia, urinary incontinence, and decreased libido are possible. According to studies, the risk of prolapse and prolapse of the internal genital organs in women who have suffered perineal injuries with subsequent wound healing by secondary intention reaches 47.3%. The issues of pathogenesis,

causes and mechanisms of injury, as well as the effect of surgical dissection of the perineum on pelvic floor function remain a subject of debate. Given the significant impact of these complications on the quality of life of women, further clinical studies are needed to find optimal solutions to this problem. According to the biomechanics of the birth process, throughout the entire period of labor, the fetus is exposed to various mechanical factors: contractions, the head overcoming obstacles when passing through the entrance to the pelvis during its adaptation, the forward movement of the head, as well as the influence of the pelvic floor muscles [10]. However, a number of researchers distinguish between these mechanical effects and true birth trauma, classifying the former as birth injuries. They are pathological processes characterized mainly by local reactive changes that do not cause systemic responses from the body of the fetus and the newborn [11] [12]. In contrast, birth trauma is understood as a systemic reaction of the newborn's body, which leads to destabilization of compensatory-adaptive mechanisms and the development of serious damage to the central nervous system. In classical obstetrics, considerable attention is paid to the issue of the correspondence between the sizes of the fetal head and the pelvic ring of the mother, since this factor plays a key role in the development of trauma in both the mother and the child [19,20]. It is interesting to note that over the past fifty years, the number of narrow pelvises with a diagonal conjugate of 17.5 cm or less has decreased significantly: if in 1950–1952 this figure was 4.8%, then by 1965–1967 it had dropped to 0.9%. Currently, the frequency of diagnosis of anatomically narrow pelvis varies within 1–7.7%, while clinically narrow pelvis occurs with a constant frequency – from 0.6% to 1.7%. It is important to emphasize that the presence of an anatomically narrow pelvis does not always mean clinical failure of the labor process: if the fetus is small, the discrepancy may not manifest itself.

In recent years, there has been an increase in cases of fetal macrosomia, which is due, in particular, to an increase in the incidence of diabetes mellitus in pregnant women. Gestational diabetes mellitus is increasingly being diagnosed, as well as manifest forms of diabetes mellitus, first detected during pregnancy. The increase in the number of large newborns is one of the reasons for the persistence of the incidence of clinically narrow pelvises during childbirth, despite the general decrease in the proportion of anatomically narrow pelvises in the population. This process is largely due to a decrease in the number of flat rachitic and osteomalacic pelvises.

Thus, the problem of discrepancy between the sizes of the fetus and the pelvis remains relevant in the context of risk factors for birth trauma. Currently, the incidence of birth injuries in newborns is 2-7 cases per 1000 births. In the structure of causes of intranatal mortality, birth trauma does not exceed 3.2%, and in cases of death of newborns in the early neonatal period - 2.5%. The incidence of newborn morbidity due to birth trauma ranges from 7% to 8%. Most fractures resulting from birth trauma are caused by difficulties in extracting the fetus or its abnormal presentation. The most common type of bone injury during childbirth is a clavicle fracture, which can be observed with a frequency of up to 15 cases per 1000 live births [13-17]. The humerus is usually fractured immediately at the moment of birth, which is often accompanied by a brachial plexus injury. Femur and rib fractures are less common, but such injuries are recorded much less frequently compared to other types of birth injuries.

Conclusion. To develop effective preventive measures aimed at reducing the incidence of birth injuries in newborns, it is important to systematize the factors that increase the risk of such injuries.

The first group of factors includes causes unrelated to the use of obstetric benefits during childbirth. The first subgroup of this category consists of the characteristics of the course of labor, such as the duration of the first and second stages of labor. Additionally, this group includes factors related to the time of rupture of the fetal membranes: premature, timely rupture, as well as the duration of the anhydrous interval. On the part of the fetus, this category includes macrosomia, as well as possible genetic predispositions to pathologies of various organs and systems that reduce resistance to traumatic effects. These factors contribute to the development of spontaneous birth injuries.

In recent years, due to the active study of molecular genetic mechanisms involved in the development of various pathological conditions, more and more attention has been paid to the study of genetic and epigenetic factors that affect the risk of birth injuries in newborns. Of particular interest is the individual predisposition to the effects of physical factors during the birth process.

Various coagulopathies can play a certain role in the formation of birth injuries to the skull, contributing to the development of thrombohemorrhagic syndrome, which, in turn, manifests itself in intracerebral hemorrhages. The severity of these hemorrhages largely depends on the state of the hemocoagulation system. Violation of key hemostasis parameters can be caused by genetically determined disorders of the blood coagulation system.

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