

BIRTH TRAUMA

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Abstract. *Birth trauma still remains the most urgent problem of perinatal medicine. A clinical diagnosis of traumatic intracranial injuries has not yet been developed. There are no systematic obstetric studies on the prevention of birth trauma injuries. Complications require improvement of the manual and obstetric operations in terms of a more careful attitude to the fetus. Birth trauma is a collective concept that includes various injuries to the tissues and organs of a woman in labor or a newborn caused by the action of birth forces. Among the birth injuries of the mother, there are hematomas, ruptures of the vulva, perineum and vagina, damage to the uterus, the formation of genitourinary and intestinal-genital fistulas, deformities of the pelvic bones. Many of the birth injuries can be life-threatening. Diagnosis of birth injuries is made on the basis of external examination, gynecological examination, instrumental methods.*

Keywords: *trauma, newborn, skull and brain injuries, soft tissue injury.*

Childbirth is a difficult test for the fetus and the mother being born. Therefore, after the birth of a child, specialists often state the presence of various birth injuries and postpartum disorders in a woman in labor and a newborn. In obstetrics and gynecology, maternal and child birth injuries are distinguished. Birth injuries of a newborn include various types and severity of damage to the peripheral and central nervous system, injuries to bones and soft tissues, internal organs. Birth trauma is a group of diseases caused by the influence of a mechanical factor during childbirth. There are birth traumas of the skull, brain and spinal cord, skeletal bones, internal organs, nerve plexuses, etc. Birth trauma is differentiated into spontaneous, which occurs during usually occurring childbirth, and obstetric, caused by mechanical actions of the obstetrician (forceps, traction, aids, etc.). Thus, by "birth trauma" we understand the disease caused by damage as a result of mechanical forces during childbirth. It does not include the so-called "asphyxiating birth trauma", "biochemical birth trauma" or just any hemorrhages. Damage to the central nervous system as a result of intrauterine asphyxia is another pathology and another topic, although many "hypoxic—ischemic encephalopathies" are the result of disorders of cerebral circulation due to the action of mechanical factors in childbirth. It is impossible to agree with the interpretations of birth trauma, in which virtually any damage to the fetus during childbirth is attributed to it. At the same time, the boundaries between asphyxia and birth trauma are blurred, and the possibility of other damaging factors, for example, infectious or toxic, is not taken into account. Due to the greatest relevance and adverse consequences, the greatest attention is paid to the birth trauma of the skull. If we approach from a strict scientific standpoint and take into account that any disease is damage and at the same time the body's reaction to this damage, then the birth trauma of the skull can be defined as follows. Birth trauma of the skull is a holistic reaction of the fetus and newborn to brain damage caused by mechanical forces as a result of violation of compensatory and adaptive capabilities of the fetus in childbirth, which is accompanied by postnatal maladaptation. Common leading causes of birth trauma are: discrepancy between the size of the fetal head and the pelvis of the mother, fast and impetuous childbirth, prolonged labor, obstetric forceps, vacuum extraction,

extensor inserts of the head, asynclitic insertion of the head, pelvic presentation, any methods of accelerating labor: stimulation of labor, "squeezing" of the fetus (the method of squeezing the fetus according to Kristeller), the use of a Verbova bandage and others.

There is a clear, regular pathogenetic chain of birth trauma (its details will be discussed below), due to the acceleration of labor in various ways, which leads to asynclitic insertion of the head or its increase, which is accompanied by an asymmetric tension of the cerebellar namet, bridge veins, compression of the brain, etc. The use of obstetric forceps or a vacuum extractor in this case only aggravates the situation and is accompanied by ruptures of veins and tentorium. Moreover, asynclitic insertion of the head is associated with an asymmetric imposition of forceps spoons, which leads to fractures of the skull, including the lower jaw, and ruptures. Excessive protection of the perineum of a woman in labor to the detriment of the interests of the child, strong flexion and extension of the fetal head during insertion and eruption, traction behind the head when removing the shoulder girdle, fetal extraction behind the chest without waiting for the independent birth of the lumbar region and fetal legs, pressure by the obstetrician's hand on the bottom of the uterus in the second period of labor in order to move the head and other manipulations are one of the causes of birth traumatic injuries. Any intervention in the process of childbirth, stimulation of labor, the requirement to perform childbirth lying on your back, when the inferior vena cava can be squeezed and the force of universal gravity is not used during childbirth, if the woman in labor gave birth, for example, on a special bed, chair or squatting, is unfavorable for the fetus. That is why those who give birth at home without the help of an obstetrician have birth traumatic injuries of the central nervous system less often than those who give birth in maternity hospitals. The pathogenesis of each type of birth trauma has its own characteristics. If we are talking about a birth trauma of the skull, then the pathogenesis should be considered as follows. These reasons lead to a pathological configuration of the head, which can be excessive, fast and asymmetrical. In turn, the pathological configuration of the head leads to ruptures of the cerebellar namet (tentorium), sickle-shaped process, bridge veins, displacements and detachments of the soft meninges, narrowing and compression of the sinuses, compression of arteries and veins, compression of the brain substance, disruption of blood outflow to the external veins of the head, etc. To define birth trauma as birth injuries means to hyperbolize this concept and identify the disease with the pathological process. With this definition, one can logically come to the absurd conclusion that all children have a birth trauma. This non-scientific approach leads to a dead end. In the process of physiological childbirth, the fetus experiences the effects of significant physical forces. In this case, there may be some small lesions of the skin, a generic tumor, an area of periosteal stagnation of blood, displacement of the bones of the skull, hemorrhages along the lines of bone entry, small subcostal hemorrhages, etc. All these are birth injuries, not birth trauma. Birth injuries are pathological processes, but not every pathological process is a manifestation of the disease. For example, in the cerebellar namet there is an intradural hemorrhage and a small tear of the upper leaf on one side of the tentorium. Undoubtedly, these are birth injuries, and of a mechanical nature. However, due to the absence of subdural hemorrhage, brain damage, adverse fetal reactions to these injuries, it is possible not to apply the concept of "birth trauma" when assessing the condition of the fetus. For example, a fetus or newborn has a small subcapsular hematoma of the liver without rupture of the capsule. This is a generic traumatic injury. If there was a breakthrough of blood into the abdominal cavity, then the pathological process would develop into a disease — a birth injury of the liver. It seems that such an approach will make it possible not to unnecessarily expand the

concept of birth trauma, not to engage in its overdiagnosis and at the same time to identify birth traumatic injuries that are found in each fetus and newborn. It is necessary to prevent birth traumatic injuries, strive to reduce their severity and their number. This will be a reserve for reducing birth trauma. It is necessary to study the configuration of the head, to study the compensatory capabilities of the skull and compensation reserves. It is necessary to determine when the physiological configuration of the head turns into a pathological one. With an increase in the degree of head configuration, the frequency of subarachnoid, subependymal, intraventricular and intracerebral hemorrhages increase, as well as hemorrhages in the cerebellum. These data indicate the role of a mechanical factor in the pathogenesis of many brain injuries. It is necessary to study damage to the cerebellum — an important sign of the adverse consequences of the pathological configuration of the head that occurs under the influence of physical forces. Prevention of birth injuries in newborns involves assessing the degree of risk of their occurrence at the stage of pregnancy, the most careful attitude to the child during childbirth, refusal of unreasonable use of benefits for fetal extraction and operative delivery.

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