

PRACA POGLĄDOWA
REVIEW ARTICLE**CURRENT LEGAL ISSUES OF CONDUCTING A FORENSIC MEDICAL EXAMINATION OF NEWBORNS' CORPSES****Oksana V. Sirenko¹, Elena V. Linnik¹, Lyubov V. Omelchuk¹, Vitaliy I. Bida², Serhii M. Hermanchuk^{2,3}, Serhii V. Irkha³**¹UNIVERSITY OF STATE FISCAL SERVICE OF UKRAINE, KYIV, UKRAINE²SHUPYK NATIONAL MEDICAL ACADEMY OF POSTGRADUATE EDUCATION, KYIV, UKRAINE³PRIVATE HIGHER EDUCATIONAL ESTABLISHMENT «KYIV MEDICAL UNIVERSITY», KYIV, UKRAINE**ABSTRACT****Introduction:** Forensic medical examination is a mandatory investigative action in determining the causes of death of newborns. It is especially significant and occupies a key place in proving the corpus delicti.**The aim** is to study the current legal issues of a forensic medical examination of newborns' corpses.**Materials and methods:** The study of legal and literary sources was carried out. The library-semantic and the content analysis methods were applied.**Conclusions:** Forensic medical examination should also include questions regarding the mother of the newborn: whether she was healthy at the time of delivery; if the medical staff caused any harm to her or her child; if she had the necessary help before and during the childbirth, etc. Examination should be appointed if one of the parents has the desire, which must be expressed in writing in the form of a motion.**KEY WORDS:** forensic medical examination, newborn's corpse, fetus, maturity, criminal proceedings

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INTRODUCTION

According to Part 2 of Art. 242 of the Criminal Procedural Code of Ukraine, the investigator or the prosecutor must move a motion to the investigating judge in order to determine causes of death. Thus, conducting a forensic medical examination is an obligatory investigative action in determining causes of death, but at the same time in investigating the facts of death of newborns it becomes especially significant and occupies a key place as a means of proving the existence of a crime. This is due, on the one hand, to the special characteristics of the object of the forensic medical examination of this category, and on the other hand, to the considerable difficulties in solving specific questions that are posed to the expert.

In Ukrainian legislation there is a problem of regulating this issue, since the immediate regulatory framework for conducting forensic medical examination of newborn's corpses can be found only in clause 2.1.10 of the Rules for Conducting Forensic Medical Examinations in the Departments of Forensic Medical Histology of the Forensic Medical Bureau and in clause 2.2.10 of the Rules for Conducting a Forensic Medical Examination of Corpses in the Bureau of Forensic Medical Examination.

A special place in the practice of forensic medical examination is the study of corpses of newborns and fetuses, which is due to: a) the reasons for the appointment of this kind of examination; b) a list of specific questions that, as a rule, are put by the investigator to a forensic expert; c) the use of special methods and methods by which the corpses of newborns and fetuses are examined; d) features

of the substantiation of the expert opinion [1, p. 566]. That is why, according to some scientists, the need for such an examination arises in the following cases:

- if the corpse of a baby of an unknown mother is found in a cesspool, rubbish container, in the attic, in the basement, in the forest, extracted from the water, etc. (such options are the most common);
- if the mother is known but she was not registered at the maternity welfare clinic, and the child was born dead or died shortly after birth without the presence of medical staff;
- if there are complaints about improper management of labour in the maternity hospital in the presence of injuries on the body of the child or the mother [2].

THE AIM

The aim of this article is to study the current legal issues of the appointment and conduction of a forensic medical examination of newborns' corpses.

MATERIALS AND METHODS

The study of legal and literary sources on the studied topic, among which there are the works of such scholars as: A. P. Ardashkin, E. Kh. Barinov, T. L. Domoratskaya, N. N. Kachina, V.V. Kolkutin, G. F. Puchkov, O. F. Fedorova, V. A. Chuchko, N. V. Shakhman, and others. In this case, the library-semantic method and the content analysis method were applied.

REVIEW AND DISCUSSION

Issues of the appointment and conduction of a forensic medical examination of the corpses of newborns in Ukraine are regulated on a general basis by the Criminal Procedure Code of Ukraine, the Law of Ukraine "On Forensic Examination", as well as the by the Instruction on Conducting a Forensic Medical Examination. In addition, certain types of investigations are legislated in other regulatory legal acts.

Thus, according to the clause 2.1.10 of the Rules for Conducting Forensic Medical Examinations in the Departments of Forensic Medical Histology of the Forensic Medical Bureau when examining the lungs of the corpses of newborns, the following issues are resolved: if they breathed or not, the airiness of the parenchyma is noted as well as the condition of the lumen of the bronchi. Additional paint on elastic fibres in the interalveolar septa is used, their condition is noted. In addition, the state of the lumen and the presence of red blood cells in the bronchiolar arteries, capillaries of the interalveolar septum and small arteries of the pulmonary artery system are identified. Attention is paid to the state of respiratory alveolocytes and their shape. In order to exclude aspiration of amniotic fluid, traces of the latter are searched for in the alveoli: vellus hair, horny scales, meconium, squamous epithelial cells. In the umbilical ring, the presence (or absence) of leukocytes (demarcation shaft), the state of the vessels and the cellular composition around are indicated. In a labour tumour, blood vessels, haemorrhages and cellular reaction around are noted. In the excrements blood filling, villus condition, presence (or absence) of heart attacks, calcification, foci of inflammation, necrosis are identified [3].

It should also be noted that in accordance with clause 2.2.10 of the Rules for Conducting a Forensic Medical Examination of Corpses in the Forensic Medical Bureau when examining corpses of newborn children: 1) the corpse is weighed, the circumference of the head, shoulders and chest is measured; 2) radiography of the hands and feet (the presence and size of ossification centres) is performed; 3) an opening of the epiphyses (distal) of the femur, calcaneal bones and handles of the sternum is added to the normal volume of dissection in order to identify ossification centres, as well as the opening of the spinal column in order to remove the spinal cord and to see if it was a birth injury or not; 4) swimming tests are conducted (Galen, Breslau); 5) a set of pieces of internal organs is sent for forensic histological examination, to which the umbilical cord and the umbilical ring are added; 6) liquid blood from the cavity of the heart or vena cava and blood on gauze is sent for forensic immunological research; 7) when signs of traumatic exposure are detected, the whole complex of studies characteristic of this type of injury is carried out [4].

If to talk about the features of the examination of the corpses of newborns, then this means not only a special autopsy technique, but also the fact that, in addition to determining the cause of death, a number of specific issues inherent only in this type of examination must be solved.

Moreover, according to E. Khrushchevsky, specialists who conduct such studies often face great difficulties in recognizing morphological changes and determining the true cause of the death. These difficulties are due, first of all, to the peculiarities of the physiology and pathology of the early period of life [5].

Traditionally, a child who was born dead or lived after birth for a very short period of time (usually not more than 1 day) has been considered as a newborn from the forensic medical positions. Such a specific and rather narrow concept of a newbornness exists in forensic medicine so far, although attempts are being made to bring it under the generally accepted standards [6, p. 47]. In forensic medicine, a newborn is considered a child who has signs characteristic of the fetus (umbilical cord, vernix caseosa, labour tumour, first stool – meconium) [7].

Therefore, if to talk about the umbilical cord as a material for forensic medical research, then it is juicy and moist in newborns, white in colour, gelatinous, strongly changing during drying. The length of the umbilical cord in a corpse of a newborn may be different, both as a result of the anatomical features of its structure, and as a result of various manipulations with it (breakage or cutting at different levels). The drying of the umbilical cord can occur both in vivo and posthumously. In a live newborn baby, the drying of the umbilical cord occurs evenly. At the base of the drying umbilical cord, in the region of the umbilical ring, after a few hours, and sometimes by the end of 1 day, a ring of reactive inflammation appears in the form of a reddish rim, called the demarcation line. In this place, the umbilical cord is subsequently separated and falls away. As a rule, this happens on the 4-7 day, but for a number of reasons this process can be delayed up to 10-11 days. On corpses, a portion of the surface of the umbilical cord adjacent to the umbilical ring dries out more slowly. The possibility of post-mortem drying of the umbilical cord that develops in dry and warm weather should be noted [8].

Consequently, the mere fact of the presence of signs of the umbilical cord drying does not exclude the fact of newbornness. Proof of this is the presence of the umbilical cord that connects the anterior abdominal wall with the afterbirth or placenta. If the corpse of a child with an unseparated afterbirth comes for examination, then this is an indisputable sign of the newbornness.

In addition, antenatally sebaceous glands of the skin of the fetus emit a fatty curd-like mass consisting of fat droplets, cholesterol crystals and fatty acids, which, mixed with desquamated epithelial cells and vellus hair, cover its body, forming a so-called vernix caseosa, which by the time of the birth the fetus is covered with, and its quantity may be different. If the body of the child has not been washed, then the vernix caseosa on the surface of its body after birth can last up to 3 days or more [8].

It should also be emphasized that the importance of this feature increases in the examination of rotten-modified corpses of newborns, as in this situation the question of the newbornness expert is forced to decide only tentatively (based on the presence of the umbilical cord and vernix caseosa).

A labour tumour is a limited swelling of the soft tissues of the presenting part of the fetus (usually the head), usually accompanied by slight haemorrhage. It arises in the process of childbirth, so it can be found on the corpses of babies who died both during childbirth and after birth. The presence of a labour tumour suggests that the child is the newborn [8].

In addition, the presence of meconium, first stool consisting of cells of the desquamated epithelium, secretion of the glands of the gastrointestinal tract and bile pigments, which are contained in the colon, are also among the neonatal signs.

In the process of examination of a baby corpse, the expert should pay attention to the engorgement of the mammary glands, the presence of discharge from them, and bloody discharge from the vagina. Their presence can be explained by the fact that a so-called hormonal crisis occurs at this time and indicates that the child has lived for at least 3-4 days and is not a newborn in the forensic medical sense [8].

However, A.P. Ardashkin and G.V. Nedugov consider that only corpses of stillborn fetuses and live-born babies who died in the early neonatal period actually come in for forensic medical examination unidentified (respectively, with unidentified circumstances of birth). This approach to defining a newborn from a practical point of view is convenient because it allows recognize any live-born baby as the newborn. At the same time, "neonatal signs" traditionally indicated in the forensic medical literature (state of the umbilical cord, presence of vernix caseosa, blots of blood and meconium, labour tumour, etc.) can only be used to establish the duration of extrauterine life and indicate the absence of care (if there are some signs and, conversely, about the care provided, in the absence of signs) [9].

Therefore, it should be borne in mind that full-term and maturity are extremely close concepts, therefore, they are often identified. However, this is not entirely correct. Full-term refers to the normal period of the fetus in the maternal organism, which lasts an average of 10 lunar months or 280 days. Under maturity should be considered the degree of physical development of the fetus at the time of birth. As the gestation period increases, the degree of maturity of the fetus increases as well, and upon reaching the 10th lunar month the fetus usually becomes mature. However, there are options when the child is full-term and immature (in certain pathologies) [10].

Morphological signs of a premature baby are the following:

- disproportionate body build: the head is 1/3 of the body part, the predominance of the cranial skull over the face, the umbilical ring is below the midpoint of the body, large body, short legs;
- thinning of the subcutaneous base;
- abundant vellus hair, the presence of thicker hair on the head and low growth on the forehead and the back of the head compared to full-term baby;
- open anterior fontanelle, occipital fontanelle, lateral fontanelles and sutures of the skull;
- bones of the skull are thin and soft on palpation due to their low mineralization;
- auricles are soft, etc. [10].

The criterion of live birth is the appearance of extrauterine pulmonary respiration in a viable fetus. With the first cry and inhale, the lungs, which were collapsed in the uterine state, are straightened. The child begins to swallow the air at the same time. The latter fills the stomach and small intestine within the next hours after birth. A viable fetus that is dead before the onset of respiration is considered stillborn. To determine the live birth, the so-called vital tests (pulmonary and gastrointestinal) are applied and histological examination of the lung tissue is carried out. The presence of air in the lungs and in the gastrointestinal tract before dissection can be established by conducting a visual examination (Bush-Haberdi test) and radiographically (Ya.G. Dillon's test) [11].

In addition, we agree with the opinion that a histological examination of the lungs to establish live birth and stillbirth is mandatory. The alveoli and bronchioles of the lungs of the stillborn are spawned, are of various shapes and sizes, the alveolar epithelium is cubic, elastic fibers are arranged in the form of bunches and spirals. In the breathing lungs, the alveoli are flattened, their walls are thin, the alveolar epithelium is flattened, the capillaries are full-blooded, and the elastic fibres follow the contours of the flattened alveoli. Indeed, in some forms of congenital pulmonary insufficiency (especially in premature newborns), hyaline membranes are found in the alveoli and alveolar passages. They are not detected in the stillborn baby, so their presence can be considered a sign of live birth [10].

The forensic medical examination of the corpse of a newborn is subject to obtaining data in order to answer all the necessary questions raised by the investigating authorities. Their specificity causes the use of special technical means of external and internal examination. In addition, the algorithm for the examination includes the familiarization of the forensic medical expert with the materials of the criminal case and a thorough study of the protocol of the scene of the incident [1].

During the external examination of the baby the manifestation degree of the corpse phenomena is noted. It should be taken in consideration that the skin of the corpse has a common blue-red colour, against which the spots are poorly expressed. Rigor mortis occurs after 0.5-1 hour and manifests quite well. Wet skin after birth and much more surface of the skin in relation to body weight (compared to these indicators of an adult) cause the cooling of the body, and the relatively thin and delicate mucous membranes lead to rapid drying. Also the colour of the skin and the presence of blood, vernix caseosa, signs of mesonium, haemorrhages in the skin and mucous membranes are noted.

In the course of internal examination, the procedure of taking materials for laboratory research is obligatory: pieces of internal organs, a labour tumour, and an umbilical cord from the umbilical ring – for forensic histological examination; fetal blood and washing of blood from the fetus body for forensic immunological study; vernix caseosa – for forensic cytological studies; free end of the umbilical cord – for medical and forensic investigation [1].

And only after an internal examination, the forensic expert makes an analysis of the corpse's examination results

and data from laboratory research methods and draws up the results (conclusions) with answers to questions from investigative or judicial authorities.

For providing forensic medical examination of the corpse of a newborn baby or fetus, the following main questions are posed:

- whether this child was a newborn;
- whether this child was full-term and mature or premature and immature;
- whether this child was born dead or alive;
- whether this child was viable or non-viable;
- how much time the child lived after birth;
- whether the young child received the necessary help and proper care;
- the cause of his death [12].

From the point of view of ensuring the correct qualifications of crime and qualitative proof, one of the key questions of the forensic medical examination of the corpses of newborns, we believe, is the question of whether the child was born dead or alive.

Because, if the expert states stillbirth, it thereby excludes the act of the killing of the child, which does not give grounds to bringing the mother to criminal responsibility, excluding intentional or as a result of improper fulfillment of the child care duties leading to death and vice versa. For example, PERSON_2 during January 2014 by INFORMATION_2, being in a state of pregnancy, deliberately hiding the pregnancy from relatives and their surroundings, not registering at the medical institution, having the intent to leave the newborn child at risk at around 7:00 in the morning INFORMATION_2 living in the house according to ADDRESS_1 in the toilet room located in the territory of her household, in the absence of unauthorized persons during physiological births, gave birth to a full-term and lively female child weighing 3000 grams, 48 cm long. After that PERSON_2, contrary to the requirements of Article 150 of the Family Code of Ukraine, hid the newborn child under wooden planks near the toilet, did not take measures to save her life, returned to the room of the house and didn't tell her close relatives about childbirth, that is, intentionally left the child in a state dangerous to life. According to forensic medical examination No. 726 of September 19, 19.10.2014, the newborn PERSON_2 female child died and her death was caused by mechanical asphyxiation from closing the respiratory tract with foreign matter, confirmed by histological examination of foreign particles in the bronchiole mineral particles) [13]. Therefore, attention should also be paid to what caused the death of the newborn: passive actions of the mother, health workers (another person) (for example, failure to provide assistance and proper care) or their active actions aimed at deprivation of the child's life.

In addition, it should be borne in mind that a viable child can be born dead in the event of fetal death for various reasons, and, conversely, sometimes a non-viable child is born alive and can live for some period of time.

Therefore, we believe that issues related to the condition of the mother of the newborn should be attributed to the

issues of this kind of expertise: whether she was healthy at the time of birth; what characteristics of her physical health she had (condition of the birth canal, level of intensity of labour activity, etc.); if the medical staff caused any harm to her which resulted in the death of the child; if she had the necessary help before and during childbirth, etc. This approach, despite its perception of the results of the survey, is rarely used in investigative practice. An example of positive practice is the following procedural act. 18.09.2018 Investigator of the Investigation Department of Ternovsky Police Office of National Police Headquarter in Dnipropetrovsk region PERSON_1 appealed to the investigating judge with a motion to conduct a forensic medical examination, in which he noted that on September 15, 2018, at approximately 09:20 in the morning, in the area close to abandoned building, which is located near the communal preschool institution No. 218 on the Ukhtomsky Street in Ternovsky district, Krivoy Rog, the corpse of a newborn baby was found. According to the results of the review, the motion was granted. Among the questions posed to expert for solving were: Does the child have injuries? If so, what is their severity, localization, mechanism of formation, etc.? Did the baby have a head injury while passing through the birth canal of the mother? Could damage occur from self-help during childbirth or during intensive labour? [14]

Thus, we focus on the feasibility of a thorough examination not only of the corpse of the newborn, but also of the state of the mother on the issues indicated above, if the expert has a reason for this, within the framework of the right to an expert initiative, or the subject of criminal proceedings who appointed the examination.

It is worth noting that during the survey interviews of investigators, who had criminal cases concerning the fact of the death of the newborn, as well as experts who conducted forensic medical studies to determine the causes of death of the newborn, it was summarized that 87% of them believe that questions concerning the corpse of a newborn or fetus are as necessary as questions about the state of health of the biological mother of the deceased child, since this group of questions has no less forensic value, and their solving will provide savings of procedural resources and an investigation within a reasonable time period according to the requirements of the Criminal Procedure Code of Ukraine.

According to the results of the survey, we found that 62% of respondents draw attention to the need for an integrated approach to raising issues for expert investigation and examination, including also those that will allow understanding the state of physical health of the mother. This again indicates that the question of the causes of the child's death is in correlation with the physical condition of the mother, and negative characteristics of her health condition could entail death.

CONCLUSIONS

Thus, it can be argued that the forensic medical examination of the corpses of newborns in criminal proceedings for the fact of death is carried out in accordance with

specific rules established by the legislation and methods of expert research. However, it has been concluded that there is a need to expand the list of objects of this kind of research and questions that may be brought to the expert's consideration regarding the state of health of the mother in terms of indicators that could have negative consequences for the child, including: whether she was healthy at the time of delivery; what characteristics of her physical health she had (condition of the birth canal, level of intensity of labour activity, etc.); if the medical staff caused any harm to her which resulted in the death of the child; if she had the necessary help before and during childbirth, etc.

From the point of view of the criminal procedural law, these questions are formulated independently by the investigator or prosecutor in the motion during the pre-trial investigation or in the presence of a written motion of the participant in the proceedings, in particular, one of the parents of the newborn. If the relevant motion is granted by the investigating judge, the list is suggested in his decision and can be further expanded by the expert within the framework of his right to an expert initiative.

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