

**МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
БУКОВИНСЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ»**



МАТЕРІАЛИ

**105-ї підсумкової науково-практичної конференції
з міжнародною участю
професорсько-викладацького персоналу
БУКОВИНСЬКОГО ДЕРЖАВНОГО МЕДИЧНОГО УНІВЕРСИТЕТУ
присвяченої 80-річчю БДМУ
05, 07, 12 лютого 2024 року**

Конференція внесена до Реєстру заходів безперервного професійного розвитку,
які проводитимуться у 2024 році № 3700679

Чернівці – 2024

УДК 001:378.12(477.85)

ББК 72:74.58

М 34

Матеріали підсумкової 105-ї науково-практичної конференції з міжнародною участю професорсько-викладацького персоналу Буковинського державного медичного університету, присвяченої 80-річчю БДМУ (м. Чернівці, 05, 07, 12 лютого 2024 р.) – Чернівці: Медуніверситет, 2024. – 477 с. іл.

ББК 72:74.58

У збірнику представлені матеріали 105-ї підсумкової науково-практичної конференції з міжнародною участю професорсько-викладацького персоналу Буковинського державного медичного університету, присвяченої 80-річчю БДМУ (м. Чернівці, 05, 07, 12 лютого 2024 р.) із стилістикою та орфографією у авторській редакції. Публікації присвячені актуальним проблемам фундаментальної, теоретичної та клінічної медицини.

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ISBN 978-617-519-077-7

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університет, 2024

Results. Intensive implementation of perinatal prevention and treatment of congenital defects requires up-to-date approaches and methods or research of intrauterine development. Qualified fulfilment and interpretation of the results of up-to-date diagnostic methods including CT and MRI, proper performance of perinatal surgery and autopsies become possible only when clinical and anatomical studies are comprehensive. Nowadays, certain defects found during the embryonic development can be treated by means of intrauterine surgery. It requires special knowledge of anatomical features and patterns of development.

Our literature review shows that topographical and anatomical features of the vascular and nerve formations in the pelvis are characterized by a variety of topographical positions.

For successful performance of prenatal and neonatal surgery, modern medicine requires more accurate information about age-related anatomical variability in the structure of the human organs, and peculiarities of their blood and nerve supply, as well as origin of vessels and nerves. Surgery on the organs of the minor pelvis are quite common, but they are particularly complicated to perform due to anatomically limited space and a significant amount of important structures which damage can lead to loss of functions or even have a fatal outcome. One of the most dangerous complications in pelvic surgery is bleeding that can be prevented or arrested by ligation of appropriate internal iliac arteries.

Conclusion. The lack of systematization of information regarding syntopical correlations, variants of the structure of vascular-nerve formations of the pelvis and their interconnections, lack of information regarding their chronological sequence of topographic-anatomical transformations at all stages of ontogenesis determine the need for further scientific research using modern methods of morphological research.

Sarkisova Yu.V.

IMPROVING THE ACCURACY OF DETERMINING THE POST-MORTEM INTERVAL USING THE METHOD OF LASER POLARIZATION MICROSCOPY

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Introduction. The urgency of developing new methods for diagnosing the postmortem interval is determined by the need to improve the accuracy and objectivity of determining the time of death. Existing methods, although effective, have their limitations and peculiarities, such as the influence of external factors on the accuracy of determinations. The development of new approaches based on modern technologies, such as the analysis of molecular and biochemical changes, as well as the use of modern physical methods can increase the objectivity and reliability of the results. This is of great importance for the further development of forensic science and practice, contributing to the improvement of forensic examinations and investigations.

The aim of the study. To demonstrate the effectiveness of laser polarization microscopy of circular birefringence images of the human vitreous body (VB) in determining the postmortem interval.

Materials and methods. For the study, human VB was selected from cadavers (n=98) who died of cardiac death with a precisely known postmortem interval. The study did not include materials for craniocerebral and eye injuries, as well as for poisoning with any substances - which could affect the obtained results. Measurements of the distributions of changes in the values of light scattering and absorption of radiation during the passage of the beam through the VB were carried out using a Stokes polarimeter of a classical design.

Results. The results of the analysis of images of the structure of the polycrystalline fraction of the VB by the method of microscopic polarization tomography showed a linear interval of changes in the values of statistical moments of the 1st-4th order, which indicates a linear increase of postmortem changes in the range from 1 to 36 hours. These dynamic changes corresponded to the following values: SM_1 decreased within the average values from 0.67 to 0.19, SM_2 – from 0.74 to 0.22, SM_3 increased from 0.26 to 1.12, SM_4 – from 0.53 to 2.06. Temporal changes in asymmetry and excess turned out to be the most significant postmortem changes in protein structure.

The improvement of the sensitivity of the method of polarization microscopic analysis of birefringence distributions is indicated by the increase in the angles of inclination of the linear dependences of postmortem changes of statistical moments of higher orders. This technique provides a fairly high level of accuracy in establishing the postmortem interval - 25-30 minutes within 24-36 hours.

Conclusions. The indicated effectiveness of the method of laser polarization microscopy emphasizes its potential as an important tool in forensic medical practice. Detailed information obtained using this method can significantly affect the understanding of the features of postmortem changes and the accuracy of determining the postmortem interval, and therefore the objectivity of expert conclusions.

Savka I.G.

PRESENTATION OF THE MODERN 3D MODELING METHOD INTO THE THEORY AND PRACTICE OF FORENSIC MEDICINE BALISTICS

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Introduction. More and more frequently, cases involving the use of firearms become the subjects of forensic investigations worldwide, occurring in civilian life as well as armed conflicts in various parts of the globe. This, in turn, necessitates the development of new methods for diagnosing gunshot injuries caused by various types of firearms.

The aim: The scientific study aimed to explore the capabilities of the modern 3D modeling method for various elements of gunshot wounds in the theory and practice of forensic medicine.

Materials and methods: The research began with a series of experimental shots, during which the morphological features were examined through their 3D spatial reconstruction. The entire series of experimental shots was conducted using an automatic pistol IZH 70-01 equipped with 9.0 mm caliber bullets. The ballistic clay Roma Plastilina No.1, manufactured in the USA, was utilized as a material for conducting standard ballistic tests according to the standards of the National Institute of Justice.

Results: The research was continued during the performance of forensic examinations involving actual cases of gunshot injuries. The dimensions of individual elements of the wound channel were measured in both experimental and expert cases using conventional measuring tools, as well as after their 3D modeling, using special graphic editors.

Conclusions. In the course of presentation and studying experimental and expert 3D models, the dimensions of individual morphological elements of the wound channel were recorded with an accuracy that exceeded the results obtained through measurements using traditional measurement methods by ten times.

Shilan K.V.

FORENSIC MEDICAL DIFFERENTIATION OF CIRCULAR DIKHOISM OF BIOLOGICAL TISSUES AND LIQUIDS OF CORPSES WITH DIFFERENT VOLUMES OF BLOOD LOSS

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Introduction. The development of accurate methods for determining the degree of blood loss is of great importance for forensic medical experts, because it contributes to increasing objectivity and accuracy in assessing the consequences of blood loss in the deceased and establishing the cause of death. Accurate determination of the volume of blood loss is critically important for objectively determining the degree of traumatic injuries, the circumstances of the events, and the establishment of justice. Existing methods often do not provide a high standard of accuracy, which can lead to unreliability in court decisions. The development of new laser polarimetry methods for determining blood loss will be a key step in increasing the reliability and objectivity of forensic examinations.