AJPMHS GLOBAL RESEARCH NETWORK

AMERICAN Journal of Pediatric Medicine and Health Sciences
Volume 01, Issue 10, 2023 ISSN (E): 2993-2149

Morphological Changes of the Liver of Album Rats After Pulmonary Fibrosis

Shomurodova Mukhayyo Raxmonovna
Bukhara State Medical Institute

Abstract. Fibrosis and the resulting decrease in organ function account for almost 50% of deaths in developed countries. The liver is the most important internal organ that acts as a filter, cleaning the blood from toxic substances, poisons and other toxic substances. It is the largest gland in the human body and is directly involved in protein, fat and carbohydrate metabolism. Responsible for detoxification, blood, food digestion and excretion. Liver consists of 300 billion liver cells. That is why the liver is called the "complex chemical factory of the body". Taking into account that the human liver has similarities with the liver of the non-white breed rat, we aimed to study the liver of the non-white breed rat in our work.

Key words: liver, morphology, hepatocyte, pulmonary fibrosis.

The urgency of the problem. Recently, a lot of attention has been paid to the pathologies of body organs such as the brain, intestines, and heart. However, the liver, which performs a very important task in the body, cleanses the body and protects it from many problems, seems to be a little forgotten. Because he does not bother for nothing. Studying the pathologies that can be observed in the liver as a result of pulmonary fibrosis and developing measures to prevent these pathological processes is a requirement of the time, and many medical workers, scientists, and scientific research institutes have conducted and are conducting scientific practical work. despite the negative consequences, human health remains at risk. Therefore, development of pathological conditions in the organs of the human body, especially the liver, and measures to prevent them is not only a demand of the times, but it requires us to develop a new outlook on diseases, new modern measures. Studying the pathologies that can be observed in the liver and developing measures to prevent these pathological processes is a requirement of the time, for this it is necessary to know the morpho-functional characteristics of the liver.

The purpose of the work is to determine the changes that occur in liver cells after pulmonary fibrosis.

Material and methods. In the experiment, based on the macroscopic and microscopic studies of tissues taken from the liver of purebred white rats as material, liver tissue from a total of 80 purebred rats was histologically examined. All biological safety rules and ethical principles of working with laboratory animals were strictly followed during the storage, annihilation and anatomical dissection of laboratory animals. The experimental work was based on macroscopic and microscopic studies of tissues taken from the liver of purebred rats. The histolaboratory located in the Simulation Center of the Bukhara State Medical Institute was used to study the morphological changes in the liver in the experimental groups of white rats in the experimental

group. Method of morphological examination. We also used Van Gieson and Hematoxylin-eosin staining to achieve this goal.

Results and conclusions. Hepatocytes are multifaceted cells, that is, they have several "sides". It is through these "sides" that these cells communicate with each other or with the liver sinusoids, which are the internal capillaries of the liver. In addition, they are polarized cells, which means they have a "basal" and an "apical" region. The apical region is in contact with bile ducts, which are small channels through which these cells secrete bile, while the basal region is in contact with sinusoidal spaces (capillaries). Liver cells have a central nucleus of variable size, although they constitute a small percentage of hepatocytes. Its endoplasmic reticulum is particularly abundant and participates in the main functions of the liver, such as the production of serum proteins (albumin, microglobulins, transferrin, ceruloplasmin and some components of lipoproteins). When looking at liver cells under a microscope, it can be seen that many contain a system of well-defined saccules or cisterns that correspond to the Golgi complex.

Lysosomes, closely associated with the membranes of the Golgi complex, participate in the breakdown of various intracellular materials, especially potentially dangerous substances. The results of the histological examination of the liver showed that the human liver is considered to be an organ that does not differ much from the liver of the purebred rat, and the hepatocytes in the liver of the purebred rat are similar to the human liver. It was found that the following morphological changes are at the same level. When there are viral lesions in the liver, the size of the liver increases and falls below the edge of the rib cage.

Macroscopically, we see that the consistency of the liver is dense, tense, with a red capsule. Microscopically, vacuoles of different sizes appear in the cytoplasm of hepatocytes, that is, we can observe hydropic dystrophy. Coagulation in the cytoplasm of some liver cells. foci appear in the form of dense, structureless pink masses. The nuclei of such hepatocytes are pyknotic. The stroma is characterized by a diffuse infiltration of lymphocytes and macrophages with a mixture of neutrophils, eosinophils and plasma cells. Damage to the hepatocyte membrane is manifested by an increase in aminotransferases (ALT and AST). In the necrotic form, significant necrosis occurs in the liver parenchyma.

Hepatocytes are stored only in the periphery of the liver. Viral damage to the liver is characterized by liver failure, post-necrotic cirrhosis of the liver, inflammation of the bile ducts. These collected data are important for students of histology, pathophysiology, pathoanatomy, anatomy departments of medical institutions to study morphological and macroscopic data, as well as to determine what structural changes occur in the liver at the site of disease progression and correct allows to evaluate. Under the experimental conditions, the following changes were detected in the liver of a 1-month-old white breed rat: inflammatory elements are clearly identified around blood vessels, focal dystrophic changes are detected in hepatocyte cells.

Signs of inflammation around the triads, the process of fibrosis, swelling of sinusoidal spaces, focal dystrophic processes in hepatocytes, migration of Kupffer cells.Under the experimental conditions, the following morphological changes were detected in the liver of a 2-month-old purebred rat: Sinusoidal spaces are full, signs of inflammation around the wall of the central vein, dystrophic changes in hepatocytes. Inflammatory elements, sparse fibrous tissue growth are observed around triads, blood vessels and sinusoidal spaces are full. Fatty dystrophic changes in hepatocytes, hepatocytes undergoing dystrophy. Under the experimental conditions, the following morphological changes were detected in the liver of a 3-month-old purebred rat: Sparse fibrosis and inflammatory elements, lympho-histiocytic infiltrations around the triads, enlarged sinusoidal spaces, focal dystrophic state of hepatocytes. Blood vessels are full, sinusoidal spaces are

expanded, dystrophic changes in cell cytoplasm. Sinusoidal spaces, hepatocytes with circular large nuclei, dystrophic changes.

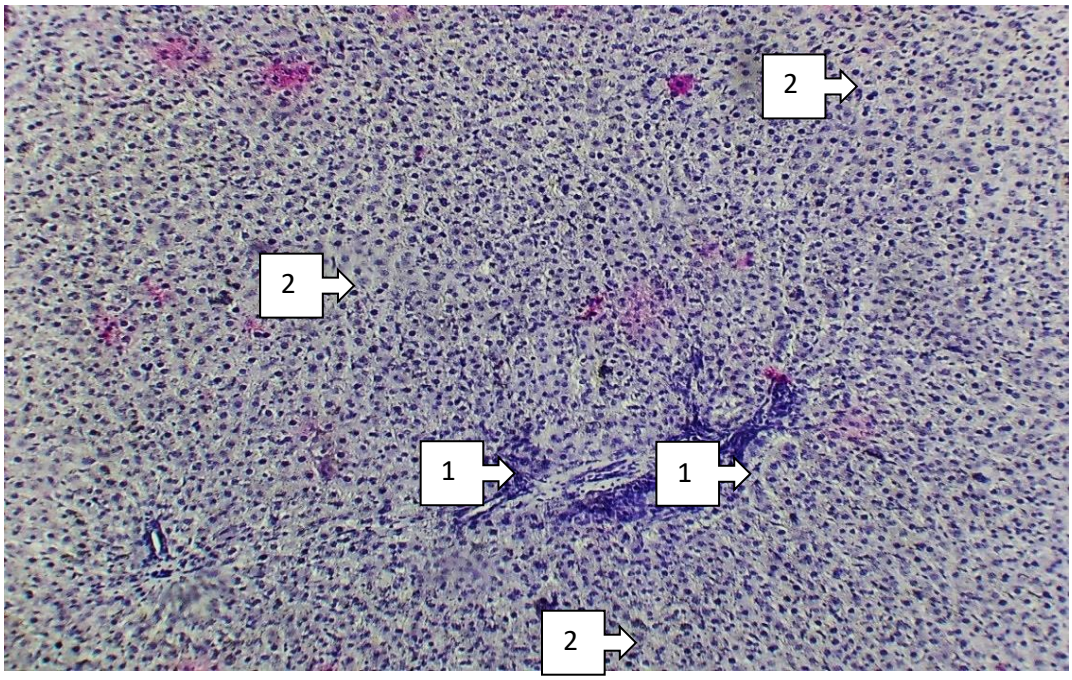

Fig. 1. Liver of a 1-month-old white non-breed rat. Paint G-E. The size is 4x20 ob. Signs of inflammation around blood vessels (1), focal dystrophic changes in hepatocyte cells (2) are detected.

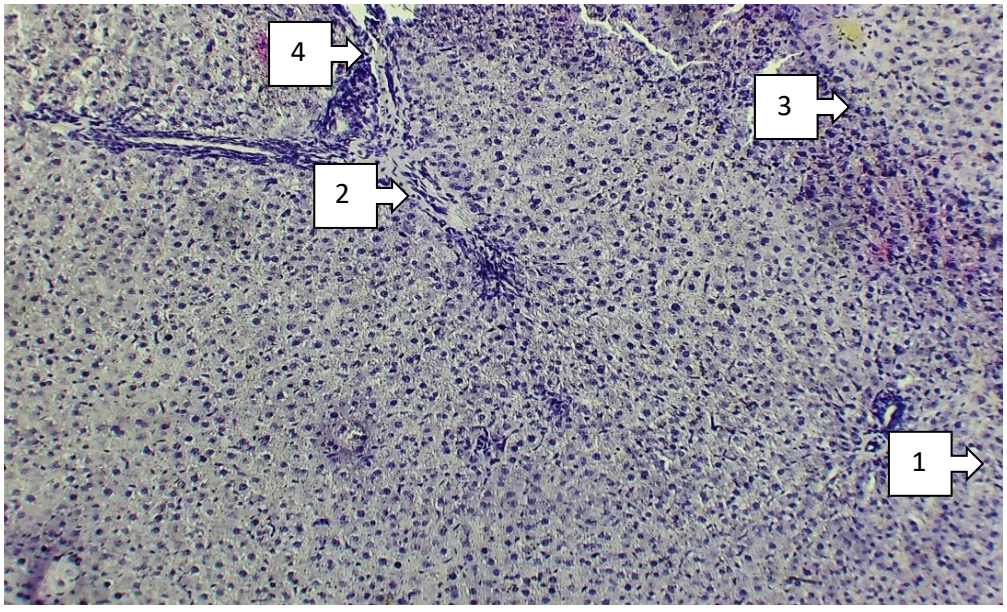

Fig.2. Liver of a 1-month-old white non-breed rat. Paint G-E. The size is 4x20 ob. Signs of inflammation around the triads (1), fibrosis process (2), sinusoidal spaces are swollen (3), focal dystrophic processes in hepatocytes (4).

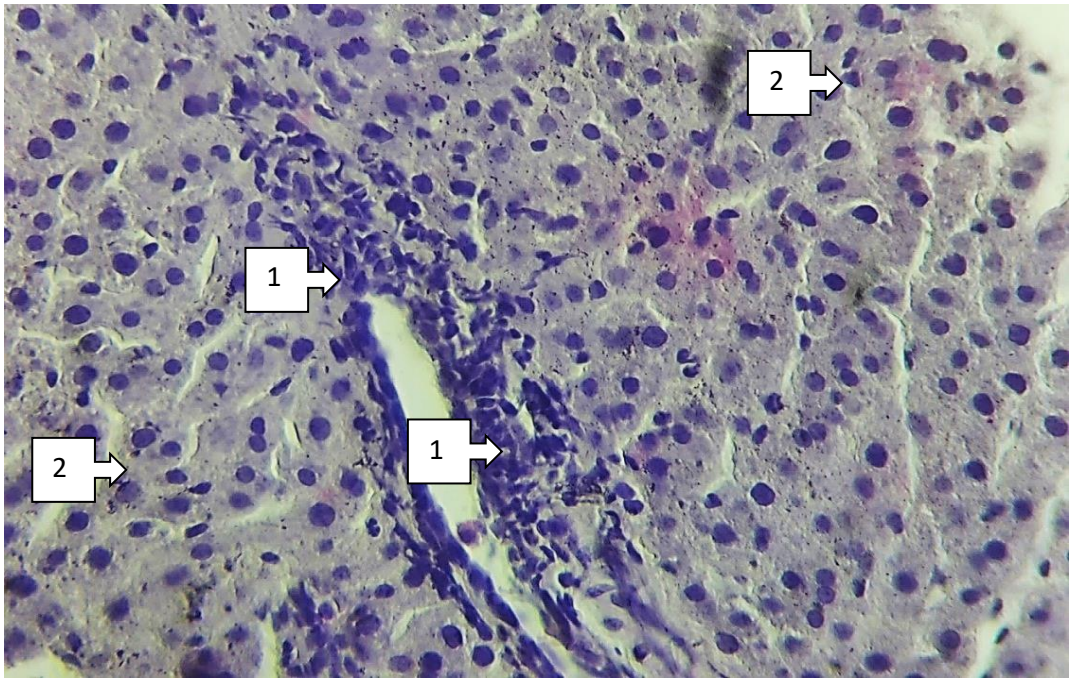

Fig.3. Liver of a 1-month-old white non-breed rat. Paint G-E. The size is 10x20 ob. Inflammatory infiltrates around the venous blood vessels (1), enlarged nuclei of hepatocyte cells (2).

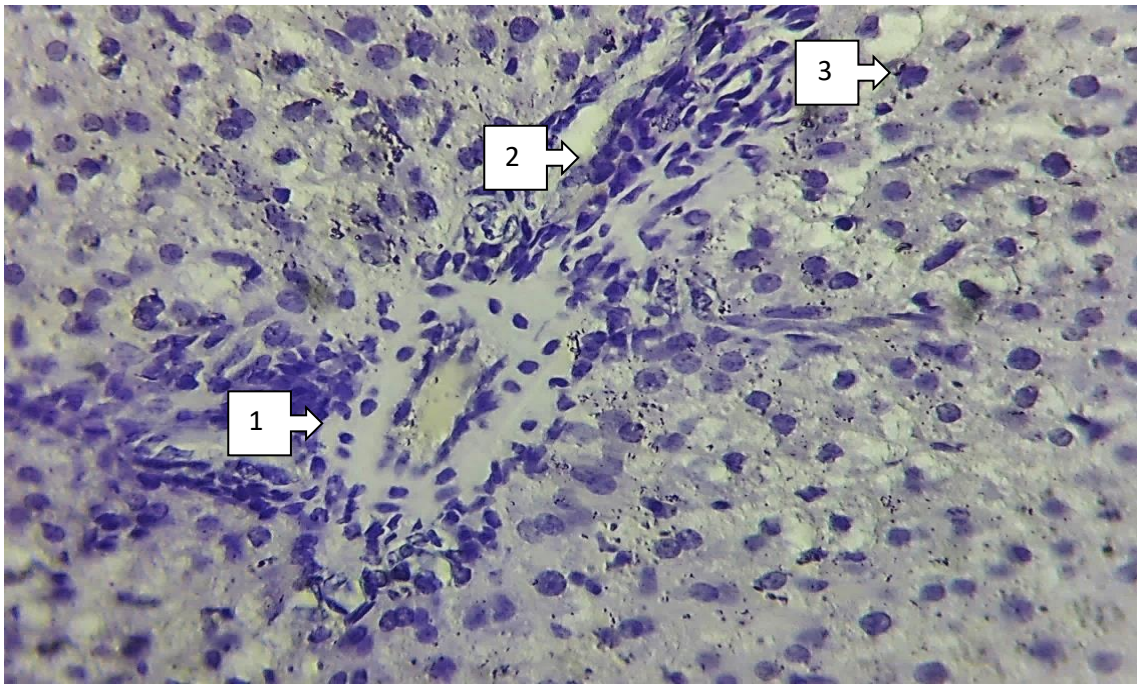

Fig.4. Liver of a 1-month-old white non-breed rat. Paint G-E. The size is 10x20 ob. Vascular wall thickened due to connective tissue growth (1), signs of inflammation, migration of Kupffer cells (2), enlarged hepatocyte nuclei (3).

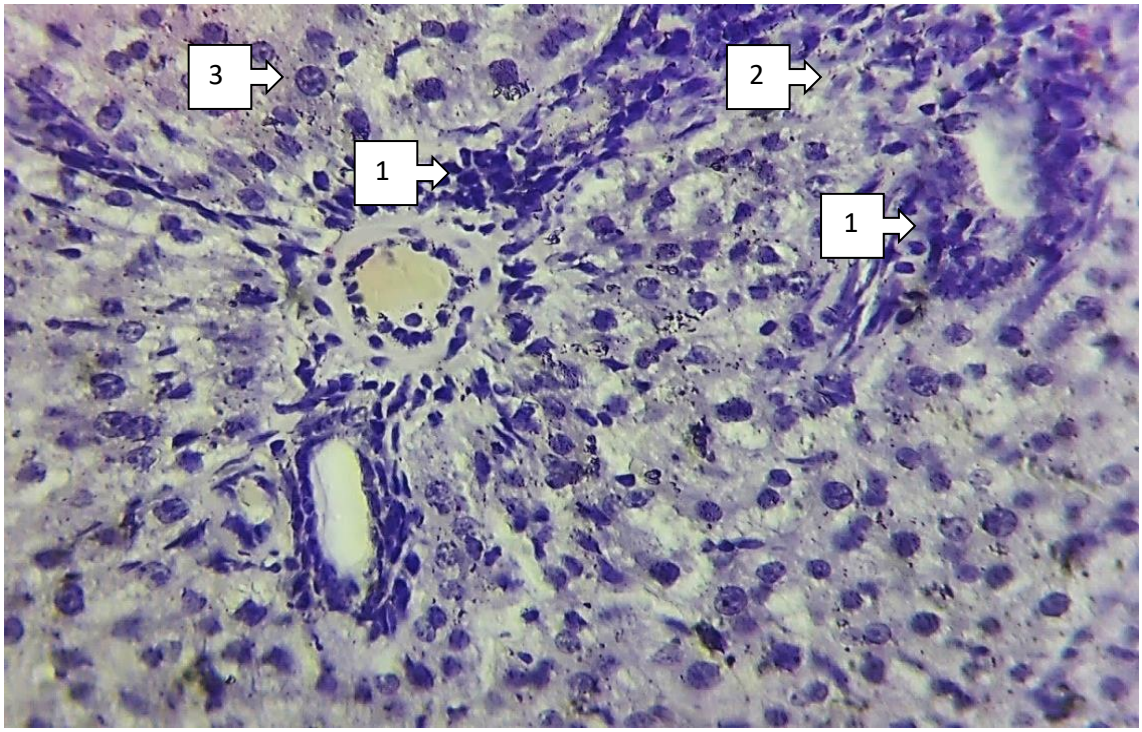

Fig. 5. 2-month-old white rat liver. Paint G-E. The size is 10x20 ob. Inflammatory elements (1), sparse fibrous tissue growth are observed around the triads (2), hepatocyte nuclei are enlarged (3).

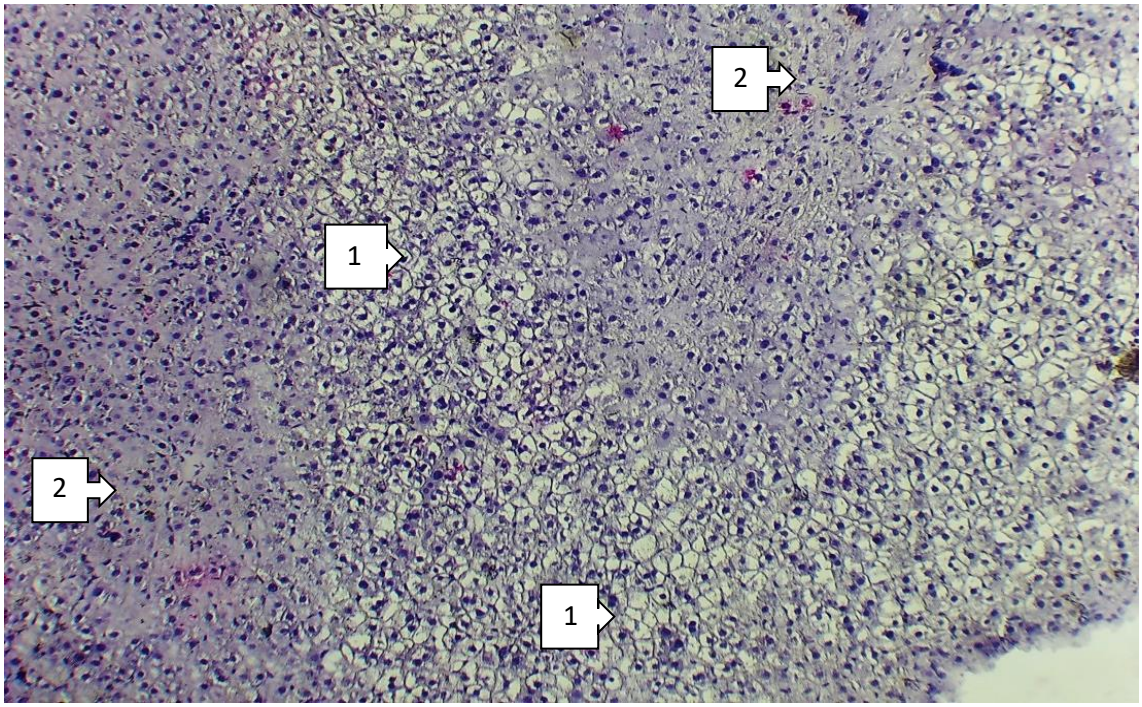

Fig. 6. 2-month-old white rat liver. Paint G-E. The size is 10x20 ob. Fatty dystrophic changes in hepatocytes (1), hepatocytes undergoing dystrophy (2).

Literature

1. Shomurodova Mukhayo Rakhmonovna, (May 6, 2023). Morphological Features and Morphometric Parameters of the Lungs after Correction with an Immunomodulator Under the

Conditions of Experimental Chemotherapy. Journal of Natural and Medical Education (pp. 55-60).
2. Shomurodova Mukhayo Rakhmonovna, (05 2023) Mastopatiya. Yosh Patmorfolog Nigohida. Amaliy va tibbiyot fanlari ilmiy jurnali (193-197) https://sciencebox.uz
3. Shomurodova Muxayyo Raxmonovna (05 2023) Morfometricheskie Pokazateli Legkix Posle Korreksii Immunomodulyatorom V Usloviyax Eksperimentalnoy Ximioterapii Amaliy va tibbiyot fanlari ilmiy jurnali (198-202) https://sciencebox.uz
4. Айтбаев Кубаныч Авенович, Муркамилов Илхом Торобекович, Фомин Виктор Викторович, Кудайбергенова Индира Орозобаевна, Муркамилова Жамила Абдилалимовна, Юсупов Фуркат Абдулахатович ЛЕГОЧНЫЙ ФИБРОЗ КАК ПОСЛЕДСТВИЕ ПАНДЕМИИ COVID-19 // Бюллетен науки и практики. 2021. №5. URL: https://cyberleninka.ru/article/n/legochnyy-fibroz-kak-posledstvie-pandemii-covid-19 (дата обращения: 29.07.2022).
5. Белевский А.С., Визел А.А., Зырянов С.К., Игнатова Г.Л., Колбин А.С., Лещенко И.В., Титова О.Н., Фролов М.Ю. Хроническая обструктивная болезн легких: проблемы сегодняшнего дня // Практическая пулмонология. 2015. №3. URL: https://cyberleninka.ru/article/n/hronicheskaya-obstruktivnaya-bolezn-legkih-problemy-segodnyashnego-dnya (дата обращения: 29.11.2022).
6. Бондарев О.И., Бугаева М.С., Михайлова Н.Н., Филимонов С.Н. ОСОБЕННОСТИ СТРУКТУРНОЙ ДЕЗОРГАНИЗАТSIИ КОЛЛАГЕНА КАК ПУСКОВОГО МЕХАНИЗМА ПНЕВМОСКЛЕРОЗА У ШАХТЕРОВ // Мед. труда и пром. экол.. 2018. №6. URL: https://cyberleninka.ru/article/n/osobennosti-strukturnoy-dezorganizatsii-kollagena-kak-puskovogo-mehanizma-pnevmoskleroza-u-shahterov (дата обращения: 29.11.2022).
7. Ташметова Г.Т., Ливерко И.В. Хроническая обструктивная болезн легких в организованных коллективах. *Туберкулез и болезни легких*. 2020;98(6):36-39.
8. Андреева Е. А., Кузнецова О. Ю., Похазникова М. А. Ранняя диагностика хронической обструктивной болезни легких - миф или реалност? // Вестник Санкт-Петербургской академии последипломного образования. - 2011. - № 4. - С. 136-140.
9. Захарова И. А. Хронические неспецифические заболевания легких у лиц молодого возраста. Распространенност, особенности клинико-функционалного статуса и качества жизни: Автореф. дис. … д-ра мед. наук. - 2017. - 47 с.
10. Карнаушкина М. А., Овсянников Д. Ю., Бойцова Е. В., Малявин А. Г. Хроническая обструктивная болезн легких: возможный исход бронхолегочной дисплазии // Доктор.ру. - 2014. - № 2. - С. 10-16.
11. Карроматов И.Д., Набиева З.Т., Ганиев Р.М. Плоды гранатов в профилактике и лечении сахарного диабета и сердечнососудистых заболеваний //Биология и интегративная медицина 2018, 2(19), 91-100.
12. Окатева В.Е., Малцева Е.М. Влияние концентратsiи этанола на антиоксидантную активност извлечений из перикарпия плода граната обыкновенного (Punica Granatum L.) - // Международный студенческий научный вестник 2018, 4-4, 678-680.
13. Позднякова О. Ю., Батурин В. А. Особенности клинических проявлений хронической обструктивной болезни легких в зависимости от возраста // Медицинский вестник Северного Кавказа. - 2011. - № 11. - С. 7-9.
14. Олимова А. З., Шодиев У. М. Репродуктив Ёшдаги эркакларда бепуштлик сабаблари: Бухоро тумани эпидемиологияси //Scientific progress. – 2021. – Т. 2. – №. 7. – С. 499-502.

15. Zokirovna O. A., Abdurasulovich S. B. Ovarian Diseases in Age of Reproductive Women: Dermoid Cyst //IJTIMOIY FANLARDA INNOVASIYA ONLAYN ILMIY JURNALI. – 2021. – Т. 1. – №. 6. – С. 154-161.
16. Olimova A. Z. ECHINOCOCCOSIS OF LIVER OF THREE MONTHLY WHITE RAT //Scientific progress. – 2022. – Т. 3. – №. 3. – С. 462-466.
17. Олимова А. З. Морфологические и морфометрические особенности печени белых беспородных трех месячных крыс после тяжёлой черепно-мозговой травмы вызванной экспериментальным путём //BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI. – 2021. – Т. 1. – №. 6. – С. 557-563.
18. Oglu M. Z. M., Zokirovna O. A. МОРФОЛОГИЧЕСКИЕ И МОРФОМЕТРИЧЕСКИЕ ПАРАМЕТРЫ ПЕЧЕНИ БЕЛЫХ БЕСПОРОДНЫХ КРЫС, ПЕРЕНЕСШИХ ЭКСПЕРИМЕНТАЛЬНУЮ ЧЕРЕПНО-МОЗГОВУЮ ТРАВМУ ПОСЛЕ МЕДИКАМЕНТОЗНОЙ КОРРЕКЦИИ //JOURNAL OF BIOMEDICINE AND PRACTICE. – 2023. – Т. 8. – №. 1.
19. Олимова А. З., Турдиев М. Р. БУХОРО ШАҲРИДА МЕЪДА ВА ЎН ИККИ БАРМОҚЛИ ИЧАК ЯРАСИ УЧРАШ ЭПИДЕМИОЛОГИЯСИ //Oriental renaissance: Innovative, educational, natural and social sciences. – 2022. – Т. 2. – №. 4. – С. 642-647.
20. Zokirovna O. A. Modern Concepts of Idiopathic Pulmonary Fibrosis //American Journal of Pediatric Medicine and Health Sciences. – 2023. – Т. 1. – №. 3. – С. 97-101.
21. Zokirovna O. A. Pathology of Precancerous Conditions of the Ovaries //American Journal of Pediatric Medicine and Health Sciences. – 2023. – Т. 1. – №. 3. – С. 93-96.
22. Зокировна, Олимова Азиза и Тешаев Шухрат Джумаевич. «Морфологические аспекты печени белых беспородных крыс после тяжелой черепно-мозговой травмы, вызванной экспериментально в виде дорожно-транспортного происшествия». *Scholastic: Journal of Natural and Medical Education* 2.2 (2023): 59-62.
23. Zokirovna O. A. Comparative characteristics of the morphological parameters of the liver at different periods of traumatic brain injury //Euro-Asia Conferences. – 2021. – С. 139-142.
24. Zokirovna O. A. Macroand microscopic structure of the liver of threemonthly white rats //Academic research in educational sciences. – 2021. – Т. 2. – №. 9. – С. 309-312.
25. Олимова А. З. Частота Встречаемости Миомы Матки У Женщин В Репродуктивном Возрасте //BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI. – 2021. – Т. 1. – №. 6. – С. 551-556.
26. Zokirovna O. A., Abdurasulovich S. B. Ovarian Diseases in Age of Reproductive Women: Dermoid Cyst //IJTIMOIY FANLARDA INNOVASIYA ONLAYN ILMIY JURNALI. – 2021. – Т. 1. – №. 6. – С. 154-161.
27. Zokirovna O. A. Cytological screening of cervical diseases: pap test research in the bukhara regional diagnostic center for the period 2015-2019. – 2022.
28. Zokirovna O. A., PREVALENCE R. M. M. EPIDEMIOLOGY OF CANCER OF THE ORAL CAVITY AND THROAT IN THE BUKHARA REGION //Web of Scientist: International Scientific Research Journal. – 2022. – Т. 3. – №. 11. – С. 545-550.
29. Olimova A. Z. The frequency of occurrence of my uterus In women of reproductive age //JOURNAL OF ADVANCED RESEARCH AND STABILITY (JARS). – 2021. – Т. 1. – №. 06. – С. 551-556.
30. Olimova Aziza Zokirovna. (2023). MODERN PRINCIPLES OF THE EFFECT OF HEMODIALYSIS THERAPY ON HEART RATE. *International Journal of Integrative and*

Modern Medicine, *1*(1), 80–85. Retrieved from http://medicaljournals.eu/index.php/IJIMM/article/view/28
31. Olimova Aziza Zokirovna. (2023). PATHOMORPHOLOGICAL CHARACTERISTICS OF THE EPIDIDYMIS UNDER IRRADIATION. *International Journal of Integrative and Modern Medicine*, *1*(1), 96–100. Retrieved from http://medicaljournals.eu/index.php/IJIMM/article/view/31
32. Olimova Aziza Zokirovna. (2023). THE INCIDENCE OF CANCER OF THE ORAL CAVITY AND PHARYNX IN THE BUKHARA REGION. *International Journal of Integrative and Modern Medicine*, *1*(1), 86–89. Retrieved from http://medicaljournals.eu/index.php/IJIMM/article/view/29
33. Olimova Aziza Zokirovna. (2023). INFLUENCE OF ALCOHOL INTOXICATION ON THE HEART TISSUE OF RATS IN THE EXPERIMENT. *International Journal of Integrative and Modern Medicine*, *1*(1), 90–95. Retrieved from http://medicaljournals.eu/index.php/IJIMM/article/view/30
34. Olimova Aziza Zokirovna. (2023). Modern Aspects of the Etiology of Gastric Ulcer and Its Complications. *American Journal of Pediatric Medicine and Health Sciences (2993-2149)*, *1*(3), 163–166. Retrieved from http://grnjournal.us/index.php/AJPMHS/article/view/208
35. Zokirovna O. A., Jumaevich T. S. Morphological Aspects of the Liver of White Outbred Rats After Severe Traumatic Brain Injury Caused Experimentally in the Form of a Road Accident //Scholastic: Journal of Natural and Medical Education. – 2023. – Т. 2. – №. 2. – С. 59-62.
36. Aziza Zokirovna Olimova GASTRIC ULCER AND ITS COMPLICATIONS // Scientific progress. 2022. №3. URL: https://cyberleninka.ru/article/n/gastric-ulcer-and-its-complications (дата обращения: 28.09.2023).
37. Olimova Aziza Zokirovna. (2022). TECHNIQUE FOR CUTTING BIOPSY AND SURGICAL MATERIAL IN THE PRACTICE OF PATHOLOGICAL ANATOMY AND FORENSIC MEDICINE. *Web of Scientist: International Scientific Research Journal*, *3*(7), 116–120. https://doi.org/10.17605/OSF.IO/PSQ59
38. Zhumayevich N. F., Zokirovna O. A. PATHOMORPHOLOGY OF GASTRIC CANCER //BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI. – 2022. – С. 330-333.
39. Zokirovna O. A. Epidemiological and Etiological Data of Morphogenesis and Pathomorphology of Congenital Heart Diseases in Children //American Journal of Pediatric Medicine and Health Sciences. – 2023. – Т. 1. – №. 4. – С. 88-91.