



BRITISH **MEDICAL JOURNAL**



British Medical Journal

Volume 3, No.3, May 2023

Internet address: <http://ejournals.id/index.php/bmj>

E-mail: info@ejournals.id

Published by British Medical Journal

Issued Bimonthly

3 knoll drive. London. N14 5LU United Kingdom

+44 7542 987055

Chief editor

Dr. Fiona Egea

Requirements for the authors.

The manuscript authors must provide reliable results of the work done, as well as an objective judgment on the significance of the study. The data underlying the work should be presented accurately, without errors. The work should contain enough details and bibliographic references for possible reproduction. False or knowingly erroneous statements are perceived as unethical behavior and unacceptable.

Authors should make sure that the original work is submitted and, if other authors' works or claims are used, provide appropriate bibliographic references or citations. Plagiarism can exist in many forms - from representing someone else's work as copyright to copying or paraphrasing significant parts of another's work without attribution, as well as claiming one's rights to the results of another's research. Plagiarism in all forms constitutes unethical acts and is unacceptable. Responsibility for plagiarism is entirely on the shoulders of the authors.

Significant errors in published works. If the author detects significant errors or inaccuracies in the publication, the author must inform the editor of the journal or the publisher about this and interact with them in order to remove the publication as soon as possible or correct errors. If the editor or publisher has received information from a third party that the publication contains significant errors, the author must withdraw the work or correct the errors as soon as possible.

OPEN ACCESS

Copyright © 2023 by British Medical Journal

CHIEF EDITOR

Dr. Fiona Egea

EDITORIAL BOARD

J. Shapiro, MD

M.D. Siegel, MD, MPH, FCCP

S. Shea, MD

S.Sipila, PhD

**M. Sherman, MB BCh PhD,
FRCP(C)**

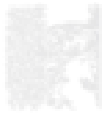
P.Slocum, DO

H. Shortliffe, MD, PhD, FACMI

A. Soll, MD

D.S. Siegel, MD, MPH

ELSEVIER



SSRN
STANDARD STANDARD
STANDARD STANDARD

Universal
Impact Factor



MORPHOLOGICAL AND MORPHOMETRIC CHANGES OF SPLEEN LYMPHOID TISSUES OF 3-4-5-MONTH-OLD STERILITY RATS AFTER SIMULTANEOUS ADMINISTRATION OF 5 DIFFERENT DRUGS FOR 10 DAYS.

**Saidov Akmal Abdullaevich
Ochilov Komil Rakhimovich**
Bukhara State Medical Institute
Uzbekistan.

Abstract: The spleen is an important part of the lymphatic system as well as the immune system. This means that it plays an important role in the development of our body against the attack of pathogens, bacteria, viruses, fungi, parasites. It is located in the spleen-abdominal cavity, next to the pancreas, its dimensions are about 10-12 centimeters is a small organ. It is connected with the liver through a special network of blood vessels, because some of its functions are complemented by the functions of the liver. In some blood diseases (for example, thrombocytopenic purpura, some hereditary hemolytic anemia), the function of the spleen is impaired. Pathologies of the spleen are treated conservatively (drugs). He is prescribed antibiotics, anti-inflammatory and painkillers. The purpose of the article is to develop the most effective and safe method of combating polypharmacy with anti-inflammatory drugs. This makes it possible to improve the quality of medical care and reduce the number of side effects of drugs.

Keywords: morphology, morphometry, lymphoid structure, spleen.

Relevance. The use of anti-inflammatory drugs depends on the organ in which the inflammatory process is observed, its pathogenesis, etc. In inflammation caused by infection, antibiotics and other chemotherapeutic agents are used, they suppress the life activity of microorganisms and contribute to the inflammatory process in the microflora environment. affects relatively. Certain chemotherapeutic agents (for example, sulfonamides, tetracyclines, etc.) also eliminate inflammatory processes, but their effectiveness is low. According to their chemical structure, anti-inflammatory drugs are divided into steroid and non-steroidal groups. Anti-inflammatory drugs are used in the treatment of inflammatory diseases with different causes. They are often used as a remedy against rheumatism. Anti-inflammatory steroid drugs are used to treat myocarditis, acute and chronic (nephritis, hepatitis, etc.) inflammatory diseases of internal organs. Glucocorticoids are useful for local use in dermatology (for example, eczema, dermatitis, neurodermatitis), ophthalmology (keratitis, conjunctivitis, iritis, blepharitis, etc.), otorhinolaryngology (vasomotor and allergic rhinitis, inflammation of the external auditory canal). is used. Currently, polypharmacy is considered a serious problem for the healthcare system as a result of iatrogenicity, as it is clinically manifested by a decrease in the effectiveness of pharmacotherapy and the development of serious adverse reactions to drugs, as well as a significant increase in healthcare costs.

Material and methods. Morphological studies related to the creation of this methodological recommendation were carried out in 2020-2022 in the vivarium and research laboratory of the Bukhara State Medical Institute. 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. .

Permission was obtained from the Ethics Committee of the Ministry of Health of the Republic of Uzbekistan to conduct experiments with laboratory animals (white rats).

Based on the macroscopic and microscopic studies of the tissues taken from the spleens of purebred rats during the period of 2020-2022, a total of 40 spleen tissues divided into two groups were histologically studied. For general morphology, 1.5x1.5 cm pieces were cut from each spleen, that is, from the upper area, the middle area, and the lower part, and frozen in 10% neutralized formalin solution for 24 hours. After washing in running water for 2-4 hours, they were dehydrated in increasing concentrations of alcohol and xylene, then diluted paraffin was poured, paraffin was frozen in a refrigerator, and paraffin bricks were prepared from them.

Sections of 5-8 μ m were prepared from paraffin blocks on a slide microtome and stained with hematoxylin and eosin. To study the morphological changes in the spleen in the experimental groups of white rats in the experimental group, the histolaboratory located in the Simulation Center of the Bukhara State Medical Institute was used, and preparations were prepared there. The following anti-inflammatory agents were used to study the effects of polypharmacy on the spleen in the experimental groups of purebred white rats:

Aspirin (NYaQD-salicylic acid derivatives), paracetamol (NYaQD-anilide derivatives).

Results and conclusions. The spleen is covered with connective tissue, which forms a capsule. In the interior, there are trabeculae (plates) that create a foundation. Trabecula and plates form the support-contractile framework of the spleen. The presence of fibrous-connective tissue, the main part of which is occupied by elastic fibers, can easily change the size of the organ. The internal structure of the parenchyma consists of 2 parts: white and red pulp

White pulp is divided into the following zones:

- periarterial - characterized by a large accumulation of T-lymphocytes;
- central - consists of B-lymphoblasts, B-lymphocytes, typical phagocytic and dendritic cells.

- surrounds the peripheral periarterial and central zones. Its color is slightly darker than other zones. The composition of the mantle is characterized by the accumulation of small lymphocytes in it, which are located between the circular connective fibers;

- the marginal zone is presented as a bridge for the white to red parenchyma.

- PALV has an elongated shape and is located in the T-zone of the spleen in the form of accumulated lymphoid tissue in the direction of the pulpal artery.

red pulp Located between white parenchyma and plates. Forms erythrocytes between the plates. The red pulp is divided into the following zones:

- venous sinuses are located at the very beginning of the venous system. The upper part of the walls is fixed with connecting fibers. There are also sphincters that regulate the inflow and outflow of blood through the venous sinuses. If the sphincter contraction occurs in the venous zone, then this is a signal that a large amount of blood accumulates in the splenic sinus;

- (pulp) the zone in the intestine is located between the venous sinuses, in which slowly migrating white bodies play an important role in the process of iron metabolism in the body become lymphocytes.

Evidence of changes in hemoglobin indicates the presence of bilirubin and transferrin. Bilirubin enters the liver, from where it is sent to the bile. Transferrin has the function of providing iron to newly created red cells.

The main functions of red parenchyma:

- Ensuring the safety of platelets, white and red cells.

- Monitoring the process of destruction of old red blood cells with platelets.

Conclusion: The following morphological and morphometric changes were detected in the spleen lymphoid tissue of 3-4-5-month-old white rats after simultaneous

administration of 5 different drugs for 10 days.

1.The capsule of the spleen from the outside - the elastic-connective tissue thickens differently in different areas. When morphometric measurements were performed, different indicators of thickening were determined in different areas. To sum up: It was determined that the capsule of the spleen is "unnaturally" thickened.

2.In the area under the capsule, fullness of the sinusoids and small cracks in the stroma - edema are expressed.

3.The white pulp of the spleen consists of lymphatic follicles. The central part of the lymphoid follicle - the center of its reproduction: or cracks with small foci in the reactive center - swelling, hyperplasia of V-lymphocytes. It was found that V-lymphocytes are multiplying by mitosis, Mantle and marginal area are reduced: mature V-lymphocytes and follicular dendritic cells forming the microenvironment are actively involved in the immune pathological process.

4.Periarterial atrophy of the central artery vessel eccentric to the white pulp : increased T-lymphocytes, macrophages and interdigitating cells. This indicates the active participation of the immune system in the pathological process.

T-lymphocytes are the basis of cellular immunity. (There are several different subpopulations.)

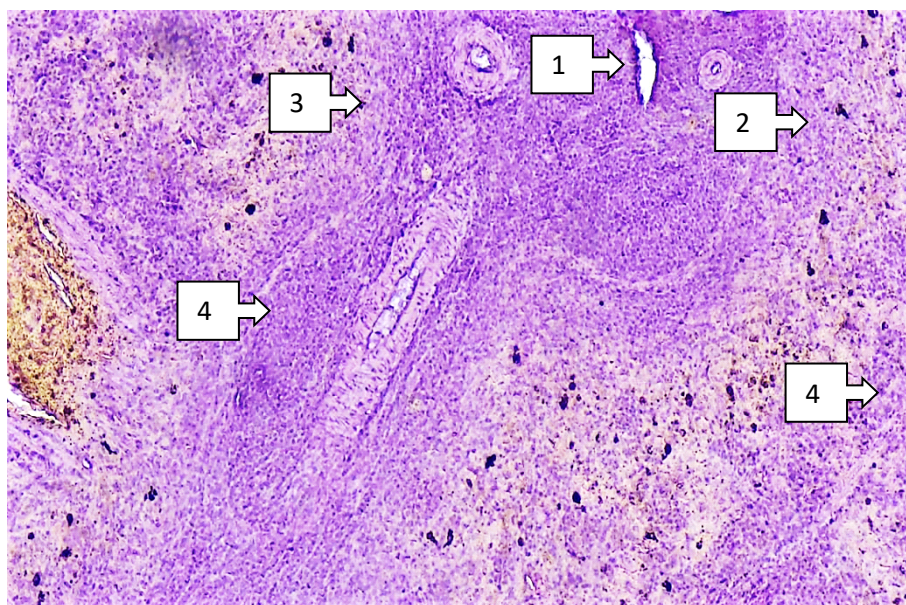
In this case, we can see that the spleen performs the function of both humoral and cellular immune protection of the organism.

5.Red pulp area: enlarged, B-lymphocytes, plasmocytes and macrophages increased in the spleen cord (Chordae lienalis).

Plasma cells (derived from V lymphocytes) - produce the main antibodies in humoral immunity.

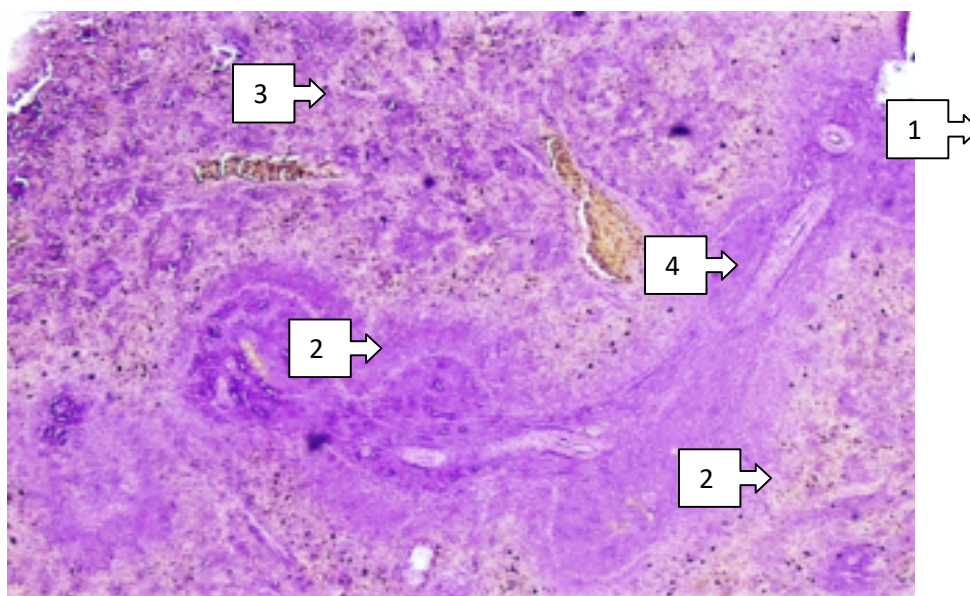
6.Splenic sinusoids (sinus lienalis) erythrocytes are swollen and erythrocytes broken down by splenocytes, i.e. erythrocytes - the product is foci and scattered, irregularly shaped black spots of various sizes - an abundance of hemosiderins was determined.

7.The central artery and veins are full, the endothelium is thickened without being damaged, and its permeability has increased. It can be seen that the liquid part of the blood, that is, its plasma, passes through the vascular wall and is absorbed into the surrounding tissue. This process is called stromal vascular protein dystrophy and is a protein fibrinoid process. If the fibrinoid process continues for a long time, it will directly turn into hyalinosis. We can see that an acute immune pathological process is developing.



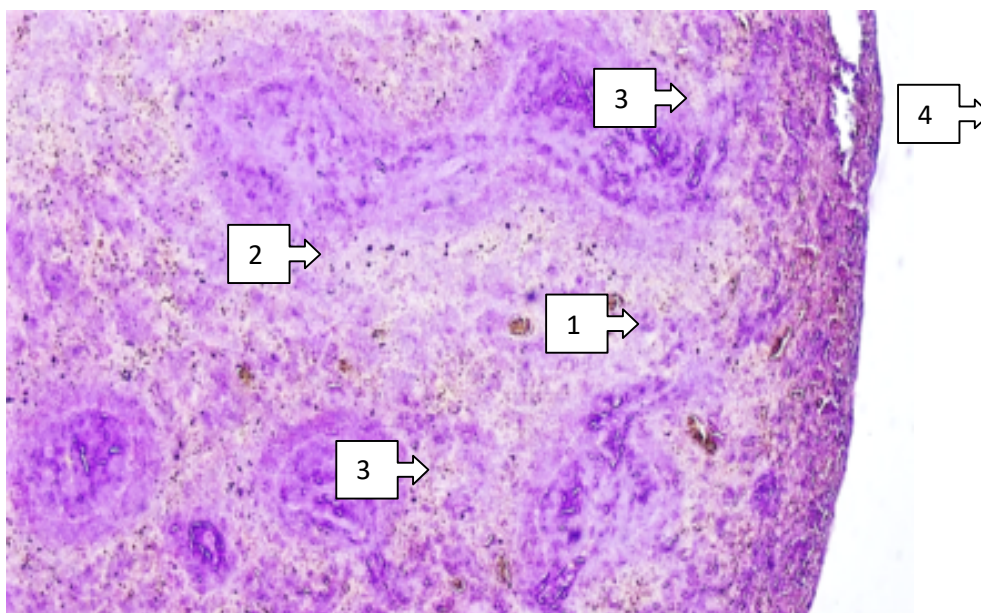
Picture 1. Spleen tissue of 3-month-old white rats. Morphological structure of the spleen.

Dye Hem-eosin. ob 10x20 ok. The wall of the central artery is thickened, the inner surface is deformed (1), the white pulp area: the central part of the lymph follicle or the center of reproduction - hyperplasia of V lymphocyte swelling in the reactive center (2), the red pulp area: the spleen is enlarged in the ribbon (Chordae lienalis), B-lymphocytes, plasmocytes and macrophages are increased (3), splenic sinusoids (sinus lienalis), erythrocytes are swollen, fragmented, focal and scattered, hemosiderins of different sizes (4).



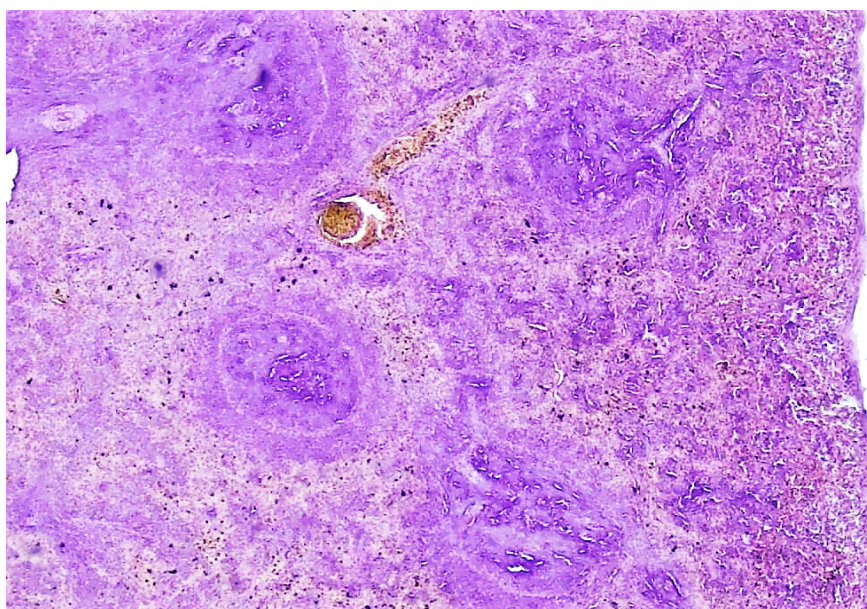
Picture 2. Spleen tissue of 3-month-old white rats. Morphological structure of the spleen.

Dye Hem-eosin. ob 10x20 ok. The wall of the central artery is thickened, the inner surface is deformed (1), the area of the periarteriolar lymph layer (PALS) is increased in T lymphocytes (2), the red pulp area: enlarged in the spleen belt (Chordae lienalis), B-lymphocytes, plasma cells and macrophages are increased. (3), splenic sinusoids (sinus lienalis) erythrocytes are swollen, fragmented, foci and scattered, hemosiderins of different sizes (4).



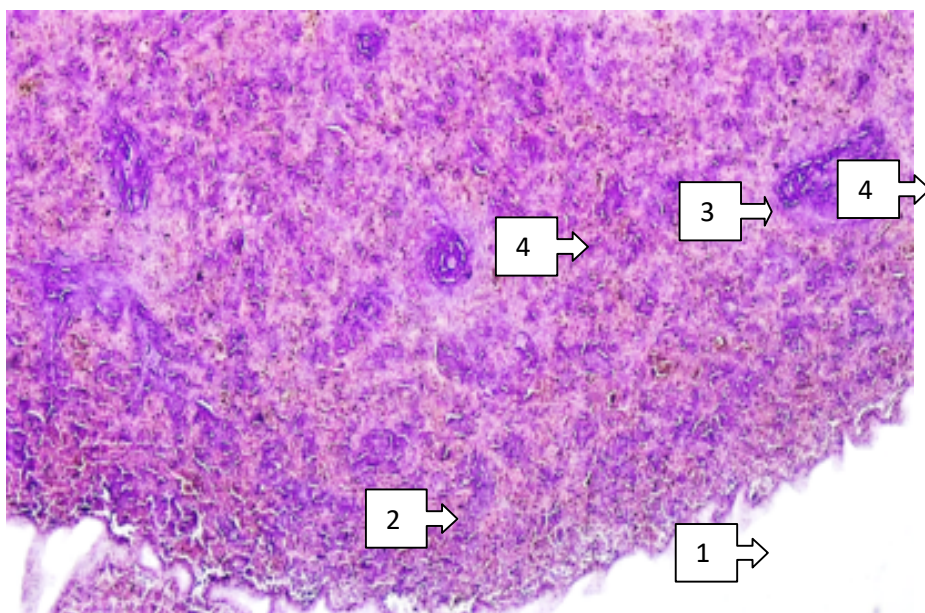
Picture 3. Spleen tissue of 3-month-old white rats. Morphological structure of the spleen.

Dye Hem-eosin. ob 10x20 ok. Red pulp area: enlarged in splenic bands (Chordae lienalis), B-lymphocytes, plasmocytes and macrophages increased (1), splenic sinusoids (sinus lienalis), erythrocytes are swollen and fragmented, foci and scattered, hemosiderins of different sizes (2), white pulp area: the central part of the lymph follicle or the reproduction center - swelling in the reactive center, hyperplasia of V lymphocytes (3), fullness of the sinusoids under the capsule and swelling

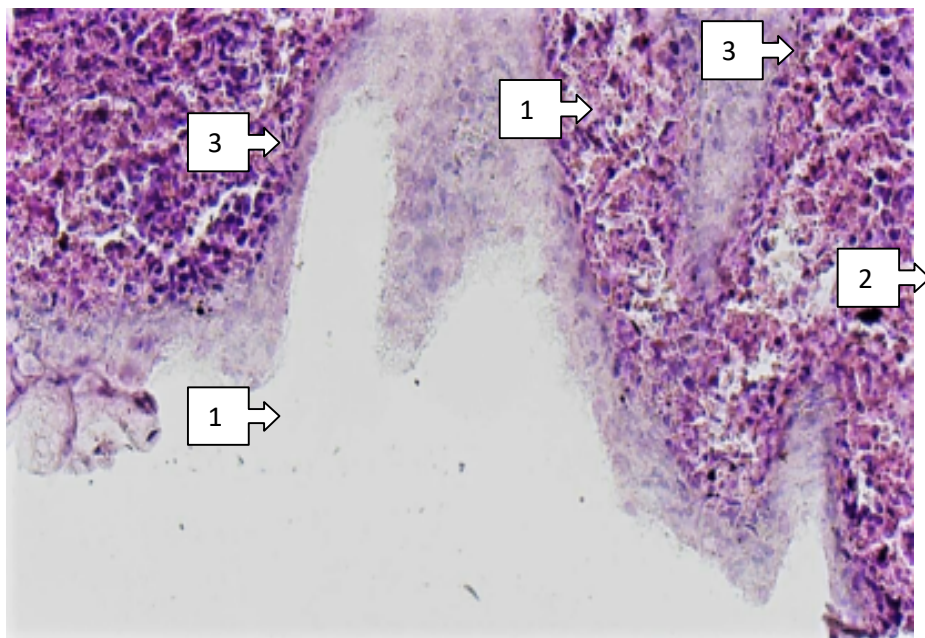


Picture 4. Spleen tissue of 3-month-old white rats. Morphological structure of the spleen.

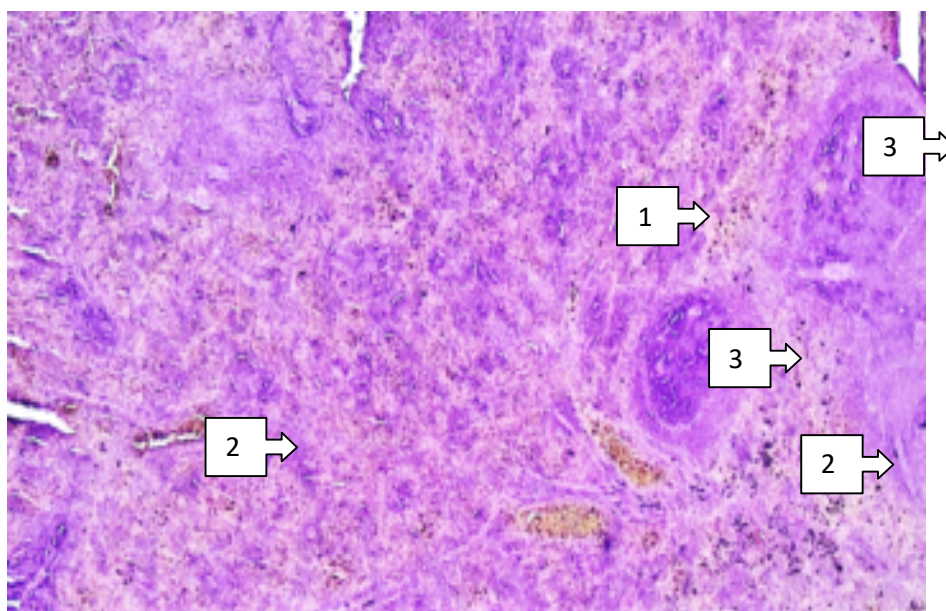
Dye Hem-eosin. ob 10x20 ok. Red pulp area: enlarged in splenic bands (Chordae lienalis), B-lymphocytes, plasmocytes and macrophages increased (1), splenic sinusoids (sinus lienalis), erythrocytes are swollen and fragmented, foci and scattered, hemosiderins of different sizes (2), white pulp area: the central part of the lymph follicle or the reproduction center - swelling in the reactive center, hyperplasia of V lymphocytes (3), fullness of sinusoids under the capsule and swelling in the stroma (4).



Picture 1. Spleen tissue of 4-month-old white outbred rats. Morphological structure of the spleen. Dye Hem-eosin. ob 10x20 ok. Splenic capsule (by size) - elastic-connective tissue is unevenly thickened. Fullness of sinusoids and swelling in the stroma under the capsule (1), red pulp area: enlarged in the splenic band (Chordae lienalis), B-lymphocytes, plasma cells and macrophages increased (2), splenic sinusoids (sinus lienalis), erythrocytes are swollen and fragmented. Hemosiderins of various sizes are focal and scattered (3), white pulp area: central part of the lymph follicle or reproduction center - edema in the reactive center, hyperplasia of V lymphocytes (4).

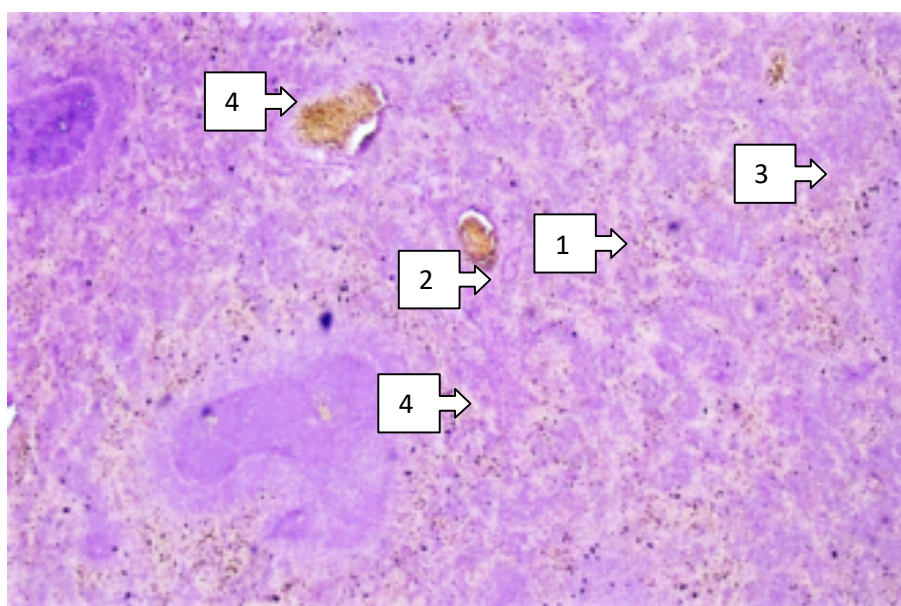


Picture 2. Spleen tissue of 4-month-old white outbred rats. Morphological structure of the spleen. Dye Hem-eosin. ob 10x20 ok. Spleen capsule (by size) - elastic-connective tissue abnormally thickened (1), fullness of sinusoids under the capsule and swelling in the stroma (2), splenic sinusoids (sinus lienalis) erythrocytes are swollen, fragmented, foci and scattered located, hemosiderins of different sizes (3).



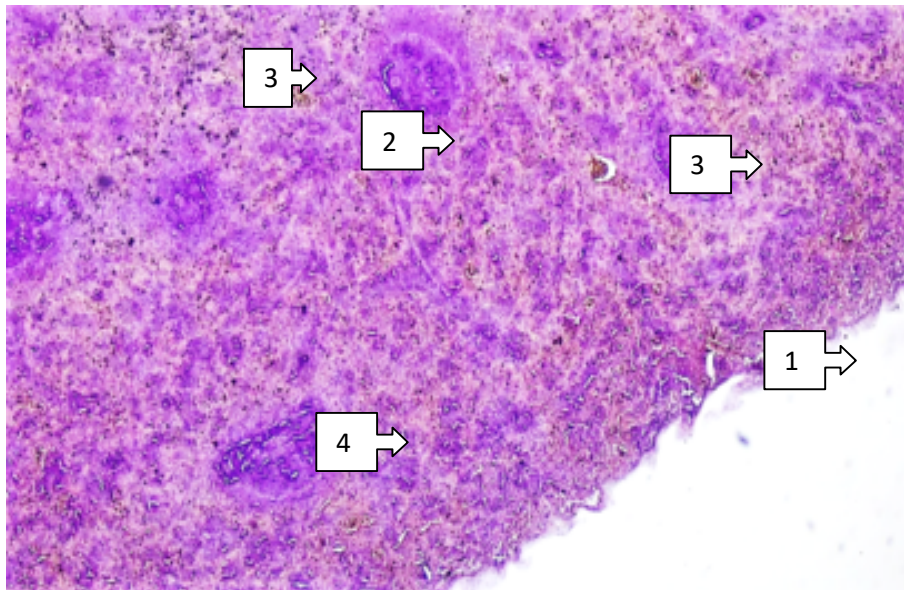
Picture 3. Spleen tissue of 4-month-old white rats. Morphological structure of the spleen.

Dye Hem-eosin. ob 10x20 ok. Red pulp area: the spleen is enlarged in the cord (Chordae lienalis), B-lymphocytes, plasma cells and macrophages are increased (1), splenic sinusoids (sinus lienalis), erythrocytes are swollen and fragmented, focal and scattered, hemosiderins of different sizes (2), white pulp area: the central part of the lymph follicle or the reproduction center - edema in the reactive center, hyperplasia of V lymphocytes (4).



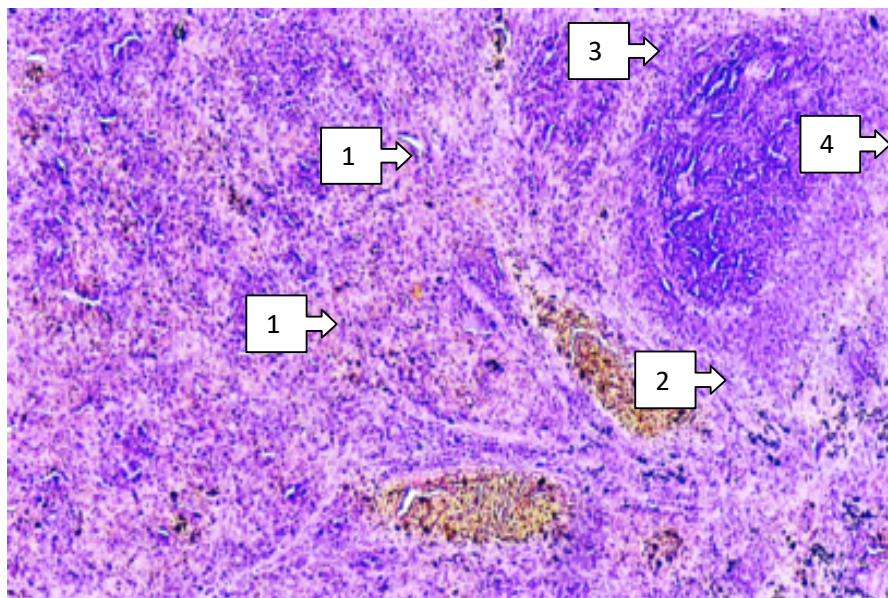
Picture 4. Spleen tissue of 4-month-old white rats. Morphometry of the spleen.

Dye Hem-eosin. ob 10x20 ok. Splenic sinusoids (sinus lienalis) swelling of erythrocytes (1), splenocytes, i.e. erythrocytes broken down by macrophages - the product of hemosiderins of various sizes is focal and scattered (2), red pulp area: the spleen is enlarged in a ribbon (Chordae lienalis), B -lymphocytes, plasmocytes and macrophages are increased (3), white pulp area: central part of the lymph follicle or reproduction center - edema in the reactive center, hyperplasia of V lymphocytes (4).



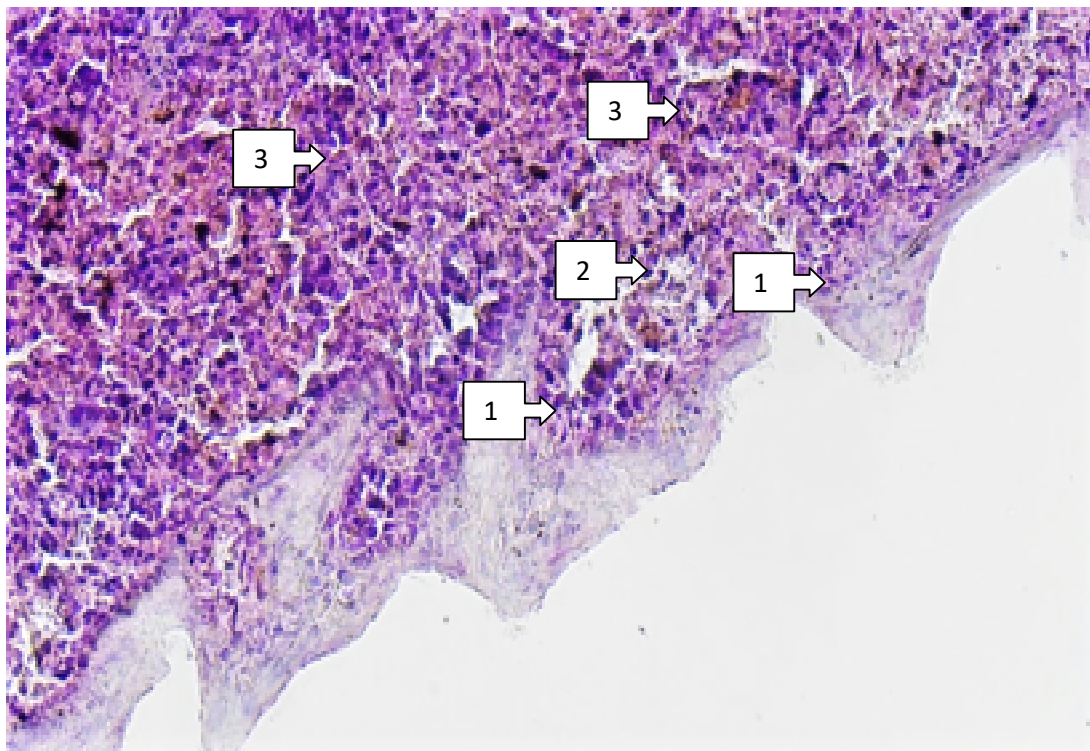
Picture 1. Spleen tissue of 5-month-old white rats. Morphological structure of the spleen.

Dye Hem-eosin. ob 10x20 ok. Splenic capsule (by size) - elastic-connective tissue is unevenly thickened. Fullness of sinusoids and swelling in the stroma under the capsule (1), red pulp area: enlarged in the spleen (Chordae lienalis), B-lymphocytes, plasma cells and macrophages increased (2), splenic sinusoids (sinus lienalis) erythrocytes become splenocytes. erythrocytes broken down by macrophages - the product is focal and scattered hemosiderins of different sizes (3), white pulp area: the central part of the lymph follicle or the reproduction center - edema in the reactive center, hyperplasia of V lymphocytes (4).



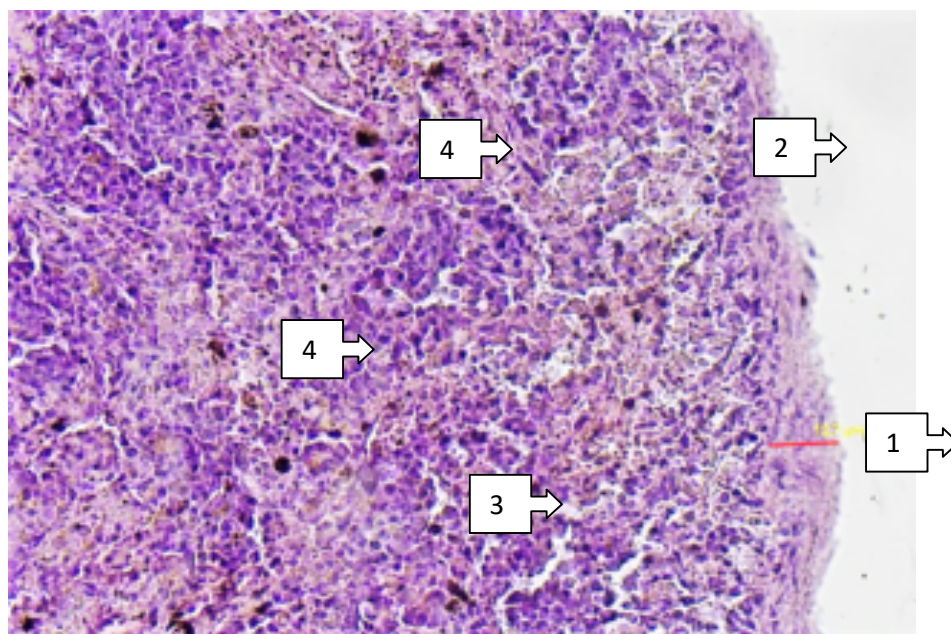
Picture 2. Spleen tissue of 5-month-old white rats. Morphological structure of the spleen.

Dye Hem-eosin. ob 10x20 ok. Red pulp area: the spleen is enlarged in the cord (Chordae lienalis), B-lymphocytes, plasma cells and macrophages are increased (1), splenic sinusoids (sinus lienalis) are filled with erythrocytes (2), splenocytes, i.e. erythrocytes broken down by macrophages - the product is focal and scattered hemosiderins of different sizes (3), white pulp area: the central part of the lymph follicle or reproductive center - edema in the reactive center, hyperplasia of V lymphocytes (4).



Picture 3. Spleen tissue of 5-month-old white rats. Morphological structure of the spleen.

Dye Hem-eosin. ob 10x20 ok. Spleen capsule (by size) - elastic-connective tissue is irregularly thickened (1), fullness of sinusoids under the capsule and swelling in the stroma (2), splenocytes, i.e. erythrocytes broken down by macrophages - the product is focal and scattered, various hemosiderins of different sizes (3).



Picture 4. Spleen tissue of 5-month-old white rats. Morphological structure of the spleen.

Dye Hem-eosin. ob 10x20 ok. Splenic capsule (by size) - irregularly thickened elastic-connective tissue (1), fullness of sinusoids and swelling in the stroma under the capsule (2), red pulp area: enlarged in the splenic cord (Chordae lienalis), B-lymphocytes, plasmocytes and macrophages increased (3), splenic sinusoids (sinus lienalis) erythrocytes were swollen, splenocytes, that is, erythrocytes broken down by macrophages - the

product is focal and scattered hemosiderins of different sizes (4).

Used literature.

1.B.A.Sanoev, G.Sh.Niyozova, N.I.Xikmatova. Makro-i mikroskopicheskie proyavleniya leyomiomy matki. Novyy den v meditsine, 526-528, 2020.

2.Sanoev B.A., Raxmatov A.A., Olimova A.Z. "Sitologicheskiy skringing zabolevaniy sheyki matki: PAP- test issledovaniya v Buxarskom oblastnom diagnosticheskom sentre za period 2015-2019 gody." Novyy den v meditsine. 3(31) - 2020.

3.Sanoev B. A.*, Israilov R. I. and Djuraeva G. B. QUANTITATIVE INDICATORS AND METHODS FOR MODELINGSTRUCTURAL UNITS IN PLACENTAL INSUFFICIENCY. World Journal of Pharmaceutical Research. Volume 9, Issue 12, 37-47. Accepted on 20 Sept. 2020. DOI: 10.20959/wjpr202012-18776.

4.Giroux Leprieur E, Dumenil C, Julie C, Giraud V, Dumoulin J, Labrune S, et al. Immunotherapy revolutionises non-small-cell lung cancer therapy: Results, perspectives and new challenges. Eur J Cancer. 2017;78:16-23. <https://doi.org/10.1016/j.ejca.2016.12.041>

5.Кузьминов А. Е., Лактионов К. К., Егорова А. В., Бредер В. В., Барболина Т. Д. Иммуноterapia мелкоклеточного рака легкого // МС. 2019. №10. URL: <https://cyberleninka.ru/article/n/immunoterapiya-melkokletochnogo-raka-legkogo> (дата обращения: 03.05.2023).

6.Lindeman NI, Cagle PT, Beasley MB, Chitale DA, Dacic S, Giaccone G, et al. Molecular testing guideline for selection of lung cancer patients for EGFR and ALK tyrosine kinase inhibitors: guideline from the College of American Pathologists, International Association for the Study of Lung Cancer, and Association for Molecular Pathology. Arch Pathol Lab Med. 2013 Jun;137(6):828-860. <https://doi.org/10.5858/arpa.2012-0720-OA>

7.Olimova Aziza Zokirovna, (2021, July). COMPARATIVE CHARACTERISTICS OF THE MORPHOLOGICAL PARAMETERS OF THE LIVER AT DIFFERENT PERIODS OF TRAUMATIC BRAIN INJURY. In Euro-Asia Conferences (pp. 139-142).

8.Olimova Aziza Zokirovna. Частота Встречаемости Миомы Матки У Женщин В Репродуктивном Возрасте. JOURNAL OF ADVANCED RESEARCH AND STABILITY (JARS). Volume: 01 Issue: 06 | 2021. 551-556 p

9.Olimova Aziza Zokirovna, Sanoyev Bakhtiyor Abdurasulovich. OVARIAN DISEASES IN AGE OF REPRODUCTIVE WOMEN: DERMOID CYST. Volume: 01 Issue: 06 | 2021. 154-161 p

10.Sanoyev Bakhtiyor Abdurasulovich, Olimova Aziza Zokirovna. Pathology of Precancerous Conditions of the Ovaries in Women of Reproductive Age. Volume: 01 Issue: 06 | 2021.

11.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).