AJPMHS GLOBAL RESEARCH NETWORK

AMERICAN Journal of Pediatric Medicine and Health Sciences
Volume 01, Issue 08, 2023 ISSN (E): 2993-2149

MORPHOLOGICAL SIGNS DEVELOPING IN THE STOMACH OF WHITE-BREEDLESS RATS IN EXPERIMENTAL PULMONARY FIBROSIS

Shirinov M.M., Teshaev Sh.J., Eshpulatov E.Y

Ministry of Health of the Republic of Uzbekistan Bukhara State Medical Institute, 200100, Bukhara, Uzbekistan

Abstract: Among the countries of the world, the deterioration of the ecological situation, the increase of various risk factors have a negative effect on the human body. As a result of the development of pathological processes, a number of morphometric and morphological changes occurred in the anatomical structure and mucous membranes of the stomach. The medical and social importance of digestive diseases is determined by their prevalence, as well as the annual increase in morbidity and mortality.

Key words: digestive disease, pulmonary fibrosis, lung disease, tissue, bronchial branches, blood, carbon dioxide, COVID 19.

Introduction. Pulmonary fibrosis is a chronic lung disease characterized by progressive scarring of the tissue lining the organ. When the wall of the alveoli of the lungs (bag-like structures where smaller caliber bronchial branches terminate) thickens and its surface is covered with progressive scarring, their ability to exchange gases decreases [11, 12, 13]. As a result, the alveoli cannot deliver enough oxygen to the blood and cellular respiration is impaired. On the other hand, carbon dioxide, which should pass through the blood to the alveoli, cannot be exchanged with oxygen [11, 14, 15]. As a result, the body does not receive enough oxygenated blood (that is, cleaned of carbon dioxide and saturated with oxygen). Over time, scar tissue covers the capillaries of the alveoli of the lungs, making gas exchange more difficult [10, 11, 12].

Most often, this disease develops in people over 40 years old, mainly in men. Subsequently, it reduces the formation of fibrous (scar) tissue. In viral pneumonia, especially in COVID-19, the main pathological changes occur in this framework (interstitium), which surrounds each part [1, 2, 3, 4]. The walls of the vessels passing through it become thinner, they cannot hold the liquid part of the blood well. It begins to flow out of the veins[1, 4, 5, 6]. The interstitial tissue swells, but some of the air remains in the alveoli themselves, so a kind of "blur" appears on the X-ray [7, 8, 9].

Goal of the work: to study the morphological changes in the stomach of white-breedless rats with experimental pulmonary fibrosis.

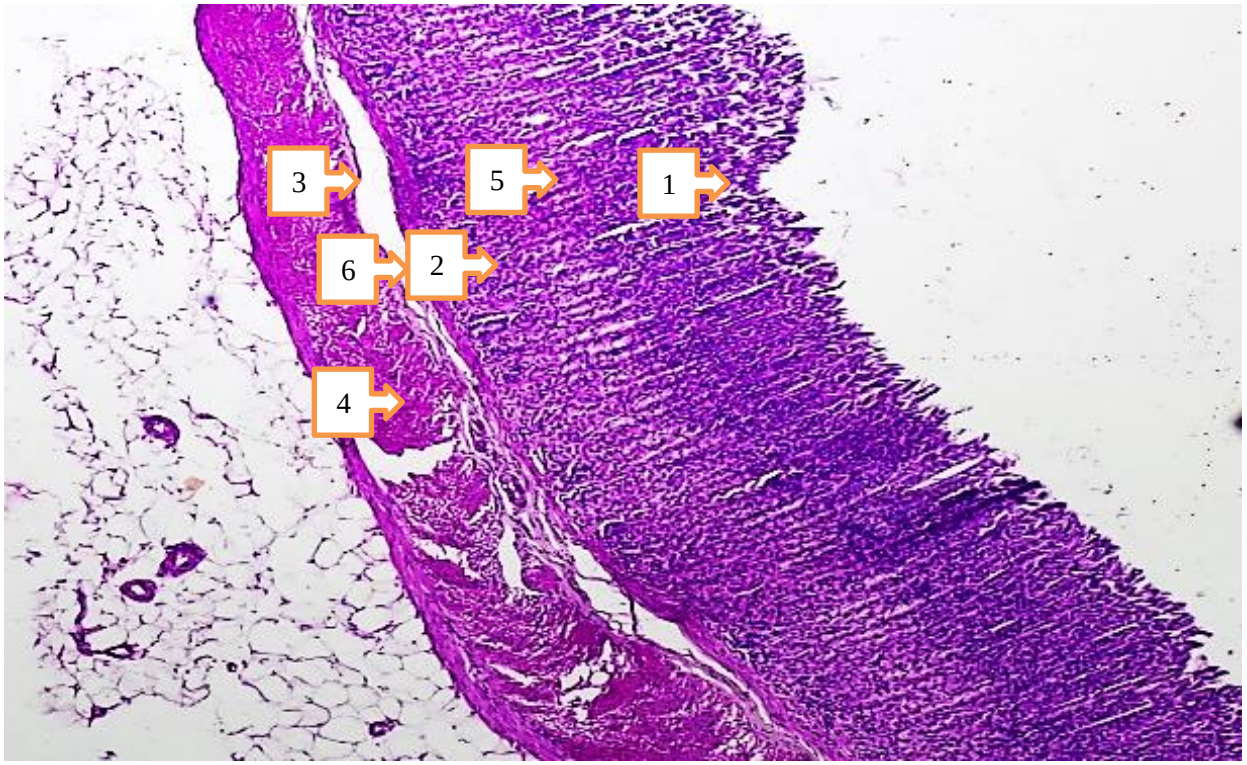
Materials and method: 150 animals of both sexes, aged 3-12 months, weighing 236 g, grown in standard vivarium conditions for experimental scientific research. - 480 gr. non-white rats were selected. Laboratory animals were kept in the vivarium of the Bukhara State Medical

Institute. Rats were kept in special rooms (room temperature 20-240C, humidity 60%, light 12 hours) according to the requirements for experimental animals.

Animals were provided with adequate water and fed a balanced diet. Proper care and feeding of laboratory animals was considered to be of great importance in the preparation and conduct of experimental studies. Violation of the regime and diet, failure to observe hygienic measures during feeding lead to weakening of the animal's body. It increases their susceptibility to various infectious and somatic diseases. The appearance of these diseases during the experiment can lead to a violation of the research results and, as a result, incorrect conclusions.

They were subjected to a mandatory veterinary examination to determine the age and presence of other diseases. In order to prevent infectious diseases from entering the vivarium, the adopted animals were quarantined for 21 days. Laboratory animals were kept in special cages mounted on shelves. The total number of white outbred rats per cage, the date the experiment began, and the name of the researcher responsible for conducting it are indicated on the cage of the experimental animals.

Results and discussion. In experimental pulmonary fibrosis, macroscopic examination of the stomach revealed macroscopically obvious pathological signs, which were hook-shaped, brown in color and located in the abdominal cavity (picture).



Picture . Microscopic view of the stomach of 3-month-old white rats with experimental pulmonary fibrosis

The bicarbonate layer on the upper part of the gastric mucosa is thinned (1) Atrophy of cells in the mucous membrane area (2). Swelling in the area of the submucosa (3) Swelling between the muscle fibers (4). Venous engorgement in the submucosa and muscular layer (5) Fatty dystrophy, edema, venous engorgement in the serous layer (6)

On microscopic examination, the mucus on the surface of the gastric mucosa (thickness of the bicarbonate layer) decreased. The number of cells located on the surface and in the deep part of the gastric mucosa did not change significantly, but their size was slightly smaller than that of the control group, dystrophic signs were visible in the cells of the mucous membrane, edema and fullness in the veins located in the submucosal layer were observed.

The morphological and morphometric parameters of the stomach of white rats in the control group and non-white rats with experimental pulmonary fibrosis were compared. When examined macroscopically, serous inflammation is visible on the mucous membrane of the stomach.

Conclusion. Microscopic examination of the stomachs of all rats in the experimental pulmonary fibrosis group revealed hyperfunction of the mucous tubular glands. In this case, a single-layer prismatic epithelium is hypersecretory, serous inflammatory infiltrate, submucosa: hypertrophy of sparse fibrous connective tissue, fullness of blood vessels, infiltration of lymphocytes, hyperplasia of glands located in the private plate: hyperchromic staining of the nucleus, shrinkage of cytoplasm, hypertrophy of muscle fibers in the muscle layer, intermuscular signs such as swelling were observed in the cavity.

References:

1. Beloborodova E.I., sov. Narusheniya vsasyvatelnoy funktsii tonkoy kishki u bolnyx chronicheskoy obstructive boleznyu legkix // Klinicheskaya meditsina – 2012. - №1. - p. 54-61.
2. V. G. Grin Makrotmikroskopicheskie osobennosti relefa slizistoy obolochki zhudochno-inshechnogo trakta belyx krys. Sweet medicine and biology. - Ukraine. - 2019. – No. 4 (70). - c. 188–193.
3. Vinnik Yu. S i saavt. Osobennosti pathogeneza dlitelno nezazhivayushchix ran // Novosti khirurgii. — Russia. - 2011. - T. 19, No. 3. — p. 80-86
4. Guseynov T.S., Guseynova S.T. Morphology of peyerovykh blyashek pri dehydratatsii: monograph. // Makhachkala: issue. building "Nauka plus" - 2010. - p. 76.
5. Guseynova S.T., Guseynov T.S. Anatomiya limfaticheskogo rusla tonkoy kishki pri dehydratatsii - II Astrakhansky meditsinskiy zurnal - Russia. - 2011. - #1. - p. 51-55.
6. Guseynova S.T., Guseynov T.S. Vliyanie dehydratatsii na morfologiyu immunnykh organov // Vestnik Volgogradskogo meditsinskogo universiteta - 2010. - Vyp. 34. - c. 95-98.
7. Guseynova S.T., Guseynov T.S. Vliyanie dehydratatsii na morfologiyu immunnykh organov // Vestnik Volgogradskogo meditsinskogo universiteta - 2010. - Vyp. 34. - c. 74-82
8. Gushchin Ya.A. The influence of fixed solids on the microscopic structure of the organs of laboratory rodents // Mejdunarodnyi vestnik veterinarii. #3. - Moscow. - 2014. - pp. 88-95
9. Dzhitava I.G. i saavt. Morfofunktsionalnye osobennosti yazvennoy disease and patients of the older age group // Vestnik RGMU. - 2010. - #4. - p. 20–24.
10. Feng T, Elson CO. Adaptive immunity in the host-microbiota dialogue. Mucosal Immunol. – 2011. – V.4 (1). - p. 15-21.
11. Henderson, NC et al. Fibrosis: from mechanisms to medicines. // Nature. - 2020. - p.587.
12. Henderson, NC et al. Fibrosis: from mechanisms to medicines. // Nature. - 2020. - p. 555-566.
13. Troy L, Glaspole I, Goh N et al. Prevalence and prognosis of unclassifiable interstitial lung disease. Eur Respir J. 2014; 43 (5): 1529–1530.
14. Tzanakis NE, Tsiligianni IG, Siafakas NM Pulmonary involvement and allergic disorders in inflammatory bowel disease. World J. Gastroenterol. 2010; 16 (3): 299–305.
15. Yang L., Fan C., Shu T., Wang S. Punicalin alleviates TNF-α- and IL-1β-induced chondrocyte dysfunction and cartilage metabolism via mediating FOXO3 signaling axis. // J. Food Biochem. 2021, May 11, e13755. doi: 10.1111/jfbc.13755.