



Pathomorphological Changes in Lymph Nodes in Measles in Children

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Abstract: An analysis was carried out of the pathomorphological changes that developed in the main morphofunctional areas of the lymph nodes in children, 26 patients who died from measles and its complications, in which the morphological data on the pathomorphological changes detected in the lymph nodes during measles and its complications were analyzed, and the features of the changes were indicated.

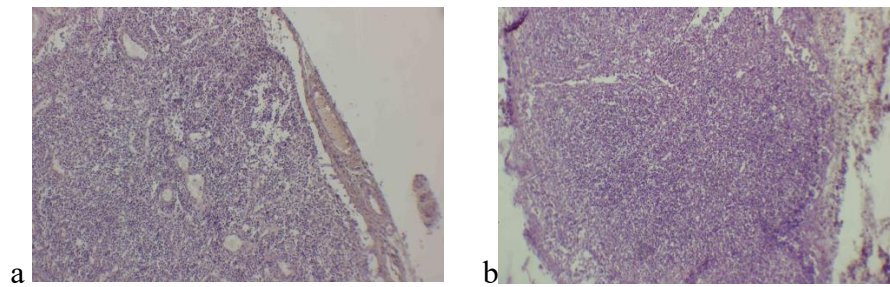
Key words: virus, measles, lymph nodes, follicle, paracortical hyperplasia, morphofunctional, sinuses, capsule, infiltration.

Severity: The causative agent of measles is an RNA virus of the Morbillivirus belonging to the family of paramyxoviruses, which has a spherical shape and a diameter of 120-230 nm. The virus consists of a nucleocapsid - the minus strand of RNA, three proteins and an outer shell formed by matrix proteins and two surface glycoproteins: one of them is hemagglutinin, and the other is a "coupling" protein. Most cases of measles are observed in the winter-spring period (December-May), the incidence increases every 2-4 years. The measles virus has a very high negative effect on the immune system, causing the destruction of immune cells: from the first days of the appearance of the rash to the 30th day, a sharp decrease in T-lymphocytes is observed.[1][2]. The measles virus weakens the body's immunity for several years because it causes the death of immune cells that produce antibodies to various infections[3][4][5].

The goals and objectives of the work: to study the specificity of the pathomorphological changes that occur in the general morphological macro and microscopic examinations of the tissues of the lymph nodes of patients who died from measles.

Materials and methods: the medical history and autopsy data of 26 patients who died from measles in the winter and spring of 2024 and were examined at the Fergana Region Pathologoanatomy Bureau were analyzed. Autopsy pieces from lymph nodes were fixed in formaldehyde solution (prepared in 10% phosphate buffer) for 72 hours and examined by staining with hematoxylin-eosin dye.

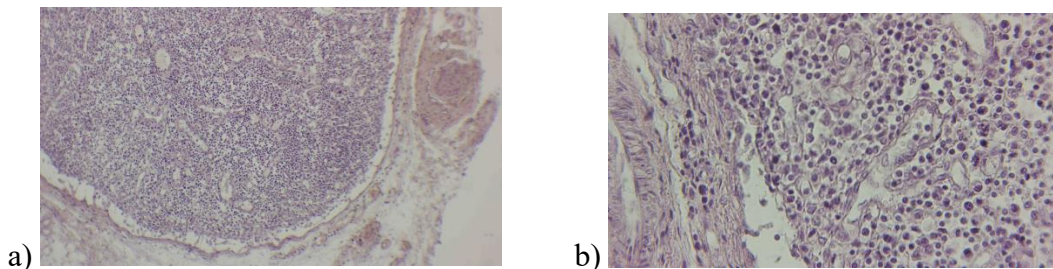
The result: in the study of biopsies of patients exposed to the rubella virus, the capsule of the lymph node is thickened, swelling in the subcapsular zone, fullness in all blood vessels, the germinal centers of the outer cortex lymph nodes are basophilized, the boundaries with the deep cortex layer are unclear, there are T lymphocytes along with B lymphocytes, monocytes, leukocytes are present in all parts. , the presence of inflammatory infiltration consisting of tissue detritus and fibrin threads was determined (Pict. 1).



Picture 1. A micropreparation prepared from the autopsy material of the 4-month-old patient V.V., who died from complications of measles. Stain: hematoxylin-eosin.

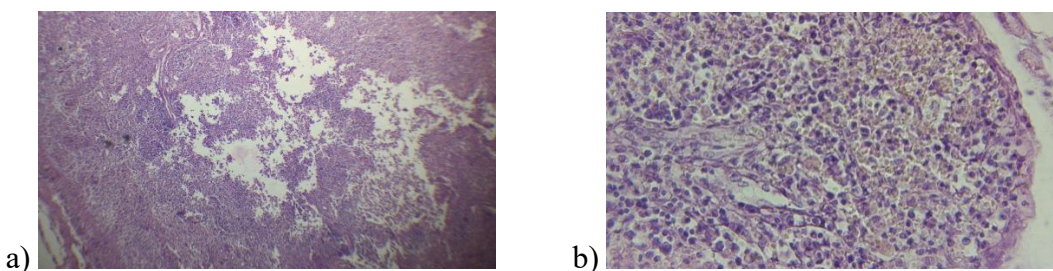
Size: a) 10x10; b) 10x20.

In the next case, the capsule of the lymph node is thickened, there is swelling in the subcapsular zone, the increase of large macrophage cells, uneven filling of the blood vessels, the border of the lymph nodes of the outer cortex is unclear, the germinal centers are poorly expressed, and the presence of lymphocyte proliferation in the trabecular sinuses and corpuscles of the brain (Pic. 2).



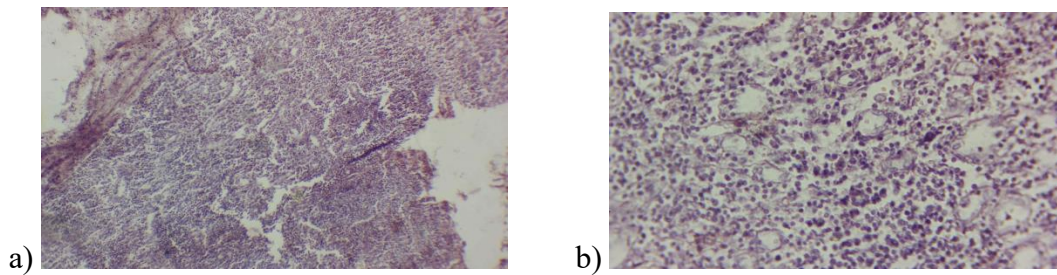
Picture 2. A micropreparation prepared from the autopsy material of a 6-month-old patient M.A. who died from complications of measles. Stain: hematoxylin-eosin. Size: a) 10x10; b) 10x40

In another examined micropreparation, the capsule of the lymph node is thickened, the afferent lymph vessels are destructively changed, infiltrated with leukocytes, there is swelling in the subcapsular zone, an increase in large macrophage cells, uneven filling of the blood vessels, there are diffuse focal hemorrhages in the marginal zones of the external cortical lymph nodes, germinal centers. less pronounced, lymphocyte proliferation and focal hemorrhages were present in the trabecular sinuses and corpus callosum (Pic. 3).



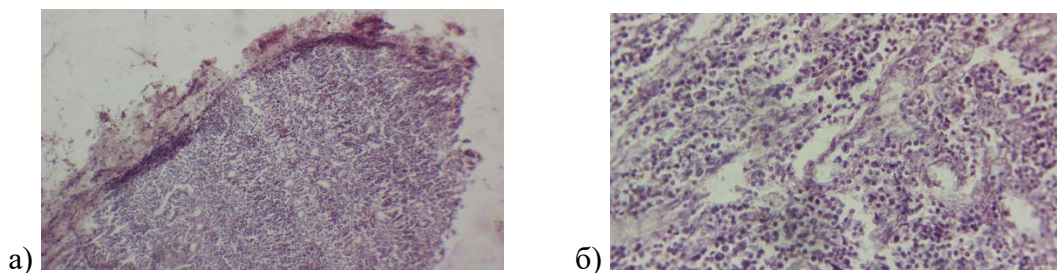
Picture 3. A micropreparation prepared from the autopsy material of Sh.S., a 10-month-old patient who died from complications of measles. Stain: hematoxylin-eosin. Size: a) 10x10; b) 10x40.

In the next case identified during the research, in the micro-preparations of the autopsy material, the capsule of the lymph node was thickened, there was a strongly developed swelling, the afferent lymph vessels were destructively changed, infiltration with leukocytes and lymphocytes, swelling in the subcapsular zone, an increase in large macrophage cells, uneven filling of the blood vessels, outer skin the border of marginal and germinal zones of lymph nodes was unclear (Pic. 4).



Picture 4. A micropreparation prepared from the autopsy material of 8-month-old patient M.M., who died from complications of measles. Stain: hematoxylin-eosin. Size.: a) 10x10; b) 10x40.

In another case, the capsule consisting of connective tissue of the lymph node is thickened, swelling in the subcapsular zone, proliferation of large macrophage cells, uneven filling of the blood vessels, proliferation of cells in the marginal and germinal centers of the lymph nodes of the outer cortex, lymphocytes in the trabecular sinuses and brain cells; Proliferation of macrophages and lymphocytes was found in the lymphatic follicles in the wall of the bronchi (Pic. 5).



Picture 5. A micropreparation prepared from the autopsy material of 11-month-old patient K.G., who died from complications of measles. Stain: hematoxylin-eosin. Size: a) 10x10; b) 10x40

Conclusion: due to the influence of the measles virus, the capsule of the lymph nodes is thickened, swollen, lost follicles, diffusely necrotic foci, infiltrated with a large amount of leukocytes, lymphocytes and fibrin in the capsule of the node and between the follicular spaces, and acute lymphadenitis is manifested, and in some cases, reactive centers of the lymph node chronic lymphadenitis with hyperplasia, swelling in the capsule and intercellular substance, inflammatory infiltration consisting of many lymphocytes, leukocytes and fibrin in all branches of the lymph node.

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