

Pathomorphological changes in monieziosis of goats

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Abstract. The article describes the state of the body, changes in the mucous membranes, subcutaneous tissue, the appearance of blood, internal organs, lymph nodes, integumentary organs, changes in the stomach and intestines of goats that died due to monieziosis in natural conditions (spontaneously). As a result of the mechanical, toxic and biological effects of moniezia in the digestive organs, especially in the intestines, deep and complex changes have been studied, such as alterative, exudative and immunopathological, dystrophic, necrotic, catarrhal-hemorrhagic. In the mucous membranes of the small intestine, acute and chronic inflammation, hemorrhage, hemorrhagic infarction, intussusception, and intoxication were detected. A pathological examination revealed that these changes in the body of goats consist of hemodynamic and necrotic processes. The article presents histological changes in the parenchymal organs of goats with monieziosis. Hyperemia of the sinusoidal capillaries of the liver, hemorrhages, cardiac dystrophy, disquamation, lobar pneumonia, and hemorrhages in the spleen pulp were determined. The article provides information about histological changes in the digestive organs: abomasum, rumen, mesh and booklet, small and large intestines, in their lymph nodes - fibrinoid dystrophy, necrosis, thrombosis, acute inflammation, destruction of the endothelium, embolism, decomplexation of extravasation, desquamation, neutrophil infiltration with monieziosis of goats.

1 Introduction

Currently, fighting against various infectious, non-infectious, and parasitic diseases is considered one of the main problems in the rapid development of livestock and goat farming, as well as in increasing the productivity of wool and milk obtained from them. It is considered one of the important conditions for meeting the population's demand for food which is one of the main challenges facing science and practice [1, 3, 5].

Goat breeding is one of our republic's important livestock sectors. Moreover, in the current shortage of meat and dairy products, the development of goat breeding will mitigate existing problems. For this purpose, foreign countries import productive goats into our

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republic. Today, under the influence of environmental and anthropogenic factors, there is widespread of helminthiasis among goats and the emergence of new outbreaks [4, 7].

At the global level, the rational organization of goat farms, increasing the number of goats and the productivity of wool and milk obtained from them, environmental factors that negatively affect their body, including the epizootology of diseases caused by helminths, the species composition of helminth infections, much attention is paid to pathogens, populations of intermediate hosts goat parasites and parasitological control, focused on the impact of parasites on the host. Moniesiosis is known to be a highly pathogenic parasite for goats, as well as for all farm animals [2, 6, 8]. Therefore, conducting research to study pathomorphological methods for diagnosing goat monieziosis and developing therapeutic and preventive measures against them is relevant.

2 Materials and methods

Research work was carried out in the laboratories of “Parasitology”, “Autopsy”, “Pathomorphology” of the departments of “Parasitology and organization and veterinary work” and “Animal Anatomy, Histology and Pathological Anatomy” of the Samarkand State University of Veterinary Medicine, Animal Husbandry and Biotechnology, also in the laboratory “OPTA-TECH” prepared histosections from samples taken from the parenchymal and digestive organs of 10 goats and examined under an MB-200 microscope.

Studies were conducted on the internal organs of goats spontaneously infected with monieziosis. The main focus was the pathomorphological study of the organs of goats that died from the disease, as well as infected and forcibly slaughtered goats. Bedding materials obtained from goats that died, were sick, and were forcibly slaughtered due to monieziosis were studied in the conditions of farms and private farms in a number of areas. Samples - pieces of the small intestine were cut out along with moniezia and placed in formalin liquid. We studied samples taken from naturally infected goats using pathological methods. The causative agents of monieziosis were isolated from the small intestine and stored in 3% formaldehyde.

Purpose of the study. To study pathological changes in internal organs by opening the carcasses of goats that died from moniosis, taking sections of the liver, heart, spleen, kidneys and digestive organs of patients with moniosis, staining them with hematoxylin-eosin dyes, and studying changes in cells and tissues.

3 Results and Discussion

Goats that died naturally (spontaneously) were severely emaciated, their fur was discolored and quickly pulled out, the area around the anus was soiled with feces, the body began to become numb quickly, the skeletal muscles were completely numb within 4 hours, some had fluid in their bodies in the abdominal cavity. The swelling has formed on the jaw, the frontal, submandibular and lymph nodes are enlarged and softened, the mucous membranes of the conjunctiva, mouth, nose and posterior openings are anemic. The mouth and tongue are dry, anemic, the sides of the tongue are red, the gums are swollen, erosions and ulcers occur. The expansion of the subcutaneous venous vessels is clearly visible. The subcutaneous tissue is atrophied, the muscles are anemic and thinned. Lymph nodes are enlarged and softened. In some places, dark infiltrates with a yellowish tint have accumulated. Sometimes the changes in the body of goats that died due to an acute course of the disease are entirely different. Stagnation of blood and hemorrhages were observed under the skin.

Most of the dissected goat carcasses were found to have between 200 grams and 1.5-2 liters of fluid mixed with blood in the abdominal cavity. Dotted and spotty hemorrhages were observed in the serous membranes of the intestines, under the liver, kidneys, pleura, and diaphragm.

The blood coagulates dark red, numerous spotty hemorrhages appear in the serous and mucous membranes, and the muscles of the body atrophy. On the surface of some of them, in a stationary state, diapedetic hemorrhages develop, in the lower jaw, bronchi, interpulmonary space, enlarged tissue lymph nodes, yellowish exudate accumulates in the chest and abdominal cavities upon incision, large abdomen, flat abdomen, and the reticulated abdomen is filled with thick food, the cuticle layer is easily separated. In the bodies of goats, the mesenteric lymph nodes are enlarged and softened, blood clots are visible on the surface, and on the cut surface the shaft part is red and wet. *Moniesia* were found in the intestinal tract, mixed with food. The intestinal mucous membranes are swollen, in some places there is stagnation of blood, pinpoint and spotty hemorrhages, as well as a thick coating of mucus. The walls of the small intestine in goats are thickened with a large number of *moniesia*. Changes in the intestines depend on the course of the disease.

In the acute period of the disease, the intestinal mucosa may undergo virtually no changes. The mild catarrhal or catarrhal-hemorrhagic inflammations that occur in her depend on the goat's nutrition and the general condition of her body.

The changes mentioned above in the body of goats with chronic disease become more pronounced. In some goats, the small intestine is usually filled with liquid or suspended greenish-red food. The mucous membranes are swollen, hyperemic, and covered with mucus. In some places, pinpoint and spotty hemorrhages are visible. The main changes are in the small intestine, diffuse hyperemia of the intestinal wall, numerous hemorrhages in the rectum. Diffuse hyperemia and pinpoint hemorrhages at the beginning of the cecum. In addition, the mucous substance in the intestines mixes with the blood and spreads to the rectum.

A foul-smelling mass has accumulated in the large intestine, there are numerous hemorrhages in the mucous membranes of the cecum and small intestine, and catarrhal-hemorrhagic inflammation has developed. In some goats, the intestinal walls are thinned by a foul-smelling fluid mass, the intestinal walls are thinned, single intestinal follicles become swollen, and in some goats, they have a kidney-like appearance.

Often, profound irreversible changes were observed in sick goats with constant diarrhea in during the chronic period of the disease.

The mucous membrane of the abomasum is edematous, colorless, the glands are bulging, the mucous membrane is covered with viscous mucus, contains a lot of cellular detritus, small pinpoint hemorrhages and destruction of the mucous membrane are observed in the fundal part of the udder. membrane, erosions and wounds, abundant integumentary epithelium. These changes indicate the presence of chronic catarrh. The mucous membrane has black and yellow spots with mucus mixed with blood. There are light black spots around the edges and red spots in the middle. Congestive hyperemia, hemorrhages, and erosions are visible.

The larynx and bronchi are filled with blood and foamy mucous substance, and hemorrhagic has increased in some of the mucous layer.

Catarrhal, purulent and hemorrhagic foci of pneumonia characteristic of the disease were observed in the lungs. This situation is probably due to a sharp decrease in the appetite and perseverance of the goats.

The interstitial lymph nodes of the lungs are enlarged, slightly pale, the cut surface is rough, and blood stasis and hemorrhages are often observed on their surface. The lungs are swollen, the vessels are filled with blood, mixed fluid with mucus is visible in the bronchi

on the cut surface. Foci of hepatization and necrosis formed in the left lung. The primary and persistent changes are observed in the spleen, which is enlarged in size, has a patchy consistency, gray and cloudy color, and has pinpoint and spotty hemorrhages on the surface. The pulp is dark red, the peel is wildly separated.

The heart is pale, the pericardium is filled with pale fibrinous fluid, the epicardium has pinpoint hemorrhages. The coronary vessels are dilated, blue-black in color, the myocardium is also pale, the color of boiled meat. Hemorrhages formed in the endocardium. Petechial hemorrhages are very common in the endocardium of the heart.

The liver is enlarged and thickened, in some goats the surface is uneven and there are gray-yellow spots of varying sizes. The cut surface varies depending on the course of the disease. In other goats, the liver is soft, the structure of the parenchyma is clearly visible, in others the parenchyma is thickened and the connective tissue is highly developed, its ducts are dilated, the gall bladder is enlarged 2-3 times. In the liver of 2-3 percent of goats, foci of necrosis, fatty and protein degeneration are visible. The liver is red-yellow in color, the consistency is thick, the edges are thickened, pinpoint hemorrhages are visible under the hepatic membrane, in some goats the liver is very fragile, the structure of the parenchyma is disrupted, foci of necrosis in the membrane are visible parenchyma, the gallbladder is filled with blue-green bile.

Many changes in the kidneys do not develop, but in some goats the kidneys are enlarged, the membranes are easily separated, and have different colors. One part is brown-yellow, the rest are gray, dark red, etc. Most goats that died from the acute course of the disease exhibit hyperemia and small pinpoint hemorrhages in the kidneys. When the kidneys are cut, the medulla swells. In some goats, the vessels of the medulla of the kidney turned red and lesions formed. Hyperemia and hemorrhages can also be observed on the mucous membranes of the renal calyx, urinary tract and bladder. The kidneys are filled with blood, the capsule is easily separated, spotty and pinpoint hemorrhages on the surface, infarct foci below, on the cut surface the border of the cortex and medulla is unknown, in a hyperemic state.

Histological processes in organs are predominantly mechanical and allergic changes, The former observed as a violation of tissue integrity due to the movement of helminth larvae and eggs in tissues and the latter manifests itself various necrobiotic, necrotic and proliferative changes as a result of the body's response to invasion.

Also, when a helminth develops and multiplies in the body, toxic products are released from it, and they, in turn, poison the macroorganism, which is the main reason for its weakening and sharp deterioration in condition. Changes specific to monieziosis are formed mainly in the digestive tract, ileum, small intestine, intestinal mesentery, and mesenteric lymph nodes, as well as in the liver, heart, and kidneys. Changes begin first in the blood vessels of the muscular organs. Therefore, we studied histological studies of the digestive tract.

In the liver of goats infected with monieziosis, histological changes characteristic of the disease was always observed. However, the degree of changes depends on the duration of the disease and the intensity of the invasion. One of the main changes is vascular permeability, which is represented by dilation of capillaries, dilation of central and interlobular veins, as well as blood filling, focal and peripheral hemorrhages. The dilation of blood vessels and their filling with blood leads to thinning and atrophy of the liver columns. The columnar structure of the liver in places of bleeding cannot be felt; they are fragmented. The cytoplasm of liver cells is dimly stained, some of them are lysed. Lymphocytes, clusters of eosinophils and neutrophils, and adventitial cells of veins swell and proliferate in and around dilated vessels. In addition to the above changes, foci of necrosis of various sizes and shapes can be found in the liver of most goats. Their size is up to 1.0 microns. In foci of necrosis, hepatocytes completely disintegrate, chromatin granules,

young granulation tissue are filled with a small number of lymphocytes and leukocytes. When stained with hematoxylin-eosin, most of the swollen borders of hepatocytes were smoothed out. In the cytoplasm of the cells there is a coarse-grained substance, the nucleus is not visible or is in a state of *rexes*. The slight change resembles granular protein degeneration. In the cytoplasm of some cells, oil droplets are small, while in others they are very large and occupy the entire cytoplasm. In the next case, the cell nucleus is moved to the side and looks like a ring. Fatty degeneration most often has an infiltrative nature, sometimes it takes on a degenerative nature. Sometimes granular pigment is found in the cytoplasm of cells or between them. The pigment is hemosiderin in histiocytes and macrophages in the form of single half-granules or flakes. Reticular cells enlarge around the veins and bile ducts, appearing in the form of a drawer or lymph. The epithelial cells of the bile ducts are swollen, some of them are displaced, the bile ducts are partially dilated and filled with cellular debris and fluid.

Stagnation of blood in the vessels and interstitial capillaries of the central vein of the liver, lymphoid infiltration between connective tissues and interstitium, hepatocytes are pale colored, their sizes are increased several times, they are pinpointed in the bile ducts during blood transfusion. In the liver of some goats, there are foci of necrosis around hepatocytes, formed due to the destruction of fibroblasts, histiocytes and lymphoid cells.

Thus, hemodynamic, dystrophic and necrotic processes developed in the liver of goats of this group.

The heart's blood vessels are full, the muscle fibers of the myocardium are dilated, and blood clots of various sizes, sometimes spotted, punctate, or diapedetic, are present. Granular dystrophy has developed in the muscle fibers, and endothelial cells swell and desquamate. The endocardium was pale in color, and hemorrhages were observed around it. The above processes indicate that hemorrhagic processes in the hearts of all goats have undergone strong irreversible changes.

Changes in lung tissue cells developed less than in other organs. In some goats with slightly dilated alveoli, fibrinous exudate accumulated in the alveoli, and various hemorrhages were observed in most of the parenchyma. Blood has accumulated in the vessels, the vessel wall has become thinner, and blood plasma and hemolytic erythrocytes have accumulated inside the vessel. Leukocytes and lymphocytes gather around them. An accumulation of lymphoid cells has been observed between the alveoli of the lungs of some goats. Thus, the histological changes observed in masked goats are expressed in the formation of lobar inflammation and lung hemorrhages.

The changes in the spleen in all goats are profound and complex, the vessels and capillaries are full-blooded, the trabeculae and capsules are enlarged and swollen. In some goats, the walls of blood vessels are thickened. In some places of the vessels, an accumulation of hemolytic erythrocytes can be seen. This also includes all lymphoid cells. All goats had hemorrhages in the red pulp; they were focal in nature, and dystrophic, hemolytic and hemorrhagic processes of splenitis manifested histological changes in the spleen.

Profound and complex histological changes were observed in the kidneys of 80-90 percent of goats. There are extensive hemorrhages in the capsule, Malpighian bundles, the walls of curved and straight canals are swollen, and there are foci of necrosis in the epithelial cells of the wall. The wall of the vessels is also dilated; blood plasma and red blood cells, as well as microorganisms, are visible inside the vessel. A large number of hemorrhages were observed in the parenchyma. Reticular tissues swell and blood clots form.

Histological changes in the kidneys are mainly characteristic of local changes, but due to the chronic course of the disease, pathological processes develop somewhat slowly. As a result of the expansion of the capillary vessels of the Malpighian bundles, blood plasma and

hemolytic erythrocytes along with rod-shaped microorganisms are clearly visible inside the vessel.

Dystrophic changes in the epithelial layer of the large stomach, flat stomach, and reticular stomach. Some goats have a more developed vascular response. The vessels are dilated and filled with blood, focal extravasation and serous edema are observed around the vessels. The number of eosinophils and neutrophils, leukocytes, and lymphocytes in the tissues around the vessels increased more than usual. In deeply infected goats, desquamation and karyolytic of the integumentary epithelium were observed, and in the deep layers - vacuolization of the cytoplasm and fragmentation of chromatin. The submucosal layer is inflamed, swollen, and in some areas, the number of connective tissue cells is increased. Accumulations of fibroblasts, partly fibrocytes, and histiocytes were found.

We observed changes in the stomach and intestines. In the mucous membrane of the scrotum, endothelial cells were desquamated, a large amount of mucus of various blood clots accumulated, and in the submucosal layer, congestive vascular hyperemia, dilation of the vascular wall, intravascular erythrocytes, leukocytes, and rod-shaped microorganisms were observed. In some places, the connective tissue swells. In the intestine, the epithelial cells of the villi of the mucous membrane are destroyed, and some goats have isolated and semi-healthy tissue. On the surface of the decomposed tissues, there are masses characteristic of the mucous catarrhal substance; around these substances, a large number of histiocytes, fibroblasts, and lymphoid cells collect, and in the mucous and submucosal layers of the duodenum and small intestine they represent accumulations of necrotic foci, around them there was an accumulation of a large number of leukocytes and red blood cells.

Changes in the abomasum are more severe and permanent than in other departments. The surface of the mucous membrane is covered with a dark layer of mucus. In the cytoplasm, granular protein degeneration was observed with increased in prismatic epithelial cells and pyknosis of the nuclei. Serous swelling appears in places with no covering epithelium, and the capillaries suddenly expand and fill with blood. The epithelial cells are swollen, thinned, the fibroblast nuclei are enlarged, fibrillar fibers are not noticeable, and the structure of the digestive glands and their excretory canals is disrupted. Due to the large amount of displaced glandular epithelium, the excretory channels were not known, and in their place, serous tumors formed in the connective tissue of the mucous membrane. As a result of the decomplexation of the deep digestive glands, the native mucous membrane was swollen and thinned, and an uneven arrangement of cells covering the surface of the connective tissue was observed. In glands with a preserved structure, the covering cells are dimly stained with hematoxylin-eosin, and the small nuclei in their cytoplasm are in pyknosis.

Other cells located in the basal part of the gland show various changes. The cell boundaries are unknown; vacuolization was observed in the cytoplasm and pyknosis in the nuclei. Clusters of eosinophils were observed around dilated blood vessels and vessels filled with blood. In some areas of the venous vessels, damage to the mucous membrane, hyalinosis, and fibrinoid necrosis were observed.

End phlebitis and endarteritis developed in the veins. Foci of necrosis are often found in the fundic and cardiac parts of the abomasum. The edges of the wounds are unevenly infiltrated with eosinophils and neutrophilic leukocytes, subsequent wounds heal and in their place clusters of cells consisting of lymphoid, histoid and eosinophils are formed, the connective tissue base of the mucous membrane is often swollen, and serous. In some places, a sharp expansion of the integument and numerous migrations of epithelial cells change the mucous membrane so much that it is tough to identify. In place of the mucous membrane, only bare connective tissue remains; changes in the muscular layer of the

mucous membrane are unevenly developed. In some places of the incision, degeneration of muscle fibers is visible, but in others not. In some places, muscle fibers completely disappeared, and in their place, accumulations of fibroblasts and leukocytes formed. Connective tissue cells are located far from each other, and there are also eosinophilic accumulations.

The blood vessels of the submucosal layer dilate, their walls thicken, fill with red blood cells, and inflammatory processes occur. Between the layers of circular and transverse muscles, the number of leukocytes, histiocytes and lymphocytes increased. They are often located around blood vessels.

The blood vessels of the serous layer of the abomasum are dilated, proliferative processes, mucous and fibrinoid folds are observed in their walls. The blood vessels and capillaries of the arms are sharply dilated, some parts have a bloody appearance and different colors in different places. Some areas of the veins are dark red in color and full of blood, while in other areas the color is dull and the vein is barely visible. Dystrophic processes are highly developed throughout the intestinal wall.

The integrity of the intestinal papilla is damaged, only the inflamed bases of the papillae are visible. The blood vessels and central capillaries are dilated and filled with blood; profuse bleeding is observed at the base of the nipple, consisting of connective tissue. In some places, extravasation and eosinophilic leukocyte accumulations often collected in the middle sections of the nipples, sharply thickened, and became deformed, making them difficult to identify. The migrated epithelial cells on the surface of the mucosa are bloody with a dark mucous substance. As part of the migrated cellular detritus, epithelial cells are located singly or in ribbon-like groups. They are partially necrotic, and their nuclei are in a state of rexis or lysis. In cellular debris, lymphocytes and leukocytes are often found together in different forms. Profound changes in the intestinal mucosa depend on the number of parasite eggs. The more eggs, the more severe and more profound the changes in the intestinal mucosa develop. Dystrophic-necrotic processes develop weakly or do not develop if the egg is not visible or only one and a half is detected. Erosion and necrosis of the mucous membrane of the intestinal epithelium are more common in areas of invasion. Also, in these foci, hemorrhages, hyperemia, stasis and thrombosis of capillaries, swelling of the intestinal walls, and thickening of connective tissue fibers in the nipples partially develop. The bodies and eggs of the parasites caused stasis and thrombosis in the veins of some lesions. In the duodenum, widespread erosions and necrosis are more often observed. Because the body and eggs of the parasite are located in this section of the small intestine. The spaces of the intestinal crypts, which remained in a normal state, were expanded, and the number of packed cells increased. In some places, foci of necrosis are located on the superficial parts of the intestinal glands and have the appearance of crypts with expanded cavities. Most of the time, masked lesions are surrounded by a proliferation of lymphoid, histiocytes and fibroblasts; in some goats, helminths are observed; they are usually located in areas of damaged crypts or between them. In the layers and membranes of the intestine, the number of eosinophilic leukocytes is increased, and in some places, they appear in clusters. The vessels and capillaries of the mucous membrane are filled with blood. In some places in the vein, blood clots formed, reminiscent of a blood transfusion. In most vessels, the number of neutrophils and eosinophilic leukocytes is significantly increased. Endothelial cells are rounded and displaced due to vasodilation, which results in the endothelial cells elongating and their nuclei in a state of pyknosis. Peripheral vessels are swollen and infiltrated with histiocytes, lymphocytes, and neutrophilic leukocytes. In places where the body or eggs of the parasite are present, muscular changes are more developed; in places of widespread hemorrhages, there is a minimal amount of yellow pigment. Changes in the muscular layer of the private mucous membrane vary depending on the level of development of the pathological process. The muscular layer of the mucous

membrane, not heavily invaded, consists of 2-3 rows of smooth muscle fibers. With pronounced changes, the muscle fibers were not visible, or even when visible, they were homogenized, their nuclei were reabsorbed and lysed, some fibers were swollen and dystrophic. Sometimes, instead of muscle fibers, round cell connective tissue develops. The submucosal layer of the intestine is usually loose, swollen, and in some places has a uniform structure. The connective tissue cells have become more prominent and rounder, their nuclei are pyknotic, there are vacuoles in the cytoplasm, and the blood vessels are dilated. Dystrophic, necrotic changes are observed in the excretory ducts of the Brennerian glands located in the wall of the duodenum. Cells with expanded spaces and desquamated protein are filled with lymphocytes and leukocytes. Epithelial integuments are affected by mucous and granular degeneration.

No other changes were detected in the muscular and serous membranes of the small intestine, except for blood stagnation and serous edema.

Dystrophic and necrotic processes in the mucous membrane of the colon develop mainly in the integumentary epithelium and occur to varying degrees. Often, the integumentary epithelium is exfoliated throughout the intestine. The intestinal cavity consists of migrated epithelium, lymphocytes, neutrophils, leukocytes, and mucus. Parasite eggs were also found in places filled with cellular detritus. Destructive processes intensify with more significant invasions, and the crypts lose their shape. If there are 3-4 or one and a half eggs of the parasite, in some places, they cover the surface of the mucous membrane and intestinal cavity, starting from the base of the crypts. In this case, the infestation is so severe that it can lead to the goat's death. On the shells around the egg, some of which were well-painted, the internal structure of the egg was visible. Other eggs were either dull in color, and had poor internal structure, or had a shell that looked like an empty bubble. Macular eggs are eggs that are on the verge of decomposition under the influence of waste products formed as a result of intestinal destruction; in the bases of the crypts, the processes of necrosis and degeneration are highly developed in places; the proliferation of the membrane characterizes them. This kind of cells and pyknosis of nuclei, some cells are enlarged and filled with mucus. The connective tissue base of the mucous membrane is swollen with serous fibers, the nuclei are enlarged. The boundaries of the crypts are unknown, only the connective tissue base of the swollen and exposed mucous membrane is visible. It is very characteristic that the number of eosinophilic leukocytes and lymphocytes increases, and they appear in clusters. The main changes in the colon are vascular reactions. Hyperemia of the capillary networks was observed both in healthy areas of the mucous membrane and in areas with solid development of the degenerative process. In some areas of the mucous membrane, the vessels are so dilated and filled with blood that, under a microscope looks like a thoracic hemorrhage. The vascular endothelium is swollen, displaced, the nuclei are elongated and pyknotic, the number of neutrophilic leukocytes and lymphocytes is increased, the walls of the vessels are thickened, the fibrous structure is unknown. There are bundles of cells around the vein. Thromboembolisms formed in some veins. The muscular layer of the mucous membrane of the colon is much broader than that of the small intestine and consists of 4-6 rows of muscle fibers. But in goats with severe infestation, the muscle layer degenerates. In some places, the nuclei of muscle fibers are in a state of resection and lysis; fibroblasts, histiocytes, neutrophils and eosinophilic leukocytes take the place of muscle fibers. Changes in the muscular and serous membranes are also observed. The vascular wall structure is disrupted, the thinned endothelium is stretched, and in some places, the vascular wall ruptures and hemorrhages form. Thus, when we analyzed the changes occurring in the small and large intestines under the influence of moniezia, no sharp difference was found between them. The severity of the change depends on the development of the infestation. Dystrophic-necrotic processes occurring in the intestines are closely related to circulatory disorders and the formation of

thrombosis in the vessels of the mucous membrane. However, in our histological specimens, helminth eggs were more often found in the crypts of the small intestine, in the connecting bases, and in the cellular detritus of the intestinal cavity. This condition should be characterized by the fact that the goat has been sick for a long time.

Suppose you look at the changes in the intestine from a pathomorphological and immunomorphological point of view, then it also contains allergic reactions to other helminthic diseases. The formation of many clusters of cells, an increase in eosinophils, a strong vascular response, etc., can be detected.

How strongly inflammatory and dystrophic-necrotic processes develop and which process predominates directly depends on the treatment of the disease, the condition of the animal, feeding and storage conditions.

Of the lymph nodes, the main histological changes were observed in the mesenteric and portal lymph nodes. The capsules and trabeculae of the nodes are swollen, dilated, and there are focal hemorrhages in the capsule. The follicles and serous exudate accumulated, causing the leukocytes and lymphocytes to separate into small foci. The core part of the nodules is swollen, and a minimal amount of hemosiderin pigment accumulates in the shell layer. Hemolytic erythrocytes, leukocytes, and rod-shaped macrophages were observed within the blood vessels. The development of serous lymphadenitis expresses histological changes observed in the lymph nodes of some goats.

4 Conclusion

- Pathomorphological changes in monieziosis include increased general vascular reactions, edema, hemorrhages and catarrhal-hemorrhagic inflammation in the intestinal mucosa, hemorrhages in parenchymal organs, catarrhal-fibrin pneumonia in the lungs and vascular hyperemia, foci of necrosis, tumors. Spotty hemorrhages in the parenchyma of the liver and kidneys characterize it.
- The observed histological changes in the intestine are somewhat complex, especially in the duodenum and ileum, hemorrhagic changes, necrosis of mucosal villi, crypts and epithelial cells were detected.
- In the mucous membrane of the abomasum, the desquamation of epithelial cells and fibrinous exudate are covered with a mucous mass mixed with fibrinous exudate, and in the vessels of the submucosal layer, there is congestive hyperemia, pinpoint, pinpoint hemorrhages, and swelling of the connective tissue, granular protein degeneration in glandular cells.
- The disease monieziosis is widespread among goats; timely analysis of pathomorphological changes in them, making a diagnosis, and taking the necessary measures become an economic factor in goat farming.

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