

MORPHOMETRIC CHARACTERISTICS OF THE LYMPHOID STRUCTURES OF THE SPLEEN OF PIGS IN DIFFERENT AGE PERIODS

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Need to know the basic steps of forming spleen during ontogeny and finding the factors causing is a reliable tool to find ways to prevent the occurrence of birth defects and abnormalities in the diagnosis of diseases of different etiologies. The spleen is the largest peripheral lymphoid organ in the human body and mammals that make a significant contribution to the development and maintenance of cellular and humoral immune response, both innate and acquired immunity, the quantitative and qualitative composition of the immune cells of blood, lymph and other lymphoid organs. The spleen is very diverse. It performs filtering, immune, hematopoietic and deposit functions. The spleen is involved in the formation of cellular and humoral immunity in the removal of genes circulating in the blood, destroying old and damaged red blood cells and platelets, deposition of blood. The spleen may be 2-3 times more and increase its volume, depositing blood at rest and outputting the bloodstream during exercise. In prenatal ontogenesis in mammals, it is the central body of myelopoiesis. After the birth of the pigs spleen retains the peripheral organ of immunopoiesis. Currently, the increasing interest of researchers to study the morphological features of the spleen of the different members of mammals, but the literature is not enough information about the changes of lymphoid organ structures in pigs at different age. The purpose: to study the morphological changes of the parenchyma in the pig spleen ontogeny. Tasks: to evaluate the histological changes in the white pulp of the spleen; produce morphometric assessment of splenic parenchyma. Material and methods.

To study the spleen taken from pigs ZAO " Doronichi " (Kirov Russia) seven age groups: fetals 84 days and 110 days of the prenatal period, animals at 1 , 3 , 6 months, 1 year and 2 years postnatal ontogeny (5 pigs in group), selected on the basis of peers. From microscopic spleen preparations were made and light microscopy carried out using an ocular micrometer (magnification x 1000). The main morphometric parameters were evaluated statistically white pulp in the program Biostatistica ($p \leq 0,05$).

It was found that the pig fetals in the 110 days of age resulted in a minor increase in the average area periarterial lymphoid sheaths (PALV) with $0,01 \pm 0,0009 \text{ mm}^2$ to $0,015 \pm 0,0008 \text{ mm}^2$ compared to the result of pigs at 84 days. This increases the number of cells with a $59,5 \pm 7,3$ to $67,4 \pm 2,78$, forming follicles . During the first months of life, the number of cells in a limited area of the white pulp on average $53,1 \pm 8,13$, which is about 1.27 times less than in the late fetal period of development. However, the increased average size of the follicles with $0,015 \pm 0,0008 \text{ mm}^2$ to $0,017 \pm 0,0044 \text{ mm}^2$, which is 1.15 times greater. By the third month of life was an increase in the average area PALV with $0,017 \pm 0,0044 \text{ mm}^2$ to $0,056 \pm 0,0073 \text{ mm}^2$ ($p \leq 0,05$) compared with pigs at the age of 1 month, 3.2 times and an increase of 3 , 7 -fold compared with late fetal development period . The number of cells of this period of up to 3 months of age has increased from $67,4 \pm 2,78$ to $141,2 \pm 18,59$ ($p \leq 0,05$). By 6 months of age , an increase in T-cell zones significantly by 4.5 times compared to 110 days of age with $0,015 \pm 0,0008 \text{ mm}^2$ to $0,069 \pm 0,0078 \text{ mm}^2$, and the average number of cells around the central arterioles increased to $144, 0 \pm 15,26$ ($p \leq 0,05$). During the first year of life in the white pulp of the spleen of pigs average area of lymphoid nodules equals $0,076 \pm 0,0049 \text{ mm}^2$ ($p \leq 0,05$) , compared with late fetal development period , indicating that the increase in almost 5.03 times. The number of cells constituting the follicles significantly increased with up to $67,4 \pm 2,78$ to $168,1 \pm 11,31$. At two-year- pigs average area is the white pulp was significantly increased by 10.2 times ($0,102 \pm 0,0047 \text{ mm}^2$) compared to the result of 84 days of age and 6.8- fold

compared with late fetal development period . The number of cells of white pulp reaches $121,0 \pm 6,35$ ($p \leq 0,05$), which is 1.8 times higher in fetuses 110 days of age. Based on the data, we assume that the spleen of pigs in the late prenatal and postnatal periods of ontogenesis is involved in the active processes that protect the body from external impacts associated with the method of feeding and housing, but its operation is determined by the age criteria, which greatly influences the manifestation of immune reactions.

Findings

1. Found that with age, there was an increase of lymphoid nodules in the area in 10 times with 0.01 mm^2 of fetuses to 0.1 m^2 for two-year-pigs.
- 2 . Up to the age of three months in the parenchyma of the spleen have been an increase number of cells forming follicles. In the future, there is stabilization of the number of cells of lymphoid structures up to six months of age pigs.
- 3 . The largest number of lymphoid cells in the follicle is seen in yearling animals. At this age, noted sklerotirovanie central arterioles.
- 4 . At the age of two years the average size of lymphoid nodules spleen becomes the maximum, but the number of cells is reduced by about a factor of compared with the yearling , indicating a decrease in the immune function of the spleen.