The American Journal of Medical Sciences and Pharmaceutical Research
(ISSN – 2689-1026)
Published: September 29, 2020 | **Pages:** 72-74
Doi: https://doi.org/10.37547/TAJMSPR/Volume02Issue09-15

IMPACT FACTOR
2020: 5. 286

Journal Website: http://usajournalshub.com/index,php/TAJMSPR

Morphological Features Of The Immune Structures Of The Thin Intestine Of Laboratory Animals With Various Characters Of Nutrition

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ABSTRACT

The nutritional nature of mammals, which has developed during a long evolution, leads to adaptive - morphological changes in their digestive tract and its immune structures, although the general laws of their structural organization are identical. The literature has data on the study of the immune structures of the small intestine under normal conditions and under the influence of certain factors. In the structure of immune structures there are numerous parallelisms, however, in each class of vertebrates, complication of this organization is achieved independently. The small intestine is an important section of the digestive tube, where the final chemical processing of the chyme and the absorption of nutrients into the body take place. However, the comparative morphology of the immune structures of the small intestine in mammals with different nutrition patterns remains poorly understood.

KEYWORDS

Immune Structures, Morphological, Laboratory Animals, nutritional nature of mammals

INTRODUCTION

The purpose of the study is the comparative morphology of the immune structures of the small intestine in animals with different types of nutrition (herbivores, carnivores, and omnivores).

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THE MATERIAL FOR OUR RESEARCH

was the small intestine of rats, rabbits, guinea pigs, cats and dogs, which were taken immediately after slaughtering animals under ethinal sodium anesthesia. The small intestine was twisted in the form of a tape measure and in this form was fixed in 12% neutral formalin. Histological processing of the material and pouring into paraffin was carried out according to the generally accepted technique. Paraffin sections were stained with hematoxylin – eosin, Van Gieson, Mallory, and silver nitrate impregnation according to Grimelius. The linear dimensions of the structures were measured by an ocular ruler, and the density of the structures located was determined by an ocular network with 25 6 nodal points. The resulting digital material was processed by methods of variation statistics.

THE RESULTS OF THE STUDY

The immune structures of the small intestine of the animals studied by us are represented by single located lymph nodes, accumulations of lymph nodes and diffusely located interstitial lymphocytes. In rats, the immune structures of the small intestine are represented mainly by diffusely located interstitial lymphocytes and single lymph nodes, which are found in small quantities. Diffusely spread lymphocytes populate the submucosa and its own plate of the mucous membrane. In other membranes, they are found in the composition of connective tissue around blood vessels and in the interlayers of connective tissue between other tissue structures. The density of interstitial lymphocytes tends to increase towards the intestinal lumen. Their highest density is noted around the crypts and in the composition of the intestinal villi.

Often, individual lymphocytes can be found in the epithelium of the mucous membrane. They are usually pycnomorphic and are located at different distances from the basement membrane, sometimes near its apical surface. In a very rare case, we found single lymphocytes and in the lumen of the crypts, near their epithelium. Single lymph nodes are located mainly in their own plate of the mucous membrane. This part of the mucous membrane protrudes into the intestinal lumen. The shape of the protrusion is different depending on the shape of the lymph node, but often domed. In all cases, around the protrusion there is a deep groove surrounding the protrusion which is covered with intestinal epithelium.

CONCLUSION

Thus, in rabbits, guinea pigs, and dog cats, the immune structures are represented by diffusely located interstitial lymphocytes alone and in clusters of lymph nodes. These clusters of lymph nodes in size and number of nodes in them are found in the small intestines of dogs, etc., in the wall of the duodenum and ileum. Such accumulations in the wall of the jejunum are extremely rare. They consist of closely spaced nodules, between which there is a small distance dotted with lymphocytes.

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