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CHANGE IN THE MORPHOLOGICAL STRUCTURE OF THE SMALL INTESTINAL OF THE POLYPRAGMASIA

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✓ ***Resume***

Various clinical symptoms of inflammatory diseases in combination with the limited possibilities of etiotropic therapy, a large number of symptomatic agents became the causes of polypharmacy. Unreasonable treatment often slows down the natural healing process. Recently, the gastrointestinal tract is considered as an essential component of the general defense of the body. Therefore, without accurate knowledge of the structural features and the effect of drugs on the morphological structure of the small intestine, it is impossible to understand the degree of their participation in the body's defense reactions.

Key words: Morphology, small intestine, polypharmacy.

ИЗМЕНЕНИЕ МОРФОЛОГИЧЕСКОЙ СТРУКТУРЫ ТОНКОЙ КИШКИ В УСЛОВИЯХ ПОЛИПРАГМАЗИИ

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✓ ***Резюме***

Разнообразная клиническая симптоматика воспалительных заболеваний в сочетании с ограниченными возможностями этиотропной терапии, большое количество симптоматических средств стали причинами полипрагмазии. Необоснованное лечение часто становится причиной замедления естественных процессов выздоровления. В последнее время желудочно - кишечный тракт рассматривают как существенный компонент общей защиты организма. Поэтому без точного знания особенностей строения, а также влияния лекарственный средств на морфологическую структуру тонкой кишки невозможно понять степень их участия в защитных реакциях организма.

Ключевые слова: Морфология, тонкий кишечник, полипрагмазия.

POLIPRAGMAZIYA SHAROITIDA INGICHKA ICHAK MORFOLOGIK TUZILISHINING O'ZGARISHI

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Buxoro davlat tibbiyot instituti

✓ ***Rezyme***

Yallig'lanish kasalliklarining turli xil klinik belgilari cheklangan etiotrop terapiya imkoniyatlari bilan birgalikda ko'plab simptomatik vositalar bilan polifarmatsiyaga sabab bo'ldi. Asossiz davolash ko'pincha tabiiy davolanish jarayonini sekinlashtiradi. Oshqozon-ichak trakti tanani umumiy himoya qilishning muhim tarkibiy qismi sifatida qaralmoqda. Shu sababli, tuzilish xususiyatlari va dorilarning ingichka ichakning morfologik tuzilishiga ta'siri to'g'risida aniq bilimga ega bo'lmasdan, ularning organizmning himoya reaktsiyalarida ishtirok etish darajasini tushunib bo'lmaydi.

Kalit so'zlar: Morfologiya, ingichka ichak, polifarmatsiya.

Relevance

The protective function of the intestine is the main barrier to foreign microorganisms. One of the large peripheral parts of the immune system is the intestinal-associated lymphoid tissue. The immune structures associated with the mucous membrane are immunologically active tissue. About 80% of all immune cells in the body are associated with the intestinal mucosa. The integrity of the mucous membrane is one of the main qualities of a healthy body. Among the immune formations of the digestive system, lymphoid nodules (Peyer's patches) of the small intestine play an exceptional role. They, like the thymus, amygdala, mammalian appendix, belong to the lymphoepithelial organs, in

which lymphopoiesis occurs and are in close interaction with the reticular tissue, the epithelium. The use of a large number of drugs can adversely affect the function and structure of the mucous membrane of the small intestine. Anti-inflammatory drugs are one of the most commonly used drug groups in medicine. Identifying the side effects of polypharmacy is an urgent problem today.

The aim of this study was to study polypharmacy with anti-inflammatory drugs on the structural and cellular structure of the wall of the small intestine of white rats.

Material and methods

Sexually mature white outbred rats weighing 200-250 g, 4-5 months of age were used in the work. The experiment was carried out on 40 animals kept in the general regime of the vivarium. For 10 days, the animals were injected enterally through a tube into the stomach with anti-inflammatory drugs at the rate of Plaquenil 6.5 mg / kg, paracetamol 15 mg / kg, aspirin 5 mg / kg, dexamethasone 0.1 mg / kg. All laboratory animals were divided into 4 groups: group 1 - control animals (10 rats) receiving distilled water through a tube, group 2 (10 rats) - laboratory animals that received 2 types of anti-inflammatory drugs (plaquenil, dexamethasone); Group 3 (10 rats) - laboratory animals that received 3 types of anti-inflammatory drugs (plaquenil, dexamethasone, paracetamol); Group 4 (10 rats) - laboratory animals that received 4 types of anti-inflammatory drugs (plaquenil, dexamethasone, paracetamol, aspirin). The material was collected on day 11, after 10 days of drug administration. For histological examination of the wall of the small intestine, the material was fixed in 10% neutral formalin, alcohol-formol, Carnois and Bouin's fluids. After carrying out the material on alcohols of increasing concentration, pieces of intestine were embedded in paraffin. Then histological sections were made on a sled microtome, which were stained with hematoxylin-eosin, hematoxylin, according to van Gieson and Kurnik. The thickness of the middle part of the intestinal wall, mucosa, muscle and serous membranes, the height and width of the villi, the depth and width of the crypts, and the number of goblet cells were determined. The results of the study were processed statistically using the Student's t-test.

Result and discussion

Microscopic examination of the middle part of the small intestine of white rats of the control group showed that the mucous, muscular and serous membranes are well developed and have distinct boundaries. The mucous membrane contains villi of large diameter and crypts of smaller diameter. On the surface of the villi and crypts are cylindrical epithelial cells with oval nuclei. Among the epithelial cells are goblet cells, the largest number of which is observed in crypts. According to our results, the study of the middle part of the wall of the small intestine, there is a different degree of morphological changes when exposed to different amounts of drugs. It was found that after exposure to drugs, the size and ratio of structural components in the walls of the small intestine noticeably change. In the mucous membrane of the small intestine of the experimental group of animals, an intense desquamation of epithelial cells into the intestinal lumen was observed at the tops of the villi. The stroma of the villi is edematous, it contains a large number of macrophages and lymphocytes, and necrosis of the villi is observed in some areas (Fig. 1).

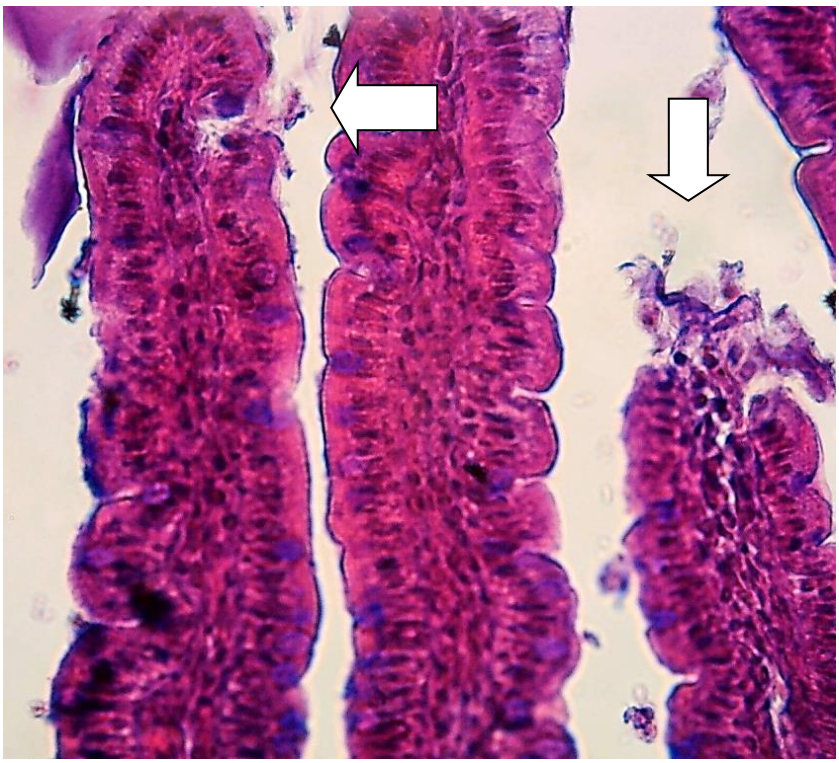

Fig. 1. Intestinal villus. Arrows show the areas of desquamation of epithelial cells of the villi of white rats. Hematoxylin-eosin staining.

An increase in the number of goblet cells, an increase in mucus secretion by villous cells and its secretion in the intestinal lumen were noted (Fig. 2).

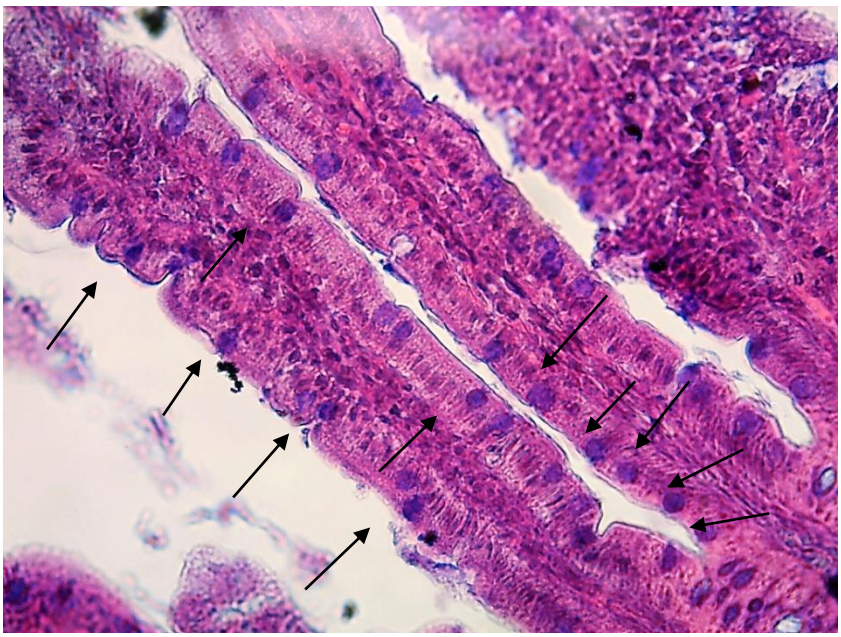

Fig. 2. Intestinal villus. Arrows indicate goblet cells filled with mucus. Hematoxylin-eosin staining.

When analyzing histological preparations, a pronounced heteromorphism of the structure of the villi of the small intestine was noted. The villi were deformed in places. The epithelium covering the villi was edematous and significantly infiltrated with lymphocytes. Most of the epithelial cells showed signs of degenerative changes. Tissue edema was accompanied by local desquamation of epithelial cells (Fig. 3). In some places, necrotic changes in the tissue structures of the intestinal mucosa occurred, sometimes penetrating to the muscular and submucosa. Morphometry of the small intestine wall revealed a decrease in the height of

intestinal villi by 11.5% (P≤0.05) in the second, by 15.2% (P≤0.05) in the third and by 18.6% (P≤0, 05) in the fourth group, respectively, compared with the control, the depth and width of the crypts also decreased over time in all groups, respectively. The width of the villi in the control group of animals of the middle section of the small intestine is on average 27.15 ± 0.22. In the second group, the width of the villi decreased on average to - 24.01 ± 0.85, in the third group of animals, on average, the thickness of the villi was 22.01 ± 0.85, and in the fourth group, it decreased to 20.21 ± 0.46 μm.

When analyzing the thickness of the mucous membrane, muscle and serous membrane, a significant decrease in the thickness of the mucous membrane was noted in comparison with the control, respectively by 13.3% (P≤0.05), 15.9% (P≤0.05), 17.5% (P≤0.05) and 21.36% (P≤0.05) in the experimental groups, respectively. At the same time, the muscle layer is significantly thinner than in the control group by 7.4% (P≤0.05), 8.5% (P≤0.05), and 9.2% (P≤0.05). An increase in the number of goblet cells by 50.14% (P≤0.05), mainly in the villi, while their average area practically did not change.

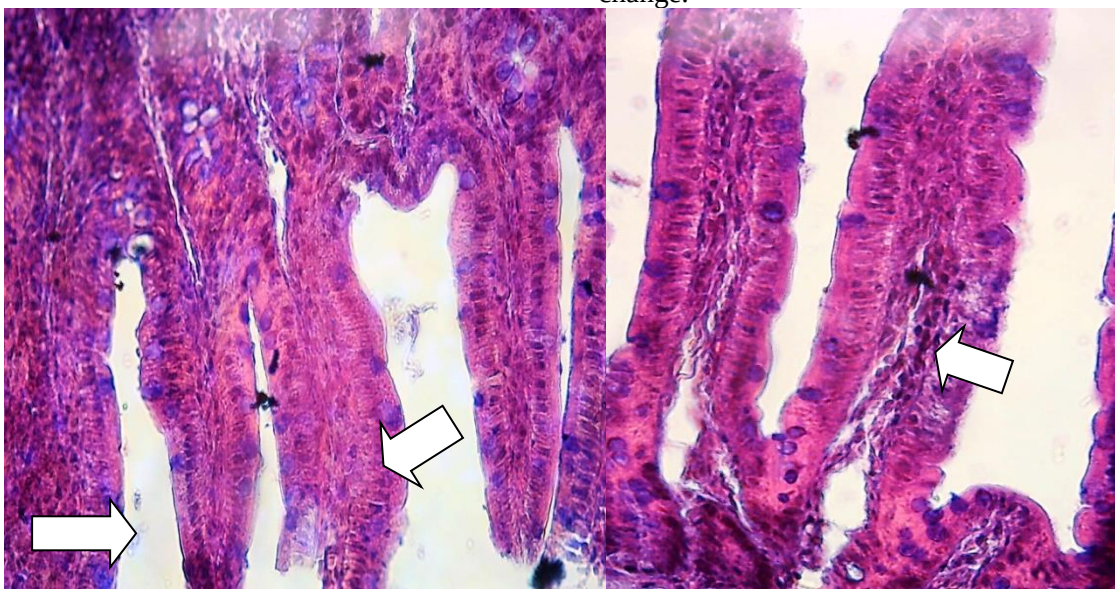

Fig. 3. Intestinal villus. Heteromorphic structure. Edema and atrophy of epithelial cells of villi of white rats, desquamation of epithelial cells. Hematoxylin-eosin staining.

Conclusions

As a result of studies in the wall of the small intestine of rats treated with anti-inflammatory drugs, changes of a destructive nature were found, depending on the use of the amount of drugs. Destructive changes are characterized by edema of the stroma of the villi, their desquamation into the intestinal lumen, a decrease in the height of the villi, which were clearly observed in the fourth group when using four types of anti-inflammatory drugs. At the same time, the observed increase in the number of goblet cells in the villi. Presumably, this is due to an increase in degenerative processes in epithelial cells under the influence of polypharmacy.

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