



Macromicroscopic Anatomy of the Lymphoid Formations of the Vaginal Vestibule and Intrahepatic Bile Ducts and Human

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Abstract

Introduction: Regardless of the organ belonging, lymphoid formations of organs are considered the source of many diseases. However, the lymphoid structures of the vaginal vestibule and intrahepatic bile ducts are poorly understood. The available information about these structures is very brief and does not meet modern requirements.

The aim of the study was to obtain complex macromicroscopic data on the lymphoid apparatus of the vestibule of the vagina and intrahepatic bile ducts in humans.

Materials and Methods: Lymphoid formations of the vestibule of the vagina and intrahepatic bile ducts were studied on the corpses of 56 people of different ages. On total preparations, lymphoid formations were studied according to the Hellman T method. In addition, the microanatomy of lymphoid structures was studied on microscopic preparations. These preparations were stained with hematoxylin-eosin, according to van Gieson, azur-2-eosin, alcian blue, according to Kreyberg.

Results: The structural analysis performed showed that the vestibule of the vagina and intrahepatic bile ducts have developed lymphoid apparatus. Lymphoid structures on total liver preparations after elective staining are detected as dark (mainly dark blue) structures. Microanatomical methods determine all morphogenetic forms of lymphoid formations - lymphocytes in the epithelium, diffuse lymphoid tissue, lymphoid nodules. In the walls of the vestibule of the vagina there are lymphoid nodules located near the small glands. Cells of the lymphoid series are always located near the excretory ducts of the glands. Cells of the lymphoid series of the vestibule of the vagina singly or in the form of lymphoid clusters, as well as in the form of strands, are located in the stroma of the initial sections of the glands, in close proximity to glandulocytes. The diffuse lymphoid tissue of the liver is mainly located around the bile ducts and next to the small veins. Lymphoid nodules of the intrahepatic bile ducts do not have centers of reproduction. We have revealed microsyntopic relationships between cells of the lymphoid series (microassociations of cells). All lymphoid formations of the vaginal vestibule and intrahepatic bile ducts are represented by the same type of lymphoid cells with a significant predominance of lymphocytes, numerous plasma cells, macrophages, and reticular cells. Cells with signs of mitosis, a few mast cells are always determined: cells in a state of degeneration.

Conclusion: Lymphoid formations of the vestibule of the vagina and intrahepatic bile ducts are represented by diffuse lymphoid tissue and lymphoid nodules, located mainly near the small glands of the vestibule of the vagina, around the bile ducts and next to the small veins.

Keywords: Vestibule of Vagina; Intrahepatic Bile Ducts; Small Glands; Diffuse Lymphoid Tissue; Lymphoid Nodules

Introduction

Regardless of the organ belonging, lymphoid formations of organs are considered the source of many diseases. However, the lymphoid structures of the vaginal vestibule and intrahepatic bile ducts have not been studied enough. Lymphoid structures of various organs have been studied unequally enough. In the scientific literature, one can find information about the anatomy and topography of the lymphoid derivatives of the gallbladder [1], the common bile duct [2]. And the available information about these structures is very brief and does not meet modern requirements.

The lymphoid apparatus of the vestibule of the vagina in women is normal, from an anatomical point of view, little has been studied. Even in detailed targeted monographs and summaries on the morphology of lymphoid formations in the body, there are no data on this issue [3].

The aim of the study was to obtain complex macromicroscopic data on the lymphoid apparatus of the vestibule of the vagina and intrahepatic bile ducts in humans.

Materials and Methods

Microanatomy and microsintopia of the lymphoid formations of the vestibule of the vagina and intrahepatic bile ducts were studied on the corpses of 56 people of different ages. The causes of death were asphyxia and injuries incompatible with life. The total sample did not include cases when the forensic (pathoanatomical) examination revealed concomitant cases of diseases of the immune system, genitourinary system and liver. The actual material of the study was collected at the Association of Forensic Medical Examination and Pathological Anatomy of the Ministry of Health of the Republic of Azerbaijan. The duration from the moment of death to the start of the manufacture of the drug did not exceed 6-10 hours. On total preparations, lymphoid formations were studied according to the method of Hellman T. [4]. For histological examination, pieces taken from the bile ducts were used, they were fixed in a solution of 10% neutral formalin, and processed by conventional histological methods. The preparations were stained with hematoxylin-eosin, according to van Gieson, azure-2-eosin, alcian blue, according to Kreyberg [5].

The digital data obtained during the study were subjected to statistical processing. At the same time, the general recommenda-

tions for medical and biological research were followed [6]. The calculations were carried out in the programs of the statistical package MS EXCEL-2016 and SPSS-22.

Results and Discussion

The structural analysis performed showed that the vestibule of the vagina and intrahepatic bile ducts have developed lymphoid apparatus. Lymphoid structures on total liver preparations after elective staining are detected as dark (mainly dark blue) structures. Microanatomical methods determine all morphogenetic forms of lymphoid formations - lymphocytes in the epithelium, diffuse lymphoid tissue, lymphoid nodules.

In the walls of the vestibule of the vagina there are lymphoid nodules located near the small glands. Cells of the lymphoid series are always located near the excretory ducts of the glands (Figure 1), performing the functions of "guard posts" that react to the possible penetration of foreign antigenic material through the duct into the thickness of the mucous membrane, i.e., into the internal environment of the body [7].

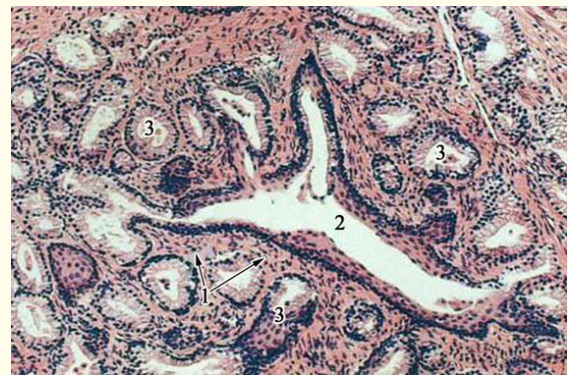


Figure 1: Cells of the lymphoid series of the vaginal vestibule in a 16-year-old girl. Micropreparation. Hematoxylin-eosin staining. Increase 250x. 1. cells of the lymphoid series; 2. excretory duct; 3. initial part.

Cells of the lymphoid series of the vestibule of the vagina singly or in the form of lymphoid clusters, as well as in the form of strands, are located in the stroma of the initial sections of the glands, in close proximity to glandulocytes, where they carry out immune surveillance of secretion processes [8].

In the diffuse lymphoid tissue of the liver, predominant areas of localization are noted. They are mainly located around the bile ducts and next to small veins (Figure 2).

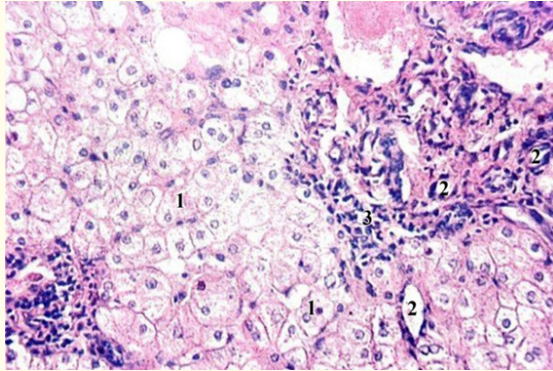


Figure 2: Diffuse lymphoid tissue of the liver of a 48-year-old man. Micropreparation. Hematoxylin-eosin staining. SW. X250.
1. hepatocytes; 2. bile ducts (their cross section); 3. diffuse lymphoid tissue.

Lymphoid nodules of the intrahepatic bile ducts do not differ in appearance, depending on the location. These lymphoid nodules do not have centers of reproduction.

We have revealed microsyntopic relationships between cells of the lymphoid series (microassociations of cells). These include macrophage-lymphocyte complexes (a macrophage surrounded by small and medium-sized lymphocytes) and plasmacytic-lymphocyte complexes (lymphocytes surrounding a plasma cell). The existence of such associations was noted by Allahverdiev M.K. (2007) [9], Shadlinskaya S.V. (2009) [10], Shadlinsky V.B., Huseynova G.A. (2011) [11] Huseynov B.M., (2011) [12]. The functional purpose of such complexes, according to the assumption of M.R. Sapin, D.B. Nikityuk (1998), is in the exchange of information between cells of the lymphoid series, which is necessary for the formation of an immune response [3].

In qualitative terms, all lymphoid formations of the vestibule of the vagina and intrahepatic bile ducts are represented by the same type of cells of the lymphoid series with a significant predominance of lymphocytes (50-70% of all cells of the lymphoid series), numerous plasma cells, macrophages (5-12% of each cell type, depend-

ing on age), reticular cells involved in the formation of the stromal component of lymphoid structures. In the composition of the lymphoid tissue, cells with signs of mitosis are always determined, the presence of which reflects the processes of lymphocytopoiesis, a few mast cells; cells in a state of degeneration.

Thus, the cellular composition of the lymphoid tissue of the vaginal vestibule and intrahepatic bile ducts generally corresponds to other peripheral organs of the immune system.

Conclusion

Lymphoid formations of the vestibule of the vagina and intrahepatic bile ducts are represented by diffuse lymphoid tissue and lymphoid nodules, located mainly near the small glands of the vestibule of the vagina, around the bile ducts and next to the small veins.

Conflict of Interest

There is no financial interest or conflict of interest.=

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