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IMMUNOHISTOCHEMICAL STUDY OF THE LYMPH NODES OF THE ONE HUMPED CAMEL (CAMELUS DROMEDARIUS)

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The histological and cytological study of lymph node camel is highlighted by the use of immunohistochemical technique; we used two monoclonal antibodies CD3 and CD22 that have demonstrated the localization of lymphocytes in the lymph node. The appearance of follicular lymphoid cells detected by the reaction of the CD3 antibody was supported by a network of reticular fibers. The interfollicular tissue is composed mainly of lymphocytes. CD3 positive diffuse distributed. This reaction is expressed by most lymphocytes and interfollicular follicle tissue, lymphatic sinuses and post-capillary venules. Some cells are located in the cells of the cortex follicles. Superficial nodes are arranged in lymphoid follicles essentially spherical, are the major sites of localization and proliferation of B-cells. From this it was possible to classify the primary lymphoid follicles; that have no clear center and secondary follicles which include a clear center. The centers are the site of light proliferation of B-cells and germinal centers are called. Follicles "primary" could be "secondary" to rest. As the paracortex area consists mainly of T-lymphocytes, which is never as follicles in any case. Note that the medullary cords contain primarily B-cells

Lymph nodes, Camel, immunohistochemistry, follicles, antibodies CD3 and CD22, lymphocytes

Introduction.

In all animals a lymph node consists of lymphoid tissue, tissue where white blood cell types stay and multiply. There are B cells grouped in rounded clusters, called follicles, which are bordered by areas where T cells dominate [11]. The lymph node is supplied by lymphatic and blood capillaries. knowing that all mammals have stem cells "committed" (derived from a common stem cell lymphoid blood) contribute pyramid hematopoietic differentiation (where red blood cells, [1] granulocytes are derived monocyts and thrombocyts) while the other is the pyramid lymphoid differentiation (which differentiate the T and B lymphocytes) [2]. Some lymph nodes have been put in evidence of T and B lymphocytes in the lymph nodes of the dromedary and by immunohistochemical staining was observed in the active areas of T and B lymphocytes with antigen reaction caused by antibodies CD3 and CD22. There were no obvious structural differences between these lymph nodes [8, 10, 12]. Lymphocytes and macrophages are the main active cells in the lymph node as they carry out the clearance and filtration of lymph inside the lymph node [3]. This study aims to clarify the histological and the fine structure of camel lymph nodes in correlation to their function.

Material and method.

The study focused on the lymph nodes of camels. A set of lymph nodes were subject of our research: [The subcapsular, parotid, submandibular, the superficial cervical, axillary, popliteal, The medial retropharyngeal, mediastinal Caudal, Portal, jejunum and internal iliac]. A sample preparation divided into two groups, one for the conventional staining were fixed in 30% formalin and the second group in a concentration of 10% for immunohistochemical study [4]. Mainly histochemical staining with hematoxylin and eosin [2, 3, 4], the samples were cut (5 microns thick). These stained histological sections. Thus, our research is based on antibody responses to a goal and immunohistochemical know the exact location of T and B lymphocytes, lymph nodes are included in the 10% formalin. The tissue sections were deparaffinized in xylene and rehydrated through graded alcohol to. Thereafter, a rabbit polyclonal primary antibody was applied to the sections at a dilution of 1:60 and incubated at 4° C overnight [11, 12].

Positive reactions were developed with diaminobenzidine (DAB) as chromogen. Tissue sections were stained with hematoxylin, dehydrated and mounted. The sections were observed under an optical microscope. Immunolabeling control was performed by the same procedure, except that the primary antibody was replaced with non-immune serum.a specific case is included with the standard kit for use the primary labeled reagents, and the Universal Kit can be used either with primary rabbit antibody.

Discussion. All mammals have stem cells "committed" (derived from a common stem cell lymphoid blood) contributing to pyramid hematopoietic differentiation (where red blood cells, granulocytes are derived monocyts and thrombocyts) while the other is the pyramid lymphoid differentiation (which differentiate the T and B lymphocytes) [2]. Some lymph nodes have been put in evidence of T and B lymphocytes in the lymph nodes of the dromedary and by immunohistochemical staining was observed in the active areas of T- and B-lymphocytes with antigen reaction caused by antibodies CD3 and CD22. There were no obvious structural differences between these lymph nodes. Lymphocytes and macrophages are the main active cells in the lymph node as they carry out the clearance and filtration of lymph inside the lymph node [3]. This study aims to clarify the histological and the fine structure of camel lymph nodes in correlation to their function.

After placing slides in observation, we observed that the lymph node is surrounded by a fibrous capsule, this capsule is more important at the hilum. Several spans detach from the inner face of the capsule and enter the body of the node. Around the germinal center there is a ring of small lymphocytes surrounding the secondary lymphoid follicles and lymphocyte infiltration in the reticular tissue. Unequal distribution allowed us to distinguish two regions. The periphery or lymph node cortex is a large dense lymphocytic band that is very colorful. It is divided into two parts namely the outer cortex and inner cortex. In the cortex were noted germinal centers that are pale and rounded. The central part or spinal ganglion is much clearer than the one we obtained in our histological preparation; it is composed of large reticular tissue spaces. At the medullary sinuses are distinguished from small lymphocytes and at the cap is composed of B cells in the inner part of the cortex is composed of many T cells localized in the meshes of the reticular tissue. The appearance of follicular lymphoid cells detected by the CD3 antibody reaction was supported by a network of reticular fibers. The interfollicular tissue is composed primarily of lymphocytes. We can note CD3 positive diffusely distributed [8]. This reaction is expressed by most lymphocytes and interfollicular follicle tissue, lymphatic sinuses and high endothelial venules. Some cells are located in the lymph follicles. Superficial cortex cells are arranged in lymphoid follicles essentially spherical, are the principal sites of localization and B cell proliferation. From this it was possible to classify the primary lymphoid follicles; that have no clear center and secondary follicles which include a clear center. The centers are the site of light proliferation of B cells and germinal centers are called. "Primary" follicles could be "secondary" to rest [5, 6]. As well as the region of paracortex consists mainly of T-lymphocytes that is never in the form of follicles at discounted prices [7]. So in the cortex, it cites, primary follicles which are formed of small lymphocytes B. and the secondary follicle is formed by a dark peripheral ring made of small B-lymphocytes and a clear center. Note that the medullary cords contain mostly B cells it is noted that, in the medullary area is formed of a set of cords where many lymphoid cells T lymphocytes predominate, and wide light medullary sinuses and lymphoid follicles that are not individualized. Note that the paracortex is less dense, devoid of lymphoid follicles and populated by small T-lymphocytes, the characteristic feature of this area is the presence of post-capillary venule which is the crossing point of the lymph to the blood [8]. In resume Lymph nodes are found throughout the body associated with the lymphatic vessels, and function to filter the lymph. The lymph nodes are surrounded by a connective tissue capsule and are usually found embedded in fat. Their structure includes a number of lymphatic nodules in the outer cortex region (Fig.1) and a central medulla containing irregular cords of circulating B- and T-cells supported by reticular fibers (Fig. 2). Thus T cells are located in general in the region of the paracortex against by the B lymphocytes are localized in areas of the medulla and cortex.

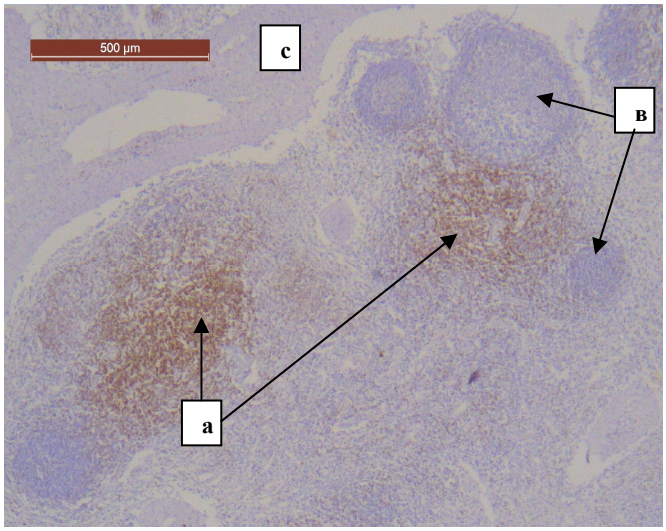

Fig. 1. **Histological preparation retropharyngeal lymph node dromedary:**
a – paracortical zone (accumulation of T-lymphocytes), b – lymphoid nodules with, c – connective tissue stroma assembly.
Imunogistohimiya CD3, hematoxylin.

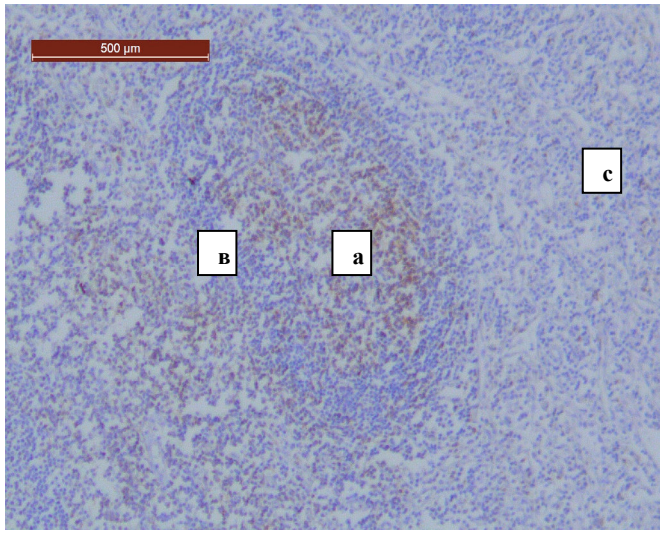

Fig. 2. **Histological preparation of axillary lymph node dromedary**:
a – breeding center lymph node (cluster B-lymphocytes), b – the mantle zone of the lymph node, and c – paracortical area.
Imunogistohimiya CD22, hematoxylin.

Conclusions:

The histological and cytological study of lymph node camel is complemented by the use of immunohistochemical methods. Therefore, we used two monoclonal antibodies to CD3 and CD22 demonstrated the localization of lymphocytes in the lymph nodes. The techniques used in this study are sufficient to study the normal lymph node camel. In conclusion, the lymph nodes in the dromedary (Camelus dromedarius), depending on the location of lymphocytes, which are the same for all mammals. According to our results, it was noted that B lymphocytes are located in the follicles of the cortex and medullary cords whereas the T lymphocytes are located in the para-cortical region.

Thanks.

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ИММУНОГИСТОХИМИЧЕСКОЕ ИССЛЕДОВАНИЕ ЛИМФАТИЧЕСКИХ УЗЛОВ ОДНОГОРБОГО ВЕРБЛЮДА (CAMELUS DROMEDARIUS)

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Проведен иммуногистохимический анализ, с использованием моноклональных антител CD3 и CD22, с целью выявления локализации Т- и В-лимфоцитов в паренхиме соматических и висцеральных лимфатических узлов половозрелых одногорбых верблюдов. Паренхима лимфатических узлов состоит из лимфатических узелков, интерфолликулярной лимфоидной ткани (паракортекса) и мозговых тяжей. Основная масса Т-лимфоцитов, выявленная с помощью реакции с антителами CD3, расположена, преимущественно, в интерфолликулярной ткани в петлях образованных сетью ретикулярных волокон. В меньшей степени, эти клетки были выявлены в лимфатических синусах и посткапилярных венулах с высоким эндотелием. Отдельные клетки встречались в мантийной зоне лимфатических узелков. Лимфоциты реагирующие с антителами CD22, расположены в лимфатических узелках – сферических скоплениях лимфоцитов, преимущественно расположенных по периферии, вокруг паракортекса. Лимфатические узелки – это основные места локализации и пролиферации В-лимфоцитов. Существуют первичные лимфатические узелки (без светлых центров) и вторичные с четко выраженным светлим (зародышевым) центром.

Обращает на себя внимание, что мозговые тяжи мозгового вещества лимфатических узлов содержат в основном В-лимфоциты

Лимфатические узлы, одногорбый верблюд, иммуногистохимия, лимфатические узелки, антитела CD3 и CD22, лимфоциты