HISTOMORPHOLOGICAL STUDY OF HEMAL LYMPH NODE OF THE CAMEL*(Camelus dromedarius*)

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ABSTRACT

The study was carried out to investigate the histomorphology of hemal lymph nodes of camel ***(****Camelus dromedarius****)*** **.** The results showed that the hemal lymph node was conical in shape with convex wide base and narrow apex. It was encapsulated by a thick fibrous connective tissue capsule from which long trabeculae emerge. The stroma of hemal lymph node consists of randomly distributed lymphatic nodules ,lymphatic cords and hemal sinuses. Presence of erythrocytes, leukocytes especially lymphocytes ,monocytes, plasma cells, macrophages and megakaryocytes were seen . Megakaryocytes or giant cells possess an irregularly lobulated nuclei with course chromatin and unapparent nucleoli.

INTRODUCTION

Hemal lymph node are unique to the ruminant species (1) .It was also found in primates and its occurance in human being questionable (2),and doubtful in horses(3)and pig (4).The present work was conducted to study the histomorphology of hemal lymph node in camel which may also serve as aguide for further physiological and pathological studies .

MATERIALS AND METHODS

A total of fifteen hemal lymph nodes from adult healthy camels were obtained from Al-Najaf province ,Iraq. Samples of hemal lymph nodes were fixed in 4% neutral buffered formalin for 24hours ,then washed in current water ,dehydrated in a graded alcohol, cleared in xylol and embedded in paraffin wax .Each paraffin block was then serially sectioned at 5 micrometers thickness and stained with Haematoxylin and

Eosin (5).Measurements of these hemal lymph nodes were done by using oculometer scale(6) .

RESULTS

The hemal lymph nodes of the camel were encapsulated structures , which intercalated in the pathway of blood stream . These nodes were dark –red to brown in colour and conical in shape with convex base and apex (plate I). The mean long diameter of these nodes was 3x3 mm . The hemal lymph node of camel was enclosed by fibrous capsule of 60x80 micrometer in thickness, this capsule was penetrated by arteries , veins and thick bundles of myelinated nerve fibers . Connective tissue trabecule project inward from this fibrous capsule and encroached its stoma (fig. 1). Histological examination revealed that the parenchyma of hemal lymph node was preponderantly formed of connective tissue fibers which womb groups of lymphatic nodules of different shapes and sizes . Lymphatic nodules were uniformly stained and distributed in a random manner among the stroma of the hemal lymph node (fig. 1). Diffused and localised lymphatic cords were evident (fig .2).These lymphatic tissues were supported by branching collagen fiber. Subcapsular hemal sinus below the capsule continues with stromal hemal sinuses that mostly found parallel to trabeculae (plate l). The lymphatic nodules and cords separate the deep sinuses (fig.2) The wall of hemal sinuses were lined by endothelial cells lined by endothelial cells. The cells found within lymphatic and stromal cells were phagocytes, lymphocytes, plasma cells and megakaryocytes.The hemal lymph nodules contain small lymphocytes which characterized by a heterochromatic nucleus and scanty cytoplasm. Fewer and larger lymphocytes with a perinuclear halo was commonly found around the periphery of the nucleus of these lymphocytes. These larger lymphocytes nodules , Megakaryocytes have lobulated nucleus with course chromatin and unapparent nucleoli.

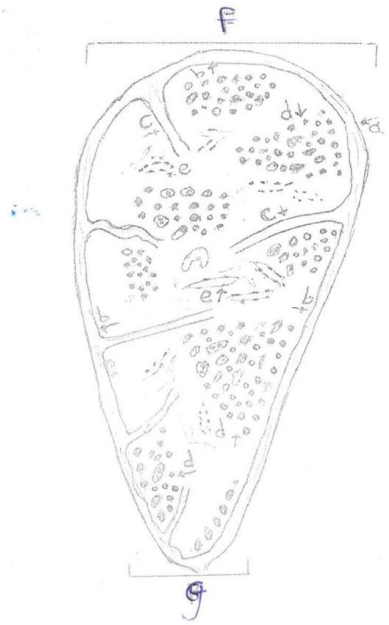

Plate (I) of the hemal lymph node of the camel

a-capsule ., b-subcapsular sinus, c-trabeculae, d-lymphatic nodules, e-lymphatic sinuses, F and g-base and apex.

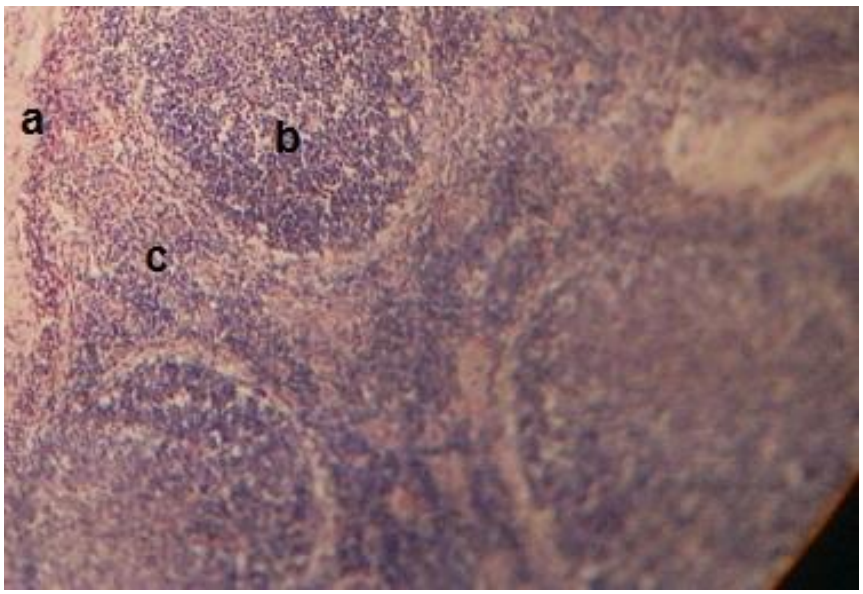

Fig.1:Longitudinal section of hemal lymph node :a-capsule.b-lymphatic nodule.c-sinuses filled with erythrocytes.H&E.(200X)

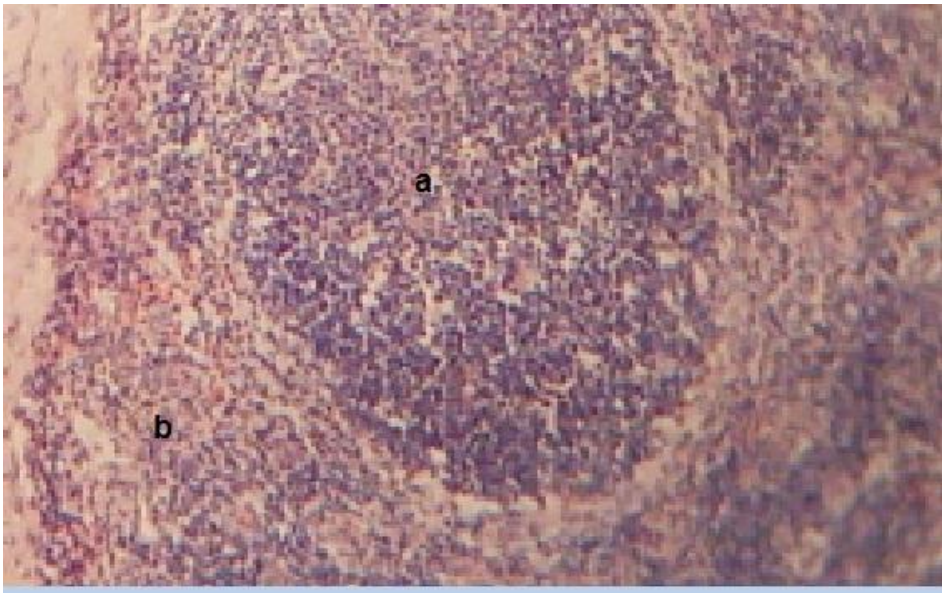

Fig.2:Longitudinal section of hemal lymph node :a-lymphatic nodule .b-lymphtic cord H&E.(400X).

DISCUSSION

Numerous authors gave the impression that the variation in the size of hemal lymph node may be happened in obese animals (7,8)(9) Claimed that the hemal lymph nodes of camel were of spherical or kidney shape with one or two hili and their parenchyma was composed of a cortex and a medulla. According to our view, hemal lymph nodes were represented by masses of lymphocytes which form lymphatic nodules and lymphatic cords with wide blood sinuses. Hemal lymph nodes in some mammals represent stages in the involution of transient lymph nodes (10) . Our attempts have been sufficient to distinguish the lymphocytes, monocytes, red blood cells and megakaryocytes. They were distinguished mainly on the basis of shape, size, chromatin structure and the presence of nucleoli. The chromatin of lymphocytes becomes more compact and the nucleoli appear less visible. Monocyte contains a large, slightly indented nucleus with lacy chromatin and the nucleoli were evident. The presence of the red cell ghosts sequestered in the sinuses, along with smooth muscle in the trabeculae and in the sinus walls give us the impression that the hemal lymph node can evacuated the aging erythrocytes. This in agreement with (11). Our investigation showed that megakaryocyte has a large lobulated or kidney shaped nucleus with numerous nucleoli. The cytoplasm of this cell was homogenous and intensly stained. This finding was proved by (12).

دراسة نسجية شكليائية للعقدة اللمفية الدموية في الجمل (Camelus dromedarius)

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الخلاصة

أجريت هذه الدراسة النسجية الشكليائية على العقد اللمفية الدموية في الجمل. أظهرت النتائج أن العقدة اللمفية الدموية في الجمل مخروطية الشكل ذات قاعدة وقمة محدبتين. تحاط العقد اللمفية الدموية بمحفظة ليفية سميكة تنسدل منها حواجز طويلة . يتكون متن العقد اللمفية الدموية من عقيدات لمفية تنتشر بصورة عشوائية ترافقها حبال لمفية وجيوب دموية . توجد خلايا الدم الحمر وخلايا الدم البيض خاصة الخلايا اللمفية ، خلايا وحيدة النواة، الخلايا البلازمية، الخلايا البلعمية وخلايا النواة العملاقة. تكون خلايا النواء العملاقة ذات نواة مفصصة غير منتظمة تحتوي على صبغين داكن والنويات غير واضحة.

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