

Cellular Components of the Hemal Node of Egyptian Cattle

Authors : Amira E. Derbalah, Doaa M. Zaghloul

Abstract : 10 clinically healthy hemal nodes were collected from male bulls aged 2-3 years. Light microscopy revealed a capsule of connective tissue consisted mainly of collagen fiber surrounding hemal node, numerous erythrocytes were found in wide subcapsular sinus under the capsule. The parenchyma of the hemal node was divided into cortex and medulla. Diffused lymphocytes, and lymphoid follicles, having germinal centers were the main components of the cortex, while in the medulla there was wide medullary sinus, diffused lymphocytes and few lymphoid nodules. The area occupied with lymph nodules was larger than that occupied with non-nodular structure of lymphoid cords and blood sinusoids. Electron microscopy revealed the cellular components of hemal node including elements of circulating erythrocytes intermingled with lymphocytes, plasma cells, mast cells, reticular cells, macrophages, megakaryocytes and endothelial cells lining the blood sinuses. The lymphocytes were somewhat triangular in shape with cytoplasmic processes extending between adjacent erythrocytes. Nuclei were triangular to oval in shape, lightly stained with clear nuclear membrane indentation and clear nucleoli. The reticular cells were elongated in shape with cytoplasmic processes extending between adjacent lymphocytes, rough endoplasmic reticulum, ribosomes and few lysosomes were seen in their cytoplasm. Nucleus was elongated in shape with less condensed chromatin. Plasma cells were oval to irregular in shape with numerous dilated rough endoplasmic reticulum containing electron lucent material occupying the whole cytoplasm and few mitochondria were found. Nuclei were centrally located and oval in shape with heterochromatin emarginated and often clumped near the nuclear membrane. Occasionally megakaryocytes and mast cells were seen among lymphocytes. Megakaryocytes had multilobulated nucleus and free ribosomes often appearing as small aggregates in their cytoplasm, while mast cell had their characteristic electron dense granule in the cytoplasm, few electron lucent granules were found also, we conclude that, the main function of the hemal node of cattle is proliferation of lymphocytes. No role for plasma cell in erythrophagocytosis could be suggested.

Keywords : cattle, electron microscopy, hemal node, histology, immune system

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