

The Mott Cells in the Lymph

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UDC 616.428+616.419-018.1-07

Translated from *Byulleten' Experimental'noi Biologii i Meditsiny*, Vol. 115, No. 1, pp. 74-75, January, 1993
Original article submitted March 13, 1992

Key Words: *Lymph; Mott cells*

The plasma cell variants containing Russell bodies are grouped under the common term Mott cells. Such a plasma cell subtype, characterized by abundant clear vesicles or "spherules", was described by Mott as early as in 1905. Mott cells occur in normal lymph nodes and bone marrow of humans and animals [1, 2]. The cells appear in large numbers in the lymph nodes of autoimmunized mice, in chronic inflammation infiltrates, as well as in the course of such diseases as lymphatic leukosis, erythromatosis, and myeloma [2,3,5,8]. Until now nobody has described the presence of Mott cells in the lymph.

The aim of this study was the investigation of the phenotypic features of lymph-obtained Mott cells and a quantitative analysis of them under normal conditions and in atherosclerosis.

MATERIAL AND METHODS

The experiments were carried out on 210 male chinchilla rabbits of 2.5-3 kg body weight. The experimental animals were divided into two groups: intact ones and animals suffering from atherosclerosis. The artificial atherosclerosis was induced by feeding animals with cholesterol in a dose of 3mg per kg of body weight during 60 days. The lymph to be analyzed was obtained from the cistern chyle under local anesthesia with 0,25% novocain solution. (The method of obtaining lymph was patented by the All-Union Research Institute of State Patents, patent No 54/32-1598 dated March.03, 1992). The harvesting of lymph was performed by puncturing the cistern chyle with glass micropipettes (the mode of micropipette manufacturing received a patent on Jan. 31,92, application No 4944468/1/4). The smears of the harvested lymph were prepared routinely. They were stained by the Romanovsky-Giemsa method and examined under a Leitz light microscope. The diameter of lymph-derived Mott cells was measured using an object-micrometer. The total quantity of lymph-derived

Mott cells was estimated by screening the whole area of the smear. The results were statistically analyzed. The quantity of Mott cells was expressed in percentage to all the cells in the smear. At the termination of the experiments the animals were killed by injection of thiopental sodium solution into the ear vein. The experiments were performed in October.

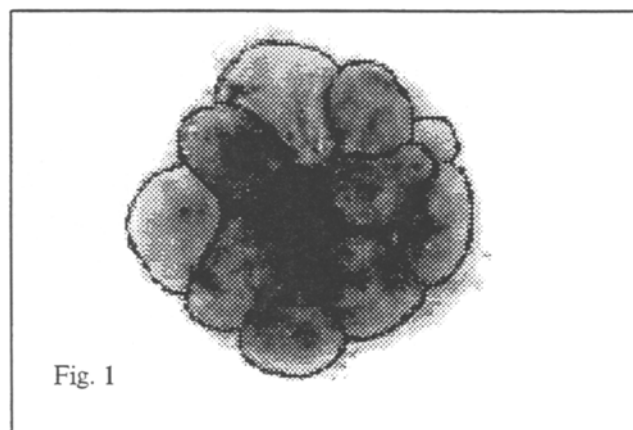


Fig.1. Mott cells in smear of central lymph. Romanovsky-Giemsa staining, 600x.

RESULTS

Mott cells were found to be present in the lymph smears. Under the given experimental conditions the Mott cells retain their unique morphological features (see Fig.1). They are mostly of a regular round form. The cytoplasm of lymph-derived Mott cells is subdivided into numerous clear spherules which are of approximately equal form and dimensions. These spherules are called Russell bodies. Each spherule is surrounded by a membrane that is more optically dense than the outer cell membrane, the feature being clearly visible in the photo. The comparatively low optical density of the lymph-derived Mott cell membrane is in accordance with the characteristics of Mott cell membranes described in other reports [7].

The spherules accumulate in several rows around the nucleus. They protrude from the cell envelope. Such morphological patterns correspond to the phenotypic features of myeloma cells seen in photos obtained using scanning microscopy [8]. Therefore, Mott cells also resemble a "grape cluster" and/or "morula." The protrusion or dominance of spherules above the surface of Mott cells is considered to correspond to the degree of cell maturity [2,7]. The spherules resemble the vacuoles formed by the extensions of rough endoplasmic reticulum and containing condensed immunoglobulin [2,4,6,7]. The contents of the spherules of lymph-derived Mott cells is of a light-green color, while the nucleus is blue.

The Mott cells of the lymph in our experimental groups varied in diameter from 30 to 55 μ . The content of Mott cells in the lymph of intact animals was within $0.03 \pm 0.007\%$, whereas in atherosclerotic animals it attained $0.06 \pm 0.01\%$. The observed increase of lymph Mott cells in atherosclerosis may be connected with the

influence of exogenous cholesterol on the immune system and in some way reflect the latter's reaction.

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0007-4888/93/0001-0080\$12.50 ©1993 Plenum Publishing Corporation

Effects of Hyperprolactinemia of Various Origin on the Paracrine Relations in rat Testes

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UDC 616.154:577.175.328]-008.61-092.9-07

Translated from *Byulleten' Experimental'noi Biologii i Meditsiny*, Vol. 115, No. 1, pp. 75-77, January, 1993
Original article submitted May 21, 1992

Key Words: *Testis; interstitial glandulocytes; spermatogenesis; paracrine regulation; prolactin*

The paracrine relations in various organs are at present being studied closely by histophysiologists, the gonads being among the organs that attract special attention. The relationships between elements of the contorted seminiferous tubules and the testicular interstitial tissue have been actively studied of late [6]. Research of

extraorganic (humoral) factors has been limited mainly to an analysis of the direct effects of some hormones (mainly gonadotropins) on individual cellular elements of the testis. If, rather than separate cells, a particular system of paracrine relationships is investigated, it has to be admitted that the extraorganic regulation of such systems is virtually unknown. Studies of a number of hormones are of interest here, among others, of prolactin, a hormone that has been a focus of interest of late [2].

The present research was aimed at studying of hyperprolactinemia of various origin on the paracrine relationships in rat testes.

MATERIAL AND METHODS

The testes of white outbred mature rats weighting 250-300 g were histologically analyzed. The experimental

Table 1. Counts of Glandulocytes Detectable round Contorted Seminiferous Tubules.

Preparation	Spermatogenesis	
	VII	XII
Control		
Normal saline	67 ± 3	53 ± 4
Lactin (animals killed one week after treatment)	54 ± 2	50 ± 5
Lactin (animals killed two week after treatment)	42 ± 2	37 ± 2