

The Morphological Changes in Lymph Nodes during Clinical and Experimental Lymphadenopathy of Different Genesis

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Abstract

The study was aimed to compare the most acute, morphologically and clinically diagnosed acute and chronic lymphadenopathy with morphological changes of lymphatic node obtained experimentally. Data obtained have showed that in various stages of the experiments a number of quantitative and structural changes of different regions of the lymphatic nodes with significant deviations of their cellular composition occurred. Similar data, which were observed in clinical cases, appeared to be in certain correlation with experimental results. It's concluded that clinical classifications of lymphadenopathies reflect the stereotypic response of the lymph node to the antigen action.

Keywords: *lymph node, antigen, changes*

The modern classification of reactive changes in lymphatic node - lymphadenopathy, on the one hand is based on the speed of development (the acutest, acute, chronic) and on the other hand - prevailing changes of separate regions in lymph node (follicular, paracortical and so on). Since the lymphatic node represents itself the indivisible morphologic construction, it is difficult to imagine that morphologically (it is implied classical morphology: staining by hematoxilin and eosin) there occur the immune reactions of various types and takes place the isolated hyperplasia in some regions of lymph node. Despite a number of significant publications in this direction, this question still remains unsolved. It has been supposed that the prevailed hyperplasia of some regions is the result of cells' distribution existing in lymph node, that on its twin depends on the presence of some antigens in some regions of lymph node.

Taking into consideration the above-mentioned, conducting morphologic observations of lymph node for each patient is not possible in dynamics and the classification of reactive lymphadenopathies is based on generalization of different data, obtained from different pathologies. As a working hypothesis we could accept that the above-mentioned classification reflects different

stages of the similar dynamic of stereotypic reaction, proceeding in lymph node (Z. Avaliani, G. Burkadze).

Due to the aforementioned, the aim of our study is the comparison of morphological changes in lymph nodes in experimental lymphadenopathy with acute and chronic lymphadenopathies, diagnosed via the clinical and morphological ways.

Experiments were performed on white laboratory rats. They were injected by hemolytic *staphylococcus aureus* (I Group) and nonhemolytic *staphylococcus epidermidis* (II group) - 10 animals in each group.

The material has been taken in 3, 24, 96 and 120 hours after antigen injection from the regional lymph nodes. The post operational diagnostical material for 2000-2002 years (Department of Pathologic Anatomy of TSMU) has been also studied, which on the background of pathologic diagnosis has been divided into the following groups: III group - postoperative (the acutest) reactive hyperplasia (7 patients); IV group - acute reactive hyperplasia (15 patients); V group - chronic reactive hyperplasia (15 patients).

The obtained material was fixed in 10% solution of

neutral formalin (pH-7,2) and was embedded in paraffin. The paraffin sections were studied by the Hematoxylin-Eosin method.

Morphological changes have been evaluated by the method of morphometry combined with the elaborated mechanism of algorithm, which covers the evaluation of all morphological parameters in lymphadenopathic node. Data obtained were analyzed by the method of variational statistic using the Student's criteria.

The following findings have been obtained (*Tab.1*). The accepted actual data show that - the number of preliminary follicles, their area and quantity of lymphocytes in them, the number of secondary follicles, their area, area of reactive centers, number of cells and "stained bodies" in them (marker of akantosis), width of

paracortical stratum, change of cell quantity of medullar cords - indicate that in different intervals of experimental time take place the quantitative and structural changes in different regions of lymph node with convincing cellular changes in them.

The similar data of clinical cases are in defined correspondence with the changes, progressed in different periods of experimental time, that allows us consider that clinical

classifications of lymph-adenopathy, based on the morphological changes, occur in lymph nodes and represent the reflect of streptococcus reaction, developed in dynamics in lymph node in response to the antigen.

References

1. Г.Буркадзе. Иммуноморфология. Тбилиси. 2001.
2. Марков Ю.Г. Тучные клетки лимфоидных органов и печени в условиях экспериментальной патологии // Функциональная морфология органов в патологии. Рига, 1980. Вып.9. С. 117-120.
3. Серов В.В. Пауков В.С. Воспаление. Руководство для врачей. М.: Медицина, 1995. 640 с.
4. Holgate S.T. Basophil polymorph and mast cells/ In: Oxford Textbook of Pathology (ed. McGee J.O'D., Isaacson P.G., Wright N.A.). Oxf. Univ. Press, 1992. P. 332-335.
5. Rosai J. Ackerman`s surgical pathology 8 ed. Mosby - year book. 1996. V.2. P. 1670-1672.

Морфологические изменения лимфатического узла при клинической и экспериментальной лимфаденопатии различного генеза

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Р Е З Ю М Е

Целью исследования являлось сравнение морфологически и клинически диагностированных наиострейших, острых и хронических лимфаденопатий с морфологическими изменениями лимфатического узла, в эксперименте. Полученные результаты показывают, что в разные сроки эксперимента имеют место количественные и структурные изменения различных участков региональных лимфатических узлов с достоверными изменениями в них клеточного состава. Аналогичные данные клинических случаев находятся в определенном соответствии с результатами экспериментальных исследований, что дает основание предположить, что клинические классификации лимфаденопатий являются отражением стереотипной реакции лимфатического узла в ответ на действие антигена.

Ключевые слова: *лимфатический узел, антиген, изменения*