

of the lymphoid tissue was recorded. During the 4th-5th week, despite the continued action of stress and the high corticosterone level, the character of the reaction changed. The mechanism of this "escape" of the lymphoid tissue is not yet clear. It can be tentatively suggested that one cause of it is an increase, in the total lymphocyte population, of the fraction of cells insensitive to the cytotoxic action of adrenal steroids. The increase in activity of the lymphoid tissue in the phase of adaptation may also be connected with intensification of the peripheral action of thyroid hormones, for we know that thyroid hormones stimulate function of the lymphoid organs [4], and that hypothyroidism inhibits activity of the immune system [8].

During long-term adaptation, in the phase of consistently increased specific resistance, a new type of endocrine-lymphoid relation is thus formed, and it differs significantly from that both in the original state and in the acute phase of stress.

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CHANGES IN BLOOD MICROCIRCULATION IN THE ORAL MUCOSA IN EXPERIMENTAL STOMATITIS

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The view that aphthous lesions of the oral mucosa (OM) are neurodystrophic in nature [7] has subsequently undergone further development [1, 5, 8, 10, 11]. During the creation of an experimental model of the pathological process trophic disturbances were discovered in the course of its development, which enable the pathogenesis of the disease to be examined from the neurotrophic standpoint and which provide a theoretical basis for the inclusion of neurotrophic drugs in the therapeutic arsenal available in aphthous stomatitis. From this point of view the study of corrective influences of sympathetic inhibitors is particularly interesting, for changes in functional status of the sympathoadrenal system and of concentrations of catecholamines and vasoactive substances in the tissues of OM can be clearly noted during the development of the disease [2-4, 9, 12-15]. These observations make it necessary to study the state of the vascular system, as one of the most sensitive functional targets of adrenergic regulation: intravital analysis of the histophysiological parameters of the microcirculation of the oral mucosa under different experimental conditions could help to clarify the pathogenesis of the disease and provide an objective assessment of the effectiveness of the appropriate treatment.

This paper describes the study of the effect of ligation of the common bile duct on the state of the microcirculatory system of OM in dogs accompanied or not by treatment with the β -adrenoblocker propranolol.

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EXPERIMENTAL METHOD

Experiments were carried out on mongrel dogs aged 4-6 years and weighing 6-8 kg, in which the common bile duct was ligated [1, 11]. The animals were divided into two groups (with five dogs in each group). Thirty minutes before the operation the animals of group 2 received an intraperitoneal injection of propranolol in a dose of 1 mg/kg. The biomicroscopic investigations were conducted in two stages: before the operation (immediately after the animal was anesthetized) and 2 h after ligation of the bile duct. The choice of the beginning of the second stage was determined after an attempt to record early manifestations of the vascular response. The state of the microcirculation of OM was studied by contact microscopy on the "Lyu-mam K-1" apparatus. A combined analysis was made of the functional morphology of the microvessels and hemodynamic parameters. The main criteria for evaluation of the state of the microcirculation were the diameters of the different components of the microcirculatory system, the density of distribution of functioning capillaries, and visual characteristics of the blood flow. Photographic data were analyzed on a "Mikrofot" apparatus by means of a special measuring scale. Numerical data were subjected to statistical analysis by Student's test.

EXPERIMENTAL RESULTS

Contact biomicroscopy with control of depth of observation revealed a biplanar angioarchitectonics and reticular type of structure of the microcirculation, with a high level of development of vascularization in the zone of OM studied.

The morphometric investigations showed that ligation of the common bile duct induces the development of a vascular reaction in OM, manifested as a significant ($P < 0.05$) decrease in the diameter of the arterioles and venules of the microcirculation, accompanied by relative resistance of the capillaries. Comparative analysis of the diameters of the microvessels in the animals of groups 1 and 2, 2 h after the operation, revealed a decrease in reactivity of the microcirculatory system as a result of β -adrenoreceptor blockade and agreement between the parameters for the animals of group 2 with those of the control (before the operation).

A similar tendency also was found when the density of distribution of functioning capillaries was studied as an indirect criterion of activity of transcapillary exchange. For instance, the operation itself considerably reduced the number of functioning capillaries per unit area of tissue, whereas during preoperative medication (group 2) this parameter remained within normal limits. The density of distribution of functioning capillaries in different experimental groups, defined as the number of blood capillaries per square millimeter ($M \pm m$) was as follows: 16.4 ± 0.68 in the control; 9.2 ± 0.54 ($P < 0.05$) in group 1, and 15.6 ± 0.85 ($P < 0.05$) in group 2.

Visual analysis of the state of the blood flow in the microvessels of OM revealed no marked changes in the hemodynamics in either series of experiments, with the exception of some slowing of the blood flow in the postcapillary component of OM in animals of group 1.

The results of this investigation can be taken as evidence of the existence of close correlation between the state of the gastrointestinal tract and that of OM. The response of OM is quite mobile, and the speed with which it arises suggests that it is reflex in nature. The character of the vascular disorders, expressed as constriction of the microvessels, a reduction in the functional capacity of the capillary system and, as a result of this, a decrease in the area of blood-tissue exchange, suggest stimulation of vasoconstrictor mechanisms, probably connected with activation of the sympathetic part of the autonomic nervous system. Disturbances of vascular function in OM of patients with chronic recurrent aphthous stomatitis also are confirmed by the results of rheographic analysis [5].

The development of aphthous lesions is thus preceded by disturbance of the blood supply to OM, probably due to changes in neurovascular relations. This hypothesis is confirmed by the beneficial action of the adrenoblocker, which normalizes the microcirculation in OM and, as was observed in the later period of observation, interrupts the development of the pathological process.

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