Materials of Conferences

CONVERGATION OF LYMPHATIC AND LYMPHOID SYSTEMS IN VERTEBRATE EVOLUTION

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The lowest vertebrata have parallel development of lymphatic and lymphoid systems on the basis of venous bed. Cyclostomes' arteries invaginate into widening vein lumen. The side pockets separation in fish leads to formation of lymph tube (LT) net. At these stages of evolution defuse lymphadenoids contact with venous sinusoids. Reptiles and birds have inspissations of lymphoid tissue on sides of LT. Lymphatic and lymphoid systems convergate at periphery, where LT and blood vessels interweave. Their intervessel connective tissue is transforming into lymphoid around blood microvessels and appear surrounded by LT. Birds and mammals have the same formation of lymph nodes (LN). LN function as counter-current flow system: through LT antigens come to its substance, and through vessels - blood cells. Into parenchyma of the majority of lymphoid organs antigens, other immunogenesis excitors come not through LT but, for example, through tissue channels into tonsil crypto-lymphon. Progressive intensification of metabolism, speed of histogenesis and organ growing in vertebrate evolution lead to uneven growth and differentiation of vessel net, formation of LT and LN.

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ABOUT ORIGIN OF CONGENITAL INTERNAL OCCLUSION IN HUMAN DUODENUM AND ITS PREVENTION

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4-6 weeks old embryos' epithelium proliferates surrounded by thick mesenchyma and fills duodenum (DD) cavity. Epithelial "plugs" are formed under Wirsung's duct entrances (area of DD lower flexure) and in duodenojejunal flexure. As a result of the turn of pancreas anlages and umbilical intestinal loop, uneven growth of the head of pancreas, these segments of DD are narrowed. Moreover, the mesostenium is rotated, where superior mesenteric artery and vein are. The artery and its branches invaginate into vein cavity, narrow and dismember its peripheral part into lateral recess in 6,5 -8 week old embryos, which troubles blood flow out and causes ischemia of DD paries. Disturbing factors may predicated the excessiveness of DD and vein deformation, ischemia of paries and death of DD epithelium cells, pullulation of connective tissue through its defects into DD cavity, formation of its congenital internal occlusion. As a norm such critical situation in DD development is solve by initiation of lymphatic channel: central channel of superior mesenteric vein gets extima, lateral recess are separatев in the form of lymphatic clefts with endothelial lining. In 8,5-9 week old foetuses they converge into mesenteric lymph tubes, which improve DD paries' drainage.

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STRUCTURE AND TOPOGRAPHY OF MESENTERY LYMPHATIC POSTCAPILLARIES

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Lymphatic postcapillaries (LPC) in small bowel mesentery pass through lymphatic (LC) and blood capillaries from one side and lymphatic vessels (LV) in fascicles with main arteriolas and venules or their big branches and tributaries from the other side. LC have endothelial side, lie between hemocapillary blocks or near postcapillary venules. LPC are defined on the territory of polymorphic location of microcirculatory bloodstream, between their metabolic blocks (precapillary- hemocapillary, LC – postcapillary venules) and contour microvessels. In LPC sides connective tissue may miss, but interrupted basic membrane and valvules appear. Such LPCs go independently or near postcapillary venules, in sides of which very thin film of connective tissue is defined. LPC of the following levels with connective tissue in sides go along gathering venules or independently as part of venules. In thickening sides of gathering venules and the first LV Smooth Muscle Cells appear, but they do not form complete muscular layer. LPC have variable structure and topography relevant to their origin from collateral of embryonal veins, function of additional organs'drainage and pressure in the cavity, which goes down in a row (arteriola → venule → LV → LPC).

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