SKELETON OF THE MICROCIRCULATION

Petrenko V.M.
Saint-Petersburg Medical Academy named after I.I. Mechnikov Saint-Petersburg, Russia

Structure of connective tissue or skeleton of microcirculation is presented by rings of dense connective tissue around the main microvessels and their large branches. From the rings of the outline network branch the trabecules with terminal arterioles and collecting venules, towards the network of the metabolic microvessels. They branch, thin and disperse into loose connective tissue in alveoles, surrounded by capillaries. The alveoles of the metabolic network are filled with dense network of thin and differently directed fibers of connective tissue and hydrophilic amorphous substance; they form the walls of the tissue channels. Skeleton of microcirculation, besides its supporting function, can also act as an external cuff for the metabolic microvessels and tissue channels: limit the «spreading» of the tissue fluid from the alveoles of the metabolic network and direct its current from the tissue channels into the metabolic microvessels with different wall permeability. Apparently, the microcirculation has a modeling effect on stroma's fibro-architectonics in its area, till the inclusion of the differentiating connective tissue into the vessel wall. Histo- and morphogenesis of the microcirculatory soft skeleton at different levels of its organization resembles a transition of the bone tissue from fibrous to lamellar, spongy and compact.

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DEVELOPMENT OF THE THYMUS AND SPLEEN

Petrenko V.M.
Saint-Petersburg Medical Academy named after I.I. Mechnikov Saint-Petersburg, Russia

Lymphatic channels and lymphoid structures cooperate with each other to provide hemostasis in the body. This is indetermined by their set up in close association with veins. Lymphatic channels differentiate as a collateral part of the venous bed excluded from the blood flow. Spleen and thymus lie off the transport conduits that carry lymph, as well as the red bone marrow. Unlike the other lymphoid structures, they do not participate in lymph drainage from other organs; and in the process of evolution and ontogenesis, they form together with the predecessors of the lymph vessels – venous sinuses. Lymphatic «instability» of thymus, spleen and the red bone marrow is their typical feature from the moment of their formation, when mesenchymal cells cluster around venous sinuses, where the blood flow slows down and the blood gets a better contact with the perivasal tissue. The rest lymphoid structures originate in association with lymphatic sacs or vessels. Their forerunners are the merging lymphatic clefts, which appear from the pockets, separated from the primary veins. Lymphocytes begin to colonize a lymphoid organ after peripheral lymph collectors have been formed – intercleft membranes collapse, and decay products of other structures (antigens) get inside.

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THE VASCULAR BED DEVELOPMENT PHYSIOLOGY

Petrenko V.M.
Saint-Petersburg Medical Academy named after I.I. Mechnikov Saint-Petersburg, Russia

The vascular bed development is begun just from the endothelial primordia proliferation and also the embryo protocapillary network formation. Its irregular growth and the differentiation, including the magistralization and the reduction are taken their place by the increasing pressures gradient, in connection with the organs' growth and the histogenesis: 1) the centrifugal magistralization (e.g. just from the heart to the organs) by the shortest way; 2) the arteries in their development are outgrown the veins; 3) the great vessels are divided just into the branches to the multiple organs and their parts; 4) the anastomoses (but to be more specific – the magistralization) formation among the branches of one and the various magistrals. The vessels development is, practically, defined by the blood flow and the homotissue metabolism correlation. The metabolites transmural diffusion currents are exerted their «washing» effect upon the endothelium and also the subendothelial layer of the connecting paratenons, they disjoin the cells' and the molecules' contacts, that is inhibited the collagenous fibers morphogenesis, this is stimulated the capillaries growth and the neoplasms. The diffusion is, rapidly, become extinct just in the thickening and callous vessel's wall, the blood pressure mechanical constituent just on the wall is kept in its thickness. The metabolic currents are considered by me, as the growth inductor and the microvessels branchings, the hemodynamic factor – as their magistralization inductor. The lymphatic capillaries, «having non – functioned» the heart, which is the main blood flow motor, and the arterial bed, are kept the «embryonic» structure (e.g. the thin endothelium just without the basilar membrane), in contrast to the blood capillaries.