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PECULIARITIES OF RUDIMENT SOURCES AND MORPHOGENESIS OF THE
PYELOCALICEAL SYSTEM OF THE KIDNEY

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A clear understanding of the main stages of embryogenesis and temporal dynamics of structural transformations of the urinary system in the prenatal period of human ontogenesis allow general practitioners to clearly understand the features of malignant etiopathogenesis neoplasms of its organs and structures, to differentiate the remnants of embryonic tissues operating material from tumors, to rationally apply the method of immunohistochemistry in the diagnosis of cancer.

In order to determine the characteristics of basic sources and chronological sequence of topographic and anatomical transformations of organs and structures of the urinary system, 14 series of consecutive histological sections of human embryos and preterm infants aged 3 to 8 weeks of development (3.0-30.0 mm parietal-coccygeal length (PCL)) were studied using a complex of

methods of morphological research (anthropometry, morphometry, microscopy, three-dimensional computer reconstruction and statistical analysis).

The first signs of the basics of derivatives of a diverticulum of a mesonephric channel are defined in human embryos of the 6th week of intrauterine development (IUD) (10.0-11.0 mm PCL). It is represented by an ampoule blind expansion of the diverticulum – the basis of the renal pelvis. Starting with embryos 12.0 mm PCL, there is a protrusion of the wall of the blind end of the diverticulum in cranial and caudal directions, i.e. there are the basics of large cups. In embryos 12.0-13.0 mm TCD, these basics are represented by short tubes with extended ends. The base of small calices is formed by the protruding wall of large calices, and appears in embryos of 14.0-15.0 mm PCL (beginning of the 7th week of IUD). They have the shape of elongated tubes, the lumen diameter of which differs at different levels. Individual bases of small calices, elongated, reach the surface of the body, and their course determines significant expansion of the lumen. In the same period, further branching of derivatives of the diverticulum of the mesonephric duct occurs, i.e. the papillary ducts are formed and developed tubules. Each basis, reaching the layer of metanephrogenic cells, divides usually on three tubes of the next generation. Due to the fact that these three tubes of new generations deviate from the previous one almost at right angles and in their length are located along the surface of the rudiment of the organ, going in different directions, two of them can be found on histological sections simultaneously. Application of three-dimensional reconstruction by series of successive histological sections, made sure that each of the derivatives of mesonephric duct, growing into the thickness of metanephrogenic cells, during its division usually gives rise to three bases of the next generation. Around the extended blind at the end of each base condensation of metanephrogenic cells is formed, which in embryos 16.0 mm PCL is divided by a constriction in the form of a furrow into two consolidations. Fewer of them are located closer to the surface of the organ, and more – to its central part. Kidneys in the process of fetal development move from the place of their primary localization in the pelvis, where the source of their blood supply is a common iliac artery, cranial to the rudiments adrenal glands, giving their own vessels to the aorta, which become the renal arteries.

The source of the base of the genitourinary system is the intermediate mesoderm paired urogenital crest. As a result of its differentiation, three departments are formed: pronephros, mesonephros (mesonephric tubules and mesonephric ducts) and metanephros. Metanephral blastema of the intermediate mesoderm surrounds the ureter and gives rise to the epithelium of the renal tubules. 2. The ureter is differentiated into a developed region urinary system (in particular, in the ureter and pelvic system of the kidney). The base of renal pelvis was first observed at the beginning of the 6th week of IUD (embryos 10.0-11.0 mm PCL), large calices – at the end of the 6th week of IUD (embryos 12.0-13.0 mm PCL), small calices – at the beginning of the 7th week of IUD (embryos 14.0-15.0 mm PCL).

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DEVELOPMENT OF THE LUNGS IN THE EMBRYONIC PERIOD OF HUMAN ONTOGENESIS

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The lungs acquire their usual shape, structure, and adequate function in 6-7 years of a child's life. But any violation of the development of the bronchi and bronchioles in intrauterine development, during childbirth, or during early childhood significantly restricts lung function in an older child or adult. Developmental disorders can be caused by genetic factors, exogenous, viral infections of the lower respiratory tract, as well as lung development abnormalities. Therefore, a more detailed study of the anatomy, topography and histological structure of the organ at the stages of prenatal development, and especially in the early period of human ontogenesis, is relevant.

When studying histological sections of human embryos of 6.0-7.0 mm parietal-coccygeal length (TCL) in the mesenchymal mass, which is located on the surface of the anterior intestine, there are two outgrowths of the endoderm – these are the rudiments of the main bronchi. The