AJPMHS GLOBAL RESEARCH NETWORK

AMERICAN Journal of Pediatric Medicine and Health Sciences
Volume 01, Issue 04, 2023 ISSN (E): XXX-XXX

Modern Aspects of Etiology and Pathological Anatomy of Renal Cancer

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Abstract: This article presents a literature review of modern aspects of the etiology and pathological anatomy of kidney cancer.
Key words: cancer, kidney, jutiology, pathological anatomy.

Relevance. Cancer is one of the world's leading causes of death, claiming nearly 10 million lives in 2020, or nearly one in six deaths. The most common cancers are breast, lung, colon and rectum, and prostate. Approximately one third of cancer deaths are caused by tobacco use, high body mass index, alcohol use, low fruit and vegetable intake, and physical inactivity.

A decades-old tradition has associated adult kidney tumors with renal cell carcinoma, often referred to as "hypernephroid cancer" or "hypernephroma". This is partly true, since renal cell carcinoma is the most common malignant neoplasm of the kidneys, and partly due to the fact that a serious study of kidney tumors, which have a different structure and require different approaches to treatment, has become possible only due to the widespread introduction of ultrasound diagnostics, computerized and magnetic resonance imaging. tomography, i.e. over the past 20-25 years. In order to minimize the number of diagnostic and tactical errors, in each case it must be remembered that a kidney tumor is not necessarily a "hypernephroid cancer". An acquaintance with the literature leads to the conclusion that the creation of a unified classification of kidney tumors that fully meets the needs of morphologists and at the same time is convenient for clinicians is an almost impossible task. With the development of oncological science and, in particular, the deepening of ideas about the pathogenetic mechanisms of the onset and formation of tumors, approaches to the classification of kidney neoplasms are changing. Since the 1970s, many attempts have been made to classify kidney tumors based on their tissue origin and formal descriptive morphological features. Unfortunately, in this case, it was often not possible to trace the correspondence between the histological structure, the features of the clinical course, and the prognosis. In the classifications of recent years, there has been a shift in emphasis towards the immunohistochemical properties of tumors, as well as characteristic genetic disorders [4]. The most complete and perfect at present is the classification of the World Health Organization, prepared by a working group of leading pathologists from different countries and adopted as a result of the consensus reached during the discussion at the conference in Lyon on December 14–18, 2002. The classification was published by the International Agency for Research on Cancer (IARC) in 2004 [20].

Etiology. The unequivocal cause of the occurrence of kidney tumors has not been established. Tobacco smoking increases the risk of kidney tumors. The role of immune system insufficiency is also substantiated. It is known that kidney tumors occur under the influence of

radiation energy and radionuclides, the appearance of a kidney tumor many years after the use of the X-ray diagnostic drug Thorotrasta, which contained radioactive thorium.

Classification. Since tumors of the renal parenchyma and tumors of the pelvis differ both in structure and in the ways of distribution and require different surgical methods of treatment. their division into groups is justified. Currently accepted classification of kidney tumors according to TNM UICC 2002 [4, p. 294]. Morphologically, the following types of renal cell carcinoma are distinguished: clear cell (80–90%), papillary (10–15%), chromophobic (4–5%), and collecting duct cancer (1%). The listed histological types of RCC have a different clinical course and are characterized by a different response to ongoing therapy [5, p. 21].

Pathological anatomy. A malignant tumor of the kidney can affect any of its segments. The size of a kidney tumor can be different. Macroscopically, a kidney tumor consists of one or more rounded nodules. Tumors of a small size are often surrounded by a capsule visible to the eye. The surface of the kidney is bumpy. On the section, the tumor has a characteristic variegated appearance, in its tissue there are areas of yellowish-brown and red color (due to hemorrhages), as well as orange, yellow. grey. Sometimes there is calcification of the tumor. In the foci of decay, cystic cavities of various sizes are sometimes formed. The consistency of the tumor is soft elastic. It is very common for renal cell carcinoma to spread into the renal and inferior vena cava in the form of a snake. Malignant tumors of the kidney metastasize by hematogenous and lymphogenous routes. Metastases are observed in more than 50% of patients. In the first place in terms of the frequency of metastasis of kidney cancer are the lungs, then the bones, liver, and brain. This is due to the close connection between the venous system of the kidney and the main vessels of the chest and abdominal cavities, as well as the venous network of the skeleton. A feature of kidney cancer is the manifestation of metastases many years (10–15) after removal of the primary tumor. Another feature is that its pulmonary metastases in rare cases can regress after removal of the primary focus. Liver metastases occur in the later stages of the disease. Regional metastases of kidney cancer mainly affect the paracaval and para-aortic lymph nodes, especially those located near the renal sinus. In addition to metastasis of kidney cancer, the spread of a tumor thrombus through the renal vein into the inferior vena cava is often observed [4, p. 294-295].

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