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IMMUNOHISTOCHEMICAL ANALYSIS OF THE MORPHOLOGICAL CHARACTERISTICS OF PERITUMOURAL RENAL AREAS IN RENAL CELL CARCINOMA.

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Relevance. According to estimates by experts from the World Health Organization and the International Agency for Research on Cancer (IARC), more than 500,000 new cases of kidney cancer are diagnosed worldwide each year. In 2020, kidney cancer ranked 16th among the most commonly diagnosed cancers worldwide, accounting for approximately 2.2% of all cancer diagnoses. Furthermore, kidney cancer accounts for 1.8% of all cancer-related deaths and is one of the most dangerous urological cancers, with a 5-year survival rate of 12%.

Materials and Methods. For the study, 126 patients who underwent surgery at the Khiva and Nukus branches of the Scientific and Practical Centre for Oncology of the Republic of Uzbekistan between 2021 and 2023, 63 patients were selected. For immunohistochemical examination, the microtomes of 20 patients who underwent surgery for renal carcinoma were reviewed, and the peritumoural areas were re-examined immunohistochemically. The mean age of the patients was 57.8±0.6 years (range 27–77 years). The mean tumour size was 4.8±0.1 cm (range 1.2–14 cm). Immunohistochemical analysis was performed using Ki67, P53, and CD34 antigens. The morphological characteristics of the material obtained were assessed at both the macroscopic and microscopic levels, where the tumour sizes, special attention was paid to the state of the tumour's metastasis to surrounding tissues and lymph nodes (MTS), the condition of the blood vessels, and the tumour's invasion into the peritoneum and omental folds, and the pararenal tissue.

Research results. Ki67, a marker of tumour cell proliferative activity, was assessed as a percentage. Results were evaluated according to mild, moderate and strong positive reaction levels. Of the 20 patients, 12 (60%) exhibited a moderate positive reaction and 8 (40%) a weak positive reaction. No strong positive reaction was detected. Microscopically: the renal cells exhibited pleomorphism, hyperchromatic nuclei and pathological mitoses, with angiomatosis in the peritumoural zone, The sclerosing blood vessels are surrounded by a lymphocytic infiltrate and composed of tumour cells, with tumour cells in the peritumoural zone stained dark brown. P53 staining showed a negative reaction in 15 of 20 patients (75%) and a weakly positive reaction in 5 patients (25%). No moderate to strong positive reaction was observed. On microscopic examination: the renal cells were polymorphic, with hyperchromatic nuclei and pathological mitoses; the peritumoural zone showed angiomatosis, a small number of tumour cells with mild pleomorphism, blood vessels, and a sclerosing atrophica infiltrate of lymphocytes, with tumour cells in the peritumoural zone stained a pale brown. The CD34 reagent was evaluated to assess the tumour's vascularity and its association with metastatic characteristics.

The results obtained were evaluated based on negative and positive reaction outcomes. All 20 patients exhibited a 100% positive reaction. Under the microscope, a density of 20–30 blood

vessels of various sizes was observed in both the tumour and its peritumoural zone within a single field of view. In renal cell carcinoma, a high vascular density indicates a high degree of tumour infiltration into the surrounding tissue and a high rate of metastasis to neighbouring organs (MTS). No cases of negative response were observed.

Conclusion. The study of quantitative indicators of the immune system in patients with kidney cancer showed that the levels of T-helper and inducer lymphocytes in the tumour tissue were significantly elevated, indicating a high immunoregulatory state. In these cases, patients with a resection margin of at least 1–2 cm exhibited a high number of T-lymphocytes and B-lymphocytes in the peritumoural zone. The evaluation of morphological, immunohistochemical, and immunological criteria for kidney cancer demonstrated their interrelationship. This is because changes in the activity of immunocompetent cells play a crucial role in providing immunological protection against the growth of malignant tumours.

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