

## Morphological Assessment of Prognostic Factors of Papillary Renal Cell Cancer

**Introduction and Objective:** Papillary renal cell carcinoma (pRCC) is the second most common renal cell cancer (RCC) and the most frequent variant of non clear cell RCC. Purpose of this study was to identify morphological and genetic prognostic factors.

**Materials and Methods:** The study was based on the operational material of 72 patients with pRCC, mean age – 55, male/female ratio – 1:2. The genetic study was conducted with primers D1S2142: 5'-agcccagaacaatctgtgac-3' and 5'-FAM-tggttagcaggatgatgattgtgaagc-3'; D1S3465: 5'-acctgtgagaaataacagtttgc-3' and 5'-ROX-agatagataggaaggcaggc-3'. For statistical analysis two-sided Fisher's test and Spearman correlation were used.

**Results:** Type 1 pRCC was diagnosed in 52% of cases (38/72), type 2 pRCC – 47%(34/72). Tumor size was 0.5 – 18 cm (mean 5.34 cm). pRCC type 2 tumors were characterized by larger size ( $p < 0.05$ ) and greater grade (G3 - 31%, 10/34) than pRCC type 1 (G3 - 8%, 3/38). Tumors T3 and T4 were more often type 2 (40%, 14/34) than type 1 (14%, 5/38). Vascular invasion was detected in 29% of type 2 pRCC (10/34) and in 13% of type 1 (5/38), 4 cases (3 tumor type 2, 1 – type 1) were characterized by renal vein invasion. Regional lymph node metastases were found in 11% (4/38) cases of pRCC type 1 and in 25% of pRCC type 2 (9/36), which was associated with poor prognosis ( $p < 0.05$ ). The tumor germs' multiplicity was revealed in 10% of pRCC (7/72). We studied allelic imbalance (AI) of 1q32 region in 39 cases of pRCC. Microsatellite instability (MSI) at locus D1S2142 and D1S3465 was revealed. MSI at least one of the analyzed STR-markers detected in 48% (19/39) of cases. There was a trend to increase the frequency of MSI with increasing tumor grade ( $r = 0.287$ ,  $p = 0.081$ ). We also found genetic changes in 4 cases not only in the tumor, but also in normal kidney tissue near the tumor.

**Conclusion:** pRCC type 2 is characterized by a more unfavorable prognosis than type 1, resulting in a larger tumor size, higher grade, more frequent vascular invasion, regional lymph nodes metastases. Genetic analysis of papillary RCC revealed an increase MSI with increasing grade. These findings should be further investigated.