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Introduction & Objectives: To assess the oncological and long term functional results of nephron sparing surgery in patients (pts) with solitary kidney tumors.

Materials & Methods: 82 pts with solitary kidney tumor who had undergone partial nephrectomy were analyzed. The mean age was 60.3 (29–77) years. Median tumor size was 32 mm (12-100 mm). Median sum RENAL score was 6 (4-12). Median preoperative glomerular filtration rate (GFR) was 56 (31-91) ml/min/1.73 m². Chronic kidney disease stage III was diagnosed in 30 (36.6%) pts. Median follow up time was 54 (6-147) months.

Results: Open partial nephrectomy was performed 71 (86.6%) pts and laparoscopic partial nephrectomy - 10 (12.2%), and radiofrequency ablation - 1 (1.2%) pts. Warm ischemia was used in 25 (30.5%) pts, without ischemia in 57 (69.5%) cases. Median ischemia time was 15 min (7-25). The median blood loss was 500 (200-800) ml. Median postoperative GFR was 50.6 (24.6-98) ml/min/1.73 m². Complication rate was 8.5%. Acute reduction in renal function with immediate hemodialysis was required in 2 (2.4%) pts. Complications was correlated with RENAL score (R=-0.25) and endophytic location of tumor (R=-0.24) and preoperative GFR (R=-0.42). Clear cell RCC was diagnosed in 69 (84.4%) pts, papillary - 5 (6%) pts, chromophobe - 4 (4.8%), mixed types - 1 (1.2%), angiomyolipoma in 1 (1.2%) pts, oncocytoma in 2 (2.4%) pts. Positive surgical margin was diagnosed in 2 (2.4%) pts. 5-year progression free survival was 57.5% and overall survival was 86.4%, cancer-specific survival - 87.8%. Probability of death due to RCC progression correlated only with presence of sarcomatoid component (R = 0.39) and necrosis in tumor (R = 0.28) and Fuhrman grade (R = 0.37) and types of RCC (R = 0.42) p <0.05. Statistically significant correlation was revealed between pT stage (R = 0.33), presence of sarcomatoid component (R = 0.28) and necrosis in tumor (R = 0.25) and Fuhrman grade (R = 0.43) and probability of disease progression (p <0.05)

Conclusions: Partial nephrectomy of solitary kidney is an effective method of treatment of RCC with good long-term functional and oncological results.