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RADIOFREQUENCY ABLATION VERSUS PARTIAL NEPHRECTOMY FOR TREATMENT OF RENAL MASSES FOR SMALL BOSNIAK III OR IV CYSTIC RENAL TUMORS

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Introduction: We tried to evaluate the feasibility of percutaneous radiofrequency ablation (RFA) for small Bosniak III or IV cystic renal tumors (≤4cm) compared with patients treated with partial nephrectomy (PN).

Methods: We retrospectively reviewed medical records of 135 patients who underwent PN or RFA for small Bosniak III or IV cystic renal tumors between January 2009 and December 2014 in single tertiary institution. After exclusion of 7 patients with incomplete information or hereditary cystic disease, 128 patients were finally analyzed. We compared the functional and oncological outcomes as well as post-treatment complications between the two groups.

Results: The patients treated by RFA was significantly older ($p<0.001$), had more diabetes mellitus ($p=0.017$), hypertension ($p<0.001$) and showed lower American Society of Anesthesiologists score ($p=0.014$) than PN group. The intraoperative tumor spillage was occurred in one patient in PN group and two patients needed secondary RFA for residual lesion after initial RFA. There were no local recurrences or distant metastases in both groups during the median follow-up of 34.0 (IQR 13 - 65) months. The RFA group showed superior functional outcomes in preserving postoperative renal function until postoperative 12 months but the difference was significant only at the postoperative 1 month. There was no significant difference in overall complication rates in PN group (29.9%) and RFA group (22.6%, $p=0.301$).

Conclusion: The percutaneous RFA showed comparable oncologic outcomes and complications rate compared with PN in treating for small cystic renal tumors. As the RFA showed superior outcomes in preserving the renal function, the patients with poor preoperative renal functions or multiple tumors may have additional advantages from RFA.