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RENAL Score System: How Can Radiologists Help on the Surgical Planning †

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Abstract: This study was designed to determine the usefulness of the RENAL score system calculated at Computed Tomography (CT) for renal tumors stage T1, to contributeto the best surgical planning for urologists. We also tried to evaluate the utility of the RENAL scoring system in predicting surgical complications in patients treated with partial nephrectomy. A retrospective study was carried out in the analysis of images from the CT scans of patients from two institutions in preoperative total or partial nephrectomy from May 2018 to December 2020, with 20 tumors in 22 kidneys belonging to 20 patients, 17 male, and 3 female, between 45 and 90 years, according to the tumor localization criteria approached by the RENAL score system. The analysis was performed by two radiologists, one of whom was a resident, and the surgeries were performed by the same urologist. Clavien - Dindo Classification was used to evaluate the relationship between Renal Score System and complication rate (STATA 16). Clear cell RCC was found in 96% of cases, 8 patients had partial nephrectomy with a complication rate of 3 %, and 20% of tumors had a RENAL score below 7, meaning low tumor complexity. RENAL score calculated by radiologists can predict post-surgical complications in the first 5 weeks after partial nephrectomy. It would be advised to incorporate RENAL score value in reports of CT describing renal tumors. "N"earness to the collector system and E"xophytic/Endophytic growth are the two most important parameters that can predict complications.

Keywords: renal tumors; RENAL score system; computed tomography; partial nephrectomy.

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Conflicts of Interest

The authors declare no conflict of interest.