Comparing the Distribution of Anatomical Complexity of Small Renal Masses Treated With Laparoscopic Cryoablation: PADUA Versus R.E.N.A.L. Nephrometry Score

Introduction and Objective: Renal tumor anatomical complexity defined with PADUA or R.E.N.A.L. nephrometry-scoring methods can be used as an independent predictor for complications in patients following surgical extirpation treatment. The aim of this study was to evaluate and to compare the outcome of the PADUA and R.E.N.A.L. nephrometry scores in a cohort of patients treated with laparoscopic cryoablation (LCA).
Materials and Methods: Single institution data from 89 consecutive laparoscopic renal tumor cryoablation procedures were retrospectively collected from December 2006 to February 2012. Renal mass anatomical complexity was categorized according to PADUA and R.E.N.A.L. nephrometry scoring methods. Each parameter of these scores is assessed using preoperative intravenous contrast enhanced Computed Tomography (CT).
Results: Using the PADUA index the score of low-, intermediate-, and high-grade complexity was assessed for 36, 35 and 18 tumors, respectively. Whereas, using the R.E.N.A.L. method, 42 tumors scored low-, 44 intermediate- and 3 high-grade complexities. Agreement or disagreement in complexity score for low-grade was found in 31/16 cases; for intermediate-grade in 24/30 cases, and for high-grade in 3/15 cases.
Conclusions: Objective anatomic classification systems such as PADUA and R.E.N.A.L. can be used to score the complexity of small renal masses treated with cryoablation. However, the agreement on the classification of intermediate- and high-grade complexity between the two scoring methods is poor.