Introduction: The TNM-Staging-Classification of 1987 was revised in 1997, the main difference being the increase in cut-off size from 2.5 to 7 cm for T1 and T2 tumors. The prognostic power of both TNM classification systems and the 1969 Robson staging system was evaluated based on our own patient material. Method: A total of 700 patients with renal cell cancer who had undergone radical tumor nephrectomy from 1983 to 1999 at our department were investigated. All cases were staged according to both TNM systems and the Robson classification. Follow-up was obtained from all patients and statistical analysis carried out using the Kaplan-Meier method, LogRank-test and Kruskal-Wallis test. Results: The two versions of the TNM-system classified 247/700 (35.3%) patients differently in the T-category and 3/700 (0.4%) in the N-classification. Taken as a whole, the TNM-classifications provide statistically highly significant prognostic factors for renal cancer. The subgroup of patients with pT1 and pT2 tumors, however, demonstrated no significant statistical difference on the TNM-system from 1987 (p = 0.19), but we noted a statistically significant difference on the TNM-system from 1997 (p = 0.005) in regard to tumor progression after radical nephrectomy. If only patients with NO and MO status are included in our subgroup analysis of pT1 and pT2 tumors, which is
equivalent to stage 1 patients on the Robson classification, we again do not find any prognostic difference using the earlier TNM-system (p = 0.39) but highly significant difference (p = 0.007) in the revised version. Kaplan-Meier analysis with LogRank-test for overall survival of patients with pT1 and pT2 tumors revealed no significant difference between the two TNM-versions. Conclusion: While both TNM-staging classification systems demonstrate a powerful prognostic significance in renal cell cancer. The 1997 TNM-system offers additional prognostic information for pT1 and pT2 tumors. Robson's simple staging system dating back to 1969 offers a similarly good estimation of risk in patients with renal cell carcinoma. Robson's reduced number of N-categories did not result in a loss of prognostic information. In fact, according to the analysis of our data, further simplification of the TNM-staging systems appears feasible.