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Introduction & Objectives: Retroperitoneal recurrences are rare events after radical nephrectomy (RN) for renal cell carcinoma (RCC). To date only low level evidence from retrospective small cohort studies is available on the prevalence, management and outcome of patients with retroperitoneal recurrences following RN. We aimed to evaluate the management and outcomes of patients with local recurrences after RN and to evaluate the effect of the surgical excision of local recurrences, alone or in combination with systemic treatment, on cancer specific survival.

Materials & Methods: Patients with local recurrences after RN were retrospectively collected from an international dataset. The primary objective was to test main predictors of Cancer-specific survival (CSS) with a special attention on the effect of received treatment (observation, surgery only, surgery and systemic treatment, systemic treatment only) on survival. Secondary objective was to test predictors of synchronous metastatic status at recurrence and progression-free survival. Cox's proportional hazard models tested main predictors of cancer specific mortality. Kaplan-Meier method estimates the 3-year survival rates. Logistic regression models were fitted to test main predictors of metastatic status (M+ vs. M0) at recurrence.

Results: In overall, 96 patients were identified. Of those, 44 (45.8%) were M+. In multivariable logistic regression models patients aged 55-70 years were more frequently M+ at the time of recurrence (OR: 3.02, 95%CI: 1.05-9.30, p=0.045), conversely those in whom a laparoscopic RN was performed had lower M+ rates (OR: 0.21, 95%CI: 0.04-0.77, p=0.030). The median time to recurrence after RN was 14.5 months. 20.5% of patients were treated with a combination of surgery for local recurrence and systemic therapy, 26.9% with surgery only, and 29.5% with only systemic therapy. 23.1% of patients received neither systemic nor local treatment for recurrences. The 3-year cancer specific survival rate were 92.3% (\pm 7.4%) for those treated with surgery and systemic therapy, 63.2% (\pm 13.2%) for those treated with surgery alone, 22.7% (\pm 0.9%) for those treated with systemic therapy alone and 20.5% (\pm 10.4%) for those who received no treatment (p<0.001). Receiving only medical treatment (HR:5.40, 95%CI 2.06-14.15, p=0.001) or no treatment (HR:5.63, 95%CI:2.21-14.92, p=0.001) were independently associated with higher CSM rates, even after multivariable adjustment. After surgical treatment of local recurrence only 8/50 (16.0%) patients reported complications, and in only 2 of those were graded as Clavien-Dindo \geq 3.

Conclusions: Combining surgical excision of local recurrences, when feasible, with systemic therapy offers a survival advantage for patients with recurrent disease following nephrectomy even in the presence of non-regional metastases.