terms of non-cancer related mortality. The role of negative surgical margin has been widely debated. Intraoperative frozen section analysis has been shown to be unreliable, expensive, time-consuming and not well correlated to final pathology. The goal of the present study was to assess the correlation of intraoperative ex-vivo ultrasonographic (US) evaluation of resection margin to definitive pathology in patients undergoing partial nephrectomy (PN) at our affiliated hospitals.

**Materials & Methods:** An observational study was carried out in ours 2 institutions from February 2008 to October 2010. Patients undergoing PN for T1-T2 renal tumors were included. Ex vivo US evaluation was performed. Considering availability of US engine, not all consecutive eligible patients were included. PN was undertaken either by open surgery or laparoscopic access in a standardized technique. The "minimal healthy tissue margin" technique was applied. Once resected, the specimen was kept in a saline solution and US determination of tumor margins was performed. Sequential images were captured in order to evaluate the whole capsule.

**Results:** Twenty-two patients (9 women, age 63±11 years [46-78]) were included in the primary analysis. Open or laparoscopic PN was performed in 19 and 3 patients, respectively. Intraoperative ex-vivo US showed negative surgical margin in all cases except one, needing a complementary renal parenchyma resection. US duration ranged from 1 to 4 minutes, with a median time of 1 minute. Definitive histological analysis confirmed the presence of 3 angiomylipoma, 15 clear cell carcinoma (11 pT1a,3 pT1b,1 pT2), 3 chromophobe carcinoma (1 pT1a,1 pT1b,1 pT2) and 1 pT1a type II papillary tumor. Mean tumor size was 3.4±2.1 cm [0.6-7.2]. Final pathology revealed R0 margins in all cases.

**Conclusions:** Intraoperative ex-vivo US evaluation of resection margin in patients undergoing PN is feasible, time-efficient, well correlated to definitive pathological examination, and should be evaluated in further prospective trials.

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**FACTORS INFLUENCING THE DEVELOPMENT OF PERITUMORAL CAPSULE FORMATION AND PROGNOSTIC IMPACT OF CAPSULE PENETRATION AFTER MINIMAL PARTIAL NEPHRECTOMY FOR CLEAR CELL RCC**

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**Introduction & Objectives:** To analyse peritumoral capsule thickness, searching for any correlation with the main pathological variables and to evaluate the prognostic impact of capsule penetration on local and systemic recurrence in patients treated by NSS for clear cell RCC with negative surgical margins.

**Materials & Methods:** Between 2005 and 2007, 115 consecutive patients with single sporadic clear cell RCC had NSS performed as "minimal" partial nephrectomy. Peritumoral capsule status, its thickness, pericapsular tumor lymphatic infiltration (TIL) and main pathological variables were carefully analyzed. Peritumoral capsule thickness was measured at the four corners of the sampling.

**Results:** Mean peritumoral capsule thickness at the inner and at the outer poles of the SD (median, range) were 412 μm (250, 350, 20-1511) and 385 μm (253, 358, 20-1770), respectively. In 35 cases (21%) a TIL was present. Overall, in 88 (59.1%) cases the peritumoral capsule was intact and free from neoplastic penetration (PC-) while in 47 (40.2%) there were signs of penetration. Overall, 20.6% had capsular penetration on the parenchymal side (PCK). Whereas, 11.3% had peritumoral capsule invasion on the perirenal fat tissue side (PCF). At univariate analysis, thickness of tumor capsule did not significantly correlate with capsular involvement neither with main pathological variables nor with TIL. The capsule thickness measurements were significantly different among the four evaluated points in each single tumor, showing a decreasing thickness from the parenchymal pole to the perinephric pole (p<0.0008). Overall, at a mean (median, range) follow up of 44 months (46, 25-69), 5-year cancer-specific and progression-free survival were 91.7% and 89.5%. We stratified progression-free survival according to the side of capsular penetration (PC-) and PCF and compared results to those of clear cell RCC with PC-. The 5-year progression-free survival for tumors PC- PCK and PCF was 97%, 96.2% and 48.5% (p<0.0001; PC- vs. PCF p<0.0001; PCK vs. PCF p=0.0002). The multivariate model showed PCF to be the sole significant independent predictor of progression-free survival.

**Conclusions:** The capsule thickness presents significant variations among the four evaluated anatomical corners in each single tumor, with a greater development in the inner pole, thus hypothesising a specific role of healthy parenchyma for its formation. PCF is a significant predictor of worse outcome and the sole independent prognostic factor at the multivariate analysis. Patients with clear cell RCC with PC-, as well as those with PCF, had an excellent prognosis and these pathological features could possibly be used to construct nomograms if proved statistically significant in larger series with longer follow-up.

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**SELECTIVE ARTERIAL EMBOLIZATION FOR PSEUDONEUROSMYS AND ARTERIAL-VENOUS FISTULA OF RENAL ARTERY BRANCHES**

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**Introduction & Objectives:** Our purpose was to describe the presentation, endovascular management and functional outcomes of 15 patients with renal arterial pseudoneuromys following open and laparoscopic partial nephrectomy.

**Materials & Methods:** An institutional Review Board approved, Health Insurance Portability and Accountability Act-compliant retrospective review of a prospectively maintained database revealed that 7 of 1,160 patients who had open partial nephrectomy (PN) and 8 patients who had laparoscopic partial nephrectomies were diagnosed with a pseudoneuromy of a renal artery branch between 2003 and 2010. Some were associated with arteriovenous fistula.

**Results:** Diagnosis of pseudoneuromys was made a median of 14 days after surgery. Gross hemorrhata was the most frequent symptom. Median estimated glomerular filtration rate measurements made at the preoperative evaluation, postoperatively, on the day the vascular lesion was diagnosed, postembolization, and at the last follow-up were 62 mL/min/1.73m2, 55 mL/min/1.73m2, 55 mL/min/1.73m2, 55 mL/min/1.73m2, 55 mL/min/1.73m2, respectively. Median follow-up was 7.8 months. All patients underwent angiography and superselective coil embolization of one or more pseudoneuromys with or without arteriovenous fistula. Eleven had immediate cessation of symptoms. Four patients had persistent gross hemorrhata after the procedure; 2 were managed with bedside care, 1 required a repeat embolization with thrombin, which was successful, and the remaining patient had coagulopathy and underwent a radical nephrectomy for persistent bleeding.

**Conclusions:** Pseudoneuromys and arteriovenous fistulas of renal artery are rare complications of partial nephrectomy. Presentation is often delayed. Superselective coil embolization is a safe, minimally invasive treatment option that usually solves the clinical problem and preserves renal function.