

in two patients who had metastatic tumors in the remaining kidney (one of them had been only previously removed due to RCC).

Conclusions: Taking this into account, we suggest, that the additional therapeutic effect of an in vivo immunization against damaged tumor cells antigens could be important. If the ablated changes are small, at the initial stages of the tumor development, the stimulated increase of the immune response of the organism could be important.

N70

Systemic inflammatory reactions in patients after radiofrequency ablation of renal cell carcinoma

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Introduction and Objectives: Advances in imaging have led to an increase in the use of minimally invasive technologies such as radiofrequency ablation (RFA) or cryoablation as a treatment of renal cell carcinoma (RCC). RFA is a thermal ablative technique that causes tumor destruction by heating and may be used as an alternative to a partial nephrectomy in peripherally located tumors not exceeding 4 cm in diameter. Most publications on RFA efficacy concentrate on the CT or MRI assessment of the local tumor destruction. In patients with liver tumors treated with RFA or cryoablation, together with the local tissue necrosis, a specific inflammatory response was also demonstrated. It has been shown that hepatic cryotherapy, but not RFA, rarely may cause cryoshock phenomenon with a high mortality rate which related to the release of toxic substances from the lesion and strong inflammatory reaction. The participation of the RFA in the specific inflammatory response induction has never been studied in patients with RCC. The evaluation of this response may lead to a better understanding of the thermoablation effect and improve its efficacy.

Material and Methods: Thirteen patients (6 men, 7 women) aged 50 to 86 (mean 67.4 years) with RCC underwent RFA. The tumors were diagnosed by contrast-enhanced CT and had radiological features in CT described by Bosniak as characteristic for renal cell carcinoma. Average tumor diameter was 36 mm (from 9 to 40 mm). The procedure was performed in the epidural anesthesia in the supine position under USG guidance. White blood cells count (WBC – neutrophiles, lymphocytes, monocytes), body temperature were measured at baseline and 24 hours after RFA. CRP (C-reactive protein) and LDH (Lactate dehydrogenase) were also measured in some patients. The t-Student test was used to compare them before and after thermoablation. A value for P less than 0.05 was considered significant.

Results: We observed increase in number of WBC up to 17.6% (7.67 G/l vs 9.03; $p < 0.01$) and proportion of neutrophiles up to 19.3% (59.99% vs 71.55; $p < 0.000001$) and decrease in proportion of lymphocytes up to 36.5% (29.61% vs 18.81; $p < 0.000001$). The proportion of monocytes was unchanged. The levels of LDH and CRP were significantly increased in four of five patients. None of the patients had a fever 24 hours after the procedure.

Conclusions: In our study RFA causes moderate inflammatory response without any complications. It may be related to the presence of necrotic tissue left in the ablated kidney. It is possible that during RFA, in situ heat fixation of the surrounding tissue may prevent the release of intracellular compounds that are responsible for the exaggerated inflammatory syndrome as observed after cryoablation.

N71

The frequency of clinical symptoms in kidney cancer cases

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Introduction and Objectives: The aim of this study was to identify frequency of clinical symptoms in kidney cancer cases.

Material and Methods: All patients who had undergone surgical treatment because of renal carcinoma (RCa) since Jan 1998 to Dec 2007 were included into this retrospective single institution study. Data on tumor size and histology were collected from pathological reports. There was collected most common clinical symptoms of kidney cancer: general complaints, hematuria, pain, asthenia and weight loss. All cases were divided into groups according tumor histology, size, patient's age and gender. Exclusion criteria for size and histology calculation were benign tumor and known metastasis at the time of surgery. Statistical analysis was performed using descriptive statistic, Chi-Square parameter.

Results: 999 cases were included to this study. The median patient's age was 64 ± 11.57 (range 18–91) years. 54.1% males and 45.9% females were operated. There was performed 78.8% nephrectomies, and 21.2% kidney resections. 14.7% of all surgical procedures was made laparoscopic. Patients has reported following symptoms: general complaints (59%), hematuria (17%), pain (44.8%), asthenia (8.9%), weight loss (3%). There was identified frequency rate of clinical signs for metastatic cancer 71.3% and cancer without known metastasis (57.5%) ($p = 0.006$). The frequency of hematuria was detected for metastatic cancer 27.8%, in cases without known metastasies 15.7% ($p = 0.002$). Frequency of hematuria for malignant tumors was 97.9%, and for benign 2.1% ($p = 0.004$). Frequency of clinical signs by histological groups were following: transitional cells ca. – 95%, clear cells ca. – 55.8%, papillar ca. – 67.3%, chromofobic ca. – 61.5%, other (non classified) ca. – 58% ($p = 0.003$). Frequency of hematuria is most identified in transitional cells ca. group 72.7%. ($p = 0.0005$). Frequency of clinical signs by tumor size were following: ≤ 4 cm. – 45.7%, 4–7 cm. – 62.9%, 7–10 cm. – 66.2%, ≥ 10.1 cm. – 76.3%. ($p = 0.0005$). There was no significant difference of clinical signs frequency by gender and age.

Conclusions: Clinical signs frequency is higher for metastatic cancer, than cancer without known metastasis. Frequency rate of hematuria is higher for malignant tumors, than for benign. Transitional cells carcinoma is most symptomatic histological group. Tumor size has significant influence for frequency rate of clinical symptoms.

N72

Tumor size influence on cancer specific and overall survival after surgical renal carcinoma treatment

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Introduction and Objectives: The aim of this study was to evaluate influence of tumor diameter on cancer specific and overall survival after surgery of renal carcinoma.

Material and Methods: All patients who had undergone surgical treatment because of renal carcinoma (RCa) since Jan 1998 to Dec 2004 were included into this retrospective single institution study. Data on tumor size, grade, stage and histology were collected from pathological reports. All tumors were divided into four groups according diameter: 1st group ≤ 4 cm; 2nd group 4–7 cm; 3rd group 7–10 cm and 4th group > 10 cm. Exclusion criteria were benign tumor and known metastasis at the time of the surgery. Data about patient's death and reasons of the death were received from national cancer registry. Statistical analysis was performed using descriptive statistic, Kaplan-Meier and Cox regression.

Results: 438 cases were included into the study. The median patients' age was 64±10.45 (range 26–85) years. 56.5% males and 43.5% females were operated. Stage pT1 was detected in 45%, pT2 – 20.4%, pT3 – 33.7% and pT4 – 0.9% of cases. The grade G1 was found in 28.5%, G2 – 54.7% and G3 – 16.8% of cases. The median follow-up was 67±34.14 (0–129) months. The clear cells carcinoma was identified in 83.6%, papillary carcinoma – 4.8% and transition cells in 3.4% of cases. The median tumor size was 5.0±2.67 (1.0–22.0) cm. Tumor ≤4 cm. was detected in 36.7%, 4–7 cm. – 39.6%, 7–10 cm. – 19.2% and >10 cm. in 4.6% of cases. During follow-up 151 (34.5%) of all patients died: 90 (20.6%) because of RCa and 61 (14.0%) because of other diseases. Cox regression shows that tumor size is one of the most important parameters influencing cancer specific survival (p=0.006, Exp(B) 1.574, 95.0% CI 1.14–2.17). Overall survival at median follow-up of 67 months was 65.9%. Median follow-up of 1st and 2nd groups patients was 70, 3rd group – 60 and 4^{gr} – 31 months. Overall survival according size and follow-up was: 1st group – 73.9%, 2nd – 69.1%, 3rd – 53.8% and 4th – 26.3%. Overall cancer specific survival was 80.0%. In the different study groups specific survival was 90.1% vs. 80.0% vs. 71.3% vs. 36.8% respectively.

Conclusions: Overall as well as cancer specific survival strongly depends on tumor size. At seventy months follow up cancer specific survival for ≤4 cm. tumors reaches 90.1% of patients when only 36.8% of patients survive thirty one month with tumor >10 cm.

N73

Laparoscopic heminephrectomy in adult patients – initial experience

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Introduction and Objectives: Benign kidney's diseases are considered to be a good indication for laparoscopic intervention. In pediatric population laparoscopic heminephrectomy due to pathologies of duplex kidney are well recognized. We present initial experience in first two cases treated for hydronephrotic upper pole of kidney with duplicated collected system

Material and Methods: Two female patients age 48 and 21 with mildly symptomatic upper pole hydronephrosis due to ectopic distal implantation of ureter and impacted distal ureteric stone were treated by laparoscopic transperitoneal approach. Partial nephrectomy with ureterectomy were performed in a lateral flank position through 4 trocars. Colon was reflected medially by incision along the Told line and both ureters were clearly identified. Careful dissection of renal hilus permitted for identification of polar vessels which were clipped and transected. Upper pole ureter was dissected toward the bladder level and closed with clips of vessel sealing system device. Parenchymal section was performed using Ligasure coagulation after complete dissection of upper pole renal pelvis. Additional haemostatic sutures were placed if necessary. Specimen was removed in an endobag and 12Fr suction drain was left for 24–48 hours.

Results: Both interventions were completed laparoscopically, no conversion to open surgery was necessary. Duration of surgery was 120 min and 145 min. Blood loose was minimal and no transfusion was required. Postoperative complication occurred in one patient – formation of renal abscess necessitating percutaneous drainage and parenteral antibiotic therapy. On 6 month follow up both patients were symptoms-free and the remaining moiety of the kidneys were unchanged with no dilatation of collecting system.

Conclusions: Laparoscopic heminephrectomy is feasible however technically demanding with possible significant complications and has a potential to offer all advantages of minimally invasive surgery

N74

Laparoscopic nephron sparing surgery: Early results of 38 cases

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Introduction and Objectives: Nowadays, nephron sparing surgery has become a standardized procedure in sporadic, clinically T1 tumour. Laparoscopic nephron sparing surgery (LNSS) is a technically challenging procedure. In many centers LNSS is a viable alternative to open surgery, combines the benefits of the minimal invasive approach and efficiency.

Material and Methods: Between January 2002 and Mai 2009 LNSS for small renal tumour were performed in 38 patients (16 women, 22 men). The indication was renal mass range 2–5 cm (average size of the tumour 3.2 cm). Mean patient age was 52.3 years. All patients underwent CT scan prior operation to take reliable information about size and position of the tumour. Most of tumour were exophytic: upper pole (n=16), lower pole (n=14), 6 endophytic and 2 hilar. All the procedures were performed by 2 experienced laparoscopists. In 32 cases was transperitoneal and 6 extraperitoneal fashion.

Results: Mean operative time was 158 minutes (range 75–300). In 36 patients the hilar vessels was clamped. Warm ischemia time was from 15 to 30 minutes, mean 21 minutes. Blood loss was from 50–1000 ml (mean 256 ml). Mean hospital stay was 6.8 days. Hemostasis was achieved with bipolar coagulation. In 25 cases interstitial tissue was closed using a suture, in 5 cases suture with haemostatic bolster (TachoSil®), and only TachoSil® in 8 patients. One patient had open conversion because of hilar location of tumour and technically difficult conditions. In two cases there was positive margins and were finished with nephrectomy. The overall complication rate was 5.5%: postoperative bleeding (n=1), and urine leak (n=1). The histological examination demonstrated renal cell carcinoma (n=26), solitary fibrous tumour (n=1), chromophobe carcinoma (n=1), angiomyolipoma (n=4), leiomyoma (n=1), oncocytoma (n=2) and cyst (n=3).

Conclusions: Laparoscopic partial nephrectomy is gaining wide spread acceptance as a technique for nephron sparing surgery for small, localized renal tumours. The technique performed in centers with expertise is safe and allows to lower incidence of intra- and postoperative complications. The durability of oncological outcome in our group of patients has to be determined and needs further analysis.

N75

Should we broaden indications for treatment of T3c renal cell carcinoma with atrial thrombus?

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Introduction and Objectives: Renal cancer in T3c stage is deadly hazardous for a patient because of its malignant potential and on the other side risk of pulmonary embolism caused by part of thrombus. **Objectives:** The aim of our study was to asses survival time in patients with renal cell carcinoma in T3c clinical stage with thrombus in vena cava inferior extending up to the right atrium, treated by uro-cardiosurgery team by use special safety procedures such as: cardiopulmonary by-pass, profound hypothermia, circulatory arrest.

Material and Methods: This group consisted of nineteen patients, aged from 43 to 75, the average age was 59. Fourteen patients had right kidney tumor, five the left kidney tumor, and tumor thrombus extension into the right atrium. In all cases the patients didn't have lymph node and distant metastases. None of patients had vena caval