Assessment of Improved Staging of Small Renal Cancer Treated With Laparoscopic Cryoablation

Introduction and Objective: A limitation of laparoscopic cryoablation (LCA) of renal masses is the lack of tumor extirpative histology. So far, staging and follow-up pattern are based solely on the histological findings obtained by image-guided preoperative or laparoscopic assisted intraoperative biopsy. Staging is incomplete because biopsy specimen is not eligible for studying capsular or perirenal fat invasion. The objective of this study was to evaluate the histological outcome of an intraoperative core needle biopsy protocol and the existence of perinephric fat tissue invasion of patients treated with LCA for small renal masses.
Materials and Methods: From 2007 to February 2012, all patients treated with LCA were used for this retrospective study. Critical point in the cryosurgical procedure was a staunch dissection of the tumor allowing identification of the lesion and its border. When the perirenal fat appeared to be denser and adhesive to the tumor capsule, it was dissected and sampled for histological examination. Intraoperatively, before cryoprobe placement, a minimum of 3 biopsies was taken at different locations in the mass. Specimens were examined after normal hematotoxylin and eosin staining. If needed, immunohistochemic staining was used to accept or to attain final diagnosis.
Results: In total, 89 (mean ±SD diameter 30.5±7.7mm, range 19-50mm) renal masses were treated with LCA. Three patients had biopsies taken pre-operatively. One patient underwent 2 series of cryoablation for the same lesion. All biopsied renal masses were histological classified. In total, 75 renal cortical cancers (84.2%) and 14 benign lesions (15.8%) were diagnosed. Specification of subtype of malignant or benign lesion was possible in 87 cases (97.7%). Dense and adhesive peritumoral fat was found and sampled in 38 cases. In 33 (86.8%), the fat covered a proven carcinoma (mean ±SD diameter 32±7.3mm, range 19-50mm). Histology did not reveal malignant fat tissue invasion in all cases.
Conclusions: The malignancy rate of 83.7%, of *intraoperative* biopsies of small renal masses, was comparable to series reporting on extirpative histology. No existence of peritumoral fat tissue invasion was found. Therefore, no upstaging of all clinical T1 tumors treated with LCA occurred.