

ENDOUROLOGY & LAPAROSCOPY

Renal function outcomes after laparoscopic renal cryoablation

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Abstract Background and Purpose: Laparoscopic cryoablation (LCA) has emerged as an alternative to conventional surgery for the management of a T(1) renal mass; however, only few data are available on its functional outcomes. We assessed renal function changes after LCA in patients with normal renal function (NRF) and preexisting chronic renal insufficiency (CRI).

Patients and Methods: Data of consecutive patients who were undergoing LCA between 2000 and 2008 at Duke University Medical Center were analyzed. Renal function parameters were obtained preoperatively, at discharge, and at 6, 12, and 24 months postoperatively. Serum creatinine (sCr) levels and estimated glomerular filtration rates (eGFR) were compared over a 2-year follow-up.

Results: Of 67 patients, 22 (33%) had CRI at baseline. These patients were older, had larger tumors (2.5 vs 2.0 cm, $P = 0.039$), and a higher incidence of multiple lesions (22.7% vs 4.4%, $P=0.034$). Compared with baseline, sCr was significantly increased and eGFR declined at discharge, 6, 12, and 24 months in both NRF and CRI groups. Median sCr increase was 0.1 mg/mL, eGFR declined by 4.2 mg/mL/1.73m² in the CRI cohort and up to 8.8 mg/mL/1.73m² in NRF patients (all $P < 0.05$) during the follow-up. Compared with baseline, however, no significant changes were noted in the distribution of CRI categories at any time (all $P > 0.05$). **Conclusions:** A minimal decline in renal function can be appreciated in patients undergoing LCA at midterm follow-up. This decline is no higher in CRI than in NRF patients. LCA offers excellent renal function outcomes at 2 years follow-up. Specifically, in patients with CRI, LCA offers excellent preservation of renal function.

Editorial Comment

The authors investigated an important question regarding new technological aspects of nephron-sparing surgery for small renal masses. The investigators assessed renal function changes after Laparoscopic cryoablation (LCA) in patients with normal renal function (NRF) and preexisting chronic renal insufficiency (CRI). From a total of 67 patients, 22 (33%) had CRI at baseline.

The study indicates a statistically significant decline in renal function after LCA in both NRF and CRI patients. This is in contrast with the data seen in CRI patients on the other. In the present study, renal function decline was more pronounced among patients with normal renal function preoperatively despite the latter group having smaller tumors and lower incidence of multifocal disease. Interestingly, the data may suggest that while renal function stabilized in CRI patients after LCA, a continuous decline may be observed in the NRF group over a 2-year follow-up period. This may be because of a more attentive dietary regimen and behavioral measures to preserve renal function undertaken by patients with preexisting CRI compared with their "healthy" counterparts. Despite the evident decline in renal function parameters, its clinical significance is questionable, because no marked changes in the distribution of CKD categories were noted at any time point compared with baseline, and only two patients (both from the NRF group) were reclassified two CKD categories higher compared with baseline. LCA represents an efficient alternative to minimize renal function deterioration in patients with small renal tumors and preexisting renal insufficiency.

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Positive surgical margins after robotic assisted radical prostatectomy: a multi-institutional study

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Purpose: Positive surgical margins are an independent predictive factor for biochemical recurrence after radical prostatectomy. We analyzed the incidence of and associative factors for positive surgical margins in a multi-institutional series of 8,418 robotic assisted radical prostatectomies.

Materials and Methods: We analyzed the records of 8,418 patients who underwent robotic assisted radical prostatectomy at 7 institutions. Of the patients 323 had missing data on margin status. Positive surgical margins were categorized into 4 groups, including apex, bladder neck, posterolateral and multifocal. The records of 6,169 patients were available for multivariate analysis. The variables entered into the logistic regression models were age, body mass index, preoperative prostate specific antigen, biopsy Gleason score, prostate weight and pathological stage. A second model was built to identify predictive factors for positive surgical margins in the subset of patients with organ confined disease (pT2).

Results: The overall positive surgical margin rate was 15.7% (1,272 of 8,095 patients). The positive surgical margin rate for pT2 and pT3 disease was 9.45% and 37.2%, respectively. On multivariate analysis pathological stage (pT2 vs pT3 OR 4.588, $p < 0.001$) and preoperative prostate specific antigen (4 or less vs greater than 10 ng/mL OR 2.918, $p < 0.001$) were the most important independent predictive factors for positive surgical margins after robotic assisted radical prostatectomy. Increasing prostate weight was associated with a lower risk of positive surgical margins after robotic assisted radical prostatectomy (OR 0.984, $p < 0.001$) and a higher body mass index was associated with a higher risk of positive surgical margins (OR 1.032, $p < 0.001$). For organ confined disease preoperative prostate specific antigen was the most important factor that independently correlated with positive surgical margins (4 or less vs greater than 10 ng/mL OR 3.8, $p < 0.001$).

Conclusions: The prostatic apex followed by a posterolateral site was the most common location of positive surgical margins after robotic assisted radical prostatectomy. Factors that correlated with cancer aggressiveness, such as pathological stage and preoperative prostate specific antigen, were the most important factors independently associated with an increased risk of positive surgical margins after robotic assisted radical prostatectomy.