CONTEMPORARY ANALYSIS OF CHANGE IN CREATININE IN THE FIRST MONTH AND LONGTERM FOLLOWING LAPAROSCOPIC VS. OPEN RADICAL NEPHRECTOMY.

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Introduction
In patients undergoing laparoscopic radical nephrectomy for renal cell carcinoma (RCC), the remaining kidney is expected to compensate. During the induction of pneumoperitoneum, compression of renal parenchyma as well as renal vein often leads to an oliguria which often recovers shortly after relief of pneumoperitoneum. In the first month following surgery, the solitary kidney may not yet have time to properly compensate. The purpose of the study was to characterize the acute change in creatinine in the first month following nephrectomy and long term, comparing open radical nephrectomy to laparoscopic & robotic approaches.

Materials & Methods
After Institutional Review Board approval, a retrospective review of 103 patients between 1999 and 2009 who underwent either, open, laparoscopic, or robotic nephrectomy was performed. Pneumoperitoneal pressure was maintained at 15mmHg during laparoscopic cases. All data for patients with end stage renal disease and polycystic kidney disease were excluded. Pre-operative creatinine was compared to the highest post-operative creatinine found in the first month following surgery as well as long term creatinine.

Results
Mean preoperative creatinine was 1.2±0.6 cm (range: 0.6-5.2) and mean postoperative creatinine was 1.6±0.7 cm (range: 0.7 – 6.3). These two groups were significantly different (p<0.001). Mean change in creatinine for all groups was 0.4±0.6 (range: -1.2–2.7). Postoperatively, pen nephrectomy group demonstrated a change creatinine of 0.3±0.7 (range: -1.2–2.5) compared to the laparoscopic / robotic cohort with a rise of 0.5±0.4 (range: -0.6–2.7) (p=0.12). Mean long term results of creatinine were 1.8±1.4 (range: 0.5-8.4) with an average followup of 35 months (median: 26, range: 1-132).

Conclusion
In the first month following nephrectomy, rise in plasma creatinine is no greater following laparoscopy than open nephrectomy. Further studies would include presence of proteinuria and changes to GFR. Laparoscopic radical nephrectomy continues to demonstrate safe and equivalent metabolic outcomes compared to open nephrectomy.