

Renal Oncology

Video Session 5

Monday, May 6, 2013

10:30 AM-12:30 PM

V1077

INTRACORPOREAL COOLING AND EXTRACTION TECHNIQUE OF ROBOTIC PARTIAL NEPHRECTOMY: RECAPITULATING THE OPEN APPROACH

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INTRODUCTION AND OBJECTIVES: In this video we demonstrate a technique for achieving cold ischemia and early tumor assessment during robotic partial nephrectomy (RPN) that recapitulates the open approach.

METHODS: We present a 64-year-old female with a 2 cm right posterolateral solid enhancing renal mass. She elected to undergo a robotic partial nephrectomy. We planned an intracorporeal cooling and extraction (I.C.E.) RPN technique for cold ischemia and early tumor assessment. We used a Gelpoint® access port to facilitate introduction of ice slush for cold ischemia and early tumor extraction for margin assessment. Sterile iced saline slush was created in a slush machine and large disposable syringes were modified by cutting off the nozzle end to make a wider opening and were prefilled with ice slush in preparation for rapid injection. Ice filled syringes were placed through the Gelpoint at the site of the removed assistant port which allowed injection of ice slush around the kidney. Repeated injections of ice slush was performed to cover the kidney surface. Tumor excision was performed immediately after ice slush delivery and ice slush could be reapplied as needed while on clamp.

RESULTS: Cold ischemia time was 18 minutes and the patient had an uncomplicated post-operative stay. Final pathology confirmed renal cell carcinoma with negative margins. To date, we have performed our ICE RPN technique in 7 patients. Mean cold ischemia time was 20 minutes. Temperature probes confirmed renal parenchymal temperatures of 16 degrees Celsius within 7 minutes and no drop in core body temperature > 0.5 degrees. All margins were negative for cancer.

CONCLUSIONS: Our I.C.E. technique of intracorporeal cooling and extraction allows for cold ischemia and early specimen evaluation during robotic partial nephrectomy. The ability to recapitulate these features typically limited to an open approach may help expand indications of minimally invasive partial nephrectomy.

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V1078

LEFT LAPAROSCOPIC RADICAL NEPHRECTOMY: STEP-BY-STEP

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INTRODUCTION AND OBJECTIVES: Two decades after its introduction, laparoscopic radical nephrectomy is now a standard of care for amenable tumors up to stage T3, and for cytoreductive nephrectomy. The current challenge is appropriately educating practicing urologists and urology trainees in the appropriate techniques to minimize complications. As such, one obstacle is that urologists may never actually witness the most feared complications arising from a given step until they are suddenly faced with the prospect of expeditiously handling them.

METHODS: An international collaboration allowed us to collect multiple videos exemplifying not only proper techniques for left sided

nephrectomy, but also complications pertinent to each step. The authors compiled their collective experience to offer tips regarding surgical planning, technical maneuvers pertinent to each step, warnings, potential complications, and their management.

RESULTS: This educational video demonstrates the performance of a conventional left laparoscopic radical nephrectomy. Pertinent complications demonstrated include splenic injury, diaphragm injury with pneumothorax, superior mesenteric artery ligation, stapler malfunction, and bile duct injury.

CONCLUSIONS: The gold standard treatment in certain upper urinary tract neoplasms is radical nephrectomy and the laparoscopic approach has demonstrated advantages compare with open approach. This unique educational video was compiled demonstrating both the proper technical maneuvers, alongside those leading to major complications. We hope this serves as a didactic tool to use in conjunction with simulator based education and hands-on live training.

Source of Funding: None

V1079

BILATERAL EX-VIVO NEPHRON SPARING SURGERY AND AUTOTRANSPLANTATION FOR GIANT BILATERAL RENAL ANGIOMYOLIPOMA

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INTRODUCTION AND OBJECTIVES: Management of large bilateral renal tumors generally involves bilateral nephrectomy followed by renal transplantation at later date bridging the waiting period with hemodialysis. These treatment options are associated with problems like critical shortage of kidney donations suitable for transplantation, significant reduced quality of life, high morbidity and mortality and high cost involved in these procedures. In view of these drawbacks there is resurgent interest in bench dissection and autotransplantation in recent years. In exceptional situations, bench surgery followed by autotransplantation may be indicated. We present video demonstration of bilateral ex-vivo nephron sparing surgery and autotransplantation for giant bilateral renal angiomyolipoma.

METHODS: Twenty eight old female patient presented with bilateral flank mass associated with intermittent pain of 5 years duration. Per abdomen examination revealed bilateral large lumbar mass extending up to iliac region. Renal parameters were normal. Computerised tomography scan revealed bilateral large angiomyolipoma. Treatment options were discussed with the patient. Angioembolisation was not feasible in view of large size, multiple vessels supplying tumor and poor demarcation between tumor and normal renal parenchyma in the imaging. After explaining risk and outcome, bilateral nephrectomy, bench dissection and autotransplantation was planned. First, left nephrectomy, bench dissection with nephron sparing surgery and autotransplantation was conducted. After 4 weeks interval procedure was repeated on the right side. Operative, postoperative and follow up details were recorded.

RESULTS: Total operation duration was 6 and 8 hours, blood loss was 200 and 230 ml, tumor size was 30x15 cms and 26x18 cms, tumor weight was 3 and 2.8 kilograms for left and right tumors respectively. Orals started after 24 hours, hospital stay was 5 days following both surgeries. Serum Creatinine was 1.4 and 1.5 mg/dl on 5th post-operative day and at 1 month follow up respectively. Follow up magnetic resonance imaging with angiogram showed good perfusion of left autotransplanted remnant kidney.

CONCLUSIONS: Ex-vivo nephron sparing surgery and autotransplantation for large renal angiomyolipoma is feasible with satisfactory renal functional outcome. Morbidity, poor quality of life and high cost involved in renal replacement therapy can be avoided with this procedure in selected cases. However this surgically challenging procedure should be regarded as the last resort.

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