

## **MINIMALLY INVASIVE SURGERY**

**COMPLIANCE AND SHORT-TERM RESULTS FROM A NOVEL WEB-BASED SYSTEM FOR THE EVALUATION OF HEALTH RELATED QUALITY OF LIFE FOLLOWING LAPAROSCOPIC RADICAL PROSTATECTOMY**

*Wong JA, Goldsmith C, Shayegan B, Chatterjee S, Matsumoto ED*

**OBJECTIVE:** The advent of minimally invasive techniques, including laparoscopic radical prostatectomy (LRP), for prostate cancer has increasingly placed attention on accurately measuring health related quality of life (HRQOL) after therapy. We wish to determine the compliance of patients using a novel web-based system for measuring HRQOL and evaluate short-term HRQOL following LRP.

**METHODS:** All patients eligible for a LRP at our centre were approached to participate in this study. The HRQOL assessments evaluated for this study were the Health Status Questionnaire (SF-36), and the Health Utilities Index (HUI-2 and HUI-3). Surveys were performed pre-operatively and at 2 weeks, 6 weeks, 3, 6, 9, 12, and 18 months post-operatively. This study evaluated those patients who have completed 3 months of follow-up.

**RESULTS:** Overall, 86 patients were eligible and 75 entered into our study. Four of the patients decided not to undergo LRP and 1 patient had treatment elsewhere. Therefore, the overall compliance was 93% (75/81) for those patients who underwent a LRP at our centre. To date, 54 patients have completed 3 months of follow-up. The HRQOL values are indicated in Table 1.

<b>Variable</b>	<b>Baseline</b>	<b>3-Months</b>	<b>Difference</b>	<b>p-value</b>
SF-36 Physical	88.3	84.6	-3.7	0.1176
SF-36 Pain	81.1	83.3	2.1	0.4534
SF-36 General health perception	84.5	84.1	-0.4	0.7137
SF-36 Vitality	74.8	71.5	-3.3	0.0945
SF-36 Social function	92.6	91.2	-1.4	0.5649
SF-36 Emotional health	96.0	96.9	0.9	0.4437
<b>SF-36 Mental health</b>	<b>82.4</b>	<b>86.9</b>	<b>4.5</b>	<b>0.0157</b>
SF-36 Standardized physical component	53.9	53.1	-0.8	0.2820
SF-36 Standardized mental component	55.0	55.9	0.9	0.3391
HUI-2 overall score	0.897	0.911	0.014	0.3856
HUI-3 overall score	0.888	0.886	-0.002	0.9505

**CONCLUSIONS:** The compliance for the use of a web-based system for measuring HRQOL is excellent. In the future, web-based follow-up may provide an adjunct to the clinical visit and provide valuable, objective data to the physician. This system should also have positive time and thus, cost savings. Furthermore, although urologists often anticipate physical aspects of quality of life changes related to LRP, we have demonstrated that at 3-months, patients have improved mental health compared to baseline.

## **COMPARISON OF LAPAROSCOPIC AND OPEN NEPHRECTOMY FOR ADULT POLYCYSTIC KIDNEY DISEASE – OPERATIVE CHALLENGES AND TECHNIQUE**

*Binsaleh S, Luke P, Nguan C, Kapoor A*

**OBJECTIVES:** Autosomal dominant polycystic kidney disease an inherited systemic disorder is characterized by the development of multiple cysts in the kidneys and other organs. When nephrectomy is indicated, the laparoscopic approach is challenging due to the massive size of these kidneys. We present our technique and evaluate the surgical outcomes of laparoscopic versus open nephrectomy for patients with such condition.

**MATERIALS AND METHODS:** A retrospective review was done for six laparoscopic and six open nephrectomies performed by two laparoscopic surgeons in two university hospitals between January 2004 and December 2004. Preoperative, intraoperative, and postoperative data are presented. A standard subcostal incision was used for the open cases while for the laparoscopic approach a 3-4-port transperitoneal laparoscopic approach was used to dissect the involved kidney, which is then removed intact or morcellated through pfannenstiel, midline, or expanded port site incision.

**RESULTS:** The laparoscopic patients had a longer operative time with one major complication compared to the open group. On the other hand laparoscopic group achieved minimal blood loss, less narcotic requirement and a shorter hospital stay. No conversion to open required in the laparoscopy group. At a median follow up of 1 year no long-term complications reported in either groups.

**CONCLUSIONS:** Laparoscopic nephrectomy for polycystic kidney disease is a feasible and safe alternative to open approach. In addition to low morbidity, other advantages of laparoscopic surgery also achieved in this subset of patients such as the ability to remove the dissected kidney through a small incision, reduced postoperative pain, short hospital stay, and excellent cosmesis.

## **LAPAROSCOPIC PYELOPLASTY: ROLE OF PRE-OPERATIVE RETROGRADE PYELOGRAPHY**

*Golda N, Kapoor A, DeMaria J*

**ABSTRACT:** Laparoscopic dismembered pyeloplasty is a minimally invasive, safe and effective therapy for pelvi-ureteric junction obstruction with low morbidity, shorter convalescence and excellent outcomes. To maximize an efficacious outcome, minimally invasive treatment of this condition requires preoperative planning with adequate imaging, but the role of retrograde pyelography remains controversial. We present a report in which retrograde pyelography accurately contributed to the perioperative diagnosis of ureteral fibroepithelial polyps, subsequently altering surgical management.

## **LAPAROSCOPIC EXCISION OF PARA-AORTIC ECTOPIC PHEOCHROMOCYTOMA**

*Ng JM, Binsaleh S, Tisdale B, **Matsumoto ED**, Kapoor A*

**ABSTRACT:** Ectopic pheochromocytomas (paragangliomas) are rare tumors that are traditionally treated with open surgery. We present our technique of such a tumor treated laparoscopically and review the safety, feasibility and advantages of this approach.

## **THE VESICOPROSTATIC MUSCLE: A CRITICAL LANDMARK DURING DISSECTION OF THE POSTERIOR BLADDER NECK IN LAPAROSCOPIC RADICAL PROSTATECTOMY**

*Secin FP, Karanikolas NT, Gopalan A, Bianco F, **Shayegan B**, Touijer K, Olgac S, Dalbagni G, Guillonneau B*

**INTRODUCTION AND OBJECTIVE:** Many reports on laparoscopic radical prostatectomy (LRP) describe incision of the \_anterior layer of Denonvilliers' fascia\_ to access the seminal vesicles (SV) and vasa deferentia (VD) during dissection of the posterior bladder neck (PBN), which is inconsistent with the accepted anatomical description of Denonvilliers' fascia. Our objective was to provide an accurate description of the tissue layers identified during dissection of the PBN to provide a consistent means of identifying the appropriate plane to safely dissect the SV and vasa deferentia during LRP.

**METHODS:** We replicated the laparoscopic anterior and PBN dissection on 4 fresh cystoprostatectomy specimens and subsequently biopsied the identified components of the PBN on 20 additional prostatectomy specimens for histologic evaluation by two specialized uropathologists.

**RESULTS:** After incising the mucosa of the PBN, we identified an intimate fusion of two tissue layers that needed to be cut into to gain access to the SV and VD. The inner layer was composed of longitudinally disposed smooth muscle fibers in all patients, in continuation with the outer longitudinal fibers of the bladder, and clearly visualized intraoperatively. The outer layer was composed of fibroadipose tissue, in continuation with the adventitia of the bladder. Its visualization depends more on the meticulousness of the dissection.

**CONCLUSION:** The longitudinal muscle fibers are a critical anatomic landmark to guide the minimally invasive prostate surgeon into the correct plane of dissection of the SV and VD. These longitudinally disposed smooth muscle fibers most likely correspond to the so-called musculus vesicoprostaticus, the median bundle of the dorsal muscle bundle of the outer longitudinal layer of the bladder.

## **LAPAROSCOPIC REPAIR OF AN INFERIOR VENA CAVA INJURY DURING A RIGHT PARTIAL NEPHRECTOMY**

*Secin FP, Dotan S, **Shayegan B**, Olgac S, Guillonneau B, Touijer K*

**INTRODUCTION AND OBJECTIVE:** The reported incidence of major venous dissection injuries during laparoscopic urologic procedures is approximately 1.7% (J Urol.;155:1874-6), and may require conversion to an open approach. The objective of this video is to demonstrate a laparoscopic repair of an avulsion of an inferior vena cava (IVC) branch that occurred during a right partial nephrectomy.

**METHODS;** A 56-year-old male was incidentally diagnosed 4 by 3.8 cm contrast enhancing tumor located in the posterior aspect of the upper pole of the right kidney. An avulsion of a polar vein occurred on the lateral aspect of the IVC during a laparoscopic transperitoneal partial nephrectomy. We present a video depicting its laparoscopic management.

**RESULTS:** The right side of the vena cava was injured during dissection of the main renal vein. First, bipolar coagulation and local compression were unsuccessfully attempted. The hemorrhage was managed with the aid of fenestrated atraumatic forceps and the avulsion sutured laparoscopically with 4/0 prolene on an RB1 needle. The laparoscopic partial nephrectomy with entry and repair of the collecting system was completed as scheduled. No transfusion was needed and the estimated blood loss for the whole procedure was 400 cc. The post-operative course was uneventful. Hospital stay was 3 days and the pathology report showed a 5.5 cm papillary type I tumor with negative surgical margins.

**CONCLUSIONS:** IVC injury is a possible complication during renal surgery. Suturing skills are mandatory when performing upper urinary tract laparoscopy. The laparoscopic operating room set up should always be prepared for vascular repair.

## **SERUM LABORATORY VALUES FOLLOWING UNCOMPLICATED LAPAROSCOPIC UROLOGIC SURGERY**

*Anderson K, Matsumoto ED, Abdel-Aziz K, Svatek R, Cadeddu JA*

**PURPOSE:** Presentation of complications following laparoscopic surgery can be different from corresponding open surgical complications. While leukopenia has been identified as a common finding in patients with unrecognized bowel injury following laparoscopy, to our knowledge no study has determined if leukopenia or other serum abnormalities are unique to patients with laparoscopic complications. We present an analysis of postoperative laboratory values from patients after uncomplicated urological laparoscopic surgery.

**MATERIALS AND METHODS:** A retrospective review of 50 adult patients who had previously undergone uncomplicated laparoscopic urological procedures was performed. Exclusion criteria were preexisting hematological, immune, liver or pancreatic disorders. Common serum laboratory values were measured on postoperative day 1.

**RESULTS:** All values for bilirubin were within normal limits. Of patients undergoing a right side renal procedure, 10 of 16 (63%) had a postoperative increase in liver function tests. Amylase or lipase was increased in a total of 12 (24%) patients. Patients undergoing laparoscopic prostatectomy accounted for the majority of this group with 9 of 21 (43%) patients having increased amylase or lipase. Finally, there were no patients with immediate postoperative leukopenia.

**CONCLUSIONS:** Following uncomplicated laparoscopic procedures, bilirubin levels are rarely affected, amylase and lipase may be acutely increased following laparoscopic prostatectomy, and white blood count is commonly increased. While 16 (36%) patients had postoperative leukocytosis, leukopenia was not detected after uncomplicated laparoscopic urological surgery and should alert the surgeon to the possibility of an undiagnosed complication.

## **A SINGLE INSTITUTION EXPERIENCE WITH LAPAROSCOPIC RADICAL PROSTATECTOMY FOR HIGH RISK PROSTATE CANCER PATIENTS**

*Chawla A, Matsumoto ED*

**INTRODUCTION:** Laparoscopic Radical Prostatectomy (LRP) is gaining acceptance as a viable surgical treatment option for localized prostate cancer. The efficacy of LRP for high-risk prostate cancer patients (clinical stage  $\geq$  T3, GS  $\geq$  8) has yet to be established. We prospectively evaluate the PSM, positive LN rate, and complication rate in a subset of patients that have undergone LRP for high-risk prostate cancer.

**METHODS:** Between Nov. 28/06 and Dec. 01/06, 191 patients consecutively underwent LRP by one surgeon (EM). A prospective evaluation of patients with high grade disease, or clinical stage greater than T3 was conducted. Intra-operative outcomes, as well as post-operative pathologic evaluation are reported.

**RESULTS:** Of these, 17 pts (8.9%) had  $\geq$  cT3 disease, or GS  $\geq$  8 on initial prostate biopsy. On pre-operative TRUS guided biopsy, 15 patients were GS 8, and 2 patients were GS 9. One patient (5.8%) was clinically staged as T3. Mean pre-operative PSA was 7.2 ng/mL (3.9–14.0 ng/mL). Mean operative time for LRP on these patients was 300 minutes (120–360 min), with an average blood loss of 376 mL (100–1000mL). On post-operative pathologic evaluation, 6 patients (37.5%) were pT2 and 10 patients (62.5%) were pT3. Specifically, 18.5% were T3a, 25.5% T3b, and 18.5% T3c. 2 patients originally biopsied with GS 8, demonstrated GS 9 on final pathological evaluation. All underwent a laparoscopic pelvic lymph node dissection at the time of LRP. None of these patients had positive lymph nodes on pathologic evaluation. 6 patients (35.2%) had positive surgical margin (PSM). 5 of these patients were pathologically staged as pT3. 50% of the positive margins occurred at the apex. The mean duration of hospital stay for these patients was 39.6 hours. The mean duration for catheterization was 8.6 days. Regarding post-operative complications, one patient required an incisional hernia repair at the extraction site.

**CONCLUSION:** LRP can be safely performed for high risk prostate cancer patients. Although a greater number of patients are required to further establish the oncologic efficacy of LRP for high-risk prostate cancer, our initial experience in this subset of patients is encouraging.

## **OPTIMAL PORT PLACEMENT DURING LAPAROSCOPIC RADICAL PROSTATECTOMY: AVOIDING INFERIOR EPIGASTRIC ARTERY INJURY**

*Chawla A, Matsumoto ED*

**INTRODUCTION:** The placement of anterior abdominal wall trochars during laparoscopic radical prostatectomy (LRP) can be complicated by inadvertent injury to the inferior epigastric artery (IEA), as well as crossover confliction between midline and lateral ports. We describe technical approach to minimize IEA injury, while allowing for adequate distance between medial and lateral instruments.

**METHODS:** 112 consecutive patients underwent a LRP from December 2005, to December 2006. All patients underwent LRP with a standard 5-port approach. 10mm – infraumbilical for camera access, 2 x 10mm for medial ports, and 2x 5mm for lateral ports. Upon insufflation of pneumoperitoneum, the medial ports were placed 5cm from the patients midline, at half the distance from the pubic symphysis to the umbilicus. Patients were evaluated prospectively based on position of IEA to trochar placement, intra-operative blood loss, and need for conversion to open procedure.

**RESULTS:** 112 consecutive patients underwent a LRP during this time. Mean BMI for these patients was 26.3 kg/m<sup>2</sup> (range: 19 to 35 kg/m<sup>2</sup>). The average operative time was 187 minutes (range: 90–360 minutes). The course of the IEA was found to be lateral to the 5cm mark in all patients. No injury to IEA was sustained in any of these patients. Mean blood loss was 277ml (100 to 1000ml). In addition, no ports required repositioning and no patients required conversion to open prostatectomy due to sub-optimal port placement.

**CONCLUSION:** The surface anatomy of the IEA is difficult to predict. Medial 10mm port placement 5cm from midline of the patient upon insufflation, will predictably allow for placement of the trochar medial to the IEA. This will minimize IEA injury, allow for adequate instrument manipulation, and minimize the need to reposition ports and risk of conversion to open prostatectomy due to inadequate access.

## **LAPAROSCOPIC PYELOPLASTY: THE UPDATED MCMASTER UNIVERSITY EXPERIENCE**

*Dong J, Wong JA, Al-Enezi A, Kapoor A, Whelan JP, Piercey K, Matsumoto ED*

**PURPOSE:** Laparoscopic pyeloplasty has been developed as a minimally invasive alternative to open pyeloplasty for the treatment of ureteropelvic junction obstruction (UPJO). Several series have been published with similar success rates for the two procedures. We present our initial experience with laparoscopic pyeloplasty.

**MATERIAL AND METHODS:** A retrospective review of 29 consecutive patients (mean age 37 years) who underwent Laparoscopic dismembered Hynes-Anderson pyeloplasty in our institution between January 2001 to April 2003 was performed. All patients had flank pain with radiologic findings consistent with ureteropelvic junction obstruction and impaired drainage on diuretic renal scan. Patients were assessed at 6 weeks with an ultrasound and assessment of pain, then an intravenous pyelogram (i.v.p.) and diuretic renogram were completed at 6 months along with a repeat clinical assessment.

**RESULTS:** Twenty-nine patients underwent the procedure with one patient converted to an open procedure due to difficulties with the anastomosis. Mean operating time was 225 minutes, which decreased with experience. Mean blood loss was 50 cc and no patient required transfusion. Mean hospital stay was 2.5 days. Mean follow-up was 12 months. Twenty-six patients had complete resolution of their pain and an improvement on ultrasound was demonstrated, but only six patients showed improvement in function on i.v.p. or renogram at 6 months. In five patients with 25% or less differential renal function preoperatively, the function was worse or negligible despite complete resolution of symptoms. One patient developed stent migration requiring repositioning and another developed calcification on the distal end of the stent requiring cystolitholapaxy prior to stent removal.

**CONCLUSIONS:** In our experience, laparoscopic pyeloplasty offers excellent symptomatic relief in a minimally invasive fashion with low morbidity for adult patients with ureteropelvic junction obstruction. In patients with borderline function (25% or less) preoperatively and with a normal functioning contralateral kidney, nephrectomy should be a consideration.

**A PROSPECTIVE RANDOMIZED STUDY OF PFANNENSTEIL VERSUS EXPANDED PORT SITE INCISION FOR INTACT SPECIMEN EXTRACTION IN LAPAROSCOPIC RADICAL NEPHRECTOMY: PRELIMINARY RESULTS**  
*Binsaleh S, Chawla A, Tisdale B, Piercey K, Matsumoto ED, Whelan JP, Kapoor A*

**INTRODUCTION:** To evaluate and compare the surgical outcome of intact specimen extraction through a muscle-cutting (expanded port site-EPS) incision or a muscle-splitting (Pfannenstiel -PFN) incision in patients undergoing transperitoneal laparoscopic radical nephrectomy.

**METHODS:** Patients with clinically localized renal cancer undergoing transperitoneal laparoscopic radical nephrectomy with intact specimen extraction were recruited from December 2005 onwards. Patients were randomized into Group 1 (Expanded port site: 20) or Group 2 Pfannenstiel: 20) and followed prospectively. A detailed analysis of the critical intra-, peri-operative, 6-weeks and 6 months follow-up clinical variables was performed. This report is a preliminary assessment of the first 20 patients in each group.

**RESULTS:** Apart from more males in the EPS group and younger patients in the PFN group there was no preoperative demographic difference between the 2 groups. Intraoperatively, PFN associated with a shorter operative time and reduced blood loss. EPS associated with a smaller extraction incision, and larger specimen size and weight. Both incisions had an equal extraction time. One intraoperative complication encountered in the EPS group not incision related. In the recovery room, both groups had equal pain score and narcotic consumption. Following the first postoperative date, both groups had equal pain score, although EPS group consumed more narcotics. Both had equal timing related to unassisted ambulation, fluid and full diet. PFN patients had less hospital stay (1 vs. 2 day). Postoperative complications related to incision type occurred more frequently in EPS group (5 Vs 3). After 6 weeks postoperatively, both groups showed no difference in pain score or narcotic use. 2 short-term incision related complications encountered in the EPS group. At 6 weeks and 6 months followup, there was no difference between the two groups in overall operative satisfaction or incision related satisfaction.

**CONCLUSION:** These preliminary results suggest that a Pfannenstiel extraction incision is associated with less operative complications and a shorter hospital stay. No difference was noticed related to postoperative pain or analgesic use. To achieve statistical significance, these findings await the completion of the ongoing study (92 patients).

## **THE IMPACT OF BODY MASS INDEX REDUCTION ON LAPAROSCOPIC RADICAL PROSTATECTOMY OUTCOMES**

*Raees AR, Golda NJ, Shayegan B, Whelan JP, Matsumoto ED*

**BACKGROUND:** To determine the impact of Body Mass Index (BMI) reduction on the perioperative and postoperative outcomes of Laparoscopic Radical Prostatectomy (LRP). We reviewed our LRP series to determine the impact of BMI reduction on blood loss, operative time, positive margins, length of stay, and urinary continence.

**METHODS:** Between November 2004 and July 2007, 325 patients underwent Laparoscopic Radical Prostatectomy in our institution. Patients were divided into three groups: Those who had a reduction in BMI (N=63, Group 1), those with a BMI  $\geq 25$  and  $< 30$  kg/m<sup>2</sup> who did not have to lose weight (N= 102, Group 2), and those with a BMI  $> 30$  kg/m<sup>2</sup> who failed to lose weight (N=28, Group 3). Postoperative continence at 6 months was assessed from validated self-administered questionnaires, the rest of the data were retrospectively collected from the LRP Database.

**RESULTS:** Group 1 patients achieved a mean BMI reduction of 2.43. The groups were similar in terms of preoperative characteristics (Age, ASA, PSA, and surgical waiting time ). However there was a trend towards an increased prostate weight in the obese cohort (p =0.29). The cohorts had similar blood loss (p = 0.67), hospital stay (p = 0.23), and PSA 3 months postoperative (p = 0.38). However, the obese cohort had a slightly increased operative time by a mean of 15 minutes (p=0.27). In terms of cancer control the obese cohort had lower primary grade (p = 0.76), clinical stage (p = 0.26), pathologic grade (p = 0.65), and pathologic stage (p = 0.94). Moreover, they had equivalent positive margin rates (p = 0.93). The obese cohort had higher rates of urinary continence at 3 months (p = 0.05).

**CONCLUSION:** In this study, prostate cancer patients who were advised to lose weight prior to their laparoscopic radical prostatectomy had similar peri- and postoperative outcomes to their counterparts of similar BMI. Apart from increased operative time, obesity did not have a negative impact on peri- and postoperative outcomes in LRP.

## **INTACT SPECIMEN EXTRACTION IN LAPAROSCOPIC NEPHRECTOMY PROCEDURES: PFANNENSTIEL VERSUS EXPANDED PORT SITE INCISIONS**

*Tisdale B, Kapoor A, Hussein A, Piercey K, Whelan JP*

**OBJECTIVES:** Laparoscopic nephrectomy is considered the standard of care for most Stage T1 and T2 renal tumors. Most centers perform intact extraction rather than morcellation. The extraction incision location varies, with no consensus on the best site. We compared the operative and perioperative parameters after transperitoneal laparoscopic nephrectomy procedures with intact specimen extraction through a Pfannenstiel (PFN) or expanded port site (EPS) incision.

**METHODS:** The consecutive charts of 150 patients (March 2001 to October 2003) undergoing laparoscopic radical nephrectomy (LRN), laparoscopic nephroureterectomy, or laparoscopic donor nephrectomy with intact specimen extraction were reviewed. The specimens were extracted by way of a PFN or an EPS incision. Two analyses were completed. The first included only LRN, and the second included LRN, laparoscopic nephroureterectomy, and laparoscopic donor nephrectomy.

**RESULTS:** In the LRN-only analysis, the PFN group had a shorter hospital stay (2.84 versus 3.37 days,  $P < 0.05$ ). This group also used significantly less morphine (23.7 versus 47.3 mg,  $P < 0.006$ ). The PFN group in the second analysis also used less morphine (26.3 versus 51.1 mg,  $P < 0.002$ ). Four extraction site complications were found; 1 patient in the PFN group developed cellulitis, and 3 patients in the EPS group developed an incisional hernia.

**CONCLUSIONS:** This evidence suggests reduced morbidity with intact specimen extraction through a PFN incision compared with an EPS incision during laparoscopic nephrectomy procedures. Our practice has been modified on the basis of these data, and all specimens are now removed through a PFN incision when suitable. Urologists should consider PFN incisions for specimen extraction with laparoscopic nephrectomy procedures.

## **LAPAROSCOPIC NEPHRECTOMY WITH INTACT SPECIMEN EXTRACTION FOR POLYCYSTIC KIDNEY DISEASE**

*Binsaleh S, Al-Enezi A, Dong J, Kapoor A*

**PURPOSE:** We present our technique and evaluate the experience of laparoscopic nephrectomy with intact specimen extraction for patients with autosomal dominant polycystic kidney disease (ADPKD).

**MATERIALS AND METHODS:** We retrospectively reviewed 16 laparoscopic nephrectomies performed by one laparoscopic surgeon in a university hospital between April 2004 and March 2006. Preoperative, intraoperative, and postoperative follow-up data are presented. A 3- to 4-port transperitoneal laparoscopic approach was used to dissect the involved kidney, which was then removed intact through a Pfannenstiel or infraumbilical midline incision.

**RESULTS:** A total of 16 patients were included in this study over a 2-year period. The average patient age was 49 years (range 29–67 years), and the average body mass index was 26.9 kg/m<sup>2</sup> (range 19.1–38.3 kg/m<sup>2</sup>). Eleven (69%) patients were receiving dialysis. The mean preoperative creatinine level was 520 µmol/L (range 108–976 µmol/L). Ten right (63%) and six left (37%) nephrectomies were performed. No patient had preoperative embolization. The mean operative time was 167 minutes (range 95–233 min). The mean blood loss was 76 mL (range 10–200 mL). No patient received a blood transfusion. The mean kidney pathologic size was 23 cm (range 16–35 cm), while the mean extraction size was 10.4 cm (range 8–12 cm). There were no deaths. There was one intraoperative complication (6.25%) and three postoperative ones (19%). No procedure was converted to an open approach. The mean length of hospital stay was 4 days (range 2–11 d).

**CONCLUSIONS:** Laparoscopic nephrectomy for ADPKD is technically feasible and clinically safe. In addition to its low morbidity, other advantages of laparoscopic surgery are the ability to remove the dissected kidney through a small incision, short hospital stay, excellent cosmesis, and fast recovery.

## **INFRARED URETERIC ILLUMINATION DURING LAPAROSCOPIC URETEROLYSIS: A NOVEL APPROACH**

*Chawla A, Shoebridge J, Kapoor A*

**INTRODUCTION:** Retroperitoneal fibrosis is an uncommon cause of ureteric obstruction. Treatment with laparoscopic ureterolysis has been described in the past. We describe a novel technique utilizing infrared emitting ureteral catheters to aid in identification of the ureter during laparoscopic ureterolysis.

**METHODS:** We describe a case of a male patient with bilateral ureteric obstruction secondary to idiopathic retroperitoneal fibrosis. A novel technique utilizing the Infravision Ureteral Kit (Stryker Endoscopy) to assist in illumination and identification of the ureter during laparoscopic ureterolysis was conducted.

**RESULTS:** The system consists of a 6 Fr ureteral catheter with an infrared light emitting fibre and a laparoscopic camera, which detects infrared light. The infrared signal can penetrate up to 12mm of tissue. Prior to surgery, ureteral catheters are placed cystoscopically in the usual manner, followed by placement and advancement of the light emitting fibre. A four port transperitoneal approach was used for laparoscopic ureterolysis. During laparoscopy, the light emitting fibre allows for faster and easier identification of the ureter and gonadal vessels, minimizing the risk of ureteral injury.

**CONCLUSION:** Use of the Infravision Ureteral Kit (Stryker Endoscopy) allows for faster and easier identification of the ureter during laparoscopic ureterolysis. Such technique may reduce the risk of ureteral damage allowing for decreased operative time with improved surgical outcomes.

## **LAPAROSCOPIC PARTIAL NEPHRECTOMY (LPN) WITH SIX-YEAR FOLLOW-UP: IS INTRAOPERATIVE ULTRASOUND NECESSARY FOR ONCOLOGIC SUCCESS?**

**Kapoor A**

**INTRODUCTION:** Laparoscopic radical nephrectomy has become the standard of care for T1-T2 lesions of the kidney. Laparoscopic partial nephrectomy (LPN) is a more challenging approach to nephron-sparing strategies for small renal masses. Optimal techniques to secure hemostasis are being developed (Lapra-Ty®, Bio-glue®, Tiseel®). The use of intraoperative ultrasound to achieve adequate surgical margins during LPN is debatable. We provide our experience with LPN without the use of intraoperative ultrasound.

**METHODS:** Sixty-five (65) patients underwent LPN between 9/2000 – 9/2006 for exophytic solid renal masses between 1cm–5cm. The renal hilum was mobilized and either en-bloc clamped with laparoscopic satinsky or renal artery clamped alone with laparoscopic debakey at the time of clamping. The kidney was first stripped of its perinephric fat, leaving the fat overlying the exophytic tumor. The normal kidney surrounding the tumor was then scored with cautery, and the hilum clamped. Cold scissors were then used to excise the mass. Gross inspection was done of the tumor base to ensure negative surgical margin. Collecting system, if entered, was closed with 4-0 vicryl. The argon beam was then used to secure hemostasis, and renal parenchyma closed with 2-0 vicryl Lapra-Ty® (Ethicon). The hilum was then unclamped, and Tiseel applied laparoscopically.

**RESULTS:** Average hilar clamp time was 28 minutes (18–53 minutes). Average tumor size with 2.9 cm (1–5 cm). Intraoperative ultrasound, although available, was not used for exophytic tumors. Average blood loss was 50 cc (10 cc–400 cc). Margins were negative in 64 patients. One patient had an intact tumor capsule, but no normal kidney was visible over a small area. This patient underwent re-resection of kidney resection base at same operation with all normal kidney and warm ischemic time of 53 minutes. Final pathology included 54 RCC, 7 AML, 4 benign. No patient to date has experienced tumor recurrence.

**CONCLUSIONS:** Laparoscopic Partial Nephrectomy has long-term (up to 6 years in this report) oncologic efficacy. Intraoperative ultrasound does not appear to be necessary for laparoscopic management of exophytic renal masses.

## **A PILOT STUDY OF BUPIVICAINE INFUSION IN ABDOMINAL SURGERY - UROLOGY COMPONENT**

*Kanaroglou N, Kapoor A, Whelan JP, Piercey K, Farrokhyar F, Cadeddu M*

**RATIONALE:** Post-operative pain is a major factor delaying recovery and lengthening hospital stays. Opioids, the mainstay of post-operative analgesia, can lead to side effects and complications which, in turn, also lengthen hospital stays. We hypothesize that local anesthesia by bupivacaine infusion to the surgical site can minimize incisional pain, and decrease the need for other analgesics. Some general surgeons at our institution use this concept with good anecdotal results and shorter hospital stays. However, little evidence exists in urologic practice to support its use. This pilot study will quantify the benefits and allow for sample size calculations in future research.

**DESIGN:** We undertake a prospective control trial where 60 patients are randomized to 1) patient controlled analgesia (PCA) only, 2) PCA and saline infusion, or 3) PCA and bupivacaine infusion. Patients will be monitored during their hospital stay and at two weeks post-op, using the outcome measures outlined below. Data collection will be performed by an investigator blinded to the patients' treatment group throughout the study.

**PATIENTS AND SETTING:** Eligible patients include those undergoing donor nephrectomies at St. Joseph's Healthcare. Recruitment is currently underway.

**OUTCOMES:** The primary endpoint is length of hospital stay. Other endpoints include: amount of narcotic/non-narcotic analgesia; subjective pain based on validated questionnaires on post-op days 1, 2, 3, 5 and 14; and finally, incidence and form of post-operative complications. Cost analysis will ultimately be performed as well.

**RESULTS AND CONCLUSIONS:** This project is currently in the data collection stages. As such, no formal results are reported in the current abstract.

**RAPID COMMUNICATION: EFFECTS OF PROXIMAL AND DISTAL ENDS OF DOUBLE-J URETERAL STENT POSITION ON POSTPROCEDURAL SYMPTOMS AND QUALITY OF LIFE: A RANDOMIZED CLINICAL TRIAL**  
*Al-Kandari AM, Al-Shaiji TF, Shaaban H, Ibrahim HM, Elshebiny YH, Shokeir A*

**PURPOSE:** To evaluate the effect of the position of the proximal and distal ends of Double-J ureteral stents on postprocedural flank pain, lower urinary-tract symptoms, and quality of life.

**PATIENTS AND METHODS:** The study included 120 patients who required unilateral Double-J ureteral stents for various indications. They were randomized into two equal groups. Group 1 had longer stents, with the proximal end in the upper calix and the distal end crossing the midline of the bladder. Group 2 had proper stent length with the proximal end in the pelvis and the lower end just beyond the vesicoureteral junction. Patients answered a questionnaire regarding flank pain, dysuria, and urgency as well as quality of life after 1 week of stenting.

**RESULTS:** Forty patients (67%) of group 1 and 43 (72%) of group 2 had mild flank pain, especially during urination. There was no significant difference in the degree of flank pain in the two groups. Moderate to severe dysuria was reported by 53 patients (88%) in group 1 and 11 patients (18%) in group 2 ( $P < 0.001$ ). Moderate to severe urgency was reported by 48 patients (80%) in group 1 and in 14 (23%) in group 2 ( $P < 0.001$ ). A worse quality of life was reported by patients in group 1, among whom moderate to severe bother was noted by 51 (85%) compared with group 2, in which moderate to severe bother was reported by only 13 patients (22%) ( $P < 0.001$ ).

**CONCLUSION:** Ureteral stents are associated with flank pain and lower urinary-tract symptoms. The flank pain was not affected by the length of stent. Urgency and dysuria as well as a worse quality of life were significantly more common in the patients who had longer stents.

**A COST ANALYSIS COMPARISON OF LAPAROSCOPIC RADICAL PROSTATECTOMY VERSUS OPEN RADICAL PROSTATECTOMY: THE MCMASTER INSTITUTE OF UROLOGY EXPERIENCE**

*Al-Shaiji TF, Kanaroglou A, VandenEykel R, Connie Prowse, Orovan W, Piercey K, Whelan PJ, Matsumoto ED*

**OBJECTIVE:** To identify and compare the costs of laparoscopic radical prostatectomy (LRP) and radial retropubic prostatectomy (RRP) at our centre.

**METHODS:** We conducted a retrospective chart review of our first 70 consecutive LRP cases and 70 consecutive RRP cases, between X and X, at St Josephs Healthcare in Hamilton. Cost analysis was performed, including operating room costs, disposable instruments, blood transfusions, analgesic requirements and length of hospital stay. Overall expenses were then analyzed and compared.

**RESULTS:** Pre-operative patient demographics and disease stage were comparable between the LRP and RRP groups. Large discrepancies were found in disposable instrument costs (LRP = \$864.39 vs. RRP = \$212.02), cost of blood transfusions (LRP = \$21.00 vs. RRP = \$394.34), analgesia (LRP = \$12.94 vs. RRP = 41.06), hospital stay bed costs (LRP = \$3690.00 vs. RRP = \$ 5027.14). Overall, cost for all 70 RRP patients was \$3,669.88 less than all 70 LRP patients. This difference represents %0.006 of total costs.

**CONCLUSIONS:** At our institution, RRP costs are only slightly less than those for LRP. Higher operative time and disposable instrument expenses are offset by the shorter hospital stays, fewer blood transfusions, and less analgesic requirements. These numbers would be even more favourable in a more recent sample of patients, after the technical learning curve for LRP has been overcome, and disposable costs have been reduced.