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# UROLOGIC SOCIETY FOR TRANSPLANTATION AND RENAL SURGERY

# 2021 Annual Meeting Abstracts

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# Urologic Society for Transplantation and Renal Surgery 2021 Annual Meeting Abstracts

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## Message from our President

The Urologic Society for Transplantation and Renal Surgery remains committed to advancing the field of urology and transplantation and continues to create a networking environment fostering international research collaboration and the sharing of best practices. I am pleased to report that the USTRS Board of Directors has been busy, with several initiatives to push our society forward as we emerge from the pandemic. Efforts at expanding our global network of transplant professionals by partnering with other transplant societies have been successful, with new collaborations between the USTRS and the EUA Section of Transplantation Urology (ESTU) and the American Society of Transplant Surgeons (ASTS) underway. I am pleased to announce that Dr. Jeff Veale (UCLA, U.S.) will be taking on the role of President of the USTRS at our annual AUA meeting. Dr. Veale has been a valuable and active member of the Board of Directors of the USTRS and I look forward to working with him in the years to come.

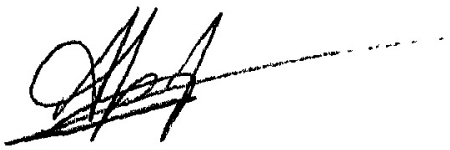
As always, the planning committee has created an exceptional USTRS program for this year, with a program that will follow the AUA Transplant and Vascular Surgery session. Dr. Lloyd Ratner (U.S.) will speak to developments in living donor surgery, commemorating the 25-year anniversary of the first laparoscopic donor nephrectomy. We are also extremely pleased to have Dr. John Barry (U.S.) speak on renal transplant essentials for urologists. Other featured talks include an update on the randomized trial evaluating the use of muscle-pump activators in influencing graft outcomes following kidney transplantation (Dr. Alp Sener, Canada), updates on the voucher program for future kidney transplantation by Dr. Jeffrey Veale (USTRS President-Elect, U.S.), and a primer on novel perioperative transplant immunosuppression by Dr. Anil Kapoor (Canada). We will, of course, have the resident and fellow podium and poster sessions, followed by the Annual Novick Award for best research project/presentation. The USTRS places tremendous value on mentorship of these younger colleagues, and this venue often helps them launch their careers. The USTRS feels it is extremely important to recognize the individuals who submitted abstracts.

The Dr. John Barry Traveling Fellowship fund, which we created last year, continues to grow, with generous donations from our members; I would like to thank you all for your contributions to this important initiative and would urge you to continue to do so. We plan to adjudicate the first award in 2022, so please stay tuned for applications announcements later in the year.

During the past year, we have continued to work on the first USTRS white paper, which will evaluate the impact of urological malignancies on kidney transplantation; this paper is being written in collaboration with experts in the various fields of uro-oncology. We have also continued to grow our relationships with industry sponsors and thank them for their continued support of our educational sessions.

We thank the *Canadian Urological Association Journal*, as well as all our colleagues and industry partners who continue to support the USTRS.

All the very best,



Alp Sener, MD, PhD
President, USTRS

# 2021 Board of Directors

# Virtual meeting schedule

# Thursday, September 2, 2021, 8:00–9:40 pm ET

**Objectives:**

1. Learn about novel strategies to improve graft function
2. Review the history and developments in living donation
3. Review practical solutions to common complications following transplantation
4. Describe novel developments in immunosuppression strategies
5. Understand the mechanisms behind the voucher system for kidney transplantation

| | | |
|---|---|---|
| 8:00-8:05 pm ET | Welcome & Announcements | Alp Sener, MD, PhD (Western University, ON, Canada) |
| 8:05–8:25 pm ET | American Society of Transplant Surgeons Lecture: Over 25 years of laparoscopic donor nephrectomy: A pinnacle development in transplantation | Lloyd E. Ratner, MD (Columbia University, NY, United States) |
| 8:25–8:35 pm ET | The use of a muscle pump activator improves post-renal transplant outcomes: Results from a randomized controlled trial | Alp Sener, MD, PhD (Western University, ON, Canada) |
| 8:35–9:00 pm ET | **Novick Resident Presentations:**<br>1. Tejas M. Mistry, MD: Evaluation of hemostatic role of fibrin sealant on renal vein anastomosis during renal transplant surgery in Indian population: A single-center study<br>2. Yi-Chia Lin, MD: Kidney transplantation from COVID-19-positive donors: 10-case report<br>3. Yi-Chia Lin, MD: Early Recovery After Surgery program in kidney transplantation patients: Comparison of clinical outcomes with conventional care program<br>4. Kathleen Lockhart, MD: The differentiation of benign from malignant solid renal masses with multiparametric MRI: A retrospective study and proposed "de Silva St George classification scheme"<br>5. Hossein Saadat, MD: Early renal graft function after procurement of multiple abdominal organs vs. kidney-only procurement<br>6. Tarek Ajami, MD: Robotic transvaginal assisted living donor kidney transplantation: Technique description of a series of 5 cases | |
| 9:00–9:10 pm ET | Perioperative transplant immunosuppression in 2021 | Anil Kapoor, MD (McMaster University, ON, Canada) |
| 9:10–9:30 pm ET | USTRS Keynote Speaker: Renal transplant essentials for urologists | John M. Barry, MD (Oregon Health & Sciences University, OR, United States) |
| 9:30–9:40 pm ET | Voucher for future transplantation | Jeffrey Veale, MD (Univeristy of California, Los Angeles, CA, United States) |

# Novick podium presentations

## USTRS 2021-NOV-1

### Evaluation of hemostatic role of fibrin sealant on renal vein anastomosis during renal transplant surgery in Indian population: A single-center study

*Tejas M. Mistry, Mrinal Pahwa, Vipin Tyagi*
Sir Ganga Ram Hospital, New Delhi, India

**Introduction:** Intraoperative bleeding is one of the major complications associated with the vascular anastomosis. Measures for its prevention and management include packing and taking additional sutures when necessary. One of the novel measures to prevent its incidence is the application of fibrin sealant over renal vein anastomosis site after completing the suturing. The current study was undertaken to evaluate its hemostatic role on renal vein anastomosis during renal transplant surgery.

**Methods:** A total of 246 renal allograft recipients (aged 18–60 years) who had undergone live, related renal transplant surgery at our center from April 2019 to March 2020 were included in the study. Renal allograft was placed in the right iliac fossa in extraperitoneal space. Renal vein anastomosis was done to the external iliac vein using PTFE sutures in an end-to-side manner. Fibrin sealant, containing fibrinogen amd thrombin as active ingredients, was used during the study. Patients were randomized according to computer-generated random numbers into those in whom fibrin sealant was used (test group, n=98) and those in whom it was not used (control group, n=148). Data regarding age, sex, body mass index, number of vessels, and technical difficulty due to unfavorable pelvic anatomy was recorded for subgroup analysis. Time to hemostasis (T) was measured from removal of venous clamps to complete hemostasis at the site in both the groups (T test & T control). Mean time differences (Td=T control-T test) among index population and among different subgroups were statistically analyzed.

**Results:** Mean time to hemostasis in index population was 8.36 minutes (T test) and 11.07 minutes (T control). Mean time differences (Td) in hemostasis among index cases (2.7 minutes), obese patients (11.7 minutes), those with multiple vessels (6.4 minutes) and unfavorable pelvic anatomy (9.4 minutes) were statistically significant (p<0.0001). There was no case of renal vein thrombosis.

**Conclusions:** Application of fibrin sealant over renal vein anastomosis site following the suturing appears promising for achieving faster hemostasis during renal transplant surgery. Considering cost constraints in developing countries, however, its use in specific population with obesity, multiple vessels, and technical difficulties may prove prudent.

**USTRS 2021-NOV-1. Table 1**

| Types | Number of cases | T test (min) | T control (min) | T d (min) | p |
|---|---|---|---|---|---|
| Index cases | 147 | 8.36 | 11.07 | 2.71 | <0.0001 |
| Multiple vessels | 23 | 11.88 | 18.28 | 6.4 | |
| Complex cases* | 38 | 13.12 | 22.54 | 9.42 | |
| Obese | 23 | 11.25 | 22.93 | 11.68 | |
| Total | 246 | | | | |

*Short vein (<2 cm), right donor kidney, and deep pelvic anatomy/android pelvis.

## USTRS 2021-NOV-2

### Kidney transplantation from COVID-19-positive donors: 10-case report

*Yi-Chia Lin, Hannah Kerr, Mohamed Eltemamy, Venkatesh Krishnamurthi, David Goldfarb, Christine Koval, Emilio Poggio, Alvin Wee*
Glickman Urological and Kidney Institute, Cleveland Clinic, Cleveland, OH, United States

**Introduction:** The corona virus disease (COVID)-19 pandemic has changed surgical practice in many medical fields, including transplantation. Patients who had kidney transplantation were reported to have a worse outcome if they contracted COVID-19. Current practices suggest not to transplant COVID-19-positive recipients. With the increased knowledge of the virus, it may be safe to transplant the kidneys from COVID-19-positive patients who were dying from other causes and not having COVID-19-related symptoms. Herein, we report our early outcomes for the 10 patients who were transplanted with kidneys from asymptomatic COVID-19-positive donors.

**Methods:** From February to April 2021, 10 kidneys from five donors with positive COVID-19 tests were transplanted. All candidates were explained the risks and benefits of the operation and donor condition. Consents were obtained before surgery, clearly indicating the kidneys were from COVID-19-positive donors. Clearance of the infection risk was performed by an infection specialist before transplantation. The course of transplantation was carefully guided by an infection specialist. None of the recipients had active COVID-19 infection.

**Results:** All the donors had positive COVID-19 tests obtained by the nasopharyngeal polymerase chain reaction (PCR) test. Three negative lower respiratory tract COVID-19 test by broncho-alveolar lavage. No donor had COVID-19-related symptoms before the incident and none of them had atypical COVID-19 characteristic chest image. Other organs were transplanted in two of the donors. The median age of the recipients was 39 (24–66) years. Among the recipients, one was pre-emptive and nine were on dialysis. Delayed graft function was observed in one patient and all the graft kidneys were functioning within two weeks postoperatively. No patient required dialysis two weeks after the transplantation. Immediate postoperative complications were noted in one patient with new-onset atrial fibrillation. None of the patients developed COVID-19-related symptoms and postoperative nasopharyngeal swabs were all negative. Two of the patients were re-admitted due to gastrointestinal symptoms. The preoperative induction and postoperative immunosuppressant were given as usual without adjustment. The median serum creatinine four weeks after transplantation was 1.5 (0.7–2.1) mg/dL.

**Conclusions:** Kidney transplantation with organs from asymptomatic COVID-19-positive donors is safe in a short-term setting. None of the recipients demonstrated COVID-19-related infection. No obvious kidney dysfunction was observed postoperatively. Cautious evaluation by an infection specialist before transplanting these organs is mandated. The short-term outcomes are not inferior to the organs from regular donors.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## USTRS 2021-NOV-3

### Early Recovery After Surgery program in kidney transplantation patients: Comparison of clinical outcomes with conventional care program

*Yi-Chia Lin, Mohamed Eltemamy, Venkatesh Krishnamurthi, David Goldfarb, Alvin Wee*
*Kidney Transplantation Center, Cleveland Clinic, Cleveland, OH, United States*

**Introduction:** Early Recovery After Surgery protocols (ERAS) have been adopted in many surgical procedures. Transplant ERAS (T-ERAS) is a peritransplant, multimodal approach aimed at shortening recovery and improving outcomes. T-ERAS has been used at our institution since 2018 and has become the standard of care for kidney transplantation. We aimed to report the difference between T-ERAS and conventional pathway at our institution.

**Methods:** We retrospectively reviewed 817 patients who had kidney transplantation only in our department from 2015–2020. Patients were divided into group 1 from 2015–2017 (n=369) and group 2 from 2018–2020 (n=448).

**Results:** Patients in group 2 were older (56 vs. 53 years, p<0.01) and had less living donation (32.3% vs. 44.6%, p<0.01) than those in group 1. Compared to group 1, patients in group 2 also had a lower rate of delayed graft function (DGF) (8% vs. 16.8%, p<0.01), decreased length of stay (3 vs. 5 days, p<0.01), with a higher creatinine level at discharge (3 vs. 2 mg/dl, p<0.01) but similar creatinine levels (p=0.1) and better graft survival at six months (99.3% vs. 96.5%, p<0.01).

**Conclusions:** The T-ERAS protocol was associated with a lower rate of DGF, decreased length of hospital stay, and better graft survival at six months. The higher creatinine at discharge can be explained by the larger percentage of living donation in group 1, as well as the earlier discharge.

**USTRS 2021-NOV-3. Table 1**

| | Group 1 (n=369) | Group 2 (n=448) | p |
|---|---|---|---|
| Recipient characteristics | | | |
| Age, years | 53 (40–62) | 56 (46–65) | <0.01 |
| Sex, % female | 142 (38.5) | 171 (38.2) | 0.92 |
| Body mass index, kg/m$^2$ | 28.4 (24.3–32.7) | 28.3 (24.2–32.2) | 0.91 |
| Race/ethnicity | | | 0.55 |
| White, % | 254 (68.7) | 317 (70.6) | |
| African American, % | 89 (24.1) | 94 (20.9) | |
| Hispanic | 9 (2.4) | 8 (1.8) | |
| Asian | 5 (1.4) | 12 (2.7) | |
| Middle east | 10 (2.7) | 16 (3.6) | |
| Other | 3 (0.8) | 2 (0.5) | |
| Cause of renal failure | | | 0.07 |
| Diabetes | 77 (20.8) | 121 (27.0) | |
| Glomerulopathy | 74 (20.0) | 82 (18.3) | |
| Hypertension | 57 (15.4) | 79 (17.6) | |
| Re-transplant | 49 (13.2) | 30 (6.7) | |
| PKD | 20 (5.4) | 40 (8.9) | |
| Other | 93 (25.2) | 97 (21.5) | |
| Pre-transplant dialysis | 297 (80.3) | 346 (77.1) | 0.31 |
| Waiting time, months | 15.6 (6.4–36.5) | 13.8 (4.8–38.8) | 0.31 |
| Donor characteristics | | | |
| Live donor | 165 (44.6) | 145 (32.3) | <0.01 |
| Deceased donor | 205 (55.4) | 304 (67.7) | |
| Postoperative outcome | | | |
| First week dialysis | 62 (16.8) | 36 (8.0) | <0.01 |
| Length of stay, days | 5 (4–7) | 3 (2–4) | <0.01 |
| Serum creatinine at discharge, mg/dl | 2.0 (1.3–4.4) | 3.0 (1.7–5.1) | <0.01 |
| Graft status at 6 months, alive | 357 (96.5) | 446 (99.3) | <0.01 |
| Serum creatinine at 6 months, mg/dl | 1.4 (1.1–1.7) | 1.3 (1.1–1.6) | 0.1 |

Continuous variables: median (IQR). Categorical variable: number (%).

## USTRS 2021-NOV-4

### The differentiation of benign from malignant solid renal masses with multiparametric MRI: A retrospective study and proposed "de Silva St George classification scheme"

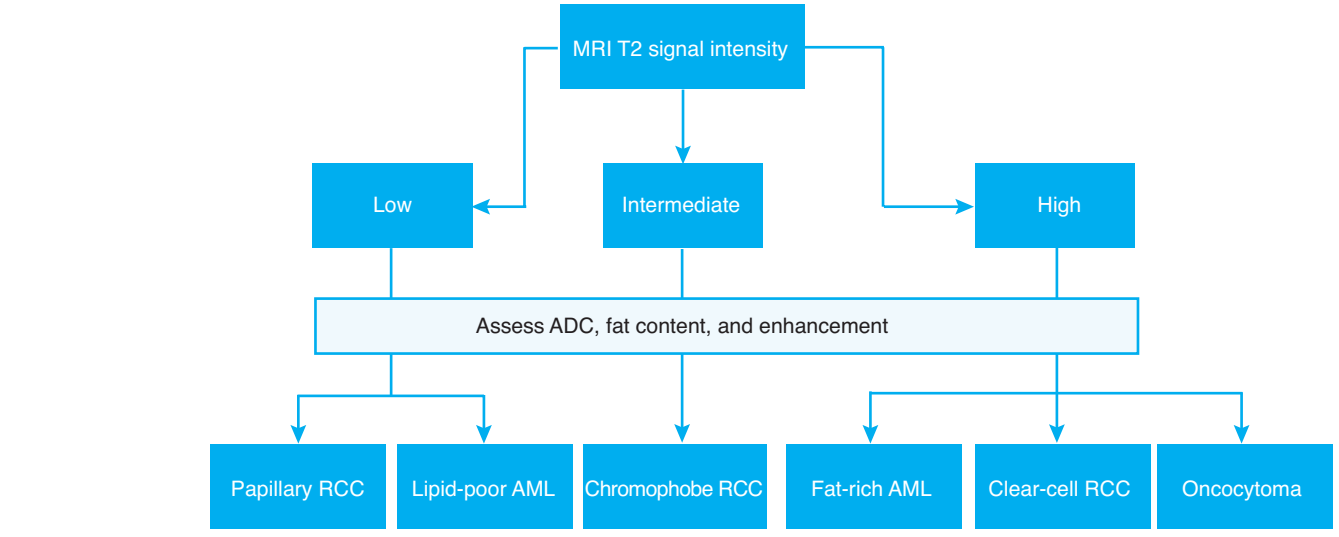
*Suresh De Silva[1,2], Kathleen R Lockhart[3], Peter Aslan[3], Peter Nash[3], Anthony Hutton[1,3], David Malouf[3], Dominic Lee[3], Paul Cozzi[4], Fiona MacLean[5], James Thompson[1,3]*
[1]Faculty of Medicine, University of NSW, Kensington, NSW, Australia; [2]Department of Radiology, I-MED Radiology Network, Australia; [3]Department of Urology, St George Hospital, Kogarah, NSW, Australia; [4]Hurstville Private Hospital, Hurstville, NSW, Australia; [5]Department of Anatomical Pathology, Sonic Healthcare, Ryde, NSW, Australia

**Introduction:** The small incidental renal tumor poses a management dilemma, as many cannot be reliably differentiated on standard imaging. Biopsy and surgical resection is high-risk for some, and up to 33% of lesions excised or biopsied are benign/indolent. Magnetic resonance imaging (MRI) offers a means of improving diagnostic accuracy and preventing unnecessary intervention. This study assessed MRI reliability in evaluating renal masses compared to histopathological diagnosis. Based on these findings, we propose an MRI classification system to assist in diagnosis of renal masses (Fig. 1).

**Methods:** A retrospective analysis included patients who had an MRI as part of their workup for a mass suspicious for renal cell carcinoma on computed tomography (CT) or ultrasound followed by biopsy and/or surgical excision. All cases were conducted on 3-Tesla MRI, with conventional breath-held sequences, diffusion-weighted imaging (DWI), and dynamic contrast-enhanced phases. Tumor regions of interest were evaluated on apparent diffusion coefficient (ADC) maps and compared with T2 weighted and post-contrast images. All MRIs were reported prior to comparison with histopathologic diagnosis and a reporting scheme was developed.

**Results:** A total of 75 patients were included, with 70 cases confirmed on histopathology (five had pathognomonic findings for angiomyolipomas; biopsy was therefore considered unethical, so were included without histopathology). Three patients were excluded due to a non-diagnostic result, non-standardized imaging, or found to be an organizing hematoma rather than a mass. Therefore, 72 cases were included in the analysis. Fifty-two of 72 (72.2%) were deemed "suspicious or malignant" and 20/72 (27.8%) were deemed "benign" on mpMRI. A total of 51/72 (70.8%) patients had renal cell carcinoma confirmed. The sensitivity, negative predictive value, specificity, and positive predictive value for MRI for detecting malignancy were 96.1%, 90%, 85.7%, and 94.2%, respectively.

**Conclusions:** The de Silva St George classification scheme performed well in differentiating solid renal masses and may be useful in predicting the likelihood of malignancy to determine the need for biopsy/excision. Further validation is required before this reporting system could be recommended for clinical use.




| Classic findings | Papillary RCC | Lipid-poor AML | Chromophobe RCC | Fat-rich AML | Clear-cell RCC | Oncocytoma |
|---|---|---|---|---|---|---|
| **ADC*** | Low (0.77, 0.55–0.9) | Low (0.66, 0.66–0.66) | Low-intermediate (1.09, 1.05–1.2) | Low (0.74, 0.48–0.83) | Intermediate (1.43, 0.68–2.46) | High (2.16, 1.47–2.59) |
| **Microscopic fat** | Uncommon | Common | Uncommon–Rare | Common | Common | Rare–Never |
| **Macroscopic fat** | None | None | None | Always | None** | None |
| **Enhancement ratio corticomedullary phase** | Mid | Moderate–Avid | Mild–Moderate | Variable | Avid | Avid |
| **Other** | – | Necrosis rare | – | Necrosis rare | Necrosis common | Necrosis rare, may have scar |

*ADC values obtained from the protocol specified in the methodology section; expressed as a median value and range.
**If calcification and macroscopic fat are both present this is concerning for an RCC.
Each solid renal mass is assessed based on the above properties. It is then classified as either a benign or malignant lesion. Where classification is not possible based on imaging properties, the lesion should be classified as indeterminate and further investigation should be considered, such as biopsy or close interval surveillance imaging.

USTRS 2021-NOV-4. Fig. 1.

## USTRS 2021-NOV-5

### Early renal graft function after procurement of multiple abdominal organs vs. kidney-only procurement

*Seyed Hossein Saadat*[1], *David Massicotte-Azarniouch*[2], *Luke Witherspoon*[1], *Brian D.M. Blew*[1], *Jeff E. Warren*[1]
[1]Division of Urology, Department of Surgery, University of Ottawa, Ottawa, ON, Canada; [2]Division of Nephrology, University of Ottawa, Ottawa, ON, Canada

**Introduction:** Traditionally, during deceased abdominal organ recovery, kidneys are the last organs to be removed. Herein, we address whether the real or perceived longer extraction time post-vascular clamp has an impact on early allograft function.

**Methods:** From 2013–2017, consecutive kidney transplant recipients from deceased organ donors were reviewed. Delayed graft function (DGF) was the primary outcome. Secondary outcomes were rejection and graft loss rate. Deceased kidney donors whose liver and/or pancreas was also recovered were labeled as multi-organ (MO) donors and compared to kidney-only (KO) donors. T-test, Chi-squared, univariable, and multivariable analyses were performed.

**Results:** Data on 238 kidney transplant recipients and 211 respective donors were captured (Table 1). Of these, 32.7% were KO donors, while 67.3% were MO donors. Overall DGF rate was 39.34%. The DGF rate in the MO group was significantly lower than in the KO donors (28.16% vs. 62.31%, p<0.0001). This pattern was also observed in subgroups of donation after circulatory death (DCD) (OR 0.30, 95% CI 0.09–0.97) and neurological determination of death (NDD) (OR 0.52, 95% CI 0.18–1.48). DGF rate in KO-DCD (69.23%) was significantly higher than rates observed in all groups of MO-DCD (40%), SO-NDD (41.18%), and MO-NDD (26.77%) (p<0.0001). Multivariable logistic regression modelling showed that the only factor with a significant negative impact on DGF rate was KO-DCD (OR 5.2, CI 2.40–11.26) (Table 2). MO and KO groups had no significant difference in regard to rejection rate (p=0.25) and graft loss rate (p=0.28).

**Conclusions:** The longer kidney extraction time in MO donors as opposed to KO donors, does not appear to have a negative impact on early renal graft function. We hypothesize that better-quality organs from MO donors could explain better DGF rates to an extent that MO-DCDs could have similar DGF rates as NDD donors. The number of approved organs for donation could be a good predictor of DGF in renal allografts.

**USTRS 2021-NOV-5. Table 1. Demographic data**

| Variables | KO donors | MO donors | p |
|---|---|---|---|
| Donor population | | | |
| Mean age (years) (SD) | 51.78 (14.95) | 47.76 (19.40) | 0.1314 |
| DCD, n (%) | 52 (75.36) | 15 (10.56) | <0.0001 |
| ECD, n (%) | 28 (40.58) | 66 (46.48) | 0.462 |
| Male, n (%) | 52 (75.36) | 78 (54.93) | 0.0043 |
| Obesity, n (%) | 30 (43.48) | 24 (16.90) | <0.0001 |
| Recipient population | | | |
| Mean age (years) (SD) | 57.94 (13.81) | 55.68 (14.05) | 0.2719 |
| Male, n (%) | 45 (65.22) | 87 (61.27) | 0.6500 |
| Obesity, n (%) | 23 (39.66) | 35 (31.25) | 0.3078 |
| First transplant, n (%) | 62 (89.86) | 127 (89.44) | >0.9999 |
| Caucasian, n (%) | 45 (65.22) | 94 (66.20) | 0.8785 |
| DM, n (%) | 22 (31.88) | 44 (31.21) | >0.9999 |
| Listing (days), mean (SD) | 1101 (12.5) | 1187 (13.4) | 0.6575 |
| PRA, mean (SD) | 19.99 (31.75) | 24.72 (36.06) | 0.3539 |
| Ischemia | | | |
| CIT, mean (SD) | 671.7 (238.7) | 674.6 (300) | 0.9460 |
| WIT, mean (SD) | 53.13 (29.48) | 44.35 (18.6) | 0.0117 |

**USTRS 2021-NOV-5. Table 2. Multivariable analysis for DGF**

| Variable | Odds ratio (95% CI) | p |
|---|---|---|
| Donor male vs. female | 1.46 (0.74–2.87) | 0.27 |
| Donor obesity | 1.36 (0.64–2.89) | 0.41 |
| CIT | 1.00 (0.99–1.00) | 0.10 |
| WIT | 1.01 (0.99–1.03) | 0.12 |
| KO-DCD* | 5.20 (2.40–11.26) | <0.0001 |
| MO-DCD* | 1.68 (0.54–5.19) | 0.37 |
| KO-NDD* | 1.75 (0.52–5.88) | 0.36 |

*Vs. MO-NDD.

**Acknowledgement:** Part of data used in this study was received from Trillium Gift of Life Network (2013–2017), Toronto, ON, Canada

## USTRS 2021-NOV-6

### Robotic transvaginal assisted living donor kidney transplantation: Technique description of a series of five cases

*Tarek Ajami, Mireia Musquera, Roger Matheu, Joan Sureda, Lluis Peri, Fritz Diekman, Antonio Alcaraz*
Hospital Clinic de Barcelona, Spain

**Introduction:** Kidney transplantation is the treatment of choice for end-stage renal disease (ESRD) due to its better survival and quality of life in comparison with dialysis. Surgery has evolved over the past years towards minimally invasive techniques to improve cosmetic results and reduce morbidity. To this end, the vagina has been used for organ extraction and insertion. Also, the introduction of robotics has opened the possibility of safe intracorporeal kidney transplantation. The objective of this study is to describe the surgical technique of totally robotic kidney transplantation with transvaginal insertion and to assess its safety and feasibility.

**Methods:** We performed a prospective analysis of the first five cases of robotic kidney transplantation with transvaginal insertion. Robotic-assisted kidney transplantation was performed after transvaginal insertion of a living donor kidney graft. Donor's and recipient's characteristics, intraoperative variables, postoperative complications, and surgical outcomes were assessed.

**Results:** The recipients were females from 30–51 years old. The left iliac fossa was used in two cases. The median operative time was 220 minutes. Mean rewarming ischemia time of 53 minutes. All grafts had immediate diuresis. No intraoperative complications were observed. No postoperative complications were referred related to the transplant or graft insertion method. Mean hospitalization period was nine days, with mean creatinine of 1.5 mg/dl at discharge time.

**Conclusions:** Robotic kidney transplantation with transvaginal insertion is feasible. A greater number of procedures are required to confirm the safety of this new technique.

# Poster presentations

## USTRS 2021-POS-7

### A novel protocol of training urology residents in laparoscopic donor nephrectomy: Effective way of learning with minimal complications

*Tejas M. Mistry, Mrinal Pahwa, Vipin Tyagi*
Sir Ganga Ram Hospital, New Delhi, India

**Introduction:** Laproscopic approach to donor nephrectomy is increasingly becoming the standard of care for the general advantages of laparoscopy and comparable outcomes with respect to transplant success. Laproscopic donor nephrectomy (LDN) is an advanced laproscopic procedure associated with a steep learning curve. In the present study, we evaluated our institute protocol of training residents for LDN.

**Methods:** Three residents underwent training, as per the protocol, for a total of four months divided into two phases of two months each. Residents received hands-on training on 258 LDN. Data was collected regarding age, sex, any comorbidity, radiological anatomy of donors, and any complication occurred. Residents' performance was objectively assessed using modified Objective Structured Assessment of Technical Skills (OSATS) score. Confidence of the residents was measured using a 10-point Likert scale. Statistical analysis was done.

**Results:** The mean difference in complications observed in each resident with respect to phase 1 and 2 was statistically significant (p=0.0270, P=0.0206 and p=0.0153, respectively). The mean improvement in confidence scores of all residents at the end of training was also found to be statistically significant (p=0.0004). Performance of all three residents was above average. There was no incidence of bowel injury or emergency exploration.

**Conclusions:** This novel training protocol is a safe and effective approach to train urology residents in LDN. However, large, multi-institutional studies would be required for its generalized application.

## USTRS 2021-POS-8

### Predictors of perioperative and one-year renal functional outcomes in laparoscopic kidney donors

*Ryan R. Sun, Lourens Jacobs, Angie Liu, Thomas McGregor, Leroy Storsley, Martin Karpinski, Ian Gibson, Rahul Bansal*
Section of Urology, Department of Surgery, University of Manitoba, Winnipeg, MB, Canada

**Introduction:** Ensuring the safety of living kidney donors is paramount, especially as donor criteria are expanded to meet the growing demand of kidney transplantation. In this study, we aimed to assess potential predictors of perioperative outcomes in those undergoing laparoscopic donor nephrectomy (LDN).

**Methods:** This was a retrospective study involving all donors who underwent LDN from 2011–2020 at the Health Sciences Centre in Winnipeg, Canada. Various patient clinical and anatomical factors were compared with operative outcomes, kidney biopsy findings, and post-donation renal function, measured as estimated glomerular filtration rate (eGFR), during the one-year postoperative period.

**Results:** A total of 197 donors were identified. The cohort had a mean age of 47.2 years with 63% female, 33% smokers, 12% obese, and 8% who had hypertension. LDN was well-tolerated regardless of patient clinical and anatomical characteristics. Age >60 years correlated with the presence of chronic histopathological changes on biopsy, corresponded to lower pre- and post-donation renal function ($p<0.01$), and was predictive of eGFR <60 at one year ($p<0.01$). History of hypertension was associated with histopathological changes and significant decline in eGFR at one year (p=0.047). Controlling for histopathological changes, age and hypertension were not independently associated with worse post-donation renal function.

**Conclusions:** Among carefully selected kidney donors, LDN appears to be safe, with excellent perioperative risk profile regardless of age, gender, comorbidities, side of nephrectomy, and number of renal vessels. Advanced age and hypertension are predictive of significantly lower post-donation renal function within one year, likely secondary to baseline histopathological changes in the donor kidney. Donors with known risk factors and adverse implantation biopsy may benefit from close followup and lifestyle counselling to minimize further renal functional deterioration.

**USTRS 2021-POS-7. Table 1.**

| Residents | Resident A | | Resident B | | Resident C | | | |
|---|---|---|---|---|---|---|---|---|
| Complications Phases | 1st Phase | 2nd Phase | 1st Phase | 2nd Phase | 1st Phase | 2nd Phase | Total | % of total cases |
| Loss of correct dissection plane | 16 | 7 | 20 | 10 | 8 | 3 | 64 | 24.81 |
| Breach in mesocolon | 12 | 3 | 17 | 11 | 7 | 1 | 51 | 19.77 |
| Injury to lumbar vein | 4 | 2 | 5 | 2 | 2 | 0 | 15 | 5.81 |
| Bleeding from adrenal gland | 3 | 1 | 2 | 3 | 3 | 2 | 14 | 5.43 |
| Bleeding from hilum | 1 | 4 | 0 | 3 | 3 | 1 | 12 | 4.65 |
| Bowel/spleen injury | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| Emergency open conversion | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| Total | 36 | 17 | 44 | 29 | 23 | 7 | 156 | 60.47 |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## USTRS 2021-POS-9

### Successful trimodal therapy without radical cystectomy for muscle-invasive bladder cancer in a patient with history of kidney-pancreas transplant

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**Introduction:** The risk of urothelial cell carcinoma (UCC) of the bladder is increased in patients with a history of solid organ transplantation. Bladder cancer in early stage (Ta, Tis, and T1 disease) without muscle-invasive disease is treated with transurethral resection of the bladder tumor (TURBT), with or without intravesical chemotherapy. Muscle-invasive bladder cancer (MIBC) requires more aggressive treatment, with the standard approach being radical cystectomy (RC) plus neoadjuvant chemotherapy. For patients unfit or unwilling to undergo RC, or those who desire bladder preservation, trimodal bladder-preservation therapy with maximal TURBT, chemotherapy, and radiation is an alternative option. The objective of this report is to guide treatment therapy for future patients with invasive bladder cancer and history of solid organ transplant.
**Methods:** A retrospective chart review revealed a patient with a 14-year history of combined kidney and pancreatic transplantation who presented with muscle-invasive bladder cancer.
**Results:** A large-volume bladder tumor >10 cm was resected from the patient's bladder via transurethral approach. Initial pathology revealed high-grade T1 UCC, with subsequent identification of muscle-invasive disease on repeat TURBT treated with resection followed by radiation and mitomycin C and 5-fluorouracil. The patient completed the course of treatment with no reported adverse effects. Surveillance bladder biopsy post-treatment revealed no evidence of disease at three years' followup. The patient has maintained adequate renal function and pancreatic graft function without insulin-dependence. He remained on tacrolimus and myfortic for maintenance immunosuppression.
**Conclusions:** Muscle-invasive bladder cancer is relatively uncommon in solid transplant patients. Although, RC with neoadjuvant chemotherapy is the gold standard treatment for MIBC, we present midterm successful oncological results with successful bladder preservation and stable allograft function in a kidney-pancreas patient. Close followup is essential with trimodal therapy.

## USTRS 2021-POS-10

### Ruptured mycotic pseudoaneurysm — a life-threatening complication deceased donor renal transplant: A case report

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**Introduction:** Vascular complications account for 3–15% of all allograft renal transplant complications, and extra-renal pseudoaneurysm caused by fungal arteritis is even rarer. The latter is a life-threatening complication of kidney transplantation that requires emergency graft nephrectomy. Very few cases have been reported in literature. We describe a case of mycotic pseudoaneurysm in a post-transplant patient managed by allograft nephrectomy.
**Methods:** A 38-year-old male post-allograft renal transplant patient presented after two weeks of the procedure with breathlessness, fever, abdominal distension, and oliguria for one day, with features of septic shock and altered blood parameters. Ultrasound (US) and CECT abdomen and pelvis revealed a large, hyperdense collection suggestive of infected hematoma with pooling of contrast at the site of previous anastomosis of transplant kidney. Upon exploration, a disrupted anastomosis between the iliac artery and renal artery was noted, with aneurysmal dilatation of the latter. Graft nephrectomy and iliac vessels repair was done. Tissue culture showed presence of candida tropicalis and histopathological examination confirmed presence of fungal spores and ATN of the graft kidney. Another recipient who received the other kidney from the same deceased donor presented in severe hemorrhagic shock; the patient was resuscitated and evaluated with plain CT, which showed hematoma around the graft and a suspected aneurysmal rupture of the anastomotic site. The patient could not be resuscitated completely and succumbed within a few hours of reporting to the hospital.
**Results:** In the postoperative period, the patient had DIC and developed refractory hypotension secondary to hemorrhage. Patient did not respond well to resuscitation and eventually had a cardiac arrest. As noted, the second patient also could not be resuscitated completely and died even before he was taken for emergency graft nephrectomy. A post-mortem examination was deferred by the patient attenders. The source of infection in both cases was not very clear, but with the advanced screening protocol for donor evaluation used at our institution, true donor-to-host transmission is unlikely; the probability of contamination during graft harvesting, processing, and perfusion was higher. The other possible causes of infection could be longer hospital stay and use of broad-spectrum antibiotics. Infection of the graft by Candida colonized in the bladder, noted in other case series, were ruled out, as the preoperative urine cultures were sterile.
**Conclusions:** Following a transplant, institution-based protocol for thorough evaluation of the donor for transmission of infection, reduced hospital stay, and judicious use of antibiotics are necessary. A routine culture of preservation media must be done for early detection of bacterial and/or fungal contamination, thereby reducing the risk of this complication, which is hard to salvage. Allograft nephrectomy appears to be safe in such cases of pseudoaneurysm; yet the time to diagnosis and intervention plays a crucial role in determining the prognosis. High index of suspicion, early diagnosis, and anti-fungal prophylaxis can provide higher chances of graft preservation in such cases.

## USTRS 2021-POS-11

### Orthotopic kidney transplant: Transplantation beyond the iliac vessels

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**Introduction:** Currently, many end-stage renal disease (ESRD) patients awaiting kidney transplantation have unsuitable iliac vessels due to different reasons. In these cases, orthotopic kidney transplantation (OKT) could be the solution, placing the graft in the lumbar fossa instead of the iliac fossa. This technique was first described in 1978 by Gil-Vernet. The objective of this study is to analyze the results of the largest OKT series (surgical technique, complications, and outcomes).
**Methods:** Between 1987 and 2021, 108 OKT were performed. The indications for OKT since 1987 were stricter compared to ones done from 1978–1987 (surgeon's preference).
**Results:** A total of 108 patients received OKT at our center since 1987; 12% were from living donors and 40% had a previous KT. The main reasons for placing the kidney in the lumbar fossa were severe atheromatosis of iliac vessels (50%), occupied iliac fossa (26%), and venous abnormalities (IVC agenesis, varices, ilio-caval thrombosis) (9%). End-to-end anastomosis to splenic artery was done in 84% of the cases, direct anastomosis to aorta in 5%, and end-to-end anastomosis to renal artery in 10%. The venous anastomosis was mainly done to native left renal vein. Postoperative complications rates were as follows: arterial thrombosis 5%, arterial stenosis 5%, and urinary fistula 11%. Graft survival rates were 86%, 71%, and 68% at one, 10, and 20 years, respectively. Overall survival was 92%, 66%, and 60% at one, 10, and 20 years, respectively.
**Conclusions:** OKT is a good alternative, with acceptable rates of urological and vascular complications for patients in whom heterotopic transplant is not feasible.

## USTRS 2021-POS-12

### A comparative, retrospective, and observational study of onset of graft function and its impact on the outcomes of deceased renal transplantation

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**Introduction:** Deceased donor renal transplantation (DDRT) constitutes less than 5% of the total renal transplants of the approximate 3500 transplants in India per year. Tamil Nadu has an active DDRT program through the Transplant Authority of Tamil Nadu (TRANSTAN), with a donation rate of 0.3 per million population vs. the national rate of only 0.08 per million. The first DDRT at our institution was performed in 1994 and since then, 122 deceased donor transplantations have been performed. We aimed to: 1) analyze the incidence of primary non-graft function, immediate graft function, and delayed graft function; and 2) analyze the impact of onset of graft function on patient and graft survival after DDRT.

**Methods:** We performed a retrospective analysis of all DDRTs from January 1994 to July 2018. All the transplants done during this period were included, which accounted for a total of 122 cases. Data was collected by accessing the old medical records, which were maintained prospectively. The data were analyzed in SPSS 17 software. P-value of $<0.05$ was considered statistically significant. Suitable statistical tests were applied as necessary. Kaplan-Meier analysis was used to evaluate survival rates of graft and recipients at one year and three years.

**Results:** The average donor age was 31.8 years. The most common cause of brain death was motor vehicle accidents. The recipients were aged between 17 and 57 years, with a mean of 34 years; 27 (22.67%) were female. Idiopathic end-stage renal disease (ESRD) was the major etiology for ESRD, followed by chronic glomerulonephritis. Average cold ischemia time was 7.60 hours. Most (71.6%) cases had standard renal anatomy with single renal artery and renal vein. Twenty-eight (23.5%) case kidneys had double renal arteries, five (12.29%) had triple arteries, and one case had double renal vein. Postoperatively, 35 (29.1%) cases had delayed graft function. Twelve (10%) patients developed sepsis, of which nine (7.5%) had chest infections. Two cases of anastomotic dehiscence and one case of graft artery thrombosis occurred, which were managed accordingly. One-year survival rate was 89.33 % and 73% for patient and graft, respectively. Three-year survival rate was 56.4 % and 44% for patient and graft, respectively.

**Conclusions:** DDRT increases the donor pool significantly. Meticulous harvesting, good bench dissection, and planning to reduce cold ischemia time will improve the outcome of DDRT.

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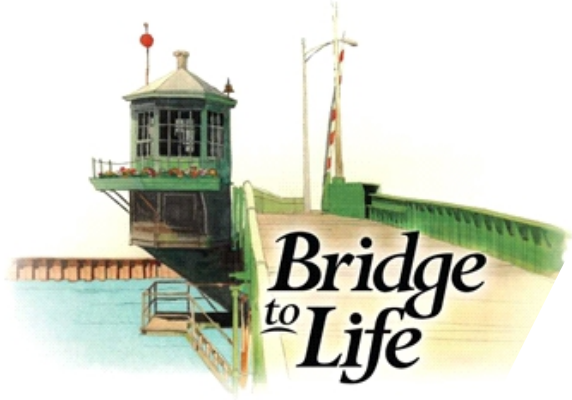


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