Protocol and Data Analysis:
A Prospective Study of Port Site Pain Following Percutaneous Externally-Assembled Laparoscopic Donor Nephrectomy

NCT02805517

May 03, 2016

1. PROTOCOL INFORMATION:
   Title: A Prospective Study of Port Site Pain Following Percutaneous Externally-Assembled Laparoscopic Donor Nephrectomy
   Phase of study: Prospective

2. PRINCIPAL INVESTIGATOR'S INFORMATION:
   PI name: D. Duane Baldwin, MD
   Title: Full-time Professor of Urologic Surgery, Program Director – Endourology Fellowship, Director of Urologic Research
   Name and Address of Research Institution:
   Loma Linda University Medical Center Department of Urology
   11234 Anderson Street
   Loma Linda, CA 92354
   Phone: (909) 558-4196
   Fax: (909) 558-4806
   Email: dbaldwin@llu.edu

3. STUDY PERSONNEL:
   D. Duane Baldwin, Michael DeVera, Phillip Wai, Pedro Baron, Nazih Khater,, Mohamed Keheila, Salim Cheriyan, Jim Shen, Patrick Yang

4. STUDY INFORMATION:
   Location(s) of research activity: Loma Linda University Medical Center
   Expected start/stop dates of research: 5/30/20165 – 5/30/2019
   Special time sensitivities: None
   Type of research: Prospective study

5. INCLUSION/EXCLUSION CRITERIA:
   Inclusion criteria:
   Male or female patients 18 years of age or older
   Patients undergoing donor nephrectomy
   Exclusion criteria:
   Unable or unwilling to participate in percutaneous externally-assembled laparoscopic surgery or postoperative pain evaluation
   SUBJECT RECRUITMENT AND SCREENING:
   Prospective kidney donors matching the inclusion criteria during the study period will be approached by a member of the research team in order to discuss the project.

6. INFORMED CONSENT PROCESS:
   Subjects will be consented by a trained member of the research team either at the time of clinic visit or prior to surgery.

7. BACKGROUND AND AIMS:
   Prior investigators have created methods to perform laparoscopic surgeries using smaller instruments and ports in an attempt to improve cosmesis and postoperative pain. However, these methods may be limited by the requirement for smaller instruments with decreased functionality or by the loss of instrument triangulation. We have previously published a study regarding the use of a new surgical paradigm (percutaneous externally assembled laparoscopy,

or PEAL) in porcine and cadaveric models in order to allow laparoscopic surgery to take place with improved cosmesis and decreased pain while still allowing the use of larger instruments and maintaining instrument triangulation. We now seek to study the use of these instruments in the human laparoscopic donor nephrectomy patient population.

8. STUDY DESIGN:
   This will be a single-arm prospective internally-controlled study. Patients will undergo percutaneous externally-assembled hand-assisted laparoscopic donor nephrectomy where one or more 3 mm instruments are added or substituted for conventional 5 or 10 mm trocars. We expect to enroll 100 patients in total. Multiple outcome measures (endpoints) will be measured including time to first opioid use, total inpatient opioid dosage, patient ranking of painfulness of each port site, duration of ileus, time to ambulation, length of hospital stay, presence of any intraoperative or postoperative complications, operating time, estimated blood loss, and other routine parameters collected in a prospective surgical study.

	Pre-Treatment		Treatment	Follow-Up					End of Study
	Screening	Pre-Op	Procedure	Hour 6	Hour 12	Hour 24	Daily	Discharge	Post Op
			Day 0	Day 1	Day 1	Day 1	Days 2-discharge		Day 30
Informed Consent	x								
Demographics	x			x					
Con Meds, AEs, VS & Procedures	x	x	x	x	x	x	x	x	x
Physical Exam		x		x					
Pain Assessment	x		x	x	x	x	x		
Pain Survey	x		x	x	x	x	x		
Urologic Surgical Procedure			x						
Study Drug Admin			x						
CBC		x	←----------	----------	----------	----------	----------	----------	----------
Basic Metabolic Panel		x	←----------	----------	----------	----------	----------	----------	----------
LFT		x	←----------	----------	----------	----------	----------	----------	----------
Bleeding Profile		x	←----------	----------	----------	----------	----------	----------	----------

9. DATA COLLECTION:
   Data will be collected from Epic and also by surveys administered by trained members of the research team.

10. LABELING AND STORAGE OF DATA AND SPECIMENS:
    Electronic data will be maintained in a Microsoft Excel database stored on a secure LLUMC server. Surveys will be stored in a locked cabinet in a locked office in the Department of Urology at LLUMC. Data will be de-identified prior to submission to a statistician for statistical analysis.

11. DATA ANALYSIS:
    Patients will rate the pain scores at their various port sites using validated questionnaires administered on the morning of surgery (before surgery takes place), as well as on the morning of each postoperative day. The outcome measures measured previously will be tracked.

12. RISK AND INJURY:
    Risks are similar to that of standard hand-assisted laparoscopic donor nephrectomy including but not limited to bleeding, pain, infection, damage to nearby structures, need for further surgeries/treatments, bowel injury, renal insufficiency, blood clot, stroke, heart attack, and death. There is a potentially a minimal amount of increased risk due to the placement of 1-2 additional 3 mm instruments during this surgery. However, the use of additional ports may simplify the procedure and actually make the procedure safer for the patient particularly if the procedure is technically more complicated. Alternatively substitution of a 3 mm port for a 5 or 10 mm port may make the procedure less painful and less invasive for the patient. Patients will be examined multiple times daily by physicians, nurses, and other ancillary staff while staying in the hospital postoperatively. They will undergo routine inpatient and outpatient postoperative care that is within the standard of care given to all laparoscopic living donor nephrectomy patients including careful monitoring for postoperative complications. Complications will be graded using Clavien –dindo grading system

Table I. Classification of surgical complications (Clavien-Dindo)

Grade	*Definition*
Grade I	Any deviation from the normal postoperative course without the need for pharmacological treatment or surgical, endoscopic and radiological interventions. Allowed therapeutic regimens are: Drugs as antiemetics, antipyretics, analgesics, diuretics and electrolytes, and physiotherapy. This grade also includes wound infections opened at the bedside
Grade II	Requiring pharmacological treatment with drugs other than such allowed for grade I complications. Blood transfusions and total parenteral nutrition are also included
Grade III	Requiring surgical, endoscopic or radiological intervention
Grade IIIA	Intervention not under general anesthesia
Grade IIIB	Intervention under general anesthesia
Grade IV	Life-threatening complication (including CNS complications)* requiring intermediate care/ICU-management
Grade IVA	Single organ dysfunction (including dialysis)
Grade IVB	Multi organ dysfunction
Grade V	Death

*Including brain hemorrhage, ischemic stroke, subarrachnoidal bleeding, but excluding transient ischemic attacks.

13. BENEFIT(S):
    The use of these instruments is expected to improve instrument triangulation during surgery, potentially reducing the risk of intraoperative complications and reducing operative time and/or blood loss. As stated above, the use of additional ports may simplify the surgery. For patients in whom smaller 3 mm ports can be substituted for conventional 5 or 10 mm ports, the surgery may be less painful and invasive. The goal of this study is to ascertain if the use of these additional instruments results in more postoperative pain.

14. COMPENSATION:
    Subjects will receive no compensation.

15. CONFIDENTIALITY:

Subject information will be stored on secure servers and in secure locked locations at LLUMC. Identifying information will be removed from the database prior to data analysis.

16. LITERATURE REVIEW:

Anderson KM, Alsyouf M, Richards G, Agarwal G, Heldt JP, Schlaifer AE, Baldwin DD. Hybrid transureteral nephrectomy in a survival porcine model. JSLS. 2014 Oct-Dec;18(4). pii: e2014.00144. doi: 10.4293/JSLS.2014.00144.

Arenas JL, Alsyouf M, Jang M, Myklak K, Faaborg D, Khater N, Baldwin DD. Percutaneous externally assembled laparoscopic instruments: creation of a new surgical paradigm. J Endourol. 2016 Feb 9. [Epub ahead of print].

Chang J, Boules M, Rodriguez J, Kroh M. Minilaparoscopy with Interchangeable, Full 5-mm End Effectors: First Human Use of a New Minimally Invasive Operating Platform. J Laparoendosc Adv Surg Tech A. 2015 Nov 30. [Epub ahead of print]

Greco F, Hoda MR, Alcaraz A, Bachmann A, Hakenberg OW, Fornara P. Laparoscopic living-donor nephrectomy: analysis of the existing literature. Eur Urol. 2010 Oct;58(4):498-509. doi: 10.1016/j.eururo.2010.04.003. Epub 2010 Apr 18.