Starting a living donor kidney transplant program using a variety of Laparoscopic(Endoscopic) donor nephrectomy techniques

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Conflict of interest

I declare I have no conflict of interest

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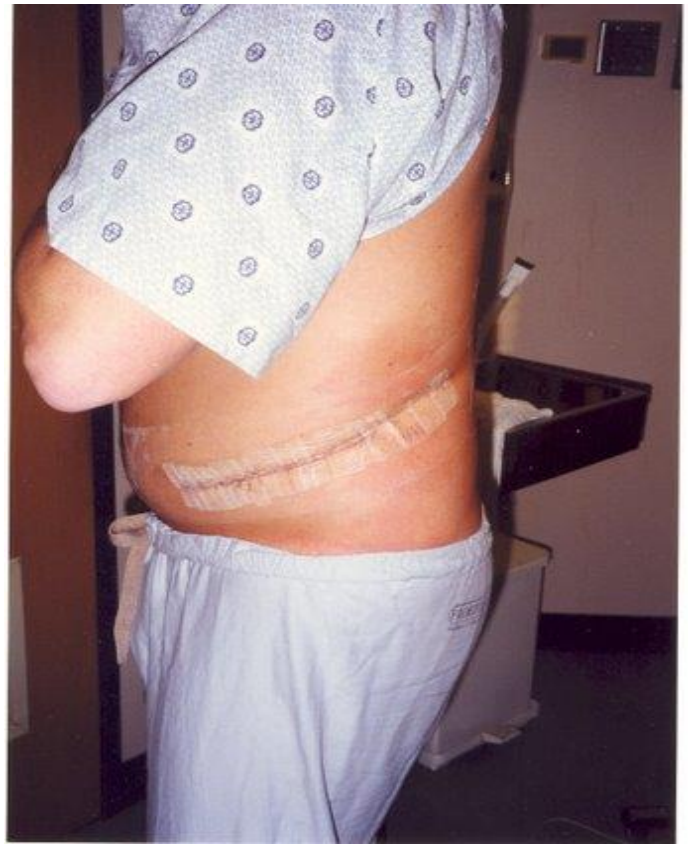
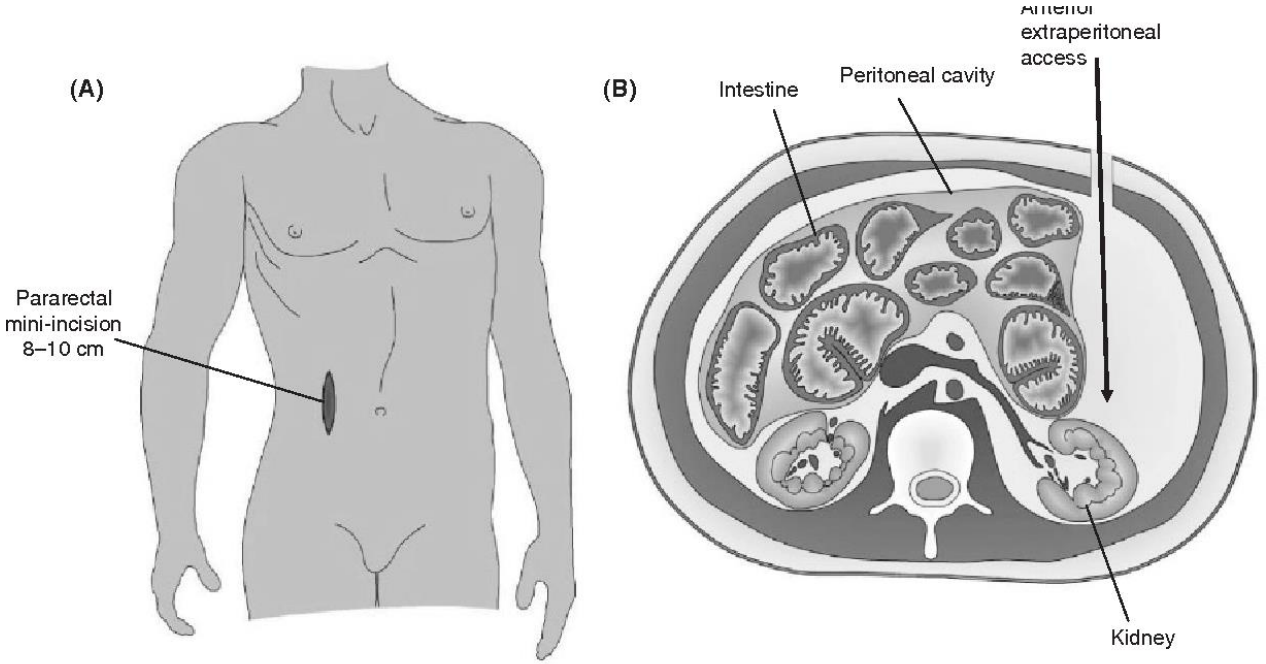
Starting a program with open nephrectomy !!!



Open Surgery; Mini incision Subcostal/Anterior Paramedian



Laparoscopic donor naphrectomy Ratner LE. Transplantation **1995**
Retroperitoneoscopic donor nephrectomy Yang SC.TransplantantProc **1994**
Laparoscopic hand assisted donor nephrectomy Wolf JS. Urol; **1998**
Robotic donor nephrectomy Horgan S**.** Am J Surg **2004**
Retroperitoneoscopic hand assisted donor nephrectomy Wadstrom J. Transplantation **2005**


Doner safety
Short hospital stay
Less blood loss
Which Nephrectomy technique to start
for live donor program ?
Cosmetic gain
Quick recovery
esot.org
ESOT
LIDO
MASTERCLASS

All techniques have similar outcome!!

Review

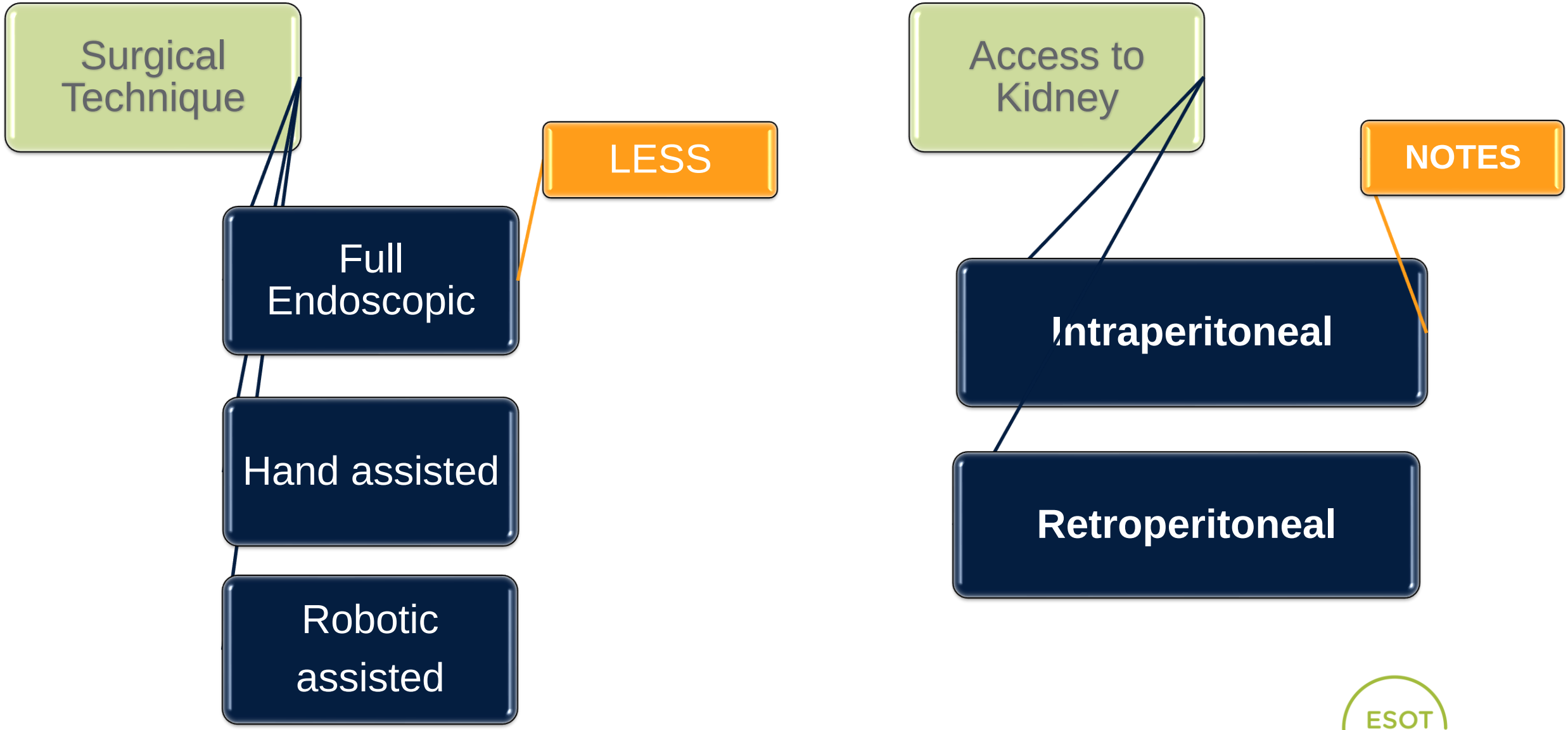
Perioperative Events and Complications in Minimally Invasive Live Donor Nephrectomy: A Systematic Review and Meta-Analysis

Kirsten Kortram, MD,[1] Jan N.M. Ijzermans, MD, PhD,[1] and Frank J.M.F. Dor, MD, PhD[1]

Background. Minimally invasive live donor nephrectomy has become a fully implemented and accepted procedure. Donors have to be well educated about all risks and details during the informed consent process. For this to be successful, more information regarding short-term outcome is necessary. **Methods.** A literature search was performed; all studies discussing short-term complications after minimally invasive live donor nephrectomy were included. Outcomes evaluated were intraoperative and postoperative complications, conversions, operative and warm ischemia times, blood loss, length of hospital stay, pain score, convalescence, quality of life, and costs. **Results.** One hundred ninety articles were included in the systematic review, 41 in the meta-analysis. Conversion rate was 1.1%. Intraoperative complication rate was 2.3%, mainly bleeding (1.5%). Postoperative complications occurred in 7.3% of donors, including infectious complications (2.6%), of which mainly wound infection (1.6%) and bleeding (1.0%). Reported mortality rate was 0.01%. All minimally invasive techniques were comparable with regard to complication or conversion rate. **Conclusions.** The used techniques for minimally invasive live donor nephrectomy are safe and associated with low complication rates and minimal risk of mortality. These data may be helpful to develop a standardized, donor-tailored informed consent procedure for live donor nephrectomy.

(*Transplantation* 2016;00: 00–00)

Surgical techniques for living donor nephrectomy



LESS: Laparoendoscopic Single Site Surgery
NOTES: Natural Orifice Transluminal Endoscopic Surgery

Which access is better ?

Intraperitoneal

People are more used to
Cosmetic outcome (Less, Notes)
Broad surgical field

Prevention of Intraabdominal Complications:

- Intraabdominal organ injuries (Spleen, liver …)
- Avoiding use of liver retractors for right donor nephrectomy
- Intraabdominal adhesions, intestinal obstruction, internal herniation
- Pelvic adhesions possible risk for infertility

Retroperitoneal

Prevention of intraabdominal complications
Direct access to hilum and ureter
Advantage for right donor nephrectomy

Questions for decision making!!

Are you well skilled in full endoscopic procedures?

Have done several laparoscopic surgeries and satisfied to deal with complications

- So many centers started this way, good data and experience for you on the way.
- Can use some new technology for improving standarts,(3D camera, articulating staplers..)
  - Should switch to open if not used to hand assistance
  - Requires more skill to perform retroperitoneally, so should go intraperitoneal

Do you have Access to Robotic system?

Do you have reimbursment to apply robotic system for everyone

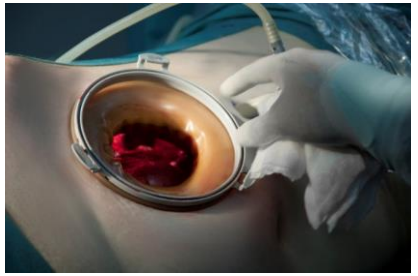
- Even safer compared to standart camera system
- The stream is going towards new technologies
  - Can be challange to effort new fancy equipment
  - You are not sterile at the top of patient so may require good hand sitting near the patient

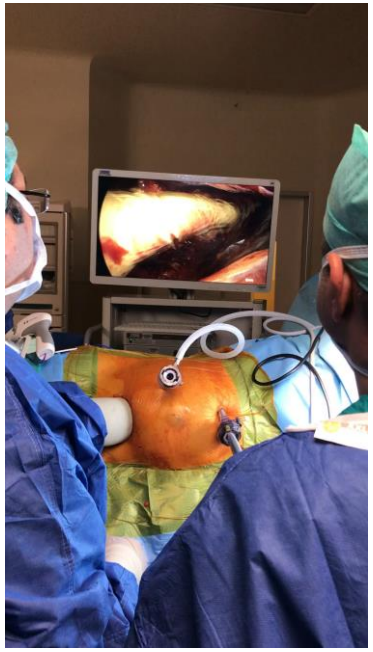
What if you have avarage skills in laparoscopy? Semi – endoscopic technique …

- Emergency friendly (Just put your finger on bleeding)
- Tactile sensation is a good advantage
- Shorter operative and warm ischemic times
  - More stress at hand port site and wound complications
  - You can’t improve your full laparoscopic skills
    - Advantage to perform hand dissection
    - Orientation with a hand inside is diffrent than using sticks

Story of a little Tx Surgeon

- Not the most skilful surgeon
- Not confident in laparoscopic procedures
- Lucky to have enough experience for confidence in hand assisted laparoscopic donor nephrectomy(n=264) (fellowship, Ohio State University)
- Started HAL DN, 2004…. More than 100 cases… Succesful… Adopted HAL as donor nephrectomy technique
- Post operative Hernia repair to a Donor after HAL…. Significant intraabdominal adhesions
- Knowing about a surgeon doing Retroperitoneal approach.. Jonas Wadstrom
- A new admission of a donor with gastric surgery before.. Already had abdominal distension.. First Harp Case
- Eventually one of the most outnumbered series in HARP(>400)
- Confidence in finding the best technique for donor nephrectomy





Minimal changes from HAL techniques during switch to HARP

- Midline intraabdominal incision to paramedian retroperitoneal Access
- Hand dissection of retroperitoneal space before introducing trocars

Questions in mind

What if peritoneum opens? Small whole, big tears…
How will I find the Gerotas fascia and kidney
Is it easy to work in a small operating field? Especially challenging cases. Multipl arteries ….
How can I do the right side?
Any risk for lymphocele?
Referred pain, dissection of diaphragmatic peritoneum
I can't check intraabdominal compartment

The benifit: hand assisted retroperitoneoscopic donor nephrectomy

- Comfortable to perform right sided donor nephrectomy
  - More liberal use of right kidneys
- Safety for the donor
  - Avoiding intraabdominal complications,
  - Always better kidney for the donor
- Safety for the recipient
  - More single artery kidneys,
- Easier to learn and safer to practice for the fellows

Right Kidneys ???

Transplant International

ORIGINAL ARTICLE

Hand-assisted retroperitoneoscopic donor nephrectomy offers more liberal use of right kidneys: lessons learned from 565 cases – a retrospective single-center study

Emin Baris Akin[1], Ilhami Soykan Barlas[1] & Murat Dayangac[2]

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ABSTRACT

The introduction of laparoscopic donor nephrectomy caused a shift toward, left donor nephrectomy. Some centers report a significantly low rate of endoscopic right donor nephrectomy. Hand-assisted retroperitoneoscopic donor nephrectomy (HARP-DN) was introduced as a novel surgical technique, which aims to avoid intra-abdominal complications. It was also reported to provide technical advantages for right-sided DN. In this retrospective single-center study, we evaluated the impact of HARP-DN technique on utilization of right-sided DNs. After the implementation of HARP-DN on February 2009, a total of 565 DNs were performed until December 2015. The introduction of HARP-DN technique resulted in an immediate increase in the utilization of right kidneys from 6.1% to an average of 19.6% annually. The donors 'outcome was similar to the left-sided and right-sided DN groups, excluding the increased incidence of incisional hernias in left kidney donors. None of the donors developed intra-abdominal complications. In conclusion, the implementation of HARP technique significantly increased the use of right-sided DNs, which enables a more liberal use of donors in LDKT.

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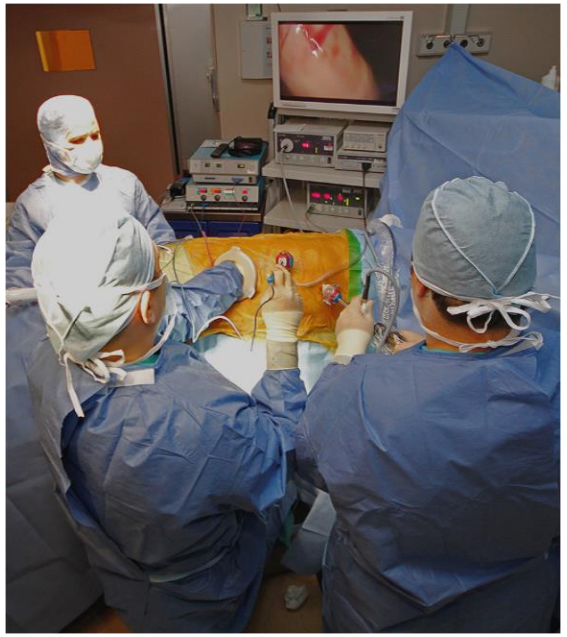
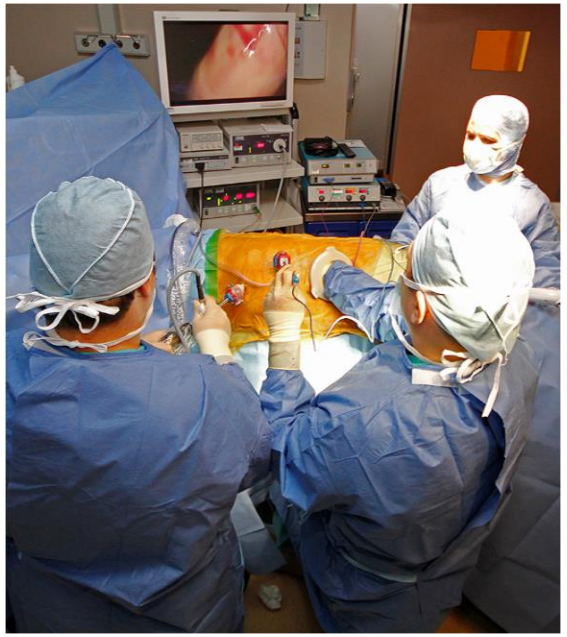


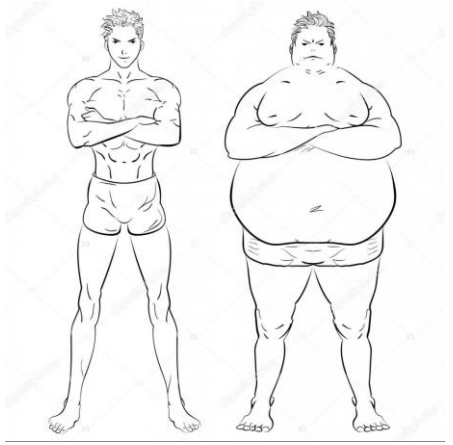


Right and Left HARP procedure is just the reciprocal

New Concept:

Selective nephrectomy technique for the donor

Improving your surgical skills by performing different nephrectomy techniques



Need of revision in surgical technique «Robotic technique vs Laparoscopy»

Easier compared to laparoscopy
Advanced surgical technique
Started Robotic Laparoscopic Donor Nephrectomy

Magnified 3D HD Vision

Highly-magnified 3D HD Vision ensures that surgeons can see the surgical true depth perception and crystal-clear vision.

EndoWrist Instrumentation & Intuitive Motion

Wristed instruments bend and rotate far beyond the human hand. Tremor fil and Intuitive® Motion technologies allow the surgeon to operate with steady motion.

Enhanced Ergonomics

Whether it is the first or last case of the day, the ergonomically-adjustable su console makes performing surgery with the da Vinci Surgical System feel co and natural.

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September 15 - 18, 2019
Copenhagen, Denmark

ROBOT ASSISTED RETROPERITONEOSCOPIC DONOR NEPHRECTOMY: INTRODUCTORY CASES OF A TECHNIQUE OFFERING BETTER SAFETY
Introduction to Video

Abstract Body

With our experience of more than 800 cases, we adopted hand assisted retroperitoneoscopic donor nephrectomy (RPDN) in order to avoid intrabdominal complications. We introduced robot assisted laparoscopic donor nephrectomy (RALDN) recently with the aim of preventing hand assistance, especially in low BMI donors. Our experience in retroperitoneal access combined with improved ability to operate in tight spaces with robotic assistance allowed us to perform retroperitoneoscopic access, after experience with 12 cases with RALDN. We present our initial three consequitive cases with robotic assisted retroperitoneoscopic donor nephrectomy (RARPDN). To our knowledge, RARPDN was not mentioned in the literature before. We performed two successful left sided and one right sided donor nephrectomies within October and December 2018. The follow up period was three months. There was one male, two female donors with ages 63,56,and 28 years, respectively. After placing the patient in lateral decubitus position, a 7 cm. Pfannenstiel incision was performed for dissection of retroperitoneal space as well as for introducing 12 mm Robotic Camera trocar at 3 cm. lateral from the umbilicus followed by two additional 8 mm trocars for robotic arms (Maryland and Hook Cautery). We used an extra 12 mm assistant trocar through the hand port. Then, the robotic cart was docked. The kidney was extracted through the Pfannenstiel incision. Skin incision to kidney removal times(T) were 198,168,and 157 minutes and surgical console T were 165,110,and 145 minutes. The warm ischemia T were 178, 182, and 264 seconds. The donors had no complications and the mean hospitalization was 3,7 days. The recipients had immediate kidney function with mean creatinine of 1,2 mg/dl at the end of the third month.

We introduced non-HARPDN technique by switching to RALDN, followed by RARPDN. RARPDN may offer increased safety

Switched to
Robotic Retroperitoneoscopicopic Donor Nephrectomy

- Previous experience, robot efficiency in small surgical field
- Better results.. Retroperitoneal Robotic as alternative

Take back to home notes from story

Retroperitoneoscopy can work

- Hand assistance, robot…
- Avoids intraabdominal complications
- VS no definite data proving benifit

Donor Nephrectomy will never have a single accurate technique

- Changing technology
- Changing conditions in work environment
- Changing experience

Learn in LIDO Course

- Explore your skills
- Meet the experts

Conclusion

Initiate a minimal invasive donor nephrectomy techniques at your program according to your surgical experience and safety

Laporoscopic Donor Nephrectomy is the most preferred alternative all around the World.

Robotic assisted Surgery can enable even more comfort

If you do not have satisfaction for full endoscopic, hand assisted techniques is a safer alternative.

Even if you are well experienced in full laparoscopic procedure, try to learn hand assisted as well in order to switch in challenging cases rather than switching to open Surgery

Retroperitoneal Access may offer better safety by avoiding intraabdominal complications and may be easier to perform right donor nephrectomies by this approach

Try to learn other techniques. This will improve your skills for challanging and complicated cases.


EDUCATION
COMMITTEE
ESOT
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Thank you