



Review

Should hand-assisted retroperitoneoscopic nephrectomy replace the standard laparoscopic technique for living donor nephrectomy? A meta-analysis



Ahmed Elmaraezy^{a, b, c}, Abdelrahman Ibrahim Abushouk^{a, c, d, *}, Moaz Kamel^{a, b},
Ahmed Negida^{a, e, f}, Omar Naser^g

^a Medical Research Group of Egypt, Cairo, Egypt

^b Faculty of Medicine, Al-Azhar University, Cairo, 11884, Egypt

^c NovaMed Medical Research Association, Cairo, Egypt

^d Faculty of Medicine, Ain Shams University, Cairo, 11566, Egypt

^e Faculty of Medicine, Zagazig University, El-Sharkia, Egypt

^f Student Research Unit, Zagazig University, El-Sharkia, Egypt

^g Urological Surgery Department, West Wales General Hospital, UK

HIGHLIGHTS

- We compared hand assisted retroperitoneoscopic (HARP) and traditional laparoscopic approaches for living donor nephrectomy.
- Pooling data of 7 clinical trials showed that HARP was associated with shorter operative and warm ischemia times than TLS.
- Intraoperative complications on Clavien-Dindo score were comparable between the two techniques.

ARTICLE INFO

Article history:

Received 3 November 2016

Received in revised form

12 February 2017

Accepted 14 February 2017

Available online 17 February 2017

Keywords:

Laparoscopy

Kidney transplantation

Living donor

Nephrectomy

ABSTRACT

Objective: We performed this meta-analysis to compare hand-assisted retroperitoneoscopic (HARP) and traditional laparoscopic (TLS) techniques for living donor nephrectomy.

Methods: We searched PubMed, Cochrane Central, EMBASE, and Web of science for prospective studies, comparing HARP and TLS techniques. Data were extracted from eligible studies and pooled as risk ratios (RR) or standardized mean difference (SMD), using RevMan software (version 5.3 for windows). We performed a sensitivity analysis to test the robustness of our evidence and a subgroup analysis to stratify intraoperative complications on Clavien-Dindo score.

Results: Seven studies (498 patients) were included in the final analysis. HARP was superior to TLS in terms of shortening the operative duration (SMD = -0.84 , 95% CI [-1.18 to -0.50]) and warm ischemia time (SMD = -0.93 , 95% CI [-1.13 to -0.72]). There was no significant difference between HARP and TLS in terms of blood loss (SMD = 0.13 , 95% CI [-0.50 to 0.76]), hospital stay (SMD = -0.27 , 95% CI [-0.70 to 0.15]) or graft survival (RR = 0.97 , 95% CI [0.92 to 1.02]). The overall risk ratio of intraoperative complications did not differ significantly between the two groups (RR = 0.62 , 95% CI [0.31 to 1.21]).

Conclusion: Our meta-analysis shows that HARP was associated with a shorter surgery duration and less warm ischemia time than TLS. However, no significant differences were found between the two groups in terms of graft survival or intraoperative complication rates. We recommend HARP over TLS for living donor nephrectomy; however, future studies with larger sample sizes are recommended to compare both techniques in terms of operative safety and quality of life outcomes.

© 2017 IJS Publishing Group Ltd. Published by Elsevier Ltd. All rights reserved.

Abbreviations: HARP, Hand-Assisted Retroperitoneoscopic nephrectomy; LDN, Living donor nephrectomy; TLS, Traditional Laparoscopic Technique; WIT, Warm Ischemia Time.

* Corresponding author. Faculty of Medicine, Ain Shams University, Cairo, 11566, Egypt,

E-mail address: Abdelrahman.abushouk@med.asu.edu.eg (A.I. Abushouk).

<http://dx.doi.org/10.1016/j.ijssu.2017.02.018>

1743-9191/© 2017 IJS Publishing Group Ltd. Published by Elsevier Ltd. All rights reserved.

1. Introduction

Live kidney donation is an effective method to reduce shortage of available organs for patients with end stage renal disease [1]. The donor's safety is a primary concern in this procedure; therefore, the surgical approach must be optimized to eliminate possible complications and ensure an optimal quality of life for the donor [2,3].

In 1995, the first report describing minimally invasive living donor nephrectomy (LDN) was published by Lloyd Ratner and Louis Kavoussi [4]. Owing to the significant reduction of surgical trauma, length of hospital stay and convalescence time, laparoscopic nephrectomy is currently the standard method for harvesting the transplanted organ [5]. However, managing the possible vascular and visceral injuries is difficult with instruments alone [6]. Moreover, the transperitoneal route increases the risk of these injuries during introduction and handling of laparoscopic instruments [7]. Several technical modifications were introduced including: introduction of hand assistance, retroperitoneoscopic access, natural orifice (NOTES), and laparoscopic single site approaches [8]. In parallel to the refinements of surgical techniques, operative equipment were supplemented with non-cutting trocars, high-definition imaging, improved hand ports, and better hemostatic devices that are superior to conventional diathermy devices, commonly used in open surgery [9].

The hand-assisted retroperitoneoscopic (HARP) approach was introduced in 2001 to facilitate the operation and combine the safety benefits of hand assistance and retroperitoneal approach [2,5]. In this technique, the surgeon uses his hand to create a retroperitoneal operative space which is later insufflated with gas [1]. Several transplantation centers reported that the introduction of HARP allowed a more efficient dissection because the multimodality of using hands and instruments increases technical abilities, shortens operative duration and warm ischemia time, and allows the surgeon to feel tissue consistency, maintaining the advantages of open surgery [10]. In terms of safety, introduction of hand assistance allows mechanical control of bleeding and kidney retrieval without an endobag [11–13]. Moreover, the retroperitoneal access minimizes internal organ mobilization and injury which may result in life-threatening complications [1].

Clinical trials have compared modified laparoscopic techniques with the traditional laparoscopic one to define the optimal surgical approach for LDN [1,2,5]. In this meta-analysis, we aimed to synthesize evidence from published clinical studies that compared hand-assisted retroperitoneoscopic and traditional laparoscopic approaches in terms of surgical safety, hospital stay and viability of the transplanted organ.

2. Methods

We followed the PRISMA statement guidelines during the preparation of this manuscript. We performed all steps in a strict accordance to the Cochrane handbook of systematic reviews of intervention 5.1.0 [14].

2.1. Literature search strategy

We searched PubMed, Cochrane Central, EMBASE, and Web of science through July 2016 for prospective studies that compared both surgical approaches using relevant keywords (Hand-assisted retroperitoneoscopic AND laparoscopic AND nephrectomy). No restrictions by language or publication time were employed. We manually scanned the reference list of retrieved studies for any missing records that are relevant to our objective.

2.2. Eligibility criteria and study selection

We included studies with the following criteria:

- Population: Healthy individuals applying for LDN.
- Intervention: Hand-assisted retroperitoneoscopic nephrectomy.
- Comparator: Traditional laparoscopic technique.
- Outcome: At least one of the following outcomes must have been reported in the included study (surgery duration, warm ischemia time (WIT), amount of blood loss, length of hospital stay, graft survival, and incidence of intraoperative complications).
- Study design: Prospective studies comparing hand-assisted retroperitoneoscopic nephrectomy versus standard laparoscopic technique for LDN.

Studies that did not match these criteria were excluded from the analysis. Two reviewers screened the search results for eligibility through two subsequent steps: 1) Abstract screening for studies matching the inclusion criteria; and 2) Full text articles of eligible abstracts were retrieved and screened for eligibility to meta-analysis.

2.3. Data extraction

Two independent authors extracted the relevant data from included studies, using a standard data extraction table including the following: 1) characters of study design; 2) characters of study participants; 3) study outcomes: surgery duration [skin to skin time: defined as the time from initiating the skin incision to placement of the last suture], warm ischemia time [defined as the time from renal artery occlusion to flushing the kidney with University of Wisconsin (UW) solution on the back table], amount of blood loss, length of hospital stay, graft survival, and the incidence of intraoperative complications.

Dichotomous data for intraoperative complications were classified into four subgroups, representing the four grades of the Clavien-Dindo score. Grade 1 defines surgical events that may heal spontaneously or require a simple bedside procedure, while grade 2 defines potentially life threatening events that require an intervention, but will not lead to a residual disability if managed properly. Grade 2 events are classified into grade 2a (require medical treatment only), 2b (require an additional surgical intervention), and 2c (require conversion from laparoscopic nephrectomy to open nephrectomy). Grade 3 describes complications with residual disabilities and grade 4 represents patient death or renal failure [15]. Disagreements were resolved by consensus to reach a final conclusion. In case of continuous data provided as median and range, we calculated the mean and the standard deviation according to the equations of Hozo and colleagues [16].

2.4. Risk of bias assessment

Two authors independently assessed the risk of bias within each included study in accordance with the Cochrane handbook of systematic reviews of interventions 5.1.0 (updated March 2011) [14].

To assess the risk of bias across included studies, we compared the reported outcomes between included studies to exclude selective outcome reporting. Due to the small number of included studies, publication bias could not be assessed using the Begg's funnel-plot-based methods or Egger's regression test [17,18].

2.5. Data synthesis

Changes in surgical and hospital stay durations, WIT, and blood

Download English Version:

<https://daneshyari.com/en/article/5732267>

Download Persian Version:

<https://daneshyari.com/article/5732267>

[Daneshyari.com](https://daneshyari.com)