

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.e-asianjournalsurgery.com

ORIGINAL ARTICLE

Long-term outcome of robotic partial nephrectomy for renal angiomyolipoma

Chia-Yen Lin ^{a,b}, Cheng-Kuang Yang ^a, Yen-Chuan Ou ^{a,*},
Kun-Yuan Chiu ^a, Chen-Li Cheng ^a, Hao-Chung Ho ^a,
Shian-Shiang Wang ^a, Chuan-Shu Chen ^a, Jian-Ri Li ^a

^a Division of Urology, Department of Surgery, Taichung Veterans General Hospital, Taichung, Taiwan

^b Division of Surgical Critical Care, Department of Critical Care Medicine, Taichung Veterans General Hospital, Taichung, Taiwan

Received 25 August 2016; received in revised form 17 October 2016; accepted 8 November 2016

KEYWORDS

angiomyolipoma;
da Vinci;
kidney;
partial nephrectomy;
robot

Summary *Background/Objective:* To present the long-term result and efficacy of robotic partial nephrectomy (RPN) for renal angiomyolipomas (AMLs) with perioperative outcome and renal function preservation.

Methods: From September 2006 to October 2014, the database of a single medical center was reviewed and patients who underwent RPN for AMLs were enrolled. The patient demographics, perioperative complications, and postoperative outcomes were analyzed.

Results: We identified 23 patients who were treated with RPN for renal AMLs. The average age was 52.7 (\pm 9.9) years, and 20 (87%) patients were female. The median size of the resected AML was 5.2 [interquartile range (IQR) = 3.1–6.8] cm. The median estimated blood loss was 100 (IQR = 50–225) mL, and three (13%) patients required blood transfusion. Perioperative complications occurred in six (26%) patients and none of them are higher than Clavien Grade II. The median estimated glomerular filtration rate at 3-month and the latest follow-ups were 103 (IQR = 85.5–112) mL/min/1.73m² and 104 (IQR = 90–112) mL/min/1.73m², respectively, with a median of 89.6% (IQR = 84.2–100) and 86.9% (IQR = 81.3–97.8) preservation, respectively. The median follow-up period was 40 (IQR = 30.5–61.5) months. None of the patients developed complications requiring a second intervention or local recurrence of AML.

Conclusion: A long-term follow-up of RPN for renal AMLs revealed good preservation of renal function with a low complication rate. It may be considered as a reliable method to manage renal AMLs.

Copyright © 2016, Asian Surgical Association. Published by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

* Corresponding author. Division of Urology, Department of Surgery, Taichung Veterans General Hospital, Number 160, Section 3, Taichung-Kang Road, Taichung 407, Taiwan.

E-mail address: ycou228@gmail.com (Y.-C. Ou).

<http://dx.doi.org/10.1016/j.asjsur.2016.11.003>

1015-9584/Copyright © 2016, Asian Surgical Association. Published by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Please cite this article in press as: Lin C-Y, et al., Long-term outcome of robotic partial nephrectomy for renal angiomyolipoma, Asian Journal of Surgery (2016), <http://dx.doi.org/10.1016/j.asjsur.2016.11.003>

1. Introduction

Angiomyolipoma (AML) is a relatively rare benign renal tumor consisting of blood vessels and smooth muscle cells. With advances in technology and the increasing utilization of health examinations with imaging surveillance, the incidence of newly diagnosed small renal masses has gradually increased.¹ Partial nephrectomy is currently the standard treatment for small malignant tumors with equivalent cancer control and lower risk of postoperative-related stage IV chronic kidney disease and cardiovascular events compared with radical nephrectomy.^{2–4} However, surgical intervention for benign renal tumors, especially AMLs, is controversial. Although active surveillance for clinically insignificant AMLs is broadly accepted, interventions are still recommended for uncontrolled pain, a size greater than 4 cm, suspicion of malignancy, and the risk of life-threatening hemorrhage.^{5–7} Considering the benign nature of AMLs, renal-preserving treatments are preferable and include selective angioembolization and nephron-sparing surgery (NSS).⁷ Although selective angioembolization is an effective treatment modality for acute hemorrhage, 14–80% of patients require secondary treatment due to the recurrent bleeding or persistent symptoms after embolization.⁷

Several studies have reported the results of NSS for renal AMLs, either by open or minimal invasive methods.^{8–11} More than 1400 cases and 14 types of robotic urologic surgeries were performed at Taichung Veterans General Hospital, Taichung, Taiwan since 2005.^{12,13} Therefore, we present our experience regarding the efficacy and long-term results of robotic partial nephrectomy (RPN) in the management of renal AMLs.

2. Methods

Upon approval from the Institutional Review Board of Taichung Veterans General Hospital, we retrospectively reviewed the surgical database of our hospital. All patients who underwent RPN for pathologically confirmed AMLs between 2006 and 2014 were reviewed. Patient characteristics, including demographics, body mass index, American Society of Anesthesiologists score, clinical presentation, tumor features (size, R.E.N.A.L. Nephrometry score¹⁴), indication of management, and the perioperative and postoperative parameters (operative time, warm ischemia time, perioperative complications, transfusion rate, length of hospital stay), were analyzed. Estimated glomerular filtration rate (eGFR) values were calculated with the modification of diet in renal disease formula.¹⁵ The GFR preservation rate was defined as the follow-up eGFR divided by baseline eGFR \times 100. The eGFR value was measured preoperatively, 3 months postoperatively, and at the latest follow-up.

We set up a clinical pathway for perioperative and postoperative care of RPN. Any deviation from the perioperative protocol was considered as a complication. The long-term follow-up protocol was also programmed at postoperative 3 months, 6 months, and then annually or as clinically indicated (Table 1).

Variables with normal distribution are shown as mean \pm standard deviation (SD). Furthermore, variables with

Table 1 Clinical pathway for robotic partial nephrectomy.

	Procedures	Diet
Preoperation	Bowel preparation	NPO after midnight
Operation day	Central line & NG tube insertion 1 Penrose drain	NPO
POD 1	Remove nasogastric tube Bed rest	Water intake in the morning, then liquid diet after noon
POD 2	Remove Foley catheter Encourage mobilization	Semiliquid diet
POD 3–5	Remove central line & Penrose drain Stop antibiotics, arrange discharge	Soft diet, then regular diet
Postoperative	Laboratory check: Serum creatinine Image survey: Abdominal sonography & abdominal CT if any abnormality in sonography	
3 mo & 6 mo, & then annually follow-up		

CT = computed tomography; NPO = nothing by mouth; POD = preoperation day.

non-normal distribution are showed as median [interquartile range (IQR)].

2.1. Surgical technique

We used the da Vinci standard system with 4-arm setting from 2006 to 2013 and shifted to da Vinci Si surgical system since then. All the procedures were performed via the transperitoneal route. Clamping both renal artery and renal vein were routinely performed, except for a few patients with multiple lesion and longer estimated operation time. Intraoperative ultrasonography was used to mark the tumor margin, and renorrhaphy was performed with 2-0/3-0 VICRYL[®] (Ethicon, Somerville, NJ) interrupt suture at the beginning and then shifted to 3-0 V-Loc[™] (Medtronic, Minneapolis, MN) horizontal mattress suture with sliding Hemo-lok clip (Weck Closure Systems, Research Triangle Park, NC) since 2012.¹⁶ The hemostatic agent would be considered if there was minor bleeding after releasing the hilar clamping. Nephropexy with residual Gerota's fascia was performed in every patient. A silicone Penrose drain was placed over the renal fossa at the end of the surgery.

3. Results

During the study period, there were 23 patients who met our inclusion criteria, and Table 2 summarizes their demographics, clinical presentation, and indication of management. Of these patients, 87% were female patients with a mean age of 52.7 ± 9.9 years and a median size of the resected AML of 5.2 (IQR = 3.1–6.8) cm. Out of 23 patients, 13 (56.5%) received RPN due to symptomatic tumor or tumor size $>$ 4 cm. Six

Download English Version:

<https://daneshyari.com/en/article/8831035>

Download Persian Version:

<https://daneshyari.com/article/8831035>

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