

# World Journal of *Clinical Cases*

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## Contents

Thrice Monthly Volume 10 Number 12 April 26, 2022

## EVIDENCE REVIEW

- 3639 Tilt and decentration with various intraocular lenses: A narrative review  
*Chen XY, Wang YC, Zhao TY, Wang ZZ, Wang W*

## REVIEW

- 3647 Role of zonula occludens in gastrointestinal and liver cancers  
*Ram AK, Vairappan B*

## MINIREVIEWS

- 3662 Pathophysiological mechanisms of hepatic stellate cells activation in liver fibrosis  
*Garbuzenko DV*

## ORIGINAL ARTICLE

## Retrospective Cohort Study

- 3677 Predictors of unfavorable outcome at 90 days in basilar artery occlusion patients  
*Chiu YC, Yang JL, Wang WC, Huang HY, Chen WL, Yen PS, Tseng YL, Chen HH, Tsai ST*

## Retrospective Study

- 3686 Role of multidetector computed tomography in patients with acute infectious colitis  
*Yu SJ, Heo JH, Choi EJ, Kim JH, Lee HS, Kim SY, Lim JH*
- 3698 Efficacy and prognostic factors of neoadjuvant chemotherapy for triple-negative breast cancer  
*Ding F, Chen RY, Hou J, Guo J, Dong TY*
- 3709 Relationship between subgroups of central and lateral lymph node metastasis in clinically node-negative papillary thyroid carcinoma  
*Zhou J, Li DX, Gao H, Su XL*
- 3720 Nomogram to predict postoperative complications in elderly with total hip replacement  
*Tan XJ, Gu XX, Ge FM, Li ZY, Zhang LQ*
- 3729 Flap failure prediction in microvascular tissue reconstruction using machine learning algorithms  
*Shi YC, Li J, Li SJ, Li ZP, Zhang HJ, Wu ZY, Wu ZY*
- Observational Study**
- 3739 Surgery in platinum-resistant recurrent epithelial ovarian carcinoma  
*Zhao LQ, Gao W, Zhang P, Zhang YL, Fang CY, Shou HF*

- 3754** Anorectal dysfunction in patients with mid-low rectal cancer after surgery: A pilot study with three-dimensional high-resolution manometry

Pi YN, Xiao Y, Wang ZF, Lin GL, Qiu HZ, Fang XC

#### Randomized Controlled Trial

- 3764** Effect of wrist-ankle acupuncture on propofol dosage during painless colonoscopy: A randomized controlled prospective study

He T, Liu C, Lu ZX, Kong LL, Li Y, Xu Z, Dong YJ, Hao W

#### META-ANALYSIS

- 3773** Melatonin intervention to prevent delirium in hospitalized patients: A meta-analysis

You W, Fan XY, Lei C, Nie CC, Chen Y, Wang XL

- 3787** Risk factors for hospital readmissions in pneumonia patients: A systematic review and meta-analysis

Fang YY, Ni JC, Wang Y, Yu JH, Fu LL

#### CASE REPORT

- 3801** Anti-programmed death 1 antibody in the treatment of coexistent *Mycobacterium fortuitum* and lung cancer: A case report

Zhang CC, Chen P

- 3808** Acute pancreatitis-induced thrombotic thrombocytopenic purpura: A case report

Wang CH, Jin HF, Liu WG, Guo Y, Liu Z

- 3814** Successful management of life-threatening aortoesophageal fistula: A case report and review of the literature

Zhong XQ, Li GX

- 3822** Isolated coagulopathy without classic CRAB symptoms as the initial manifestation of multiple myeloma: A case report

Zhang Y, Xu F, Wen JJ, Shi L, Zhou QL

- 3828** Evaluation of intracoronary function after reduction of ventricular rate by esmolol in severe stenotic myocardial bridge: A case report

Sun LJ, Yan DG, Huang SW

- 3834** Pediatric living donor liver transplantation using liver allograft after *ex vivo* backtable resection of hemangioma: A case report

Li SX, Tang HN, Lv GY, Chen X

- 3842** Kimura's disease in soft palate with clinical and histopathological presentation: A case report

Li W

- 3849** Combined targeted therapy and immunotherapy in anaplastic thyroid carcinoma with distant metastasis: A case report

Ma DX, Ding XP, Zhang C, Shi P

- 3856** Successful multimodality treatment of metastatic gallbladder cancer: A case report and review of literature  
*Zhang B, Li S, Liu ZY, Peiris KGK, Song LF, Liu MC, Luo P, Shang D, Bi W*
- 3866** Ischemic colitis after receiving the second dose of a COVID-19 inactivated vaccine: A case report  
*Cui MH, Hou XL, Liu JY*
- 3872** Cryoballoon pulmonary vein isolation and left atrial appendage occlusion prior to atrial septal defect closure: A case report  
*Wu YC, Wang MX, Chen GC, Ruan ZB, Zhang QQ*
- 3879** Surgical treatment for a combined anterior cruciate ligament and posterior cruciate ligament avulsion fracture: A case report  
*Yoshida K, Hakozaiki M, Kobayashi H, Kimura M, Konno S*
- 3886** Successful robot-assisted partial nephrectomy for giant renal hilum angiomyolipoma through the retroperitoneal approach: A case report  
*Luo SH, Zeng QS, Chen JX, Huang B, Wang ZR, Li WJ, Yang Y, Chen LW*
- 3893** Cryptococcal antigen testing of lung tissue homogenate improves pulmonary cryptococcosis diagnosis: Two case reports  
*Wang WY, Zheng YL, Jiang LB*
- 3899** Combined use of extracorporeal membrane oxygenation with interventional surgery for acute pancreatitis with pulmonary embolism: A case report  
*Yan LL, Jin XX, Yan XD, Peng JB, Li ZY, He BL*
- 3907** Dynamic navigation system-guided trans-inferior alveolar nerve implant placement in the atrophic posterior mandible: A case report  
*Chen LW, Zhao XE, Yan Q, Xia HB, Sun Q*
- 3916** Anti-glomerular basement membrane disease with IgA nephropathy: A case report  
*Guo C, Ye M, Li S, Zhu TT, Rao XR*
- 3923** Amniotic membrane transplantation in a patient with impending perforated corneal ulcer caused by *Streptococcus mitis*: A case report and review of literature  
*Hsiao FC, Meir YJJ, Yeh LK, Tan HY, Hsiao CH, Ma DHK, Wu WC, Chen HC*
- 3930** Steriod for Autoimmune pancreatitis complicating by gastric varices: A case report  
*Hao NB, Li X, Hu WW, Zhang D, Xie J, Wang XL, Li CZ*
- 3936** Antithrombotic treatment strategy for patients with coronary artery ectasia and acute myocardial infarction: A case report  
*Liu RF, Gao XY, Liang SW, Zhao HQ*
- 3944** Mesh plug erosion into the small intestine after inguinal hernia repair: A case report  
*Xie TH, Wang Q, Ha SN, Cheng SJ, Niu Z, Ren XX, Sun Q, Jin XS*
- 3951** Recurrence of infectious mononucleosis in adults after remission for 3 years: A case report  
*Zhang XY, Teng QB*

- 3959** Vertical direction impaction of kissing molars: A case report

*Wen C, Jiang R, Zhang ZQ, Lei B, Yan YZ, Zhong YQ, Tang L*

### **LETTER TO THE EDITOR**

- 3966** Comment on “Outcomes of different minimally invasive surgical treatments for vertebral compression fractures: An observational study”

*Ma L, Luo ZW, Sun YY*

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# Successful robot-assisted partial nephrectomy for giant renal hilum angiomyolipoma through the retroperitoneal approach: A case report

Shu-Hang Luo, Qin-Song Zeng, Jun-Xing Chen, Bin Huang, Zong-Ren Wang, Wen-Ji Li, Yun Yang, Ling-Wu Chen

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## Abstract

### BACKGROUND

Giant renal angiomyolipomas (AMLs) may lead to complications including flank pain, hematuria, hypertension, retroperitoneal hemorrhage and even death. Giant AMLs which grow around renal hilar vessels and the ureter are rare. Most previous reports on the treatment of giant renal AMLs have focused on open surgery or a transperitoneal approach, with few studies on the retroperitoneal approach for large AMLs. We here report a case of giant renal hilum AML successfully treated with robot-assisted laparoscopic nephron sparing surgery the retroperitoneal approach, with a one-year follow-up.

### CASE SUMMARY

A 34-year-old female patient was diagnosed with renal AML 11 years ago and showed no discomfort. The tumor gradually increased in size to a giant AML over the years, which measured 63 mm × 47 mm × 90 mm and was wrapped around the right hilum. Therefore, a robotic laparoscopic partial nephrectomy (LPN) *via* the retroperitoneal approach was performed. The patient had no serious postoperative complications and was discharged soon after the operation. At the one-year follow-up, the patient's right kidney had recovered well.

### CONCLUSION

Despite insufficient operating space *via* the retroperitoneal approach, LPN for giant central renal AMLs can be completed using a well-designed procedure with the assistance of a robotic system.

**Key Words:** Renal angiomyolipoma; Robotic laparoscopic surgery; Retroperitoneal

approach; Laparoscopic aspiration; Case report

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**Core Tip:** Renal angiomyolipoma (AML) is an infrequent benign tumor, and treatment includes open surgery or a transperitoneal laparoscopic nephrectomy (LPN). Despite several disadvantages, the retroperitoneal (RP) approach enables direct access to the renal artery and does not require bowel mobilization, which may avoid gastrointestinal complications and shorten recovery time. We report a patient with renal AML who underwent successful robot-assisted LPN using the RP approach. The patient was discharged from hospital on the 4th postoperative day and one-year follow-up showed no recurrence. This case highlights the feasibility of RP LPN with a well-designed surgical procedure, and the advantages of this method outweigh the disadvantages in AML patients.

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## INTRODUCTION

Renal angiomyolipoma (AML) is an infrequent benign tumor consisting of spindle and epithelioid smooth muscle tissue, mature adipose tissue and blood vessels. Furthermore, a large AML which grows around renal hilar vessels and the ureter is rare. Laparoscopic partial nephrectomy (LPN) is the standard and ultimate solution for renal AML (especially AMLs greater than 4 cm[1]), and two approaches are usually used: the transperitoneal (TP) and retroperitoneal (RP) approach[2]. While the former provides a larger working space, allowing a wider angle to reach tumors, the latter enables direct access to the renal artery and does not require bowel mobilization[3]. However, when confronted with a relatively large AML, laparotomy is a better choice. We herein report a female patient with a giant central renal AML which had grown around the right hilum. Robot-assisted LPN *via* the RP approach as well as laparoscopic aspiration were performed[4]. The patient had a satisfactory outcome at one-year follow-up.

## CASE PRESENTATION

### Chief complaints

A 34-year-old female patient was admitted to our department with an 11-year history of a growing hamartoma on the right kidney.

### History of present illness

The tumor was detected accidentally during a physical examination 11 years ago and quickly diagnosed as renal AML. The patient did not present any discomfort, and the tumor showed no malignant tendency. Therefore, the patient chose to undergo regular follow-up rather than surgical treatment. Approximately two weeks before admission to our hospital, imaging examination revealed that the mass had grown to 9 cm in maximum diameter, and was wrapped around the right hilum (Figure 1A and B).

### History of past illness

The patient had no previous medical history, and there was no history of genetic disease or renal AMLs in her family.

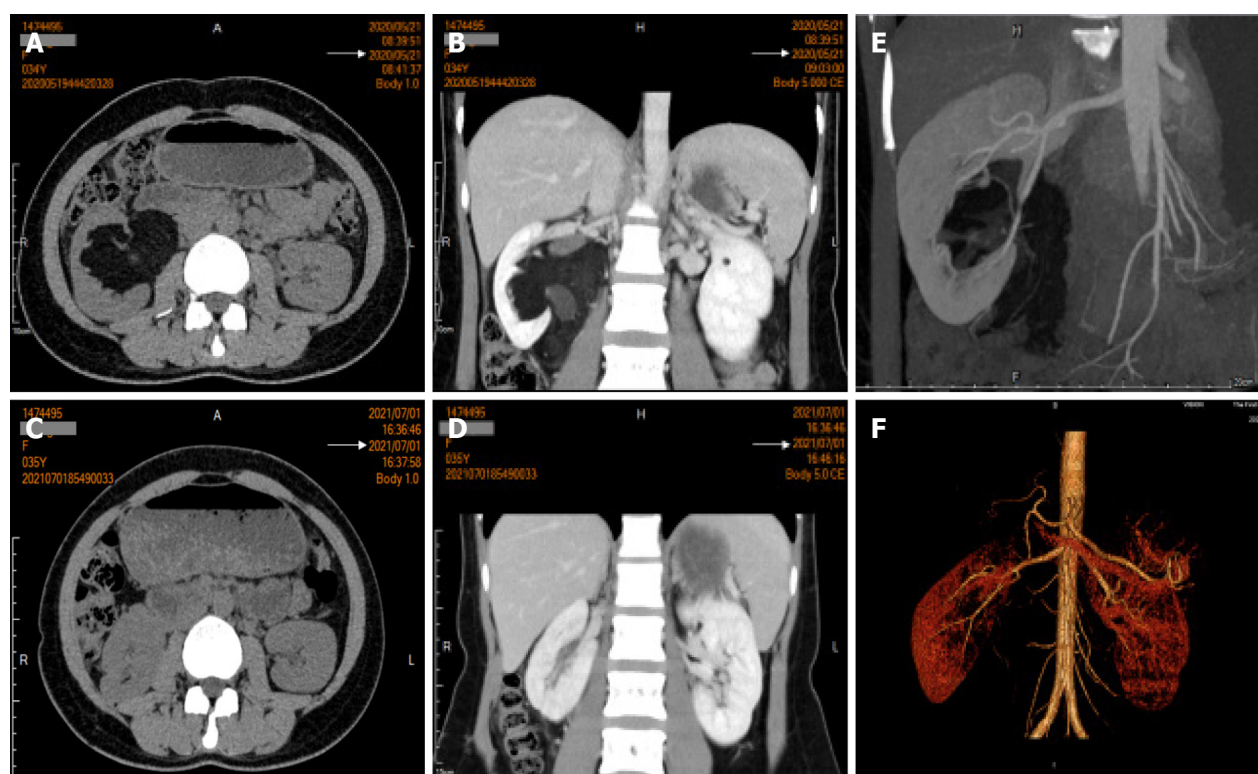
### Personal and family history

None.

### Physical examination

On admission, the patient's temperature was 36.5°C, heart rate was 84 bpm, respiratory rate was 20 breaths/min, and blood pressure was 128/79 mmHg. The abdomen was supple without masses or





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**Figure 1 Computed tomography findings.** A: Plain computed tomography (CT) scan revealed a mass at the right hilum; B: Coronal section of enhanced CT image showed that the upper and lower longitude reached 9 cm; C: Plain CT scan revealed the recovery status of the right kidney at 1-year follow-up; D: Coronal section of enhanced CT image at 1-year follow-up; E: Bilateral renal CT angiography revealed the middle and lower branches of the right renal artery in the mass.

organomegaly, and no renal tenderness or percussed pain was observed.

### Laboratory examinations

Routine blood tests revealed a red blood cell count of  $4.34 \times 10^9/\text{L}$  and hemoglobin level of 131 g/L. Prothrombin and partial thromboplastin times were normal. The results of blood biochemistry tests were within the normal ranges. Serum creatinine level was  $53 \mu\text{mol/L}$  and blood urea nitrogen level was  $3.7 \text{ mmol/L}$ , demonstrating normal renal function. Electrocardiogram and chest X-ray were also normal.

### Imaging examinations

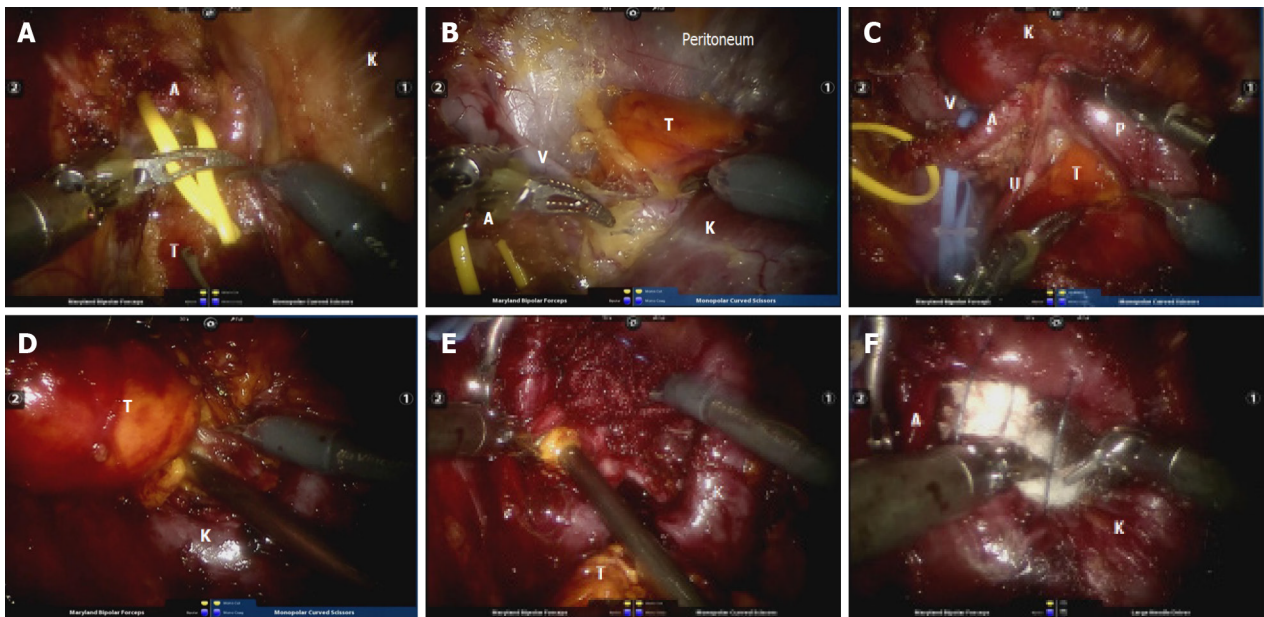
Approximately two weeks before admission, a contrast-enhanced computed tomography (CECT) examination revealed that the tumor had grown from the hilum to lower part of the right kidney, measuring  $90 \text{ mm} \times 47 \text{ mm} \times 65 \text{ mm}$ , and was wrapped around the right hilum (Figure 1A and B), and the scope of scanning did not reach the pelvic cavity. Bilateral renal CT angiography revealed that the middle and lower branches of the right renal artery were involved (Figure 1E).

## FINAL DIAGNOSIS

Giant renal AML of the right kidney.

## TREATMENT

In view of the recent rapid growth of the tumor, the increased risk of rupture and hemorrhage, and the increased compression on the hilum, the patient underwent surgery. With the hope that the right kidney could be preserved, a well-designed robotic RP LPN was performed. Under general anesthesia, the patient was placed in the lateral decubitus position with hyperextension. The RP space was established according to the routine method mentioned in previous reports[2]. After removing RP fat and opening the renal fascia, dissection was performed along the psoas muscle to the postcava and the right ureter was carefully exposed as follows: (1) Renal artery dissociation (Figure 2A): Dissection continued along



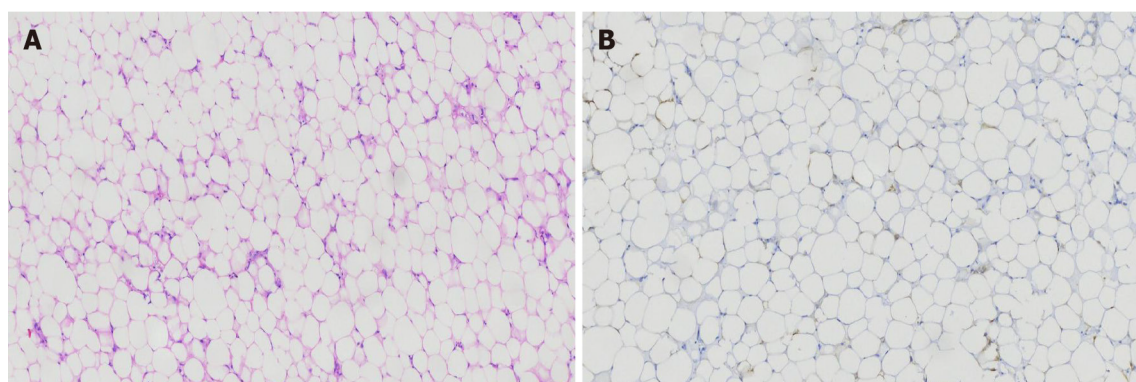
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**Figure 2 Surgical procedure.** A: Right renal artery (A) dissociation using the RP approach; B: The kidney (K) was thoroughly dissociated and the renal vein (V) was exposed through a good viewpoint from the dorsal to the ventral space; C: Initial tumor (T) exposure around the hilum area and ureter (U) dissociation. The artery, vein, ureter and the pelvis (P) were completely separated from the mass, respectively; D: Part of the mass was resected along its base; E: Residual tumor tissue was gradually aspirated using an aspirator; F: Pre-suture and plugging hemostatic gauzes. After pressing on the tamping for several minutes, the defect was tightly closed.

the ureter until the right renal artery was dissociated. A vessel sling was used to mark the renal artery when it was fully exposed; (2) Full kidney dissociation and renal vein exposure (Figure 2B): From dorsal to ventral, the right kidney was fully dissociated from perinephric fat. When the kidney was thoroughly dissociated from the surrounding tissue, the renal vein was carefully exposed through a good viewpoint, from dorsal to ventral, which was also marked by a sling; (3) Initial tumor exposure around the hilum and ureter dissociation (Figure 2C): Fat covering the surface of the tumor was removed to distinguish the periphery of the mass. Simultaneously, dissociation of the upper pole of the right ureter was performed as far as the renal pelvis, which was closely attached to the mass. The ureter could then also be towed by a sling if needed. Great care was taken during this step, in order to avoid disruption of the tumor capsule and renal capsule which could lead to hemorrhage. Hence, the ureter and renal vessels were thoroughly dissected; (4) Further separation of the AML (Figure 2D): The renal artery was clamped with a bulldog clamp. The mass was then further separated from the kidney and resected along its base using an electric scalpel; and (5) Tumor base and wound fossa management (Figure 2E and F): The suction device was inserted into the renal defect, followed by thorough aspiration of the tumor base and remaining tumor tissue step by step. Small vessels in the defect were ligated and the wound fossa was packed with five pieces of absorbable hemostatic gauze (Surgicel™, Johnson and Johnson, United States). Before placement of the hemostatic gauze, the 2-0 V-Loc absorbable wound closure device was loaded without tightening up. After pressing on the tamping for 3 min as coagulation time, the defect was tightly closed. This bleed-arresting strategy has been used in clinical practice for a long time and has proved effective.

## OUTCOME AND FOLLOW-UP

Histopathological examination of the specimen revealed that the majority of cells were mature adipocytes, and there was a pattern with typical fat and perivascular epithelioid cells arranged around blood vessels, supporting the diagnosis of AML (Figure 3). The patient recovered uneventfully and was discharged from our hospital on the 4th postoperative day. At one-year follow-up, there was no evidence of tumor recurrence and the right kidney was observed to have recovered well on a recent imaging evaluation (Figure 1C and D).



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**Figure 3 Pathological results.** The recovered surgical specimen measured 7 cm × 5 cm × 4 cm. Immuno-histochemical staining of the tissue using beta-hydroxy beta-methylbutyric acid-45 indicated the presence of an epithelioid component (A: x 200 μm; B: x 100 μm).

## DISCUSSION

Previous studies have revealed that renal AML may grow by 4 cm each year in its maximum dimension [5]. Indications for intervention include dimensions > 4 cm, and associated symptoms, including spontaneous hemorrhage, pain and hematuria and the suspicion of malignancy [6]. De Luca *et al* [7] revealed that as the AML grows, the risk of compression symptoms and eventual hemorrhage from rupture increases due to hemorrhagic aneurysms. Transcatheter arterial embolization is one of the standard therapeutic options for AML. Compared to surgical treatment, arterial embolization may induce less surgical trauma and could spare more functioning renal tissue [8]. In addition, it was revealed that preoperative embolization could reduce tumor bulk [9] and avoid excess blood loss during surgery [10]. However, when confronted with a giant AML, delineating the boundary of AML can be difficult, as the circulation of a giant AML is more complex. The success of embolization relies to a great extent on the balance between to treat as much AML as possible while sparing as much normal renal parenchyma as possible [9]. Therefore, according to our accumulated experience and skills, we decided to perform a PN without preoperative embolization, and utilize a novel bleed-arresting strategy to reduce bleeding during the operation. The goals of management in AMLs are renal function preservation while ameliorating any symptoms and risks of hemorrhage [11]. Considering the large volume and deep location of the present mass, a robot-assisted LPN was planned to achieve complete removal of the tumor and adequate preservation of renal function. In terms of the surgical approaches for giant renal AMLs, the TP approach is more common as it provides a larger working space, better orientation and wider angles to reach tumors [10,12,13]. However, potential complications of the TP approach relate to the bowels caused by bowel mobilization which would prolong recovery time [3]. Direct access to the renal hilum as soon as possible to control the vascular pedicle was important in the present case. Considering that the mass occupied the hilum ventrally, a PN using the RP approach was carried out. Hughes-Hallett *et al* [14] revealed that the RP approach was associated with decreased operation time and fewer complications. With a well-planned strategy and the advantages of the robotic system, the shortcomings of the RP approach including small working space and poor kidney exposure were successfully overcome and the intention to preserve the right kidney as well as dissection of the ureter and renal vessels from the tumor were achieved. During the operation, the right kidney was thoroughly dissociated from perinephric fat and surrounding tissue *via* the dorsal and ventral space, respectively. This was the key step in the entire surgical procedure to overcome the shortcomings of the RP approach. The renal vessels (renal artery and vein) and ureter were also dissected as well as the renal pelvis. In particular, safe exposure of the renal veins was assured through adequate dissociation of the kidney. By implementing these measures, the risks of intraoperative renal hemorrhage and ureter injury were reduced and well-controlled. In addition, due to sufficient dissection of the renal vessels and ureter, the tumor margin was clearly identified and subsequent dissociation was smoothly performed. A previous study revealed that laparoscopic aspiration can be a safe and efficient technique for renal AMLs, especially for large and central renal AMLs [4]. This technique proved to be an effective method for exposing small vessels at the base to stop bleeding points and shorten the operation time. Therefore, when the bulk of the mass was resected from the kidney, aspiration was performed to eliminate remaining tumor tissue at the tumor base. Of course, it is necessary to expose the various basal areas of the tumor as much as possible in order to completely suck out the remaining tumor tissue. The soluble hemostatic gauze Surgicel™ is a novel hemostatic material which has been proved be quick and effective in achieving hemostasis during neurosurgery [15]. We innovatively applied this material in our patient in order to reduce blood loss and drain time. During the operation, several layers of hemostatic gauze were inserted into the wound fossa and totally compressed for a few minutes. The hemostatic



gauze gradually resulted in clotting, and hemostasis was eventually achieved. The dosage of hemostatic gauzes depends on the size and depth of the wound fossa. Subsequent suturing was carried out when the hemorrhage was alleviated. For small wounds, suturing after tamponade is considered unnecessary. The postoperative hemoglobin level in our patient was within the normal range, demonstrating that the bleed-arresting strategy was effective. This innovative strategy for hemostasis could be a potential and more economical alternative for preoperative embolization of giant AML. To assess the differences between the two bleed-arresting strategies, a further well-designed prospective cohort study is required. Since there is no residual tumor tissue after careful aspiration around the base, there is no chance of tumor recurrence. We have not yet found a single case of recurrence from the original tumor site.

## CONCLUSION

Robotic LPN *via* the RP approach was proved to be a safe and effective technique for giant central renal AMLs. Compared to the TP approach, it seemed to speed up the patient's recovery and shorten the hospitalization time. A careful preoperative imaging evaluation plays an important role in the success of surgery. Complete dissociation of the kidney, the hilum vessels and ureter from perinephric fat as well as thorough exposure of the tumor were the key steps to successful surgery. In addition, the assistance of the robotic surgical system, the well-designed procedure and bleed-arresting strategy were also essential for a successful outcome.

## FOOTNOTES

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## REFERENCES

- 1 Murray TE, Lee MJ. Are We Overtreating Renal Angiomyolipoma: A Review of the Literature and Assessment of Contemporary Management and Follow-Up Strategies. *Cardiovasc Intervent Radiol* 2018; **41**: 525-536 [PMID: 29260305 DOI: 10.1007/s00270-017-1862-3]
- 2 Patel M, Porter J. Robotic retroperitoneal partial nephrectomy. *World J Urol* 2013; **31**: 1377-1382 [PMID: 23404196 DOI: 10.1007/s00345-013-1038-y]
- 3 Choo SH, Lee SY, Sung HH, Jeon HG, Jeong BC, Jeon SS, Lee HM, Choi HY, Seo SI. Transperitoneal versus retroperitoneal robotic partial nephrectomy: matched-pair comparisons by nephrometry scores. *World J Urol* 2014; **32**: 1523-1529 [PMID: 24817141 DOI: 10.1007/s00345-014-1312-7]
- 4 Xu B, Zhang Q, Jin J. Laparoscopic aspiration for central renal angiomyolipoma: a novel technique based on single-center initial experience. *Urology* 2013; **81**: 313-318 [PMID: 23374791 DOI: 10.1016/j.urol.2012.09.047]
- 5 Chronopoulos PN, Kaisidis GN, Vaiopoulos CK, Perits DM, Varvarousis MN, Malioris AV, Pazarli E, Skandalos IK.

- Spontaneous rupture of a giant renal angiomyolipoma-Wunderlich's syndrome: Report of a case. *Int J Surg Case Rep* 2016; **19**: 140-143 [PMID: [26764888](#) DOI: [10.1016/j.ijscr.2015.12.017](#)]
- 6 **Nelson CP**, Sanda MG. Contemporary diagnosis and management of renal angiomyolipoma. *J Urol* 2002; **168**: 1315-1325 [PMID: [12352384](#) DOI: [10.1097/01.ju.0000028200.86216.b2](#)]
- 7 **De Luca S**, Terrone C, Rossetti SR. Management of renal angiomyolipoma: a report of 53 cases. *BJU Int* 1999; **83**: 215-218 [PMID: [10233482](#) DOI: [10.1046/j.1464-410x.1999.00932.x](#)]
- 8 **Lenton J**, Kessel D, Watkinson AF. Embolization of renal angiomyolipoma: immediate complications and long-term outcomes. *Clin Radiol* 2008; **63**: 864-870 [PMID: [18625350](#) DOI: [10.1016/j.crad.2008.02.005](#)]
- 9 **Bishay VL**, Crino PB, Wein AJ, Malkowicz SB, Trerotola SO, Soulen MC, Stavropoulos SW. Embolization of giant renal angiomyolipomas: technique and results. *J Vasc Interv Radiol* 2010; **21**: 67-72 [PMID: [20123192](#) DOI: [10.1016/j.jvir.2009.09.020](#)]
- 10 **Shen WH**, Pan JH, Yan JN, Chen ZW, Zhou ZS, Lu GS, Li WB. Resection of a giant renal angiomyolipoma in a solitary kidney with preoperative arterial embolization. *Chin Med J (Engl)* 2011; **124**: 1435-1437 [PMID: [21740760](#)]
- 11 **Sivalingam S**, Nakada SY. Contemporary minimally invasive treatment options for renal angiomyolipomas. *Curr Urol Rep* 2013; **14**: 147-153 [PMID: [23378161](#) DOI: [10.1007/s11934-013-0311-3](#)]
- 12 **Zhou Y**, Tang Y, Tang J, Deng F, Gan YU, Dai Y. Total nephrectomy with nephron-sparing surgery for a giant bilateral renal angiomyolipoma: A case report. *Oncol Lett* 2015; **10**: 2450-2452 [PMID: [26622869](#) DOI: [10.3892/ol.2015.3538](#)]
- 13 **Cichocki M**, Sosnowski M, Jablonowski Z. A giant renal angiomyolipoma (AML) in a patient with septo-optic dysplasia (SOD). *Eur J Med Res* 2014; **19**: 46 [PMID: [25199882](#) DOI: [10.1186/s40001-014-0046-8](#)]
- 14 **Hughes-Hallett A**, Patki P, Patel N, Barber NJ, Sullivan M, Thilagarajah R. Robot-assisted partial nephrectomy: a comparison of the transperitoneal and retroperitoneal approaches. *J Endourol* 2013; **27**: 869-874 [PMID: [23461381](#) DOI: [10.1089/end.2013.0023](#)]
- 15 **Huo L**, Ruan WH, Ding ZL, Cheng ZQ, Wu G. Clinical hemostasis effect of a novel hemostatic material SURGICELTM vs gelatin sponge in neurosurgery. *Zhongguo Zuzhi Gongcheng Yanjiu Yu Linchuang Kangfu* 2012; **16**: 551-554



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