

World Journal of *Clinical Cases*

World J Clin Cases 2022 September 26; 10(27): 9550-9969



Contents

Thrice Monthly Volume 10 Number 27 September 26, 2022

OPINION REVIEW

- 9550 Psychiatric disorders and pain: The recurrence of a comorbidity
Vyshka G

REVIEW

- 9556 Cardiovascular disease and COVID-19, a deadly combination: A review about direct and indirect impact of a pandemic
Vidal-Perez R, Brandão M, Pazdernik M, Kresoja KP, Carpenito M, Maeda S, Casado-Arroyo R, Muscoli S, Pöss J, Fontes-Carvalho R, Vazquez-Rodriguez JM
- 9573 Molecular factors, diagnosis and management of gastrointestinal tract neuroendocrine tumors: An update
Pavlidis ET, Pavlidis TE

MINIREVIEWS

- 9588 Human-induced pluripotent stem cell-atrial-specific cardiomyocytes and atrial fibrillation
Leowattana W, Leowattana T, Leowattana P
- 9602 COVID-19 and the cardiovascular system-current knowledge and future perspectives
Chatzis DG, Magounaki K, Pantazopoulos I, Bhaskar SMM

ORIGINAL ARTICLE

Case Control Study

- 9611 PDCA nursing in improving quality management efficacy in endoscopic submucosal dissection
He YH, Wang F

Retrospective Study

- 9619 Impact of COVID-19 pandemic on the ocular surface
Marta A, Marques JH, Almeida D, José D, Sousa P, Barbosa I
- 9628 Anatomy and clinical application of suprascapular nerve to accessory nerve transfer
Wang JW, Zhang WB, Li F, Fang X, Yi ZQ, Xu XL, Peng X, Zhang WG
- 9641 Therapeutic effect of two methods on avulsion fracture of tibial insertion of anterior cruciate ligament
Niu HM, Wang QC, Sun RZ
- 9650 Efficacy of transcatheter arterial chemoembolization using pirarubicin-loaded microspheres combined with lobaplatin for primary liver cancer
Zhang C, Dai YH, Lian SF, Liu L, Zhao T, Wen JY

- 9657** Prognostic significance of sex determining region Y-box 2, E-cadherin, and vimentin in esophageal squamous cell carcinoma

Li C, Ma YQ

- 9670** Clinical characteristics and prognosis of orbital solitary fibrous tumor in patients from a Chinese tertiary eye hospital

Ren MY, Li J, Wu YX, Li RM, Zhang C, Liu LM, Wang JJ, Gao Y

Observational Study

- 9680** Altered heart rate variability and pulse-wave velocity after spinal cord injury

Tsou HK, Shih KC, Lin YC, Li YM, Chen HY

- 9693** Intra and extra pelvic multidisciplinary surgical approach of retroperitoneal sarcoma: Case series report

Song H, Ahn JH, Jung Y, Woo JY, Cha J, Chung YG, Lee KH

META-ANALYSIS

- 9703** Meta-analysis of gemcitabine plus nab-paclitaxel combined with targeted agents in the treatment of metastatic pancreatic cancer

Li ZH, Ma YJ, Jia ZH, Weng YY, Zhang P, Zhu SJ, Wang F

- 9714** Clinical efficacy analysis of mesenchymal stem cell therapy in patients with COVID-19: A systematic review

Cao JX, You J, Wu LH, Luo K, Wang ZX

CASE REPORT

- 9727** Treatment of gastric cancer with dermatomyositis as the initial symptom: Two case reports and review of literature

Sun XF, Gao XD, Shen KT

- 9734** Gallbladder hemorrhage—An uncommon surgical emergency: A case report

Valenti MR, Cavallaro A, Di Vita M, Zanghi A, Longo Trischitta G, Cappellani A

- 9743** Successful treatment of stage IIIB intrahepatic cholangiocarcinoma using neoadjuvant therapy with the PD-1 inhibitor camrelizumab: A case report

Zhu SG, Li HB, Dai TX, Li H, Wang GY

- 9750** Myocarditis as an extraintestinal manifestation of ulcerative colitis: A case report and review of the literature

Wang YY, Shi W, Wang J, Li Y, Tian Z, Jiao Y

- 9760** Endovascular treatment of traumatic renal artery pseudoaneurysm with a Stanford type A intramural haematoma: A case report

Kim Y, Lee JY, Lee JS, Ye JB, Kim SH, Sul YH, Yoon SY, Choi JH, Choi H

- 9768** Histiocytoid giant cellulitis-like Sweet syndrome at the site of sternal aspiration: A case report and review of literature

Zhao DW, Ni J, Sun XL

- 9776** Rare giant corneal keloid presenting 26 years after trauma: A case report
Li S, Lei J, Wang YH, Xu XL, Yang K, Jie Y
- 9783** Efficacy evaluation of True Lift®, a nonsurgical facial ligament retightening injection technique: Two case reports
Huang P, Li CW, Yan YQ
- 9790** Synchronous primary duodenal papillary adenocarcinoma and gallbladder carcinoma: A case report and review of literature
Chen J, Zhu MY, Huang YH, Zhou ZC, Shen YY, Zhou Q, Fei MJ, Kong FC
- 9798** Solitary fibrous tumor of the renal pelvis: A case report
Liu M, Zheng C, Wang J, Wang JX, He L
- 9805** Gastric metastasis presenting as submucosa tumors from renal cell carcinoma: A case report
Chen WG, Shan GD, Zhu HT, Chen LH, Xu GQ
- 9814** Laparoscopic correction of hydronephrosis caused by left paraduodenal hernia in a child with cryptorchism: A case report
Wang X, Wu Y, Guan Y
- 9821** Diagnosed corrected transposition of great arteries after cesarean section: A case report
Ichii N, Kakinuma T, Fujikawa A, Takeda M, Ohta T, Kagimoto M, Kaneko A, Izumi R, Kakinuma K, Saito K, Maeyama A, Yanagida K, Takeshima N, Ohwada M
- 9828** Misdiagnosis of an elevated lesion in the esophagus: A case report
Ma XB, Ma HY, Jia XF, Wen FF, Liu CX
- 9834** Diagnostic features and therapeutic strategies for malignant paraganglioma in a patient: A case report
Gan L, Shen XD, Ren Y, Cui HX, Zhuang ZX
- 9845** Infant with reverse-transcription polymerase chain reaction confirmed COVID-19 and normal chest computed tomography: A case report
Ji GH, Li B, Wu ZC, Wang W, Xiong H
- 9851** Pulmonary hypertension secondary to seronegative rheumatoid arthritis overlapping antisynthetase syndrome: A case report
Huang CY, Lu MJ, Tian JH, Liu DS, Wu CY
- 9859** Monitored anesthesia care for craniotomy in a patient with Eisenmenger syndrome: A case report
Ri HS, Jeon Y
- 9865** Emergency treatment and anesthesia management of internal carotid artery injury during neurosurgery: Four case reports
Wang J, Peng YM

- 9873** Resolution of herpes zoster-induced small bowel pseudo-obstruction by epidural nerve block: A case report
Lin YC, Cui XG, Wu LZ, Zhou DQ, Zhou Q
- 9879** Accidental venous port placement *via* the persistent left superior vena cava: Two case reports
Zhou RN, Ma XB, Wang L, Kang HF
- 9886** Application of digital positioning guide plates for the surgical extraction of multiple impacted supernumerary teeth: A case report and review of literature
Wang Z, Zhao SY, He WS, Yu F, Shi SJ, Xia XL, Luo XX, Xiao YH
- 9897** Iatrogenic aortic dissection during right transradial intervention in a patient with aberrant right subclavian artery: A case report
Ha K, Jang AY, Shin YH, Lee J, Seo J, Lee SI, Kang WC, Suh SY
- 9904** Pneumomediastinum and subcutaneous emphysema secondary to dental extraction: Two case reports
Ye LY, Wang LF, Gao JX
- 9911** Hemorrhagic shock due to submucosal esophageal hematoma along with mallory-weiss syndrome: A case report
Oba J, Usuda D, Tsuge S, Sakurai R, Kawai K, Matsubara S, Tanaka R, Suzuki M, Takano H, Shimoizawa S, Hotchi Y, Usami K, Tokunaga S, Osugi I, Katou R, Ito S, Mishima K, Kondo A, Mizuno K, Takami H, Komatsu T, Nomura T, Sugita M
- 9921** Concurrent severe hepatotoxicity and agranulocytosis induced by *Polygonum multiflorum*: A case report
Shao YL, Ma CM, Wu JM, Guo FC, Zhang SC
- 9929** Transient ischemic attack after mRNA-based COVID-19 vaccination during pregnancy: A case report
Chang CH, Kao SP, Ding DC
- 9936** Drug-induced lung injury caused by acetaminophen in a Japanese woman: A case report
Fujii M, Kenzaka T
- 9945** Familial mitochondrial encephalomyopathy, lactic acidosis, and stroke-like episode syndrome: Three case reports
Yang X, Fu LJ
- 9954** Renal pseudoaneurysm after rigid ureteroscopic lithotripsy: A case report
Li YH, Lin YS, Hsu CY, Ou YC, Tung MC

LETTER TO THE EDITOR

- 9961** Role of traditional Chinese medicine in the initiative practice for health
Li Y, Li SY, Zhong Y
- 9964** Impact of the COVID-19 pandemic on healthcare workers' families
Helou M, El Osta N, Husni R

- 9967** Transition beyond the acute phase of the COVID-19 pandemic: Need to address the long-term health impacts of COVID-19

Tsioutis C, Tofarides A, Spernovasilis N

ABOUT COVER

Editorial Board Member of *World Journal of Clinical Cases*, Yusuf Tutar, PhD, Chairman, Director, Full Professor, Department of Basic Pharmaceutical Sciences, Division of Biochemistry, University of Health Sciences, Istanbul 34668, Turkey. ytutar@outlook.com

AIMS AND SCOPE

The primary aim of *World Journal of Clinical Cases* (WJCC, *World J Clin Cases*) is to provide scholars and readers from various fields of clinical medicine with a platform to publish high-quality clinical research articles and communicate their research findings online.

WJCC mainly publishes articles reporting research results and findings obtained in the field of clinical medicine and covering a wide range of topics, including case control studies, retrospective cohort studies, retrospective studies, clinical trials studies, observational studies, prospective studies, randomized controlled trials, randomized clinical trials, systematic reviews, meta-analysis, and case reports.

INDEXING/ABSTRACTING

The WJCC is now abstracted and indexed in Science Citation Index Expanded (SCIE, also known as SciSearch®), Journal Citation Reports/Science Edition, Current Contents®/Clinical Medicine, PubMed, PubMed Central, Scopus, Reference Citation Analysis, China National Knowledge Infrastructure, China Science and Technology Journal Database, and Superstar Journals Database. The 2022 Edition of Journal Citation Reports® cites the 2021 impact factor (IF) for WJCC as 1.534; IF without journal self cites: 1.491; 5-year IF: 1.599; Journal Citation Indicator: 0.28; Ranking: 135 among 172 journals in medicine, general and internal; and Quartile category: Q4. The WJCC's CiteScore for 2021 is 1.2 and Scopus CiteScore rank 2021: General Medicine is 443/826.

RESPONSIBLE EDITORS FOR THIS ISSUE

Production Editor: *Ying-Yi Yuan*; Production Department Director: *Xiang Li*; Editorial Office Director: *Jin-Lei Wang*.

NAME OF JOURNAL

World Journal of Clinical Cases

ISSN

ISSN 2307-8960 (online)

LAUNCH DATE

April 16, 2013

FREQUENCY

Thrice Monthly

EDITORS-IN-CHIEF

Bao-Gan Peng, Jerzy Tadeusz Chudek, George Kontogeorgos, Maurizio Serati, Ja Hyeon Ku

EDITORIAL BOARD MEMBERS

<https://www.wjgnet.com/2307-8960/editorialboard.htm>

PUBLICATION DATE

September 26, 2022

COPYRIGHT

© 2022 Baishideng Publishing Group Inc

INSTRUCTIONS TO AUTHORS

<https://www.wjgnet.com/bpg/gerinfo/204>

GUIDELINES FOR ETHICS DOCUMENTS

<https://www.wjgnet.com/bpg/GerInfo/287>

GUIDELINES FOR NON-NATIVE SPEAKERS OF ENGLISH

<https://www.wjgnet.com/bpg/gerinfo/240>

PUBLICATION ETHICS

<https://www.wjgnet.com/bpg/GerInfo/288>

PUBLICATION MISCONDUCT

<https://www.wjgnet.com/bpg/gerinfo/208>

ARTICLE PROCESSING CHARGE

<https://www.wjgnet.com/bpg/gerinfo/242>

STEPS FOR SUBMITTING MANUSCRIPTS

<https://www.wjgnet.com/bpg/GerInfo/239>

ONLINE SUBMISSION

<https://www.f6publishing.com>



Renal pseudoaneurysm after rigid ureteroscopic lithotripsy: A case report

Yi Hong Li, Yi Sheng Lin, Chao Yu Hsu, Yen Chuan Ou, Min Che Tung

Specialty type: Urology and nephrology

Provenance and peer review: Unsolicited article; Externally peer reviewed.

Peer-review model: Single blind

Peer-review report's scientific quality classification

Grade A (Excellent): 0
Grade B (Very good): B
Grade C (Good): C
Grade D (Fair): D
Grade E (Poor): 0

P-Reviewer: Faraji N, Iran; Li Y, China

Received: May 25, 2022

Peer-review started: May 25, 2022

First decision: June 16, 2022

Revised: June 28, 2022

Accepted: August 16, 2022

Article in press: August 16, 2022

Published online: September 26, 2022



Yi Hong Li, Yi Sheng Lin, Chao Yu Hsu, Yen Chuan Ou, Min Che Tung, Division of Urology, Department of Surgery, Tungs' Taichung MetroHarbor Hospital, Taichung 43503, Taiwan

Corresponding author: Yi Sheng Lin, MD, Chief Physician, Division of Urology, Department of Surgery, Tungs' Taichung MetroHarbor Hospital, No. 699 Section 8, Taiwan Boulevard, Wuqi District, Taichung 43503, Taiwan. tung12197@gmail.com

Abstract

BACKGROUND

Ureteroscopic lithotripsy (URSL) is a common surgical treatment for ureteral stones. Although flexible ureteroscopy can be used to treat ureteral and renal stones in a single procedure, rigid ureteroscopy can only be used to treat ureteral stones; nonetheless, rigid ureteroscopy remains mainstream in Taiwan owing to its late introduction and flexible ureteroscopy is not covered by national health insurance. Hematuria is a common complication that occurs when the scope passes through stricture sites or when mucosal damage occurs during lithotripsy, but this is usually self-limited. Prolonged hematuria requiring intervention is termed persistent hematuria. Persistent hematuria is less common and few studies have reported the development and etiology of renal pseudoaneurysm after flexible ureteroscopy for renal stones. Herein, we present the first reported case of renal pseudoaneurysm after rigid URSL for ureteral stone.

CASE SUMMARY

The patient was a 57-year-old man who developed renal pseudoaneurysm with active bleeding after rigid ureteroscopy. He presented with gross hematuria and intolerable left flank pain after left URSL. Severe anemia was noted (hemoglobin level, 6.8 g/dL). Contrast enhanced computed tomography revealed one pseudoaneurysm each in the upper and lower renal cortex. He was managed *via* transcatheter arterial embolization with microcoils, which relieved the symptoms.

CONCLUSION

To the best of our knowledge, ours is the first case report on renal pseudoaneurysm after rigid URSL. Because renal pseudoaneurysms are difficult to access, underlying hypertension, clinical signs such as refractory flank pain, and gross hematuria should be carefully monitored following similar endourological procedures.

Key Words: Aneurysm; False; Ureteroscopy; Lithotripsy; Intraoperative complication;

Embolization; Therapeutic; Case report

©The Author(s) 2022. Published by Baishideng Publishing Group Inc. All rights reserved.

Core Tip: To the best of our knowledge, no studies have reported renal pseudoaneurysm as a complication of rigid ureteroscopy for ureteral stones, although renal pseudoaneurysm following flexible ureteroscopic lithotripsy has been reported. Here, renal pseudoaneurysm may have existed but was exacerbated by surgery or indirectly formed due to increased renal pelvis pressure. The etiology was not clarified because computed tomography was not routinely performed preoperatively. Perioperative cough may play a role owing to a sudden increase in abdominal pressure. Based on our literature review, this is the first case report of renal pseudoaneurysm without direct intervention in the renal pelvis.

Citation: Li YH, Lin YS, Hsu CY, Ou YC, Tung MC. Renal pseudoaneurysm after rigid ureteroscopic lithotripsy: A case report. *World J Clin Cases* 2022; 10(27): 9954-9960

URL: <https://www.wjgnet.com/2307-8960/full/v10/i27/9954.htm>

DOI: <https://dx.doi.org/10.12998/wjcc.v10.i27.9954>

INTRODUCTION

Ureteroscopic lithotripsy (URSL) is a widely used surgical approach for the management of ureteral stones because of its safety and better stone-free rates compared with extracorporeal shock wave lithotripsy (ESWL). Intraoperative complications with bleeding can be major complications, which are usually caused by endoureterotomy or endopyelotomy, or minor complications, which result from iatrogenic ureteral wall trauma[1]. Moreover, treatment with antiplatelet or anticoagulant agents for underlying diseases may be a leading cause as ureteroscopy can be performed in patients undergoing oral antiplatelet/anticoagulant therapy[2]. In those undergoing URSL, the incidence of transient hematuria, defined as hematuria resolving spontaneously within 48 h, is 0.2%-19.9% and the incidence of persistent hematuria, defined as hematuria lasting for > 48 h requiring medical or surgical intervention, is 0.1%-5.7%[1]. Renal pseudoaneurysms are rare and usually induced by trauma or surgical intervention[3,4]. Several studies have reported iatrogenic renal pseudoaneurysms after flexible ureteroscopic surgery with intervention in the renal pelvis. Although these studies discussed the potential risk factors and underlying diseases, to date, no study has reported renal pseudoaneurysm in the absence of intervention in the renal pelvis.

Herein, we present the case of a patient who developed renal pseudoaneurysm after rigid URSL without intrarenal pelvic intervention. Hemostasis was achieved using transcatheter arterial embolization.

CASE PRESENTATION

Chief complaints

A 57-year-old Chinese man was admitted to the emergency department for refractory left flank pain and gross hematuria.

History of present illness

Because of intermittent left flank pain, he underwent rigid URSL and J-J ureteral stent placement for symptomatic left ureteral stone at another medical institution. The following procedure was performed under spinal anesthesia: Cystolithotripsy for one vesical stone (size, 11 mm × 7 mm), dilatation of the left ureteral orifice with a metal cone-tip dilator, and an 8 French ureteroscope with lithoclast for the left middle-third of the ureteral stone (size, 10 mm × 7 mm). However, massive bleeding after severe cough was noted during the procedure, and a J-J ureteral stent was inserted for ureteral protection. The patient was transferred to our emergency department for refractory left flank pain, gross hematuria, and severe anemia.

History of past illness

The patient had received ESWL for a stone in the left kidney six months before the current episode. The patient was still experiencing intermittent left flank pain due to residual renal and ureter stones. He denied antiplatelet/anticoagulant therapy and recent traumatic injury.

Personal and family history

The patient had a history of hypertension, chronic kidney disease, and gout. He did not have a history of congenital coagulation disorder or any known malignancy. His family history was not contributory. The patient denied tobacco smoking and alcohol consumption habits.

Physical examination

Left flank ecchymosis and knocking tenderness (Figure 1).

Laboratory examinations

Before admission, the patient had undergone component therapy with packed red blood cells for severe anemia wherein his hemoglobin level decreased to 6.8 g/dL (baseline hemoglobin level, 14–15 g/dL). Blood test results on admission to our emergency department are presented in Table 1. Relative anemia was noted, with a hemoglobin level of 12.7 g/dL; however, the platelet count was within the normal range. The activated partial thromboplastin time (aPTT) was 36.4 s, which was slightly above the normal values (24.0–34.9 s), whereas prothrombin time was 11.4 s, which was within the normal range (8–12 s). His renal function showed mild recovery after treatment.

Imaging examinations

Computed tomography (CT) revealed a contrast extravasation of approximately 1.8 cm and 0.8 cm over the upper and lower renal cortex, respectively, in the arterial phase (Figure 2A and C; the renal stone circled had a higher Hounsfield unit); however, both did not increase in size or attenuation in the delayed phase (Figure 2B and D, arrow). A > 10-cm-thick subcapsular hematoma accumulation was noted along with an intravesical hematoma. Symptomatic pseudoaneurysm with active bleeding was suspected.

FINAL DIAGNOSIS

The final diagnosis was two renal pseudoaneurysms with active bleeding after rigid URSL.

TREATMENT

Transcatheter arterial embolization was immediately performed under contrast extravasation. A 1.5-cm pseudoaneurysm was found at the terminal branch of the left upper renal artery and another was found within 0.4 cm of the terminal branch of the left lower renal artery (Figure 3A and C). The upper pseudoaneurysm was embolized using two 0.3 cm × 2 cm and two 0.4 cm × 2 cm microcoils (Figure 3B), whereas the lower pseudoaneurysm was embolized using two 0.3 cm × 2 cm microcoils. No additional contrast extravasation was observed after the procedure (Figure 3D, arrowhead).

Blood clots and the left ureteral stent were removed using cystoscopy considering the patient's hemostasis status. Intraoperative blood loss was approximately 100 mL.

OUTCOME AND FOLLOW-UP

After the operation, a 3-way Foley catheter was inserted, and he subsequently underwent continuous bladder irrigation for 5 d. He demonstrated good tolerance after removal of the Foley catheter and did not experience recurrent hematuria or acute urinary retention. Empirical antibiotic therapy with cefazolin was prescribed, but no fever was detected even during the hematoma absorption phase. His hemoglobin level increased to 10.8 g/dL and recovered to 14.3 g/dL after achieving hemostasis following component therapy. The patient was discharged on postoperative day 8 with mild flank pain.

DISCUSSION

Renal pseudoaneurysm can be asymptomatic and incidentally discovered during unrelated imaging examinations, most commonly by CT. The prevalence of renal artery aneurysm/pseudoaneurysm in the general population is undetermined but is believed to be approximately 0.1% [5]. However, the prevalence of renal artery aneurysm/pseudoaneurysm as detected by multidetector CT is 0.07% [6]. In cases without trauma, the risk factors for spontaneous rupture are an aneurysm size of > 3 cm, hypertension [7], and pregnancy. In a single center experience study, Henke *et al* [8] reviewed 168 patients with renal pseudoaneurysms and found that solitary renal pseudoaneurysm is more common than bilateral pseudoaneurysm, followed by multiple lesions in one kidney. Iatrogenic procedures, such

Table 1 Sequential blood test of the patient

Time	On admission (November 26, 2021)	Day 3 after TAE (November 29, 2021)	Discharge (December 2, 2021)	Reference range
White blood cell ($\times 10^3/\mu\text{L}$)	7.4	10.8 \uparrow	6.6	4-10
Red blood cell ($\times 10^6/\mu\text{L}$)	4.04 \downarrow	3.42 \downarrow	3.69 \downarrow	4.5-5.5
Hemoglobin (g/dL)	12.7 \downarrow	10.8 \downarrow	11.5 \downarrow	13-17
Platelet ($\times 10^3/\mu\text{L}$)	270	295	330	140-520
Prothrombin time (s)	11.4			8-12
Activated partial thromboplastin time (s)	36.4 \uparrow			23.9-34.9
BUN (mg/dL)	16		20	7-22
Creatinine (mg/dL)	1.15		1.07	0.5-1.3
eGFR (mL/min/1.73m ²)	69.7 \downarrow		75.7 \downarrow	100-140
Urine WBC (HPF)	5-10 \uparrow			0-5
Urine RBC (HPF)	Numerous \uparrow			0-5

WBC: White blood cell; RBC: Red blood cell; BUN: Blood urea nitrogen; eGFR: Estimate glomerular filtration rate; " \uparrow ": Higher than the reference value; " \downarrow ": Lower than the reference value.



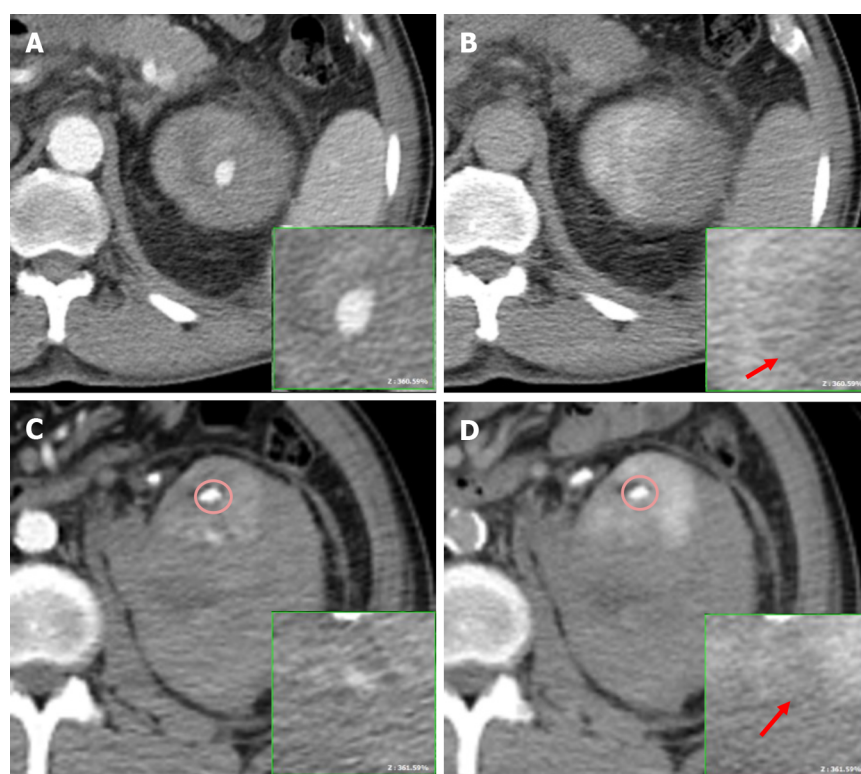
DOI: 10.12998/wjcc.v10.i27.9954 Copyright ©The Author(s) 2022.

Figure 1 Initial presentation of left flank ecchymosis due to massive bleeding from the renal pseudoaneurysm extending into the retroperitoneal space.

as percutaneous procedures, renal biopsy, partial nephrectomy, renal transplantation, ESWL, and intrarenal pelvis surgery, are reported as complications. Among the studies on ESWL, one study reported the case of a patient with Behçet's disease and arterial pseudoaneurysm in the external iliac artery[9]. Lang *et al*[10] reported the case of a patient who developed renal pseudoaneurysm directly after ESWL based on pre- and postprocedural CT scans.

Published studies on endourology-related complications, such as renal pseudoaneurysm, were reviewed. Rudnick *et al*[11] and Aston *et al*[12] each reported one patient who developed renal pseudoaneurysms after flexible ureterorenoscopy and electrohydraulic lithotripsy. Delayed bleeding was noted on postoperative days 19[11] and 21[12]. Urothelial mucosal damage or cavitation bubbles were suspected. Recently, Durner *et al*[13] reported the case of a patient who underwent bridge therapy for underlying disease status after mitral valve replacement. No notable complications were observed during the procedure, but the patient developed macrohematuria after resuming anticoagulant therapy with low-molecular-weight heparin.

Mucosal or potential vascular damage because of the close distance of laser lithotripsy is well known. Among all patients with renal stones who underwent treatment *via* laser lithotripsy reported by Jubber *et al*[14], one presented with urinary tract infection with perirenal fluid collection at 3 weeks after the procedure. The patient was finally diagnosed with renal pseudoaneurysm after poor response to antibiotic treatment. Watanabe *et al*[15] described the case of a postrenal transplantation patient who developed gross hematuria 2 days after laser lithotripsy for stones in an allograft renal pelvis and lower



DOI: 10.12998/wjcc.v10.i27.9954 Copyright ©The Author(s) 2022.

Figure 2 Contrast computed tomography with arterial and delayed phase. A: Contrast extravasation during the arterial phase at the upper renal cortex, 1.8 cm. Perirenal hematoma was confined within the gerota fascia; B and D: Diffused leakage with no defined margin of extravasation; the red arrow indicates the extravasation site no longer existing in delayed phase; C: Another extravasation at the lower renal cortex, 0.8 cm. The renal stone (circled) showing significant higher HU.

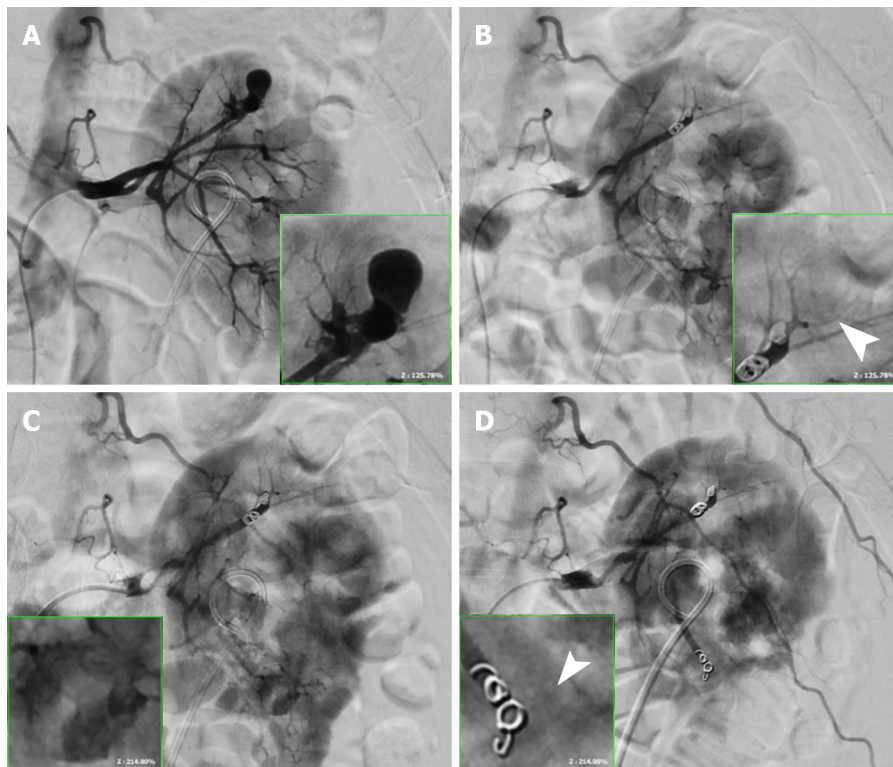
calyx.

In the five patients described above[11-15], no intraoperative complications were recorded; however, three patients presented with delayed bleeding after postoperative day 19. The vessel of the grafted kidney was considered to be weaker than that of the native kidney and was sensitive to intrarenal pressure changes.

To the best of our knowledge, this is the first case report on renal pseudoaneurysm after rigid URSL. Similar to the above reports, all procedures involved the insertion of a guidewire in the renal pelvis. However, additional damage, such as increased intrarenal pressure, may have occurred as a result of the intrarenal pelvis procedure, regardless of whether electrohydraulic or laser lithotripsy was performed. The patient in our report did not undergo these treatments, but all procedures were performed within the ureter; thus, increasing intrarenal pressure for better surgical vision was not required. Although mucosal damage may develop during lithotripsy after severe cough, the etiology of active bleeding of multiple renal pseudoaneurysms has not been clarified. Because of the lack of such reports in the literature, we hypothesize that the concurrent increased intraabdominal pressure during cough, retrograde pressure from ureteroscopy, and water used for irrigation are the precipitating factors. As per our literature review, multiple aneurysms within one kidney are rare compared with solitary renal lesions. Asymptomatic renal pseudoaneurysm after ESWL might explain the occurrence of multiple lesions in our patient; however, preprocedural images were not available for our patient. Nevertheless, both ESWL and rigid URSL are commonly considered as treatment for renal and ureteral stones. Bleeding from renal pseudoaneurysm remains a rare complication. Whether the lesions are primary or secondary to previous ESWL or to hypertension or whether they are related to our hypothesis is also unknown. We believe this outcome was influenced by multiple factors.

The slightly prolonged aPTT in the current case may be related to hypofibrinogenemia after active bleeding and massive transfusion[16,17]. However, we did not perform additional laboratory investigations as the patient did not exhibit signs or symptoms of disseminated intravascular coagulation. Moreover, the relationship between aPTT prolongation and pseudoaneurysm formation has been rarely reported in previous studies.

In our hospital's practice, URSL is routinely performed under intravenous general anesthesia but not spinal anesthesia. An episode where a patient had severe cough during URSL, which possibly increased the risk of mucosal/cavitation bubble-induced damage, has not yet been reported.



DOI: 10.12998/wjcc.v10.i27.9954 Copyright ©The Author(s) 2022.

Figure 3 Comparing the image after TAE with residual J-J stent. A: A 1.5-cm pseudoaneurysm at the upper renal artery branch; B: Embolized using two 0.3 cm × 2 cm and two 0.4 × 2 cm microcoils; C: A 0.4-cm pseudoaneurysm at the lower renal artery terminal branch; D: Embolized using two 0.3 cm × 2 cm microcoils with no contrast extravasation in both lesions (point with white arrowheads).

CONCLUSION

Although renal pseudoaneurysm after URSL is a rare complication, clinicians should consider the indicating signs of persistent hematuria and flank pain. As preoperative arterial-phase contrast CT is not recommended in routine practice, patients with risk factors, such as previous ESWL, poorly controlled hypertension, pregnancy, and history of renal pseudoaneurysm, should be carefully monitored.

FOOTNOTES

Author contributions: Li YH was responsible for the conception and design of the work as well as data analysis and interpretation; Lin YS was a supervisor and participated in the care of the patient; Li YH drafted the article; Hsu CY, Ou YC and Tung MC reviewed the article; all authors have read and approved the final manuscript.

Informed consent statement: Informed written consent was obtained from the patient for publication of this report and any accompanying images.

Conflict-of-interest statement: The authors declare that they have no conflict of interest to disclose.

CARE Checklist (2016) statement: The authors have read the CARE Checklist (2016), and the manuscript was prepared and revised according to the CARE Checklist (2016).

Open-Access: This article is an open-access article that was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution NonCommercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <https://creativecommons.org/licenses/by-nc/4.0/>

Country/Territory of origin: Taiwan

ORCID number: Yi Hong Li 0000-0001-7733-6467; Yi Sheng Lin 0000-0003-0592-0036; Chao Yu Hsu 0000-0001-9809-7442; Yen Chuan Ou 0000-0002-6080-7231; Min Che Tung 0000-0002-4136-7613.

S-Editor: Yan JP

L-Editor: A

P-Editor: Yan JP

REFERENCES

- 1 **De Coninck V**, Keller EX, Somani B, Giusti G, Proietti S, Rodriguez-Socarras M, Rodríguez-Monsalve M, Doizi S, Ventimiglia E, Traxer O. Complications of ureteroscopy: a complete overview. *World J Urol* 2020; **38**: 2147-2166 [PMID: 31748953 DOI: 10.1007/s00345-019-03012-1]
- 2 **Assimos D**, Krambeck A, Miller NL, Monga M, Murad MH, Nelson CP, Pace KT, Pais VM Jr, Pearle MS, Preminger GM, Razvi H, Shah O, Matlaga BR. Surgical Management of Stones: American Urological Association/Endourological Society Guideline, PART I. *J Urol* 2016; **196**: 1153-1160 [PMID: 27238616 DOI: 10.1016/j.juro.2016.05.090]
- 3 **Ngo TC**, Lee JJ, Gonzalgo ML. Renal pseudoaneurysm: an overview. *Nat Rev Urol* 2010; **7**: 619-625 [PMID: 20938436 DOI: 10.1038/nrurol.2010.163]
- 4 **Jesinger RA**, Thoreson AA, Lamba R. Abdominal and pelvic aneurysms and pseudoaneurysms: imaging review with clinical, radiologic, and treatment correlation. *Radiographics* 2013; **33**: E71-E96 [PMID: 23674782 DOI: 10.1148/rg.333115036]
- 5 **Martin RS 3rd**, Meacham PW, Ditesheim JA, Mulherin JL Jr, Edwards WH. Renal artery aneurysm: selective treatment for hypertension and prevention of rupture. *J Vasc Surg* 1989; **9**: 26-34 [PMID: 2911140 DOI: 10.1016/0741-5214(89)90216-4]
- 6 **Zhang LJ**, Yang GF, Qi J, Shen W. Renal artery aneurysm: diagnosis and surveillance with multidetector-row computed tomography. *Acta Radiol* 2007; **48**: 274-279 [PMID: 17453495 DOI: 10.1080/02841850601161521]
- 7 **Kim MS**, Lee YB, Lee JH, Lim CW, Kim JH, Choi HM, Oh DJ. Spontaneous rupture of a renal artery pseudoaneurysm in a previously hypertensive patient. *Clin Hypertens* 2014; **20**: 4 [PMID: 26893914 DOI: 10.1186/s40885-014-0011-4]
- 8 **Henke PK**, Cardneau JD, Welling TH 3rd, Upchurch GR Jr, Wakefield TW, Jacobs LA, Proctor SB, Greenfield LJ, Stanley JC. Renal artery aneurysms: a 35-year clinical experience with 252 aneurysms in 168 patients. *Ann Surg* 2001; **234**: 454-62; discussion 462 [PMID: 11573039 DOI: 10.1097/0000658-200110000-00005]
- 9 **Belmir H**, Azghari A, Sedki N. Pseudoaneurysm of external iliac artery after extracorporeal shock wave lithotripsy revealing Behçet disease. *J Vasc Surg Cases Innov Tech* 2020; **6**: 473-477 [PMID: 32923751 DOI: 10.1016/j.jvscit.2020.07.003]
- 10 **Lang EK**, Earhardt V. Arterial pseudoaneurysm after extracorporeal shock wave lithotripsy. *J Urol* 2005; **173**: 1366 [PMID: 15758806 DOI: 10.1097/01.ju.0000156968.72834.3f]
- 11 **Rudnick DM**, Dretler SP. Intrarenal pseudoaneurysm following ureterorenoscopy and electrohydraulic lithotripsy. *J Urol* 1998; **159**: 1290-1291 [PMID: 9507855 DOI: 10.1016/S0022-5347(01)63583-3]
- 12 **Aston W**, Whiting R, Bultitude M, Challacombe B, Glass J, Dasgupta P. Pseudoaneurysm formation after flexible ureterorenoscopy and electrohydraulic lithotripsy. *Int J Clin Pract* 2004; **58**: 310-311 [PMID: 15117102 DOI: 10.1111/j.1368-5031.2004.00046.x]
- 13 **Durner L**, El Howairis MEF, Buchholz N. Renal Pseudoaneurysm after Flexible Ureterorenoscopy - An Unusual Complication. *Urol Int* 2017; **99**: 484-486 [PMID: 26595208 DOI: 10.1159/000441042]
- 14 **Jubber I**, Patel PR, Hori S, Al-Hayek S. Renal pseudoaneurysm: a rare and potentially fatal complication following ureteroscopy and laser fragmentation of stones. *Ann R Coll Surg Engl* 2018; **100**: e51-e52 [PMID: 29364018 DOI: 10.1308/rcsann.2017.0216]
- 15 **Watanabe M**, Padua HM, Nguyen HT, Alomari AI. Renal pseudoaneurysm following laser lithotripsy: endovascular treatment of a rare complication. *J Pediatr Urol* 2010; **6**: 420-422 [PMID: 20149749 DOI: 10.1016/j.jpuro.2009.12.011]
- 16 **Barbosa ACN**, Montalvão SAL, Barbosa KGN, Colella MP, Annichino-Bizzacchi JM, Ozelo MC, De Paula EV. Prolonged APTT of unknown etiology: A systematic evaluation of causes and laboratory resource use in an outpatient hemostasis academic unit. *Res Pract Thromb Haemost* 2019; **3**: 749-757 [PMID: 31624795 DOI: 10.1002/rth2.12252]
- 17 **Besser MW**, MacDonald SG. Acquired hypofibrinogenemia: current perspectives. *J Blood Med* 2016; **7**: 217-225 [PMID: 27713652 DOI: 10.2147/JBM.S90693]



Published by **Baishideng Publishing Group Inc**
7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA

Telephone: +1-925-3991568

E-mail: bpgoffice@wjgnet.com

Help Desk: <https://www.f6publishing.com/helpdesk>

<https://www.wjgnet.com>

