

Redo open partial nephrectomy with ureterocalycostomy for recurrent chromophobe renal cell carcinoma: A case report of a nephron-sparing salvage strategy

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Citation: Amr M, Khalil I, Sbeih BRA. Redo open partial nephrectomy with ureterocalycostomy for recurrent chromophobe renal cell carcinoma: A case report of a nephron-sparing salvage strategy. Cent European J Urol. 2026; 79: 321-325.

Article history

Submitted: May 12, 2026

Accepted: May 17, 2026

Published online: Jul. 17, 2026

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Introduction Redo partial nephrectomy (RePN) for locally recurrent renal cell carcinoma (RCC) after prior nephron-sparing surgery (NSS) remains a challenging endeavour with limited evidence. We report a case of recurrent chromophobe RCC (ChRCC) managed by open RePN combined with reconstructive ureterocalycostomy.

Material and methods A 61-year-old hypertensive woman initially underwent right partial nephrectomy for a 1.5 × 1.2 cm lower-pole renal mass. Histopathology revealed oncocytic-variant ChRCC with indeterminate margins due to specimen fragmentation. Follow-up computed tomography (CT) at 4 months demonstrated a persistent 1.4 × 1.1 cm enhancing mass with an altered enhancement pattern and ureteric adherence, prompting redo surgery. Open RePN with ureterocalycostomy and double-J stent placement was performed through extensive adhesiolysis.

Results Histopathology confirmed focal ChRCC with negative margins (R0 resection). Post-operatively, the patient developed haemodynamic instability secondary to a urinoma (8.5 × 5.5 cm) from the renal pelvis; notably, the ureterocalycostomy remained intact. She was stabilised in the intensive care unit, and a percutaneous nephrostomy was inserted. Serum creatinine remained within normal limits throughout. Post-operative follow-up at seven weeks showed resolution of hydronephrosis on ultrasonography, and three-dimensional CT urography at 73 days demonstrated a patent collecting system with no extravasation or obstruction.

Conclusions This case demonstrates that open RePN combined with ureterocalycostomy is a feasible nephron-sparing salvage strategy in selected patients with recurrent ChRCC and complex anatomy. The approach achieved complete tumour excision and preserved renal function. Further documentation of such reconstructive NSS techniques is warranted.

Key Words: chromophobe renal cell carcinoma ↔ nephron-sparing surgery ↔ redo partial nephrectomy ↔ ureterocalycostomy ↔ reconstructive surgery ↔ recurrent renal cell carcinoma

INTRODUCTION

Chromophobe renal cell carcinoma (ChRCC) is a relatively uncommon histological subtype comprising approximately 4–6% of all renal cell carcinomas (RCCs), generally carrying a favourable prognosis with surgical resection as the primary treatment [1]. Partial nephrectomy (PN), a nephron-sparing sur-

gery (NSS), is regarded as superior for localised disease whenever technically feasible [2]. The reported local recurrence rate after PN is approximately 4.39%, associated with factors including male sex, locally advanced disease, positive margins and lymphovascular invasion [3]. Distant metastasis in ChRCC is less common compared with clear cell RCC [4].

Historically, radical nephrectomy (RN) was preferred for local recurrence after PN because of the surgical complexity posed by fibrosis and scarring. However, emerging evidence supports redo partial nephrectomy (RePN) as a viable nephron-sparing alternative in selected patients, given the long-term benefits of preserved renal function and reduced cardiovascular mortality associated with avoiding RN [5, 6]. We report a case of locally recurrent oncocyctic-variant ChRCC successfully managed with open RePN combined with reconstructive ureterocalycostomy.

CASE REPORT

A 61-year-old woman with a history of hypertension presented with worsening epigastric pain in November 2024. Abdominal and pelvic CT with contrast revealed a well-defined, 1.5×1.2 cm enhancing exophytic mass at the lower pole of the right kidney. The lesion was hypodense on pre-contrast imaging, hyperenhancing on arterial phase and demonstrated rapid washout on portal venous and delayed phases. The patient underwent right PN via exploratory laparotomy at another facility on 25 December 2024. Histopathology revealed oncocyctic-variant ChRCC with tissue invasion; however, margins and pathological staging could not be determined as the specimen was submitted in three fragments. Follow-up CT on 9 April 2025 showed a persistent 1.4×1.1 cm mass at the lower pole with an altered enhancement pattern (marked hyperenhancement

only on the portal phase vs the prior biphasic pattern) and convex attachment to the adjacent right ureter. These findings – change in enhancement pattern, ureteric adherence and indeterminate initial margins – prompted the decision to perform RePN.

On 8 October 2025, the patient underwent open redo right PN with ureterocalycostomy and double-J (DJ) ureteric stent placement under general anaesthesia. Extensive adhesiolysis was required due to dense adhesions from the prior operation. The recurrent calcified ChRCC mass was densely adherent to the right ureter, preventing DJ stent passage to the lower pole before ureterocalycostomy. Severe hydronephrosis was noted intraoperatively (Figure 1). Estimated blood loss was approximately 1,000 ml, managed with intravenous fluid resuscitation and transfusion of two units of packed red blood cells.

On post-operative day two, the patient developed acute haemodynamic instability with hypotension, tachycardia, desaturation and oliguria. Chest CT angiography excluded pulmonary embolism but showed mild bilateral pleural effusions. Repeat abdominal CT revealed a large urinoma (8.5×5.5 cm) in the right anterior pararenal space with contrast extravasation from the renal pelvis, which was identified as the probable cause of her haemodynamic collapse. Importantly, the ureterocalycostomy anastomosis remained intact. Type II myocardial infarction secondary to hypotension was diagnosed, with cardiac troponin I peaking at 6.7 and subsequently

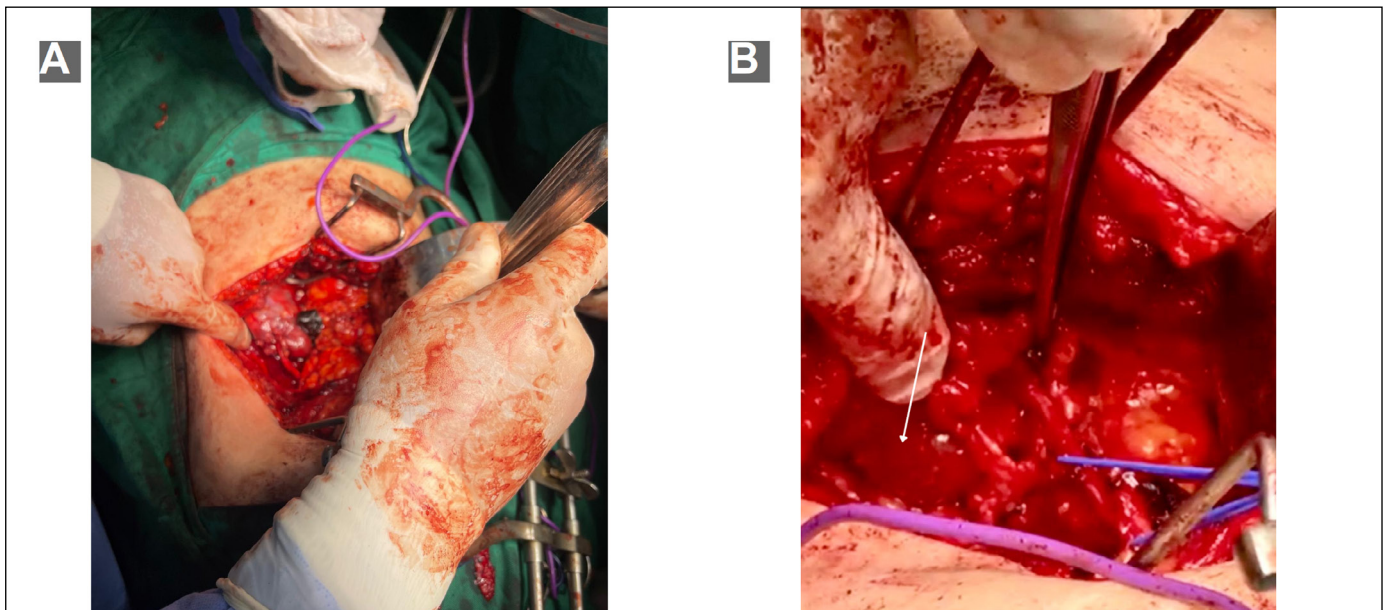


Figure 1. Intraoperative views during redo partial nephrectomy. **A)** Surgical field demonstrating dense perirenal fibrosis, adhesions and the recurrent calcified chromophobe RCC mass. **B)** Close-up view showing marked hydronephrosis (white arrow) with the tumour adherent to the right ureter.

downtrending. Echocardiography demonstrated a dilated hypokinetic right ventricle with an ejection fraction of approximately 40%. The patient was stabilised in the intensive care unit with vasopressors and broad-spectrum antibiotics. A percutaneous nephrostomy tube was inserted on post-operative day six to divert urine and facilitate healing of the pelvic leak (Figure 2). Serum creatinine remained within normal limits throughout. Histopathology of the RePN specimen showed focal ChRCC with central necrosis and cauterisation arte-

fact. Margins were composed of normal renal parenchyma and were negative for tumour (R0 resection). The patient was discharged on post-operative day eight in stable condition. Post-operative follow-up proceeded as follows: nephrostomy capping on day 19 without pain, fever or leakage; antegrade nephrostogram on day 24 confirming resolution of the urinary leak and a patent anastomosis, allowing safe nephrostomy removal; DJ stent removal on day 44 (21 November 2025) without complications; renal ultrasonography on day 52 showing resolution of hydronephrosis (Table 1, Figure 3); and three-dimensional volume-rendered CT urography on day 73 (20 December 2025) demonstrating bilateral collecting system opacification with continuous contrast passage into the bladder without extravasation or obstruction (Figure 4).

Table 1. Post-operative follow-up timeline

Date	Post-op day	Event
8 October 2025	0	Redo PN with ureterocalycostomy
10 October 2025	2	Urinoma identified; ICU transfer
14 October 2025	6	Percutaneous nephrostomy tube insertion
16 October 2025	8	Discharge from hospital
27 October 2025	19	Nephrostomy capping
1 November 2025	24	Antegrade nephrostogram; nephrostomy tube removal
21 November 2025	44	DJ stent removal
29 November 2025	52	Renal ultrasonography – hydronephrosis resolved
20 December 2025	73	3D CT urography – normal; no extravasation or obstruction

CT – computed tomography; DJ – double-J; ICU – intensive care unit; PN – partial nephrectomy

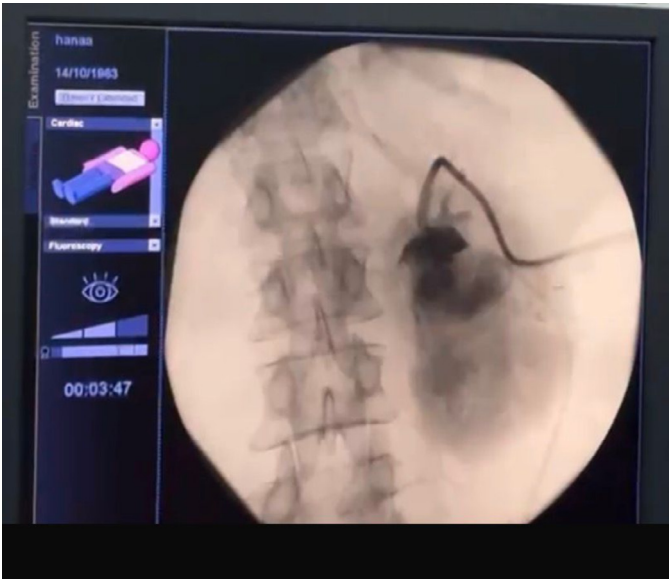


Figure 2. Percutaneous nephrostomy placement. Fluoroscopic imaging showing the nephrostomy tube positioned in the collecting system for urine diversion on post-operative day six.

DISCUSSION

This case illustrates the successful application of open RePN combined with ureterocalycostomy for locally recurrent unilateral ChRCC, achieving complete tumour resection (R0 margins) and maintained renal function. There is no consensus on the optimal management of recurrent local RCC after PN, and the evidence



Figure 3. Post-operative renal ultrasonography at seven weeks (post-operative day 52). The image demonstrates significant reduction in pelvic fullness with resolution of the previously severe hydronephrosis, confirming a functional and unobstructed drainage pathway.

base remains limited to small retrospective cohorts. The largest multi-institutional series to date involved 192 patients undergoing RePN, reporting a major complication rate (Clavien–Dindo $\geq$ III) of 19%, thus supporting the procedure's feasibility [7]. A recent study from a high-volume robotic centre ($n = 26$) demonstrated satisfactory outcomes [8], whilst a cross-sectional study involving 15 patients over 10 years concluded that reoperation after NSS is both safe and effective, though RePN was feasible in only four cases [9].

Despite the technical complexity, RePN can achieve satisfactory oncological outcomes whilst preserving renal function [5]. In our case, the decision to employ an open approach was guided by the anticipated complexity: dense adhesions, severe hydronephrosis, tumour adherence to the proximal ureter and the requirement for reconstructive ureterocalycostomy necessitating direct tactile feedback [10, 11]. The IRON study, a large-scale com-

parison of robotic and open PN, further supports equivalent renal function and oncological outcomes for both approaches, with the choice guided by individual case complexity [12].

The identification of an oncocytic variant of ChRCC, first described by Thoenes and Störkel as a tumour with an indolent biological course and favourable prognosis [13], further supported the decision for NSS rather than RN.

Ureterocalycostomy was a critical reconstructive step in this case. This procedure achieves direct dependent urine drainage through a mucosal anastomosis between the ureter and the lower-pole calyx. It was necessitated by the dense adhesion of the tumour to the proximal ureter with overlying fibrosis, rendering reconstruction of the renal pelvis impossible [14]. Although infrequently performed, ureterocalycostomy has demonstrated safety and effectiveness as an alternative to more morbid procedures such as ileal interposition or renal autotransplantation [14, 15].

Post-operative surveillance should follow standard protocols: evaluation every 6 months for the first 2 years, then annually for 5 years, including serum creatinine, estimated glomerular filtration rate and cross-sectional imaging [2]. In our patient, all laboratory and imaging studies confirmed stable renal function, resolved hydronephrosis and a patent upper urinary tract.

CONCLUSIONS

RePN combined with ureterocalycostomy is a feasible nephron-sparing strategy for selected patients with recurrent ChRCC, achieving both oncological control and preservation of renal function. However, the limited evidence base precludes generalisation, and decision-making should be individualised based on the patient's clinical condition, tumour characteristics, surgeon expertise and capacity for regular follow-up. Further documentation of reconstructive NSS techniques is warranted.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

FUNDING

This research received no external funding.

ETHICAL STATEMENT

This study was conducted in accordance with the Declaration of Helsinki. Institutional review board approval was obtained from Al Mizan Hospital, Hebron, Palestine. Written informed consent was obtained from the patient for publication of this case report and accompanying images.



Figure 4. Post-operative three-dimensional volume-rendered CT urography at 73 days. Bilateral opacification of the renal collecting systems and ureters is demonstrated. A patent ureterocalycostomy at the lower pole of the right kidney is visible with no evidence of extravasation or obstruction, affirming successful reconstruction.

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