Case Report

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Bilateral renal cell carcinoma operated as right radical nephrectomy and left partial nephrectomy with histopathologically confirmed R0 resection

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ABSTRACT

Bilateral renal tumors remain relatively uncommon, accounting for 1-5% of patients with renal cell carcinoma. Most sporadic renal cell carcinomas are unilateral and unifocal. Bilateral involvement can be synchronous or asynchronous and is found in 2-4% of sporadic renal cell carcinomas. We report a case of 70 years old male who was incidentally found to have bilateral renal masses. Right sided radical nephrectomy and left partial nephrectomy was performed. Histopathological examination of the specimen revealed clear cell carcinoma and confirmed R0 resection. The patient was discharged on 7th postoperative day.

Keywords: Bilateral, Radical nephrectomy, Lymphadenectomy, Oncologic outcome, Renal function

INTRODUCTION

Bilateral renal tumors remain relatively uncommon, accounting for 1-5% of patients with renal cell carcinoma (RCC).^{1,2} With the more pervasive use of non-invasive imaging for the evaluation of variety of nonspecific symptom complexes, more than 60% of RCC are now detected incidentally.3 Surgery remains the mainstay for curative treatment of this disease. The main objective is to excise all tumour with an adequate surgical margin. Robson and colleagues established radical nephrectomy (RN) as the gold standard curative operation for localized RCC.4 RN has more recently fallen out of favour for small renal tumours because of concerns about CKD. In patients with bilateral synchronous RCC, the general approach has been to preserve as much functioning renal tissue as possible. When a locally extensive tumour on one side precludes nephron sparing surgery, RN is performed on the more involved side along with contralateral partial nephrectomy (PN).^{5,6}

CASE REPORT

A 70 years old male presented to emergency with pain right upper abdomen for the past 3 days. He gave history of one episode of vomiting three days back. He had no history of fever, jaundice, LUTS. He was known case of essential hypertension for past 20 years on losartan.

On examination, a mass was palpable in the right hypochondric and right lumbar regions, about 10×8 cm in dimension, extending just upto the iliac fossa, did not cross midline, nontender, ballotable and moved with respiration. Inferior and lateral margins of the mass were palpable. Liver and spleen were not palpable. There were no signs of peritonitis.

His pulse rate was 80/minute, BP 130/80 mmHg and temp. 98.7-degree Fahrenheit. His baseline investigations were done in emergency which revealed the Hb. 7.7 g/dl, WBC 6.9×10^9 /litre and platelets 160×10^9 /litre. Electrolytes were as follows: Na 134 mmol/litre, K⁺- 4.38

mmol/litre. Serial BUN levels were 77, 76, 62, and 26 mg/dl, and serial creatinine levels were as 2.17, 1.59, 1.56, 1.46, and 1.10 mg/dl. His routine urine examination was normal and urine culture was sterile. He received three pre-operative blood transfusions. Chest X-ray and CECT chest didn't show evidence of metastasis. His CT-angiogram didn't reveal involvement of renal vein or inferior vena cava.

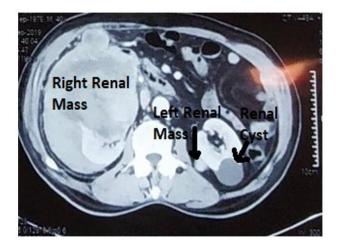


Figure 1: CECT abdomen showing bilateral RCC and renal cyst in left kidney.

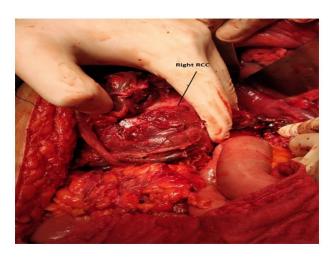


Figure 2: Intraoperative picture of right RCC.

The patient had ultrasound scan done which showed heterogenous mass in lower pole of right kidney and two cortical cysts in left kidney. His subsequent CT scan as shown (Figure 1) revealed right kidney heterogenous mass on mid pole 11.7×9.7×10.1 cm with loss of fat planes with duodenum and a well-defined hyperdense lesion measuring 19×15 mm seen at mid pole with an eccentric enhancing component. HRCT chest and NCCT head didn't show any evidence of metastasis. Patient underwent right radical nephrectomy and left partial nephrectomy (Figures 2-9). Post-operative RFT (BUN/creatinine) of patient went as 49/1.69, 66/2.17, 78/2.40, 71/2.00, 73/1.95, 60/1.82. The histopathology report of the specimens was bilateral clear cell carcinoma

with uninvolved renal vein, Gerota's fascia and urethral margin on right side and uninvolved Gerota's facia and 5 mm medial margin on left side. The patient was discharged on 7th post-operative day with no complications and stable baseline kidney function tests.

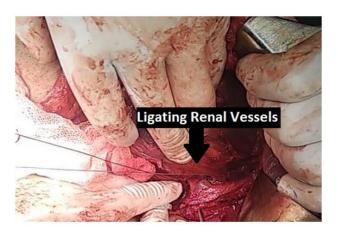


Figure 3: Ligating right renal vessels for nephrectomy.



Figure 4: Right renal fossa after EN-bloc removal of right kidney mass showing gall bladder, liver, IVC and aorta.

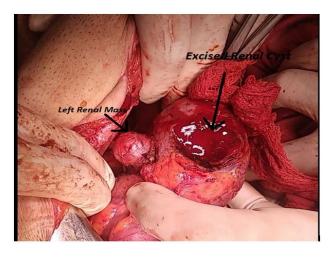


Figure 5: Excision of left renal cyst.

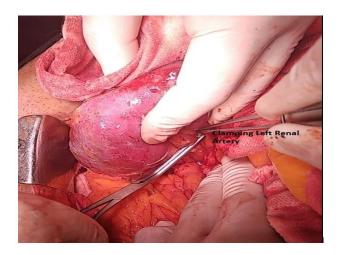


Figure 6: Clamping of left renal artery before performing partial nephrectomy.

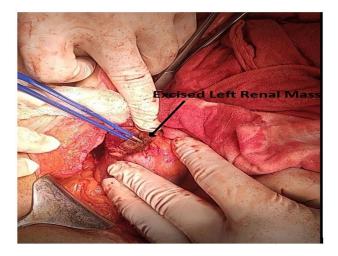


Figure 7: Partial nephrectomy for left renal mass.

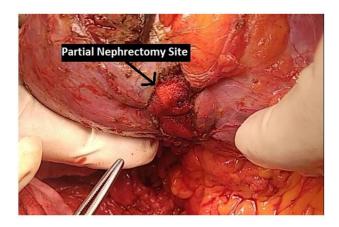


Figure 8: Partial nephrectomy site closed over fibrillar.

DISCUSSION

RCC accounts for approximately 3.5% of all malignancies and is the third most common cancer of the urinary tract. Historically presenting with symptoms such

as a palpable flank mass, hematuria, pain, or weight loss, the majority of today's cases are identified by chance. This change is attributed to the frequency of crosssectional diagnostic imaging, and an asymptomatic, incidental renal mass now accounts for at least 48-66% of RCC diagnoses.7 Robson is credited with establishing open radical nephrectomy (ORN) as the treatment for RCC, defining the key components as early isolation and ligation of the renal vessels, kidney removal with all the surrounding perinephric tissues, resection of the ipsilateral adrenal gland, and regional lymph node dissection. However, in recent decades, with increasing numbers of incidental and localised RCC identified with sensitive modern imaging, the need and application of these aspects of ORN have been questioned. For example, although adrenalectomy and lymphadenectomy may have a role in pathological staging of patients with large or clinically advanced (≥T2) tumors, evidence suggests those components have no clear benefit over nephrectomy alone for treating localised renal masses in the absence of abnormal imaging (i.e., adenopathy or adrenal mass), and these features of the operation are now performed selectively.^{8,9}

Open partial nephrectomy (OPN) has been primary approach for nephron-sparing surgery (NSS) and was originally performed for patients with absolute indications, those with a solitary kidney and RCC, or those with bilateral RCC.¹⁰ OPN has been advocated as the preferred treatment for localised RCC given its equivalent oncologic outcomes and its benefit of preserving the uninvolved kidney.¹¹

CONCLUSION

In patients with bilateral synchronous RCC, the general approach should be to preserve as much functioning renal tissue as possible. This entails performing bilateral PNs when feasible. When a locally extensive tumour on one side precludes nephron-sparing surgery, RN on more involved side along with contralateral PN is adequate procedure.

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