CASE REPORT

LAPAROSCOPIC PARTIAL NEPHRECTOMY FOR T2B TUMOR IN A PATIENT WITH A SOLITARY KIDNEY: A CASE REPORT

NEFRECTOMIA PARCIAL LAPAROSCÓPICA PARA TUMOR T2B EM PACIENTE COM RIM ÚNICO: RELATO DE CASO

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ABSTRACT

For T2 renal tumors, most authors recommend radical nephrectomy. However, reports of partial nephrectomy for these tumors in patients with solitary kidneys are scarce. This study describes a case of a 32-year-old male (R.J.A.L) with a 12-cm tumor in the left kidney and with agenesis of the right kidney. Preoperative renal function was normal. In June 2016, he underwent a laparoscopic partial nephrectomy. Postoperatively, the patient developed anuria and elevated serum creatinine, requiring renal replacement therapy with hemodialysis. After 20 days, the renal function recovered, and hemodialysis was discontinued. Histopathology confirmed renal cell carcinoma. At present, the patient remains hemodialysis-free, with preserved renal function and no evidence of tumor recurrence on follow-up imaging with computed tomography. Laparoscopic partial nephrectomy of T2b renal tumors may be feasible and oncologically effective in selected cases, including those involving a solitary kidney, while preserving adequate renal function.

Keywords: Renal cell carcinoma; Solitary kidney; Nephrectomy.

RESUMO

Para tumores T2, a maioria dos autores sugere a nefrectomia radical, porém, a literatura carece de relatos de nefrectomia para tumores T2b em pacientes com rim *único*. *RJAL, sexo masculino, 32 anos com* tumor em rim esquerdo medindo 12 cm e agenesia renal direita. No pré-operatório apresentava função renal normal. Foi submetido *à* nefrectomia parcial laparoscópica em junho de 2016. Evoluiu com elevação da creatinina sérica e anúria, sendo então iniciada terapia renal substitutiva com hemodiálise. Após 20 dias, por apresentar normalização da função renal, optou-se por suspender a mesma. O anatomopatológico revelou tratar-se de carcinoma de células renais. No momento, o paciente encontra-se fora de hemodiálise e com TC mostrando rim sem evidências de recidiva tumoral. A nefrectomia parcial laparoscópica para tumores renais estádio T2b, *é* factível e pode ser indicada em casos selecionados como agenesia renal, com resultado oncológico eficaz e manutenção da função renal.

Palavras-chaves: Carcinoma de células renais; Rim único; Nefrectomia.

INTRODUCTION

Renal cell carcinoma (RCC) accounts for about 2% to 3% of malignant tumors in adults, with a higher incidence in Western countries. The peak incidence of RCC occurs between 60 and 70 years, and mostly in males[1-2]. Advances in diagnostic imaging have improved the detection and staging of renal tumors, with about half of the cases discovered incidentally[2].

Surgery remains the standard treatment for most renal tumors, including benign lesions, with the choice between radical or partial nephrectomy depending on tumor location and clinical staging[3].

Partial nephrectomy can be performed using open, laparoscopic, or robotic techniques, and is the recommended intervention for T1 tumors to preserve renal function; the latter two techniques offer similar oncologic outcomes and superior post-surgery recovery. This procedure is safe and effective for patients with solitary kidneys. For T2 tumors, radical nephrectomy is typically advised[4-5]; however, reports of partial nephrectomy for these tumors in patients with solitary kidneys are scarce.

CASE REPORT

A 32-year-old male patient with a history of hypertension and smoking sought an emergency service reporting gross hematuria for at least two weeks. Laboratory investigations revealed normal renal function, and an abdominal ultrasound identified a renal mass. Contrast-enhanced magnetic resonance imaging of the abdomen (Figure 1) confirmed a 12-cm tumor on the left kidney involving the middle

and lower poles. An agenesis of the right kidney was also identified.

The preoperative evaluation revealed a serum creatinine level of 0.9 mg/dL. Given the solitary kidney and preserved renal function, nephron-sparing surgery was elected. In June 2016, the patient underwent a laparoscopic partial nephrectomy. The procedure was uneventful, with a pedicle clamping time of 50 minutes and an estimated blood loss of 400 mL. The total surgical time was 130 minutes. Postoperatively, the patient developed anuria and elevated serum creatinine in the first 24 hours, requiring hemodialysis. After 20 days, renal function normalized, and the hemodialysis was discontinued.

Histopathological examination revealed a clear RCC (Fuhrman's grade 3) with negative surgical margins and no invasion of perirenal adipose tissue. The final pathological stage was pT2b Nx Mx.

Follow-up imaging with computed tomography (Figure 2) revealed no evidence of recurrence, with preserved renal function (serum creatinine level of 1.3 mg/dL).

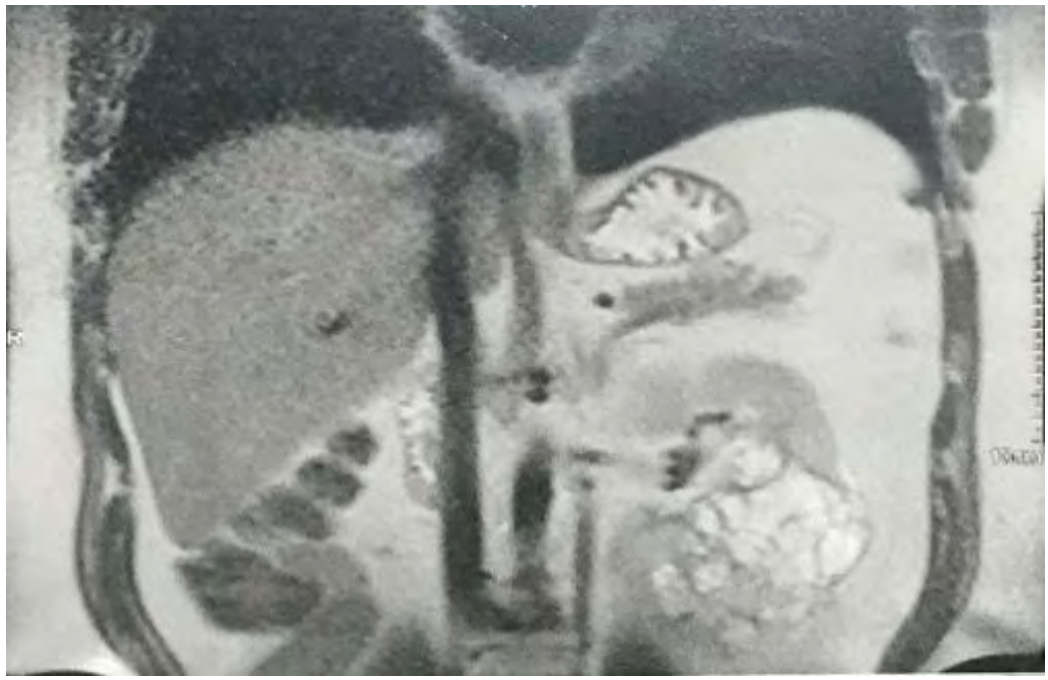

Figure 1. Preoperative magnetic resonance imaging showed a 12-cm left renal mass.

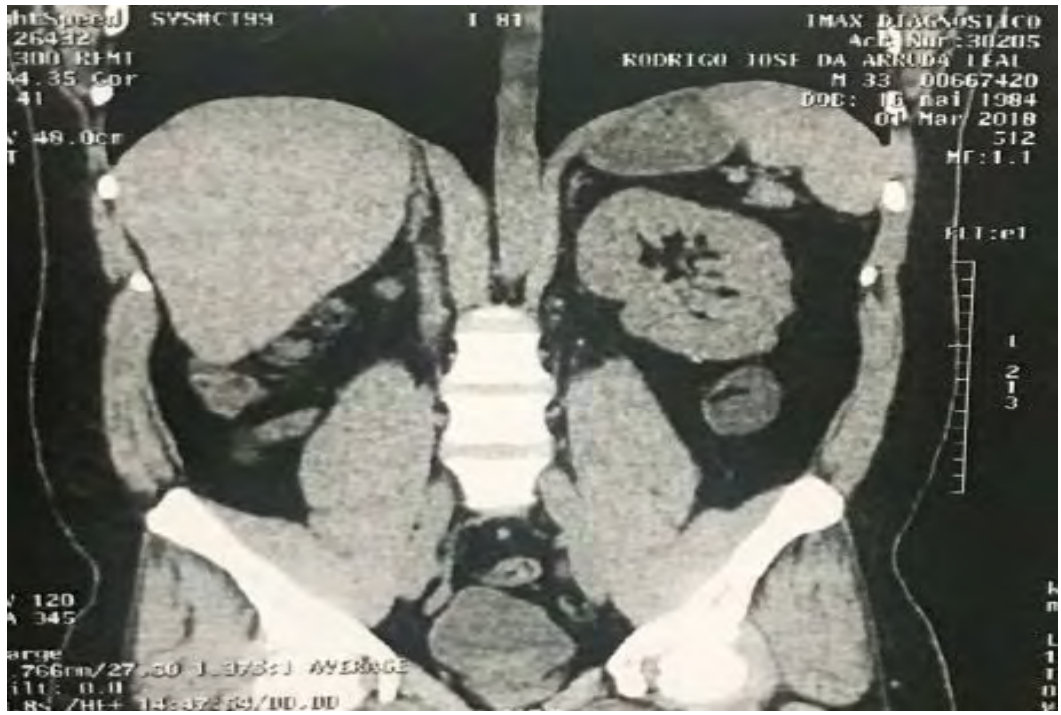

Figure 2. A postoperative computed tomography scan showed no evidence of recurrence.

DISCUSSION

RCC ranks among the ten most common malignancies in Western countries. Worldwide, about 270,000 new cases and 116,000 deaths occur annually6.

Nephrectomy is the indicated intervention for removing malignant tumors of the kidney. Partial nephrectomy can be performed via open, laparoscopic, or robotic-assisted (using little incisions and a videocamera) interventions to preserve as much renal mass as possible without disregarding the safety of removing tissue affected by the tumor.

The main indications for partial nephrectomy include solitary kidney, bilateral tumors, and small, peripherally located renal lesions (< 4 cm) or complex cysts (Bosniak III and IV)8.

In this case, laparoscopic partial nephrectomy for a T2b renal tumor (> 10 cm limited to the kidney) proved technically feasible and oncologically effective in a patient with a solitary kidney.

This case report contributes to the limited evidence regarding nephron-sparing surgery in T2b, particularly in solitary kidneys, highlighting the possibility of preserving renal function without hindering oncologic outcomes.

REFERENCES

1. Ljungberg B; Cowan N; Hanbury D.C; et al. Diretrizes sobre Carcinoma de Células Renais. Eur Urol 2007 Jun; 51(6):1502-10. (Atualizado em abril de 2010).
2. Zanettini L. A; Mitre A. I; Zanetini L. F; Nefrectomia Radical Laparoscópica. Rev bras videocir 2006;4(2): 85-96.
3. Garcia A. S; Pinedo B. N; Antiqueira J. K; et al. Características Clínicas dos Pacientes Submetidos à Nefrectomia Parcial e Presença de Carcinoma Renal. Revista Brasileira de Cancerologia 2017; 63(2): 95-101.
4. Leung C, Pan S, Shuch B. Management of renal cell carcinoma in young patients and patients with hereditary syndromes. Curr Opin Urol. 2016;26(5):396-404.
5. Wu X.B; Zhang G. T; Zhang F; et al. Safety and efficacy of partial nephrectomy for solitary kidney tumor. 2016 Oct 1;54(10):746-750. doi: 10.3760.
6. Ljunberg B, Campbell SC, Cho HY, et al. The epidemiology of renal cell carcinoma. Eur Urol. 2011;60:615–21
7. lerner se, Hawkins ca, Blute Ml, Grabner a, Wollan Pc, eickholt Jt, Zincke H. disease outcome in Patients with low stage renal cell carcinoma treated With nephron sparing or radical surgery. J urol. 1996;155(6):1868-73.
8. Garcia AS; Pinedo BN; Antiqueira JK; et. al. Características Clínicas dos Pacientes Submetidos à Nefrectomia Parcial e Presença de Carcinoma Renal. Revista Brasileira de Cancerologia 2017; 63(2): 95-101.
9. Verhoest G et al. Safety and Feasibility of Laparoscopic Nephrectomy for Big Tumors (≥ 10 cm): A Retrospective Multicentric Study. Clin Genitourin Cancer. 2016; 14(4):335-40.
10. Rouffilange J et al. Partial nephrectomy for renal masses>-7cm: Morbidity, oncological and functional outcomes. Prog Urol. 2018; 28(12):588-595.
11. Costabel J et al. Functional and oncologic outcomes after nephron-sparing surgery in a solitary kidney: 10 years of experience. Int Braz J Urol. 2016; 42(2):253-61.
12. Gurgel M. V. S. A; Júnior j. A; Vieira G. B F; et al. Preditores de mortalidade em pacientes submetidos à nefrectomia por carcinoma de células renais não metastático em um centro de referência no Nordeste Brasileiro. Rev. Col. Bras. Cir. 2017; 44(3):257-262