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SURGERY WORKSHOP

Laparoscopic partial nephrectomy: Comparative study of the transperitoneal pathway and the retroperitoneal pathway[☆]

J. Muñoz-Rodríguez*, A. Prera, A. Domínguez, L. de Verdonces, M.A. Rosado, R. Martos, J. Prats

Servicio de Urología, Hospital Universitari Parc Taulí, Universitat Autònoma, Sabadell, Barcelona, Spain

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KEYWORDS

Laparoscopy;
Partial nephrectomy;
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Abstract

Introduction: Laparoscopic partial nephrectomy is the recommended treatment for tumors smaller than 4 cm in cases where it is feasible. Depending on the location of the tumor, the transabdominal or direct retroperitoneal pathway may be considered.

Objective: To compare the transperitoneal (TPPN) and direct retroperitoneal (RPPN) partial nephrectomies performed between 2007 and 2016.

Material and methods: A retrospective study was conducted on 71 patients who underwent TPPN (42) or direct RPPN (29) partial nephrectomy. We evaluated the characteristics of the patients and tumors, including tumor complexity (PADUA, RENAL, C-index). We compared peri-operative variables, including the complications between the 2 pathways.

Results: We found no differences in terms of age, sex, Charlson's score and BMI. A larger proportion of patients in the direct RPPN group had prior major abdominal surgery (7.1 vs. 24.1%; $p=0.043$). There were no differences in tumor size, laterality, polarity or complexity in any of the assessed scores. There were significant differences in tumor location (anterior/middle/posterior) between the TPPN and RPPN groups (54.8/31/14.3 vs. 3.4/13.8/82.8%; $p<0.001$). There were no differences in the surgical time or length of stay. The TPPN group had a smaller urinary tract opening (4.8 vs. 27.6%; $p=0.007$) and a higher percentage of haemostatic renorrhaphy (47.6 vs. 17.2%; $p=0.008$). There were no differences in the need for warm ischemia, in the changes in hemoglobin levels or in the glomerular filtration rate. The complication rates were similar for the two series.

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* Corresponding author.

E-mail address: jesusmunozrguez@hotmail.com (J. Muñoz-Rodríguez).

PALABRAS CLAVE

Laparoscopia;
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Tumor renal;
Complicaciones

Conclusion: The two pathways show similar results in terms of renal function preservation, complications and oncological results. However, we recommend understanding both techniques and adapting the access type to the clinical case.

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Nefrectomía parcial laparoscópica: estudio comparativo entre la vía transperitoneal y la vía retroperitoneal

Resumen

Introducción: La nefrectomía parcial laparoscópica es el tratamiento recomendado en aquellos tumores con un tamaño inferior a 4 cm en los cuales sea factible. Dependiendo de la localización del tumor se considerará la vía transperitoneal (VTP) o la vía retroperitoneal directa (VRP).

Objetivo: Comparar las nefrectomías parciales VTP y VRP realizadas entre 2007-2016.

Material y métodos: Estudio retrospectivo de 71 pacientes sometidos a VTP (42) y VRP (29). Se han evaluado características propias de los pacientes y del tumor, incluyendo la complejidad tumoral (PADUA, RENAL, C-index). Se compararon variables perioperatorias, incluyendo las complicaciones, entre ambas vías.

Resultados: No encontramos diferencias en cuanto a edad, género, Charlson o IMC. Encontramos una mayor proporción de pacientes con cirugía mayor abdominal previa en la VRP (7,1 vs. 24,1%; $p=0,043$). No hallamos diferencias en el tamaño, en la lateralidad ni la polaridad, ni en la complejidad de los tumores en ninguno de los scores evaluados. Encontramos diferencias significativas en la localización del tumor (anterior/medio/posterior) entre la VTP y la VRP (54,8/31/14,3 vs. 3,4/13,8/82,8%; $p<0,001$). No encontramos diferencias en el tiempo quirúrgico ni en los días de estancia. La VTP presentó una menor apertura de la vía urinaria (4,8 vs. 27,6%; $p=0,007$) y un mayor porcentaje de pacientes con renorrafia hemostática (47,6 vs. 17,2%; $p=0,008$). No se encontró diferencia en la necesidad de isquemia caliente, en los cambios en la hemoglobina ni en el filtrado glomerular. La tasa de complicaciones es similar entre ambas series.

Conclusión: Ambas vías muestran resultados similares en cuanto a la preservación de la función renal, las complicaciones y los resultados oncológicos. A pesar de ello, consideramos que es recomendable conocer ambas técnicas y adaptar el tipo de acceso al caso clínico.

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Introduction

Renal carcinoma represents 2–3% of all cancers.¹ In 2012, 84,400 new cases of renal carcinoma were diagnosed in the European Union.² Partial nephrectomy plays a fundamental role in the functional preservation of the organ, obtaining good oncological control.³

The European guidelines⁴ recommend partial nephrectomy for tumors smaller than 4 cm in size. Mir et al., in a meta-analysis that included partial nephrectomies in cT1b-cT2 stages, observed that partial nephrectomy obtains improvements in overall survival and cancer-specific mortality⁵; despite this, they recommend partial nephrectomy in cT2 in selected cases.

Laparoscopic partial nephrectomy can be performed both through the transperitoneal pathway and direct retroperitoneal, both of which are recommended in the guidelines.⁴ The choice of the pathway will depend on the location of the tumor. Ng et al.⁶ recommend retroperitoneal pathway in posterior or posteromedial tumors and transperitoneal pathway in anterior or lateral tumors.

Material and methods

We performed a retrospective analysis of laparoscopic partial nephrectomies through transperitoneal pathway and retroperitoneal pathway from 2007 to 2016.

Transperitoneal pathway was performed in posterior and midline valvular tumors and in those patients with a history of major abdominal surgery. Patients with no abdominal surgical history and tumors in the anterior valve were operated on through transperitoneal pathway.

The surgical technique consisted in both cases in the identification of the renal hilum. Subsequently, the tumor was identified and the lumpectomy was performed. If the opening of the urinary tract was observed, it was closed by absorbable suture. In all cases, a hemostatic agent was subsequently applied, using autologous fibrin (Vivostat®).⁷ An analytical control was carried out at 24 h of surgery, assessing hemoglobin and creatinine.

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