

cutanată și alte doua cu nevezică ileală Studer efectuată extra-corporeal dar cu anastomoza efectuată intracorporeal robotic (Figurile 17-22).

În concluzie,

majoritatea intervențiilor chirurgicale uro-oncologice pot fi realizate prin abord robotic, abord care oferă avantaje din

punctul de vedere al morbidității perioperatorii, al rezultatelor funcționale și al rezultatelor oncologice pe termen scurt. Unele intervenții necesită validarea rezultatelor oncologice pe termen lung.

Bibliografie:

1. SIM HG, YIP SK, LAU WK, TAN YH, WONG MY, CHENG CW. Team-based approach reduces learning curve in robot-assisted laparoscopic radical prostatectomy. *Int J Urol*. 2006 May;13(5):560-564
 2. T.E. AHLERING, D. SKARECKY, D. LEE et al., Successful transfer of open surgical skills to a laparoscopic environment using a robotic interface: initial experience with laparoscopic radical prostatectomy. *J Urol* 170 (2003), pp. 1738-1741.
 3. HEIDENREICH A. et al. EAU Guidelines 2010
 4. FICARRA V, NOVARA G, ARTIBANI W, CESTARI A, GALFANO A, GRAEFEN M, GUAZZONI G, GUILLONNEAU B, MENON M, MONTORSI F, PATEL V, RASSWEILER J, VAN POPPEL H., Retropubic, laparoscopic, and robot-assisted radical prostatectomy: a systematic review and cumulative analysis of comparative studies, *Eur Urol*. 2009 May;55(5):1037-63
 5. TEWARI A, SRIVASATAVA A AND MENON M: A prospective comparison of radical retropubic and robot-assisted prostatectomy: experience in one institution. *BJU Int*. 92: 205-10, 2003
 6. GETTMAN MT, BLUTE ML, CHOW GK, NEURURER R, BARTSCH G, PESCHEL R. Robotic-assisted laparoscopic partial nephrectomy: technique and initial clinical experience with DaVinci robotic system. *Urology*. 2004;64:914-8
 7. M. MENON, A.K. HEMAL, A. TEWARI, Nerve-sparing robot-assisted radical cystoprostatectomy and urinary diversion, *B J U I N T*, 2003, 92, 222 - 236.
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RADICAL HEMINEPHRECTOMY FOR LEFT SIDED UPPER POLE RENAL TUMOR ON HORSESHOE KIDNEY – CASE REPORT AND REVIEW OF THE LITERATURE

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Abstract

Tumoral pathology of the horseshoe kidney is a rare pathology, only half of the tumors represent renal cell carcinoma. We will present the case of a 45 year old man known with horseshoe kidney diagnosed with a large renal tumor on the left side. CT angiography was performed preoperatively to assess the vascular anomalies of the renal pedicle and it was used for planning the surgical approach. The approach was transperitoneal by subcostal incision with lateral paramedian extension.

Introduction

Case report

We will present the case of a 45 year old man known with horseshoe kidney that was diagnosed with a renal tumor on the left side following an ultrasonography examination for a single episode of haematuria. The CT angiography showed a large renal mass of 14/22 cm at the level of the left apical renal unit. The arterial vasculature of the left kidney presents anomalies such two renal arteries from aorta on the left side. The inferior mesenteric artery curves from the aorta on the anterior surface of the renal isthmus, in close contact with it. The operative approach was transperitoneal by hemisubcostal incision prolonged pararectal and with 2 cm contralateral paramedian extension. This incision provided good access to

the renal pedicle and excellent exposure of the operative field. After mobilization of the descending colon and the splenic flexure the anterior side of the renal tumor, the aorta and the vena cava were exposed.

The control of the left hemi-kidney pedicle was followed by the dissection of the anterior surface of the kidney and the isthmus: three large renal veins were identified and dissected; the dissection revealed the junction of all the three veins into one large trunk, approximately 3 cm diameter which opened into inferior vena cava. The renal vein was suspended on a vessel loop and the dissection carried on identifying the renal arteries. Two renal arteries were identified and ligated. Considering the large diameter of the main renal vein, this had to be sutured with Prolene 5-0 running suture on a Satinsky vascular clamp. With the pedicle secured the rest of the tumor

was mobilized and the isthmus was sectioned. The renal tissue defect of the isthmus was closed using Vycril 2-0 sutures. The isthmus artery direct from the aorta was controlled separately. The inferior mesenteric artery was then dissected from the superior-anterior part of the isthmus and preserved. The ureter was then divided, and the dissection carried upwards on the anterior surface of the aorta. Operative time was 225 minutes. There were no intraoperative incidents or early postoperative complications. On the 2nd postoperative day the patient presented acute alcohol withdrawal syndrome which was treated by sedation and supportive medical care. The symptoms ceased after 40 hours. The postoperative stay was 7 days.

Pathological evaluation revealed pT3NxMxLoVo renal cell carcinoma Fuhrman grade I. On the specimen the size of the tumor was 13/11 cm. 6 months postoperative the patient is in good physical status, with normal renal function and no subjective symptoms.

Radical heminephrectomy for renal tumor on horseshoe kidney is a technically demanding surgical procedure due to anomalies of the renal vasculature. CT angiography is important preoperative diagnostic procedures needed for planning the surgical approach.

Discussion

Tumoral pathology of the horseshoe kidney is a rare pathology, 187 cases were published until July 2006 [1]. An extensive Medline search revealed another 37 reports until now regarding tumoral pathology on horseshoe kidney. Of these 16 (45%) were renal cell carcinoma. Many of the published reports on open surgery for tumoral pathology of the horseshoe kidney suggested the midline laparotomy as the best surgical approach offering very good access to the great vessels, renal isthmus, isthmus pedicle and renal vessels [2,3,4]. According to our data this is the first report of a heminephrectomy for renal cell carcinoma on horseshoe kidney via subcostal incision with lateral paramedian extension. This surgical approach offers good exposure of the operative field, allows early vascular control by excellent access to the renal pedicle, great vessels and to the isthmus anatomy as well.

The vascular supply of the horseshoe kidney is very variable with over 70% of the patients having a various combinations of single and multiple renal hilar and isthmus vessels. Also in 65% of cases the isthmus is supplied by a single vessel from the aorta. The blood supply to the isthmus may arise from the common iliac or inferior mesenteric arteries [5]

Having this variability in the vascular anatomy of the horseshoe kidney angiography has been reported as indispensable in planning the surgical approach [6, 7]. In our case the vascular anatomy was described by CT angiography: two renal arteries

on the left side, with a separate artery that supplied the isthmus and originated from the aorta. Also the veins were presented anatomical variations as the vein coming from the isthmus united with a large vein for the inferior pole of the kidney to form a large common vein that united with another large vein coming from the upper portion of the kidney, thus resulting a very large renal vein of approximately 3 cm diameter containing no tumoral thrombus.

In a recently published report there was suggested that CT scan with 3D reconstruction should be the preferred modality of diagnosis of renal masses in horseshoe kidney as it provides high anatomic details of the renal tumor, vasculature and collecting system [8]. We also used only 3D reconstruction CT for planning the surgical approach and we think it should be enough for safe management of these patients.

EAU-ACME Question:

For non-isthmus tumors the resection of the isthmus is:

- mandatory regardless of the tumor size and position
- not necessary for small upper pole tumors
- necessary only for lower pole tumors
- not necessary regardless of the tumor size and position
- recommended as it allows good access for node dissection and helps normalize the course of the ureter

References

- Stimac G, Dimanovski J, Ruzic B, Spajic B, Kraus O. Tumors in kidney fusion anomalies--report of five cases and review of the literature *Scand J Urol Nephrol.* 2004;38(6):485-9.
- Jhobta R, Bawa AS, Attri AK, Kaushik R Adenocarcinoma in horseshoe kidney. *Yonsei Med J.* 2003 Aug 30;44(4):744-6.
- Hohenfellner M, Schultz-Lampel D, Lampel A, Steinbach F, Cramer BM, Thüroff JW. Tumor in the horseshoe kidney: clinical implications and review of embryogenesis. *J Urol.* 1992 Apr;147(4):1098-102.

Correct answer: E

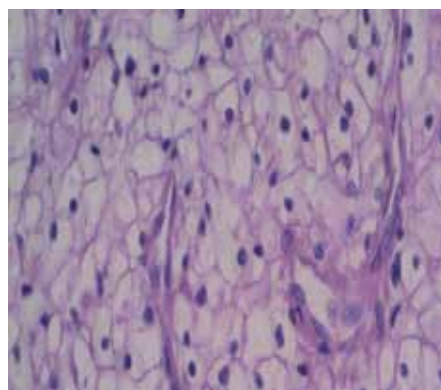


Figure 5. Microscopic view 200x HE: renal cell carcinoma Fuhrman I

References

- LORI JONES, MALLORY REEVES, SCOTT WINGO, AGHA BABANOORY Malignant Tumor in a Horseshoe Kidney *Urol J* 2007;4:46-8.
- RUBIO BRIONES J, REGALADO PAREJA R, SÁNCHEZ MARTÍN F, GILBERTO CHÉCHILE T, HUGUET PEREZ J, VILLAVICENCIO MAVRICH H. *Eur Urol*, VI,4: 306-310, 1999.
- OTERO-GARCÍA JM, MALDONADO-ALCARAZ E, LÓPEZ-SÁMANO VA. A case of renal cell carcinoma in horseshoe kidney. *Gac Méd Méx.* 2005;141(4):305-307.
- GARCÍA AA, BURGOS MR, SÁNCHEZ CB, PERALES NJ, ALMODÓVAR BR, CACHÁ LG Horseshoes kidney isthmus carcinoma. A case report] *Actas Urol Esp.* 2008 Feb;32(2):249-52
- BAUER et al Anomalies of the upper urinary tract cap113 *Campbell's Urology* 9th edition 2007
- HADZI-DJOKID J, COLOVID V, PEJCID T, DRAGIDEVID D. Renal cell carcinoma in a horseshoe kidney. *Acta Chir Iugosl.* 2009;56(1):97-9.
- BEN SLAMA R, BEN MOUELLI S, BOUASSIDA A, DEROUICH A, BEN HASSINE L, CHEBIL M, AYED M. Renal adenocarcinoma in horseshoe kidney, report of a case *Tunis Med.* 2006 Dec;84(12):830-2.
- LEE CT, HILTON S, RUSSO P. Renal mass within a horseshoe kidney: preoperative evaluation with threedimensionalhelical computed tomography. *Urology.* 2001;57(1):168.