

adjusted for other factors in the multivariate analyses ($P=0.076$, $HR=1.42$).

Conclusions: UTUC patients with squamous and/or glandular differentiation are more likely to have aggressive tumor biological features, and tend to have worse postoperative outcomes.

Keywords: UTUC; histologic differentiation; prognosis

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AB122. Changing from open to laparoscopic surgery and medium-term prognosis of renal cell carcinoma patients with venous tumor thrombus: a single center study of 276 cases

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Objective: To review retrospectively the clinical information of patients with renal cell carcinoma (RCC) and venous tumor thrombus, and to evaluate the changing from open to laparoscopic surgery and medium-term prognosis of these patients.

Methods: From Jan 2000 to Dec 2014, 276 patients were treated with renal cell carcinoma and venous tumor thrombus at our institute. It was analyzed for their clinical

and perioperative data and follow-up information.

Results: There were 133 and 143 patients with renal vein (RV) and inferior vena cava (IVC) tumor thrombus respectively, which include 84 with IVC level I, 38 with IVC level II and 21 with IVC level III. There were several steps for the changing from open to laparoscopic surgery for RCC patients with venous tumor thrombus. (I) Traditional open surgery: before 2012, open surgery was routinely done for such kind of patients. For those with large tumor and advanced tumor thrombus, the renal artery may be embolized preoperatively, which could ease the renal dissection and the artery control during surgery. There were 52 patients with advanced tumor thrombus above the hepatic vein in our study, who underwent cardiopulmonary bypass (CPB) assisted surgery without major complication. (II) Retroperitoneal laparoscopic surgery first and then transperitoneal open surgery: from 2012, we introduced laparoscopic techniques into the operation for these patients. For those with IVC tumor thrombus, we could effectively combine the advantages of the retroperitoneal laparoscopic procedure in rapid renal pedicle control and the open transperitoneal procedure in IVC tumor thrombectomy. Compared with the traditional open surgery group, the combined surgery group showed shorter operation time (225 *vs.* 300 min), less blood loss (150 *vs.* 625 mL) and shorter hospitalization time (7 *vs.* 11 days) (all $P<0.05$). (III) Combined retroperitoneal and transperitoneal pure laparoscopic procedure: from 2013, we had completed six cases of pure laparoscopic surgery with this combined pathway for RCC patients with early IVC tumor thrombus (level I and level II, below hepatic vein), which could take advantages of both laparoscopic pathways and minimize the injury to patients. The median follow-up time was 52 months for all patients (range, 6-138 months) with a follow-up rate of 81.2% (224/276). The median survival time was 58 months and the 5-yr overall survival rate was 48.7% for all patients. There was no significant difference between the prognosis of patients with RV and IVC tumor thrombus ($P=0.117$), while patients with early tumor thrombus (below hepatic vein) showed significantly improved survival than those with advanced tumor thrombus (above hepatic vein) ($P=0.011$).

Conclusions: Because of the complexity and difficulty of these surgical procedures, we routinely did traditional open surgery for patients with RCC and venous tumor thrombus before 2012. With the development of laparoscopic techniques in recent years, the operation for these patients turned to be minimally invasive-pure laparoscopic for tumor

thrombus below hepatic vein, with good tumor control and promising middle-term prognosis.

Keywords: Renal cell carcinoma (RCC); venous tumor thrombus; surgery strategy; prognosis

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AB123. The clinical safety and efficacy of kidney-sparing surgery to treat the primary transitional cell carcinoma of ureter

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Objective: To evaluate the clinical safety and efficacy of kidney-sparing surgery to treat the primary transitional cell carcinoma of ureter.

Methods: The materials of 29 cases which underwent kidney-sparing surgery for treatment of the carcinoma of ureter were analyzed retrospectively. All the patients underwent kidney-sparing surgeries: 3 cases for endoscopy ablation, 8 cases for laparoscopy (5 direct ureterocystoneostomies, 3 reimplantations on Boari flap bladder), 18 cases for open surgeries (10 direct ureterocystoneostomies, 5 reimplantations on Boari flap bladder, and 3 end-to-end anastomoses). All the patients underwent regular intravesical instillation and close follow-up post-operation, 3 cases also received intravenous chemotherapy.

Results: All the pathology was transitional cell carcinoma, including 4-papillary urothelial neoplasms of low malignant potential, 13 low-grade papillary urothelial carcinoma, and 12 high-grade papillary urothelial carcinoma. Clinical stage was classified T1 (5), T2 (18) and T3 (6). The recurrence

in bladder and ipsilateral ureter was 10.3% and 3.4%, respectively. Two cases suffered from urine leak, 5 cases had mild hydronephrosis, and 3 cases died of heart and lung diseases. The recurrence in bladder was 5.9% in low-grade tumors, and the recurrence in bladder and ipsilateral ureter was 11.1% in T2 tumors, 33.3% in T3 tumors.

Conclusions: Kidney-sparing surgery is a feasible treatment option for the selected patients with unifocal middle or distal ureteric carcinoma at low grade or without invasive aspect on CT. Laparoscopic ureterocystoneostomy or endoscopic management had more minimally invasive advantages in the treatment. However, active surveillance should be done during the follow-up.

Keywords: Ureter carcinoma; kidney-sparing surgery

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AB124. A new 2-micrometer continuous wave laser method for management of the distal ureter in retroperitoneal laparoscopic nephroureterectomy

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Background and purpose: Retroperitoneal laparoscopic nephroureterectomy (LNU) is a classic technique for the treatment of patients with urothelial cancer of the upper urinary tract. Management of the distal ureter in patients