Renal Autotransplantation in Postchemotherapy Retroperitoneal Lymph Node Dissection: A Case Report

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INTRODUCTION

Retroperitoneal lymph node dissection (RPLND) is a critical modality in the management of testicular cancer performed in two main settings; primary and postchemotherapy.[1] Postchemotherapy RPLND is generally associated with an increased incidence of major complications compared to primary one.[2] Renal vessels and ureter injuries during RPLND could lead to nephrectomy in some patients. Renal autotransplantation is a kidney saving procedure enabling the surgeon to avoid imperative nephrectomy or high diversion of urinary system in complicated cases.[3] To our knowledge, there is only one case report describing renal autotransplantation as an adjunctive surgery in a patient who underwent RPLND.[4]

CASE REPORT

A 38-year-old man with a history of mixed germ cell tumor in his left undescended testis was referred to our institute. He had undergone left radical orchiectomy two years previously. The tumor pathology was mixed germ cell tumor containing embryonal carcinoma and immature

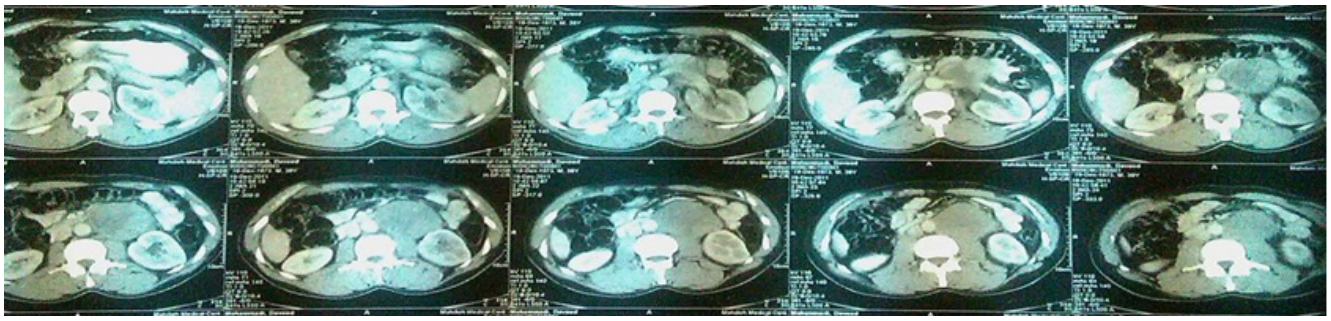

Figure 1. Preoperative computed tomography scan showed the tumor adjacent to the renal pedicle.

teratoma. Postoperatively, tumor markers remained elevated, and computed tomography (CT) scan revealed a retroperitoneal mass measured 70 × 85 mm. After receiving four courses of chemotherapy, tumor markers normalized but retroperitoneal mass did not change. The mass was located in the left paraaortic area, adjacent to the left renal hilum (Figure 1). The patient was scheduled for RPLND.

After a thoracoabdominal incision, it was revealed that the tumor was severely adhesive to the psoas muscle. Furthermore, left renal artery, vein, and ureter were encroached by the tumor. After very difficult dissection of the tumor from psoas muscle and aorta, it was impossible to separate the mass from renal vessels and ureter (Figure 2). Since the kidney itself was not involved by the tumor, we decided to perform renal autotransplantation. After clamping renal vessels and cutting the ureter in an uninvolved portion, en bloc removal of the kidney, ureter, and the mass was performed. The removed specimen was totally placed in cold normal saline, and intravascular washing of the kidney with cold kidney-preserving solution (ringer lactate serum, heparin, sodium bicarbonate, and lidocaine) was started. Tumor was separated from the kidney and uninvolved proximal portions of the renal vessels and ureter (Figure 3). The kidney was placed in the contralateral iliac fossa because of tissue adhesion and extensive dissection of ipsilateral pelvic cavity. Due to shortness of the renal vein, the kidney was rotated upside-down. Renal artery and vein were anastomosed to right common iliac artery and vein, respectively. Cold ischemic time was 20 minutes. Since we had to remove a significant length of the middle ureter, ureter was shortened and its direction was upward. We decided to anatomize distal part of the left ureter to the proximal right ureter. Frozen section and permanent pathology of the margins were negative. Complete bilateral RPLND was carried out. Pathology report revealed embryonal carcinoma and immature teratoma.

The patient was followed three months postoperatively with CT scan, laboratory tests including serum tumor markers and creatinine, intravenous urography (IVU), and diethylene triamine pentaacetic acid (DTPA) scan. Serum tumor markers and creatinine were normal. IVU and DTPA illustrated normal functioning transplanted kidney (Figure 4).

DISCUSSION

RPLND, as a crucial step in the testicular cancer management, and is associated with some complications. Baniel and colleagues reported complication rate of 10.6% for primary RPLND, and 20.7% in postchemotherapy RPLND.[5] Intraoperative complications and need for additional procedures have been reported to occur in 11%-51.9% of postchemotherapy RPLND (PC-RPLND) patients in different studies.[2,6] Intraoperative complications/additional procedures in PC-RPLND include nephrectomy, vascular injury, inferior vena cava (IVC) resection, IVC prosthesis, aortic replacement, arterial graft, orchiectomy, bowel resection, hepatic resection/biopsy, caval thrombectomy, adrenalectomy, cholecystectomy, ureteral resection with end-to-end anastomosis,

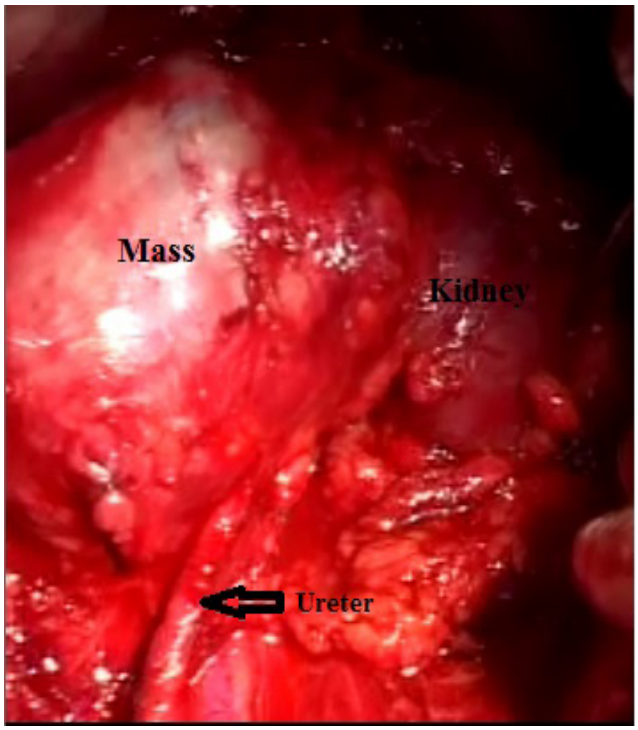

Figure 2. Intraoperative view shows the mass adhered to renal hilum and ureter.

Figure 4. Postoperative intravenous urography showed functional transplanted kidney.

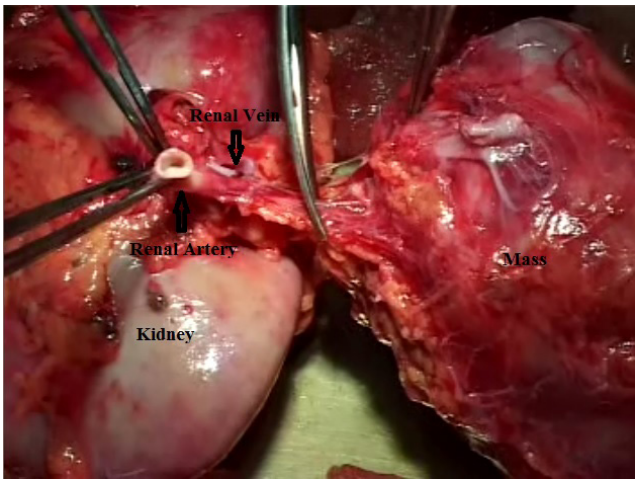

Figure 3. In-vitro dissection of the renal hilum and separating it from the mass.

and ureteral reimplantation.[2,6] The most common additional procedure in PC-RPLND is en bloc nephrectomy followed by vascular procedures.[6] In a report on en bloc nephrectomy in PC-RPLND patients published by Nash and colleagues, indications of nephrectomy included contiguous involvement of perirenal structures in 73%, renal vein thrombosis in 6%, and a combination of these conditions in 16% of patients.[7] Kapoor and colleagues described a case of renal arterial injury to a solitary kidney during PC-RPLND. They performed aortorenal revascularization and saved the patient's kidney.[8] Renal autotransplantation is applied in complex urological reconstructions to avoid nephrectomy, but is reported in only one RPLND patient.

Outcomes of renal autotransplantation have showed that it is an effective treatment to save the kidney when in situ techniques are not feasible.[9] In urological oncology, renal autotransplantation has been applied mainly in renal cell carcinoma or urothelial tumors of the upper tract being present bilaterally or in a solitary kidney. There is only one report of performing renal autotransplantation in a RPLND patient. Kobayashi and colleagues reported a PC-RPLND patient in whom left renal artery was involved by a lymph node; renal function was impaired postoperatively but returned to normal in a short time.[4] We presented our experience in a PC-

RPLND patient with involvement of renal vessels and ureter that made in situ vascular surgery impossible. Preserving the kidney was very important here due to the probable need for future nephrotoxic chemotherapy.

CONCLUSION

Regarding the incidence of need for nephrectomy in PC-RPLND, considering renal autotransplantation might be a solution to avoid ablative surgery in some instances.

CONFLICT OF INTEREST

None declared.

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