Case Report **OPEN ACCESS**

Unusual complication of percutaneous nephrostomy in a renal transplant recipient

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Abstract

Context: Ureteral obstruction, resulting in impaired graft function, is a well-known problem following renal transplantation. Management of ureteral complications includes percutaneous nephrostomy, which is considered to be a safe and effective measure. **Case Report:** Here, we demonstrate a case of a 35-year old renal allograft recipient with primary graft function but stagnating serum creatinine following extraction of the double-J catheter. Ureteral stenosis was suspected by ultrasound imaging and magnetic resonance tomography, and urinary flow was preserved with a percutaneous nephrostomy. However, early displacement of the percutaneous nephrostomy catheter resulted in distinct clinical discomfort. CT imaging suggested an intra-abdominal position of the catheter's tip, requiring immediate surgical action. **Conclusion***:* The present case demonstrates that performing PCN following renal transplantation may have unexpected risks.

Keywords: Nephrostomy, complication, renal allograft, transplantation.

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Introduction

Percutaneous nephrostomy (PCN) is an established procedure following ureteral complications after renal transplantation. Insertion of a PCN catheter for decompression of the collecting system in cases of obstruction is considered to be an easy and safe procedure. However, early or delayed catheter displacement is a frequent event [1].

Even with optimal imaging and choice of the puncture site, this complication cannot reliably be prevented. We here report the case of a renal allograft recipient with unexpected intra-abdominal position of a nephrostomy catheter.

Case report

A 35-year old woman with end-stage renal disease due to chronic glomerulonephritis received a first cadaveric renal transplant from a living-related donor. Transplantation resulted in primary graft function without the need for hemodialysis therapy. Doppler ultrasound imaging showed homogenous perfusion of the graft with excellent systolic and diastolic flow, and the double-J catheter could be removed on day 14. Thereafter, serum creatinine levels did not develop as expected (Table 1), but routine renal ultrasound was unremarkable. Thus, a renal biopsy was performed on day 16, revealing moderate cellular rejection. However, serum creatinine remained unchanged despite treatment with high-dose methylprednisolone. At this time point, another ultrasonography test showed normal renal perfusion but demonstrated ureteral obstruction. Magnetic resonance tomography confirmed the findings and suggested the presence of a distal ureteral stenosis, while results obtained using renal scintigraphy were not conclusive. Since retrograde imaging of the ureter and

re-insertion of a double-J catheter was not feasible, a PCN was performed. Shortly after the procedure, the patient complained of massive abdominal pain. Ultrasound and computed tomography imaging (Fig. 1) demonstrated an unexpected position of the catheter (arrows), far away from the renal allograft (asterisk) and suggested adherence of the catheter tip to the ileum or within the small bowels (arrowhead). Urgent surgery confirmed the intra-abdominal position but fortunately did neither reveal any injured intestine nor signs of intra-abdominal fluid or peritonitis. The dislocated catheter was removed, and kidney function improved spontaneously. A few days later, the patient was dismissed symptom-free with a serum creatinine level of 131 µmol/L (Table 1).

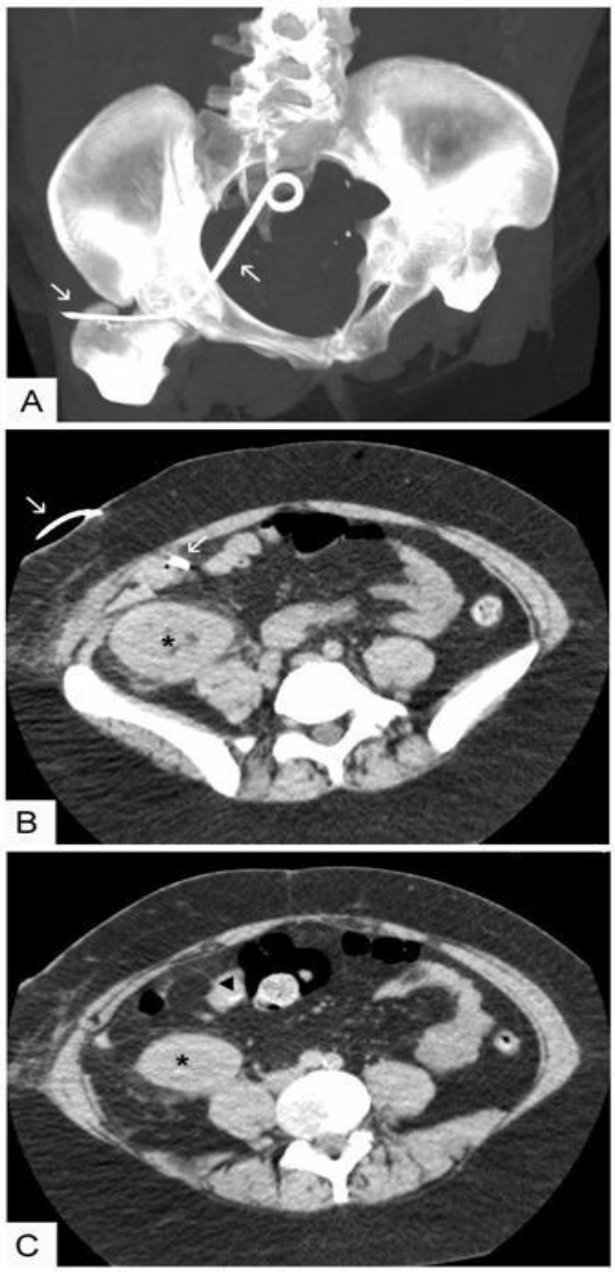

Fig. 1 CT imaging with digital reconstruction showing the course of the nephrostomy catheter (A) and its unexpected position (B and C; arrows) far away from the renal allograft (asterisk) and its tip likely adherent to or within the ileum (arrowhead).

Table 1 Course of serum creatinine levels and estimated glomerular filtration rate, using the MDRD formula.

Days after transplantation	Creatinine (µmol/l)	GFR-MDRD (ml/min/1.73m^2)	Procedure
0	1180		transplantation
1	718		
2	680	6	
5	493	3	
12	223	23	
14	232		removal of double-J catheter
16	243	21	renal biopsy and high-dose methylprednisolone
19	234		
20	208	20	magnetic resonance tomography
27	227		renal scintigraphy
30	250	20	percutanous nephrostomy
31	440		CT imaging and surgical removal of the nephrostomy
32	377	13	
34	212		
36	153		
38	131	36	discharge

Discussion

Ureteral complications in renal transplantation occur in approximately 8% of renal transplant recipients, diagnosed at a mean of 18 days after renal transplantation, and occasionally leading to graft loss [2]. Initial treatment often consists of PCN, followed by other procedures such as surgical repair of the ureter or placement of a nephroureteral stent [2, 3]. Percutaneous therapy has also been successfully used after renal transplantation as sole therapy in treatment of ureteral obstruction and leakage [4]. Of note, patient and graft survival rates are not different in patients undergoing PCN when compared to other kidney recipients [5]. We here demonstrate a rare complication of PCN in a renal transplant recipient. While displacement of a PCN catheter is a common problem not only in native but also transplanted kidneys, intra-abdominal position is rare, but requires immediate attention and action to prevent further damage.

Conclusion

The present case demonstrates that performing PCN may have unexpected risks.

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