Case Report

Inserting a Metallic Ureteral Stent Using an Antegrade Approach Freed a Patient from Nephrostomy Created due to Hydronephrosis Caused by Bladder Cancer

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Keywords

Metallic stent · Antegrade approach · Ureteral stent

Abstract

For the treatment of internal ureteral orifice invasion of bladder cancer, percutaneous nephrostomy is usually attempted initially. However, percutaneous nephrostomy reduces patients' quality of day life. A 65-year-old man showed bilateral hydronephrosis due to locally advanced bladder cancer, and right percutaneous nephrostomy was created. After dilating the percutaneous nephrostomy, we inserted a metallic ureteral stent via an antegrade approach. We herein report a case of metallic ureteral stent insertion via an antegrade approach after initial creation of a nephrostomy, thus freeing the patient from nephrostomy.

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Introduction

Metallic ureteral stents are effective for managing ureteral obstruction or stenosis induced by advanced malignant diseases [1]. In most cases, retrograde ureteral stent insertion is attempted first, but for cases of internal ureteral orifice invasion, nephrostomy is sometimes chosen for the initial treatment [2, 3].

We herein report a case of metallic ureteral stent insertion via an antegrade approach after initial creation of a nephrostomy, thus freeing the patient from nephrostomy.

Case Presentation

A 65-year-old man showed bilateral hydronephrosis due to locally advanced bladder cancer, and right percutaneous nephrostomy was created (Fig. 1). We dilated the nephrostomy, and a 12-Fr nephrostomy balloon catheter was inserted 1 month after percutaneous nephrostomy. After two courses of gemcitabine and cisplatin systemic chemotherapy, pyelography showed that contrast agent was flowing into the bladder during scheduled nephrostomy balloon catheter exchange, so we inserted one guidewire into the bladder and another guidewire into the renal collecting system. We first inserted a 6-Fr ureter catheter from the nephrostomy to the bladder in order to confirm there was no severe stenosis. We then inserted a metallic ureteral stent introduced via the catheter (Resonance; COOK, Bloomington, IN, USA) in an antegrade approach. Outer introcude catheter was inserted to the bladder, we inserted a metallic stent where the leading side of the pusher was stayed at the renal pelvis (Fig. 2). The patient was freed from nephrostomy and continued lower serum creatinine level 3 months after the insertion of the metallic ureteral stent (Fig. 3).

Discussion

Metallic and polyurethane ureteral stents are widely used for managing ureteral obstruction or stenosis induced by malignant diseases [4]. Asakawa et al. reported that a metallic ureteral stent was tolerated better than a polyurethane stent [1]. Usually, a polyurethane ureteral stent is exchanged every three months, but metallic ureteral stents can be exchanged as infrequently as every year. Such a low frequency of required exchange benefits not only patients but also urologists [5].

For ureteral stenosis or obstruction, a ureteral stent is usually selected first over percutaneous nephrostomy due to its low invasiveness and lower frequency of scheduled exchange [2]. However, for severe external ureteral stent obstruction or bladder invasion of severe malignant diseases, percutaneous nephrostomy is initially chosen. In the present case, we initially attempted percutaneous nephrostomy due to hydronephrosis induced by bladder cancer invasion of the internal urinary orifice. Antegrade ureteral stent insertion is beneficial for cases with urinary orifice invasion. Pre-stenting nephrostomy also aids in straightening a ureter bent by severe hydronephrosis.

We should keep in mind that the proximal side (renal side) of a metallic ureteral stent should not be placed at the ureter when inserted via an antegrade approach. Dilating the renal correction system using contrast agent before inserting a guidewire is needed. If the contrast agent does not smoothly flow into the bladder, a safety guidewire should be placed in the renal pelvis before inserting the metallic ureteral stent.

For patients with advanced malignant disease, yearly metallic ureteral stent exchange and freedom from the need to exchange a nephrostomy every month might improve their day-to-day quality of life.

Statement of Ethics

Written informed consent was obtained from the patient. A copy of the written consent form is available for review from the Editor-in-Chief of this journal. The present study received ethical approval.

Disclosure Statement

The authors declare no conflicts of interest in association with the present study.

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Fig. 1. Computed tomography. **a** Bilateral hydronephrosis due to bladder cancer invasion to ureters. **b**, **c** Pre- and post-inserting metallic ureteral stent.

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Fig. 2. a Pyelography. b Inserting 6Fr ureteral catheter. c, d Inserting metallic ureteral stent.

Fig. 3. Clinical course.