Obstruction of a ureter orifice by suprapubic catheter

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ABSTRACT

An indwelling suprapubic catheter is an established solution for patients with meningomyelocele neurogenic bladder. We report on a case in which a routinely replaced suprapubic catheter obstructed the left ureter orifice. The catheter drainage holes were inside the distal left ureter which compromised urinary drainage from the other kidney as well. As a result, the patient suffered from acute renal failure. During his hospitalization, the catheter was replaced and re-located, and renal function rapidly improved. This case emphasizes that even procedures that have been routinely performed for decades can manifest with an unusual complications.

Introduction

Meningomyelocele is a birth defect that occurs as a result of neural tube closure failure during embryogenesis. This causes bladder dysfunction in addition to other disorders. Urologic surveillance is an important component of these patients’ health, with renal failure being the most common cause of mortality of all ages. Since bladder dysfunction is permanent, it is necessary to allow for effective and safe bladder drainage, under low pressure, to avoid renal deterioration.

Case presentation

A 34-year-old male arrived referred to Emergency Department at our institution with acute kidney failure discovered at a community clinic. Past medical history included meningomyelocele with neurogenic bladder, paraplegia, and pressure sores secondary to immobility, chronic osteomyelitis, Nephrolithiasis, Diabetes Mellitus and Obstructive sleep apnea and Hypothyroidism. During last fifteen years the patient had regular suprapubic catheter replacement uneventfully. Last replacement performed 10 days earlier (catheter BARD® whistle tip 24 French). The patient contacted the family physician with uremic presentation of malaise and nausea with diminished urine output per catheter, with no urine leakage otherwise. Laboratory findings included acute renal failure with creatinine level 269 mmol/L, while three months before normal creatinine level was 101 mmol/L. Physical examination and lab were unremarkable otherwise.

Upon referral to the hospital, the patient underwent preliminary evaluation, including catheter flushing, which reported to be difficult with no residual volume. A computed tomography test was performed, demonstrating bilateral hydronephrosis, with an empty bladder. The tip of the suprapubic catheter located inside left ureteral orifice, for a few cm long. This way catheter drainage holes were all inside the distal left ureter, which interferes with the drainage of urine from both kidneys. The catheter balloon that was in the bladder and prevented urine from draining out (Figs. 1 and 2).

Upon admission the patient underwent sterile catheter replacement and creatinine monitoring. A fast recovery of symptoms and renal function was noticed with rapid decline of creatinine level later. The patient had no post obstructive polyuric phase and no infectious signs or symptoms.

Discussion

Proper renal drainage in patients with neurogenic bladder is of paramount importance. A simple and effective solution a permanent urethral or suprapubic catheter. Urologic monitoring for these patients is important, and in particular, the bladder drainage under low pressure.

The patient presented herein arrived for evaluation following routinely replaced suprapubic catheter that spontaneously wandered to the distal part of the left ureter. Patients with wandered urinary catheter may present in various forms including urinary leakage, pain, and some have been asymptomatic.

In the literature, there are several cases of urinary catheter stray placement - including distal ureter and even ureteral rupture due to balloon inflated in the ureter, but these have been reported in urethral catheter and not by suprapubic drainage, which should by less prone for

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these complication due to is short and direct route to the bladder. Suprapubic catheter has its limitation as there is higher risk for damage of adjacent structures such intestine, blood vessels, and even urinary tract perforation. Vaidyanathan et al. published a case study about an unintentional placement of a suprapublic catheter tip in the urethra, causing urinary drainage failure. Borrero et al. reported a ureteral obstruction due to ureteral insertion of suprapubic catheter, but clinical course was different as the patient was septic and not with acute renal failure. Special attention should be paid to patients with a neurogenic and fibrotic bladder that is often accompanied by a diminished pain perception, which may make a simple catheter replacement to one with later complications.

This case presented here had an indolent clinical course. Although the catheter drained well in the first few days, the catheter ceased to drainage while the patient was not under medical supervision. Since catheter holes were inside the left ureter, the urinary bladder was not drained.

To the best of our knowledge, this clinical course has not yet been published. The present presentation is an important reminder of the importance of follow-up and patient’s education even when dealing with a regular and simple procedure.

This case emphasizes that even procedures that have been routinely performed for decades can surprise you with unusual complications.

**Conclusions**

A suprapubic catheter is a good and safe solution for neurogenic bladder, but urinary drainage must also be carefully monitored after proper routine replacement. Some clinical scenarios necessitate prompt diagnosis and adequate management and require creativity about possible complications.

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