

Case Report

Large bifid ureteric calculus in a patient with an ileal conduit

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Abstract

Urinary diversion after extirpative surgery of the bladder is done by various methods. Conduit urinary diversion is the most commonly practiced method of urinary diversion. It is relatively easy to perform and has a lower complication rate than other forms of diversion, e.g., orthotopic neobladder and continent cutaneous urinary diversion. Urolithiasis is a known and common complication of urinary diversion. Upper tract calculi in these cases often manifest symptomatically as occurs in the general population. Stones in the conduit can have a variable clinical presentation. Asymptomatic presentation is also noted in a few cases. We report a case of a large silent bifid ureteric calculus within an ileal conduit in a woman who had undergone urinary diversion 32 years earlier. Plain X-ray of the abdomen is the only investigation necessary to rule out urinary lithiasis in those who have had urinary diversion for a long time. This simple tool can diagnose the condition well in advance and aid in planning the management of this condition.

Key Words: Calculus, urinary diversion, Ileal conduit, obstruction

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INTRODUCTION

Urinary diversion after extirpative surgery of the urinary tract is a challenging task for reconstructive surgeons. The patients have unique problems after urinary diversions. Those who undergo urinary tract diversions are at an increased risk for the formation of urinary calculi due to many reasons. Patients who have upper urinary tract calculi with urinary diversions are usually symptomatic and may present with ureteric colic, hematuria, recurrent urinary tract infection (UTI), and deterioration of renal function, similar to patients without urinary diversion. For calculi located within a urinary diversion, the presentation can be variable and patients may even be asymptomatic.

Asymptomatic presentation of upper tract calculi in a patient with urinary diversion is rare.

CASE REPORT

A 43-year-old woman presented with low back ache radiating to the right lower limb for the last 9 months. She had undergone ileal conduit diversion (modified Wallace technique) at the age of 11 years for complete destruction of bladder due to chemical cystitis following accidental administration of a toxic agent during micturition cystourethrography (MCU). MCU had been done to rule out vesicoureteric reflux during evaluation of urinary tract infection (UTI). There was no history of hematuria, calculuria, or febrile UTI since then. She is married and had one child delivered through lower segment cesarean section (LSCS). She was on losartan potassium 50 mg since 2006 for hypertension. Ultrasound examination done then had not identified any abnormalities. Clinical examination revealed a healthy functioning urostomy and scar of the previous surgery. No lump was palpable. Her serum creatinine was 1.5 mg/dl and urine microscopy revealed pyuria with microscopic

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hematuria. She had a consultation in orthopedics for her low back ache and underwent MRI of the spine. It revealed a smooth, linear, 'V'-shaped T2-weighted hypointense focus with tapering ends within the right ureter from the level of the L3-4 intervertebral disc space upwards and also extending into the mildly dilated left ureter at the L5-S1 level; the appearance was suggestive of a bifid calculus within both ureters across the ureteroileal anastomosis [Figure 1]. This impression was confirmed by plain X-ray of the abdomen [Figure 2]. Ultrasound examination revealed right gross hydroureteronephrosis with thinning of renal parenchyma, which was especially notable over the upper pole. The left kidney also showed mild hydronephrosis with cortical scarring. A Tc-99m ethyl cysteine dynamic renogram showed normal function in the left kidney (94% split renal function) and a poorly functioning right kidney (6% split renal function) [Figure 3]. Conduit scopy showed a capacious stoma and a large, brownish, hard mushroom-shaped calculus in the ureteroileal junction, extending into both ureters. The calculus within the conduit and the left ureter was fragmented with a pneumatic lithoclast and the fragments were removed. Complete clearance was achieved on the left side. Pus was seen exuding from the right ureter. Right nephroureterectomy was done by the open approach and the calculus within the right ureter [Figure 4] was extracted. Postoperatively, the patient recovered well. Her serum creatinine was 1.3 mg% at the last follow-up.

DISCUSSION

Urinary diversion plays a pivotal role in the management of patients who undergo extirpative surgery of the bladder. Historically, ileal loop diversion has been the most common procedure done.^[1] The field of reconstructive urology has

seen a major change in the way in which urine is diverted after major extirpative surgery of the bladder.^[2] In this current era of continent urinary diversion and neobladder formation, conduit diversion still has a major role as a method of urinary diversion. Conduit urinary diversions are not without problems. They have a high complication rate; however, very few cases require reoperation.^[3] The various complications manifest at different times, and these patients require close surveillance for even decades after the urinary diversion.^[3] One of the long-term complications noted after urinary diversion is urolithiasis and its related problems. The incidence varies from 4.9%^[4] to 15.3%.^[3] The stones related to urinary diversion could either be in the upper tracts or in the conduit itself. Stones within the diversion loop are usually a result of stomal stenosis, foreign body reaction, or passage from the upper tracts.^[5] Upper urinary tract calculi in patients with urinary diversions usually have a symptomatic presentation. Calculi located within a urinary diversion can have varied presentation, e.g., incontinence, urinary retention, catheterization difficulties, hematuria, abdominal pain, and recurrent or persistent urinary tract infection. In many cases they remain asymptomatic and their diagnosis requires a high index of suspicion. Patel and Bellman^[6] recommended annual KUB X-ray and flexible lower-tract endoscopy to look for urolithiasis. A plain X-ray of the KUB region should suffice to diagnose urolithiasis in those who have undergone urinary diversion. In doubtful cases, helical CT may be useful. To the best of our knowledge, an upper urinary tract calculus involving both ureters and protruding into the conduit, causing silent obstruction and a non-functioning renal unit, has not been previously reported in literature. With this case report we wish to draw attention to the importance of regular long-term follow-up of those patients who have undergone



Figure 1: T2-weighted MRI sequence shows smooth, linear 'V'-shaped hypointense ureteric calculi (arrow) causing bilateral hydronephrosis



Figure 2: Plain X-ray KUB showing a bifid ureteric calculus (arrow) across the ureteroileal junction

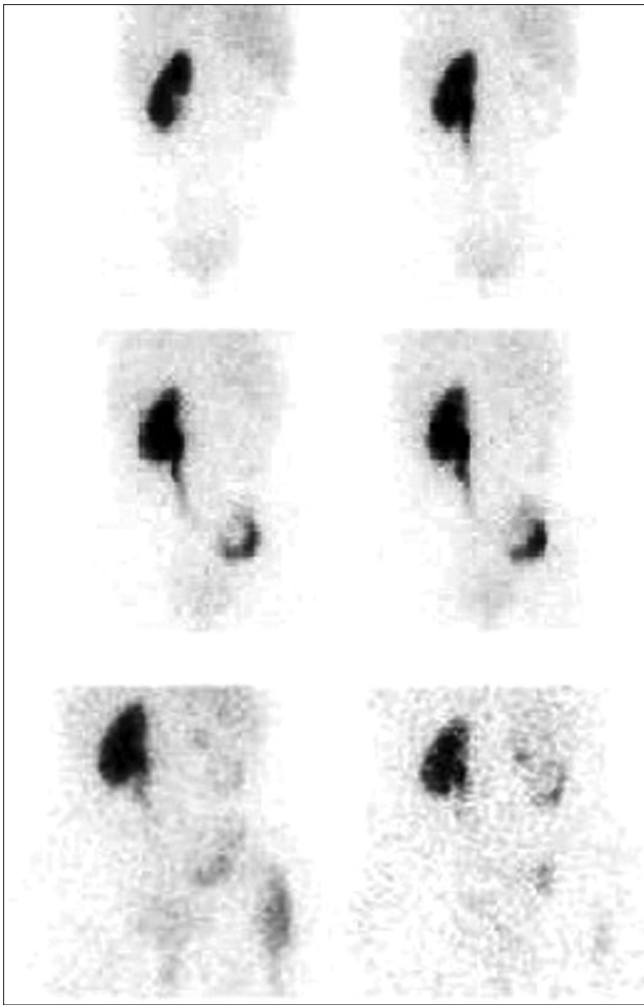


Figure 3: Tc-99m ethyl cysteine dynamic renogram showing poorly functioning right kidney and cortical scarring in the left kidney

urinary diversion. Radiological methods can be used to detect silent urolithiasis.



Figure 4: Extracted right ureteric calculus with fragmented left ureteric component

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