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Case Report

Congenital Bladder Diverticulum in a 28-Year-Old Male: A Rare Cause of Urinary Retention

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ABSTRACT

Congenital vesical diverticulum causing urinary retention in adults is very uncommon. Herein we describe the case of a 28-year-old male patient presenting with retention of urine due to a large diverticulum. The mechanism by which a diverticulum causes retention is discussed along with the features which distinguish a congenital from an acquired vesical diverticulum.

Key Words: Bladder, diverticulum, bladder outlet obstruction, urinary retention.

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INTRODUCTION

Bladder diverticulum in adults is usually secondary to bladder outflow obstruction or neurogenic voiding dysfunction. However, rarely, a congenital vesical diverticulum may be discovered in adults and may be the cause of outflow obstruction or even retention of urine[1].

CASE REPORT

A 28-year-old male patient was referred to our department after catheterization for retention of urine. He reported four incidents of urinary retention during the past three years; each time a trial without catheter was successful. However, he reported the presence of outflow obstructive symptoms for the past 15 years, and after the trials without catheter he used to void small amounts of urine with a very poor stream. It is noteworthy that the urinary stream used to be better at the initiation of voiding but progressively became weak. The patient did not have any history suggestive of erectile dysfunction or any neurological disorder. He was normotensive and his neuro-urological evaluation was normal. Investigations revealed pyuria. Serum creatinine was normal. Ultrasonography showed a large

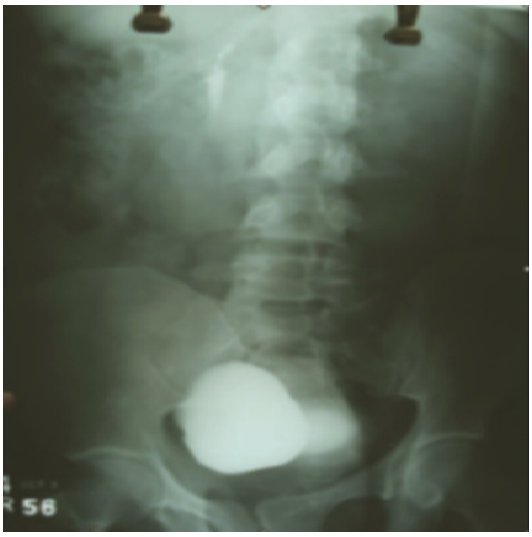

Fig. 1: Voiding cystourethrogram showing the bladder diverticulum above the symphysis pubis. The bladder has emptied into the diverticulum, which appears larger than the bladder. There is vesicoureteric reflux into the collecting system of a small, hypoplastic right kidney.

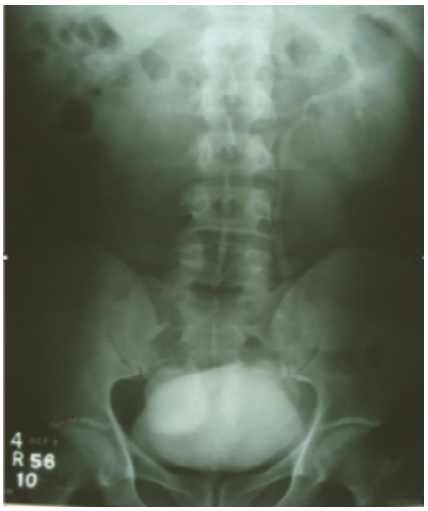

Fig. 2: Intravenous urogram showing a non-functioning right kidney and a large left kidney with no hydronephrosis.

right-sided bladder diverticulum with a post-void residual urine of 350 ml. The right kidney was not seen on ultrasonography, while the left kidney showed hypertrophy with no hydronephrosis.

Voiding cystourethrography showed a large right lateral diverticulum with the bladder emptying into it. There was also vesicoureteric reflux on the right which delineated a small hypoplastic kidney (Fig. 1). A notable feature was the fact that the diverticulum was seen above the upper border of the pubic symphysis and not close to it, suggesting that the diverticulum was not close to the bladder neck. On intravenous urography (IVU) the right kidney was not visualized and the left kidney showed normal concentration and excretion with no hydronephrosis or hydroureter. The bladder was smooth-walled with a large diverticulum along the right lateral wall (Fig. 2, 3). Cystoscopy confirmed the diagnosis of a wide-mouthed large diverticulum in the right lateral bladder wall. There was no evidence of bladder-neck obstruction. The right ureteric orifice was not seen. It was possibly incorporated in the diverticulum, which explains the vesicoureteric reflux on the right side. Otherwise the bladder was unremarkable, except for the presence of cystitis. There was no trabeculation of the bladder wall. Urodynamic evaluation revealed a stable

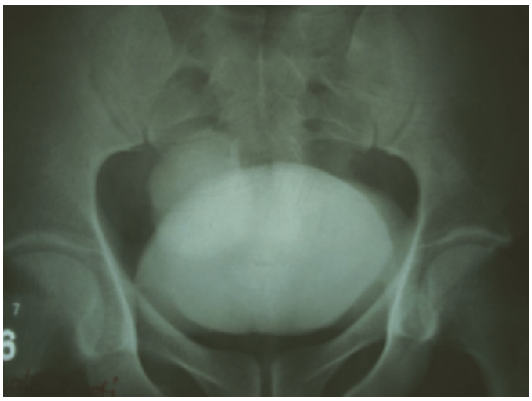

Fig.3: Full bladder on intravenous urogram.

bladder with normal proprioception, good detrusor contractility and a peak flow rate of 4 ml/sec, with the patient voiding just 50 ml.

A diagnosis of congenital vesical diverticulum causing bladder outflow obstruction was made. The diverticulum was excised by a combined extravesical and intravesical approach. The defect in the bladder wall was sutured in two layers. A suprapubic catheter was kept for 2 weeks. The patient voided with a good stream when he was given a voiding trial after clamping the suprapubic catheter, which was subsequently removed. At 3 months follow-up, the patient is free of infection and has no voiding difficulties.

DISCUSSION

Congenital vesical diverticulum is usually solitary, occurs almost exclusively in boys and is located laterally and posteriorly to the ureteral orifice[2–6]. The primary cause appears to be a congenital weakness at the level of the ureterovesical junction and not bladder outlet obstruction[7]. Typically, congenital bladder diverticulum is found in smooth-walled bladders and is not associated with significant trabeculation on cystoscopic examination[8]. Urodynamic studies are useful in differentiating it from an acquired cause, especially in adults, where neurogenic voiding dysfunction, a common cause of acquired diverticulum, is more common[9].

Congenital vesical diverticulum is often associated with reflux and most often presents with urinary tract infection[2]. Retention of urine as a presenting feature of congenital vesical diverticulum is uncommon, with the majority of such cases having been reported in children[2-5] and anecdotal cases reported in adults[1]. Retention due to a diverticulum may occur, because with detrusor contraction during voiding the urine flows from an area of relatively high pressure into the diverticulum which represents an area of low pressure. The paradoxical enlargement of the bladder diverticulum with resultant compression of the bladder neck and posterior urethra then leads to retention of urine[2—5,9,10]. This is very well depicted in the voiding cystourethrogram of this case, where the bladder is seen emptying into the diverticulum, which appears larger than the bladder. Also, the diverticulum is seen above the upper border of the symphysis pubis and not close to it, suggesting that the diverticulum was not close to the bladder neck and had not dissected below it (Fig.1).

On IVU the bladder appeared larger than the diverticulum when the bladder was full and the patient not voiding (Fig. 2, 3). As the patient was voiding predominantly into the diverticulum, he was able to void initially with a slightly better stream. However, as the diverticulum enlarged he could not void per urethram, but rather emptied almost completely into the diverticulum. This vesicodiverticular reflux explains why the patient presented so late in life. The daily cycles of voiding possibly resulted in a progressive increase in the size of the diverticulum, ultimately leading to a stage where the patient mainly voided into the diverticulum. In the past he had episodes of urinary retention treated by catheterization, and following the trial without catheter he started passing urine again. This may be due to the fact that on catheterization the wide-mouthed diverticulum was emptied, while after removal of the catheter and resumption of the voiding cycle the diverticulum progressively increased in size. After diverticulectomy the patient was asymptomatic.

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