Giant Congenital Diverticulum Of The Anterior Urethra - A Rare Penile Swelling

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Citation

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Abstract

A congenital diverticulum of the anterior urethra is a primary and rare entity, especially a giant one, which occurs in patients without urethral valves. We report a case of a large primary anterior urethral diverticulum in a 13-month-old child with obstructive features. It was successfully treated by diverticulectomy and urethroplasty.

INTRODUCTION

In children, traditional sites for lower urinary tract obstruction are bladder neck and posterior urethra. Obstruction at the anterior urethra due to all possible causes is uncommon and it is rarely due to a congenital anterior urethral diverticulum. This entity should be differentiated from diverticula due to valves, as the treatment differs for both conditions. We report a rare giant variety of a congenital diverticulum of the anterior urethra which presented with urinary obstruction. Its pathogenesis and clinical profile are discussed.

CASE REPORT

A 13-month-old male child presented with gradually increasing swelling on the ventral aspect of the penis for last 5 months, which enlarged on micturition. Weak urinary stream followed by dribbling, intermittent fever and crying during micturition were noticed for the last 15 days. On examination, a cystic swelling on the ventro-lateral aspect of the penis (Fig. 1), a normal scrotum, distended urinary bladder and passage of drops of turbid urine per urethra on compressing the swelling were recorded.

Figure 1

Ventral penile swelling

Needle aspiration of the swelling revealed urine with turbidity.

Urine examination showed 25-30 pus cells/hpf. Culture revealed no growth. Renal function tests were normal. Total leucocyte count was 12700/mm³ with neutrophils predominating. Ultrasonography (USG) revealed a normal upper urinary system, significant post-voidal residual urine volume and a cystic swelling at the ventral aspect of the anterior urethra.

Micturating cysto-urethrogram (MCU) and retrograde urethrography could not be done as the patient did not co-operate. Direct-vision cystourethroscopy showed a wide neck of a transilluminant outpouching from the ventral aspect of the anterior urethra without any valve. The urethra was catheterised, and the giant diverticulum dissected (Fig. 2)and a diverticulectomy (Fig.3) with urethroplasty (Fig. 4)

was done.

Figure 2

Giant anterior urethral diverticulum

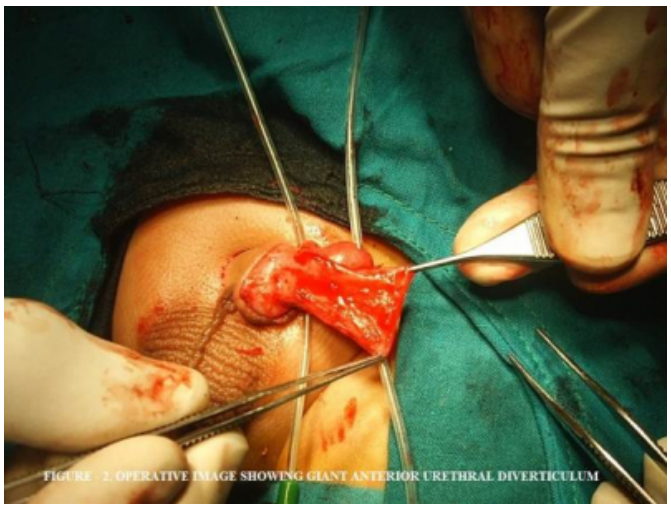


Figure 3

Urethral rent after diverticulotomy

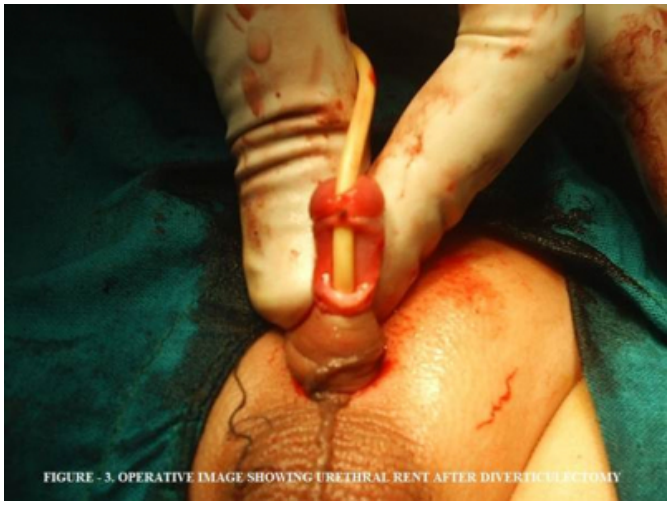
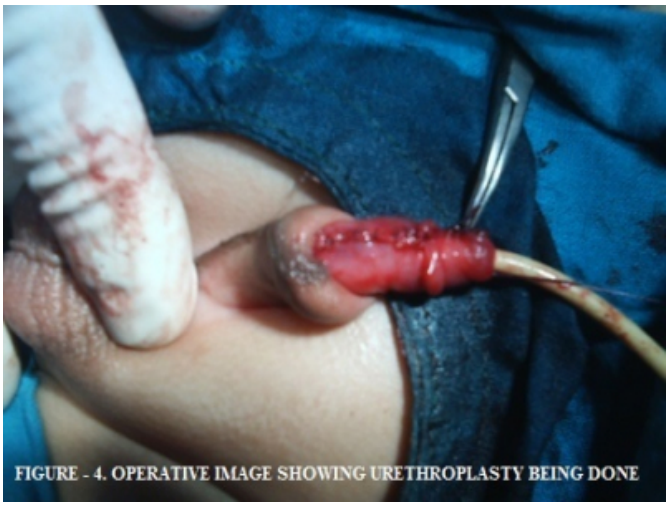


Figure 4

Urethroplasty



Catheter removal on 10th post-operative day was followed by full-stream voiding, leaving no residual urine or leakage at the repair site. Two months later, intravenous urethrogram and MCU showed normal outlining and physiology of whole urinary tract.

DISCUSSION

Primary or congenital anterior urethral diverticula (CAUD) are very rare as compared to acquired ones and occur without genetic predisposition. They account for only 10-20% of all diverticula of the anterior urethra [1]. Very few of them have been reported as giant diverticula [2,3]. As embryology is not clear, different hypotheses have been proposed about the pathogenesis of CAUD e.g., developmental defect of corpus spongiosum, cystic dilatation of urethral glands and sequestration of an epithelial nest after closure of urethral folds [4, 5, 6]. Deficient corpus spongiosum, due to arrest in periurethral mesenchymal differentiation, appears to be the most plausible explanation [4]. A congenital obstructing anterior urethral valve leading to diverticulum formation has also been suggested [7]. There are opinions that CAUD and anterior urethral valves, possibly, represent the spectrum of the same disease [4, 7, 8, 9], but others do not believe that [10]. A wide mouth opening of the duct of an ectatic Cowper's gland into the bulbous urethra may also appear as diverticulum [11].

Clinical presentation has a wide spectrum depending upon the size and stage of the diverticulum. Its progressive enlargement causes undermining of the urethra at the distal lip, resulting into a flap of tissue acting as a valve. This

pseudo-valve leads to urinary obstructive features, as reported in this case [12]. A giant diverticulum can present as a palpable ventral penile mass associated with upper tract decompensation and azotemia [7, 13]. Older children may complain of milder symptoms like frequency, dysuria, hematuria, enuresis, diminished urinary stream and post-void dribbling, as in our patient [4]. Sometimes, a small diverticulum goes unnoticed until adult life [10] or remains asymptomatic, found co-incidentally. Seldom, a stone-filled diverticulum mimicks a firm penile mass [14].

Diagnosis of CAUD is usually accomplished by micturating cystourethrography and retrograde urethrography. Voiding USG is a non-invasive alternative to MCU [15]. Cystourethroscopy confirms the diagnosis.

Treatment varies with diverticular size and degree of obstruction. Small asymptomatic lesions may be followed by surveillance alone [14]. Small symptomatic diverticula are best treated by transurethral resection [16]. Open diverticulectomy with urethroplasty should be reserved for giant diverticula, as in our case. In addition to the above mentioned treatment modalities, diverticula with urethral valves need endoscopic fulguration of valves. Hence, the two conditions must be defined separately.

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