

Case Report

CONGENITAL ANTERIOR URETHRAL DIVERTICULUM INCIDENCE IN SOUTH GUJARAT AND ITS MANAGEMENT

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INTRODUCTION

Anterior urethral valves (AUVs) are rare congenital anomalies causing lower urinary tract obstruction in children. Although they are referred to as valves, these obstructive structures often occur in the form of a diverticulum. The urethra in these cases shows saccular or bulbar dilatation known as anterior urethral diverticulum (AUD). They typically occur where there is a defect in the corpus spongiosum, leaving a thin-walled urethra. This segment of the urethra balloons out during voiding, simulating a mass that is sometimes visible along the ventral wall of the penis. The swelling is fluctuant and urine dribbles from the meatus on compression. In this paper, we are presenting our experience of incidence of Anteriorurethraldiverticulum during the last 2 years in Govt. Medical College, Surat and the surgical management of the cases.

CASES

We have reported 8 cases of anterior urethraldiverticulum in the government medical college Surat during the last 2 years of OPD patients. The incidence is 1.2% cases in the government college. We have studied children with congenital anterior urethral valves and diverticula. Eight patients of AUVs with diverticula were admitted during the period of 2011-2014 and were prospectively evaluated. The mean age of presentation was 16 months (15 days to 4 years). One case appeared at the age of 8 years which is very late presentation of the diverticulum. Straining at micturition, recurrent urinary tract infection and a palpable penile swelling were the most common presenting features. The diagnosis was established by micturatingcystourethrogram (MCUG) and supported by ultrasonography (USG). All patients were treated with single-stage open surgical excision except one who died preoperatively due to associated cardiac anomaly.

DISCUSSION

Congenital anterior urethral diverticulum (CAUD) is an uncommon condition in children. CAUD is classified into saccular variety and globular variety, the former being more common than the latter (Johnson, 1923). The cause and effect relationship between anterior urethral diverticulum (AUD) and anterior urethral valve (AUV) has been extensively debated. Some authors do not distinguish between AUD and AUV, while others believe these are different entity. The diverticulum that is associated with AUV is not a true diverticulum because in AUD an acute angle is formed between the proximal part of dilated portion and the ventral floor whereas this acute angle is not present in AUV (Huang *et al.*, 1989). The diverticulum and valve causes obstruction of male urethra and patient complaints of dysuria, dribbling of urine, recurrent urinary tract infection, or a fluctuant ventral penile swelling (Ortlip *et al.*, 1980). The most of the cases appears with the complain of the swelling in the penis while passing urine since birth the case which presented late also had complain of recurrent burning micturition and he had to push the swelling in the penis while passing urine since birth.

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As we can see in the diagram that the swelling at the time of micturation at the penis.

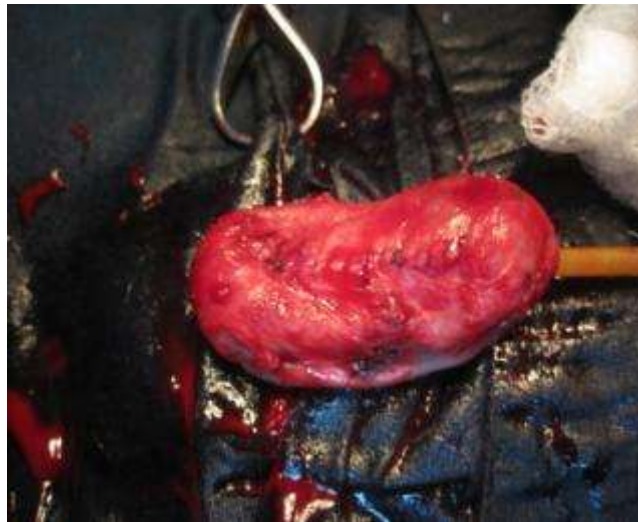


The diagnosis of all cases is done by MCUG (micturatingcytourethrogram)



Flap creation on opening of diverticula

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Final outcome after removal of diverticula and primary repair

In all cases the excision of diverticula with stricturoplasty proximal to diverticula with catheterization is done. The surgical outcome was successful in all cases. On long-term follow-up, all patients demonstrated good stream of urine. The renal functions were normal and the patients had no evidence of urinary infections.

Conclusion

Anterior urethral valves with associated urethral diverticulum are rare but important cause of infravesical urinary obstruction in children. The valves can be located anywhere in the urethra; 40 % occur in the bulbar urethra, 30 % at the penoscrotal junction, and the remaining in the penile urethra. Some of them exist without diverticulum. Firlit et al. [2] considered both anterior urethral valves and urethral diverticulum as a continuity of the same pathology and classified them into four types depending on the degree of back pressure changes, as: Type 1: consists of demonstrable anterior urethral valve associated with proximal urethral distention. Type 2: is associated with presence of a definitive urethral diverticulum. Type 3: is the combination of valve, diverticulum, proximal urethral distension and vesical enlargement excluding those with massive ureterectasis. Type 4: represents severe changes of the upper tracts. Although these obstructive structures may be called valves, they often occur in the form of a diverticulum.

The incidence of the cases we find in the govt. medical college Surat is 1.2%. 6 out of 8 cases were of type 2 and remaining were of type 1. As AUD may present at any age, from moment of birth upto adult life. Most children with this condition present with difficulty in micturition, dribbling of urine, poor urinary stream, or urinary tract infection. A careful history will reveal that the child never had a good urinary stream since birth, and a tell-tale sign is a cystic swelling at the penile urethra (Cheong *et al.*, 1988). If it is uninfected and without complication, the mass is unattached to the overlying skin, nontender, and mobile laterally. On compression, urine will be seen dribbling out of the external meatus, and the swelling is seen to empty.

The diagnosis of AUD is usually made by MCUG or retrograde urethrogram. MCUG has the additional advantage of demonstrating proximal changes like VUR, or other associated anomaly. VUR has been reported in 20% of patients with AUD [5]. Ultrasonography (USG) is complimentary to the contrast studies to diagnose the condition and offers the additional advantage of evaluating the upper tracts as well. Moreover, voiding USG has been found to be alternative to the contrast studies in making a diagnosis of AUD (Goyal *et al.*, 1996). Cystourethroscopy is diagnostic as well as therapeutic. A diverticulum typically appears as outpouching from the ventral wall of the urethra and has a proximal and distal rim (Zia-ul-Miraj, 1999).

The primary differential diagnostic conditions of AUD include anterior urethral valve (AUV), dilated Cowper's gland ducts, and posttraumatic diverticulum. The presence of a penile or penoscrotal mass

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clinically and the proximal lip radiologically which is seen as an arcuate filling defect should readily distinguish the diverticulum from the valve. In addition, the proximal lip forms an acute angle with the normal calibre proximal urethra in AUD, whilst in AUV, it forms an obtuse angle (Gupta and Srinivas, 2000). In dilated Cowper's gland ducts, a tubular channel is seen in the ventral surface of the bulbar urethra which it parallels, and its termination is in the urogenital diaphragm (Cheong *et al.*, 1988).

Treatment of AUD depends on the size of the diverticulum and the degree of obstruction. Transurethral resection (TUR) with a paediatric resectoscope is the treatment of choice for small, well-supported diverticula wherein the distal obstructing lip is resected. Moreover, successful treatment of AUD has also been reported by using a Sachse knife (Netto *et al.*, 1984). But in the large diverticula, as also in our cases, open diverticulectomy and primary repair is recommended. We have used the technique of making a triangular flap which is fitted into the distal lip and double breasting of the urethral suture line, as described in literature. Some authors have also advocated the plication of redundant diverticular wall with good results. In situations where there are back-pressure changes of upper tracts with deranged renal function, urinary diversion either by marsupialisation of diverticulum or even suprapubic cystostomy/vesicostomy (Rushton *et al.*, 1987) is a safer option. However, the prognosis depends on the status of the upper tracts.

To summarise, in patients of AUD with large diverticula without any back-pressure changes, as in the present paper, open diverticulectomy with primary repair is recommended as this procedure carries good results, and it takes care of the redundant diverticular wall.

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