CASE REPORT

Congenital giant male anterior urethral diverticulum with calculi

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SUMMARY

Urethral diverticulum is a sac-like outpouching of urethral mucosa. It may be anterior or posterior according to anatomical locations. It is less common in men than in women. It can be congenital or acquired. Anterior urethral diverticula are usually congenital as compared to majority of posterior diverticula which are acquired. The most common aetiologies of male acquired diverticula are stricture, abscess, trauma or post-hypospadias repair. We report a case of congenital giant anterior urethral diverticulum with a calculus which has been managed successfully with surgical excision and repair in two layers.

BACKGROUND

Congenital urethral diverticulum is rare in men. We are reporting a giant congenital anterior urethral diverticulum with a large stone. It was diagnosed with a urethrogram study and subsequently managed surgically.

CASE PRESENTATION

A 40-year-old man presented with symptoms of frequent and post-void dribbling for the past 20 years. He had no history of bleeding per urethra, poor flow of urine or strangury. There was no history of trauma or infection. On physical examination, he had a swelling at the peno-scrotal junction, which was hard, non-tender and mobile ([figure 1A](#)).

INVESTIGATIONS

The patient's laboratory evaluation revealed normal haemogram and renal function. Microscopic examination of urine showed few pus cells and *Escherichia coli* on culture. Retrograde urethrogram revealed a large diverticulum with a large stone on the bulbar urethra ([figure 1B](#)). A clinical diagnosis of the anterior urethral diverticulum was made considering the location and the urethrogram.

Open diverticulectomy was planned for this patient. Preoperative cystoscopy showed a normal urethra and very small ostia of diverticula in the bulbar urethra.

DIFFERENTIAL DIAGNOSIS

Syringocoele, epidermoid and epithelial inclusion cyst may be included in differential diagnosis.

TREATMENT

The penis was degloved after a circumcoronal incision but it was difficult to expose the diverticulum, hence a perineal incision was made ([figure 1C](#)).

The diverticulum was dissected by a sharp and blunt dissection. The diverticulum was connected to the urethra via a small neck. There was no extension of the diverticulum towards the proximal urethra ruling out the possibility of a syringocoele. The diverticulum was excised en masse with a stone in situ which opened a defect in the urethra ([figure 1D,E](#)), which was closed in two layers with 4-0 vicryl after placing a 14 Fr silicon catheter. A third layer of tunica vaginalis was placed ([figure 1F](#)) and anchored with 4-0 vicryl. The penis was repositioned and the perineum was closed in layers.

OUTCOME AND FOLLOW-UP

Postoperative recovery was uneventful. The patient was discharged with a catheter on seventh postoperative day. The catheter was removed on 21st postoperative day. The patient voided normally after the removal of the catheter. The patient was followed up at 3 weeks, 6 weeks and 3 months with clinical examination and uroflowmetry. He was symptom free at each follow-up and maximal flow rate was 23, 20 and 21 mL/s, respectively.

DISCUSSION

Urethral diverticulum is more common in women and rare in men. Overall prevalence of urethral diverticulum is between 0.5% and 5%.¹ Urethral diverticulum can be divided into congenital and acquired.^{2 3} In men, up to 90% of diverticula are acquired and can occur due to stricture, trauma, infection and prolonged catheterisation.⁴ Congenital urethral diverticulum usually involves anterior urethra. The peno-scrotal junction is the commonest location of anterior diverticula. Embryologically, it is formed due to the faulty closure of urethral folds. Congenital urethral diverticula always have an epithelial lining which can be distinguished from the acquired one on histopathology. Our case was diagnosed as congenital diverticula because of his long duration (over 20 years) of symptoms, anterior location of diverticulum, no history of trauma or infection and epithelial lining of diverticulum in biopsy. One large series shows that the mean age of presentation in congenital urethral diverticula is 25 years, which means that it remains asymptomatic till complication arises.⁵

Urethral diverticula presents with dysuria, difficulty in micturition and post-void dribbling. A perineal mass or phlegmon or swelling at the peno-scrotal junction (as in our case) may develop and urethrocutaneous fistula may develop if infected.⁶ Urethral stone develops in approximately 4–10% of diverticula.⁶

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Figure 1 (A) The diverticulum seen at the peno-scrotal junction. (B) The retrograde urethrogram showing the fistula. (C) The diverticulum seen at the time of surgery. Part of the stone can also be seen (arrow). (D) An infant feeding tube passed from the urethral defect after the diverticulum has been separated from the urethra. (E) The excised diverticulum and the stone. (An infant feeding tube is seen by the side of the diverticulum to show its dimensions in centimetres.) (F) The closure of the urethral defect being performed.

Diagnosis is based on clinical history, ascending urethrogram and cystourethroscopy. A retrograde urethrogram is a very important investigation as it not only helps in diagnosis but can also help in identification of associated issues like stricture, fistula and so on, which may require attention during corrective surgery. Other methods of diagnosis can be ultrasound, contrast enhanced CT or MRI.^{7 8}

Asymptomatic smaller anterior urethral diverticula usually do not require surgical treatment. If the diverticula are associated with an underlying pathology like a distal stricture, it should be addressed to prevent the further enlargement of the diverticulum. Surgical excision with the repair of urethra is the standard treatment for symptomatic large diverticula.

Learning points

- Congenital urethral diverticula are rare and commonly present with voiding difficulties.
- Stone formation can occur in them, albeit rarely.
- Surgical excision is curative.

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