

# Male Urethral Diverticulum A Rare Entity: Our Experience

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## 1. Introduction

A urethral diverticulum (UD) is a condition in which a localised saccular or fusiform outpouching forms out of any point in the urethra's length. This saccular dilatation is contiguous with the true urethral lumen through a discrete orifice with a variable size neck. Inadequate urine drainage from this outpouching leads to urinary stasis, recurrent urinary tract infections, lithiasis formation, an increase in UD size, urinary leakage or fistulas, incontinence, or even a palpable penoscrotal mass.<sup>1,2</sup>

UD occurs far more frequently in women, most likely due to poor anatomical support of the urethra, complications from childbirth, or a more typical occurrence of periurethral abscesses.<sup>3,4</sup> UD are estimated to occur in 1–6% of women, presenting usually from the third to the fifth decade of life.<sup>5</sup> In men, it is a rare finding, and literature related to male UD generally involves case reports or small patient series with no estimated prevalence reported.<sup>6</sup>

According to Watts,<sup>6</sup> UD may be congenital or acquired in origin. Congenital UD are usually associated with congenital anterior urethral valves and aetiologic mechanisms remain to be ascertained: failed attempt of urethral duplication, failure of alignment between proximal and distal urethra, anomaly of the developing urethra resulting in excessive tissue growth and a permanent valve or flap mechanism, and a cystic dilation of periurethral glands.<sup>7</sup> These types of diverticula harbour all the layers of the urethral wall and are lined by epithelium. Acquired UD correspond to 67–90% of all male diverticula and is associated with an iatrogenic background, resulting in conditions such as obstructing urethral stricture, blunt trauma, and infection. These types of UD are covered by granulation tissue and their walls lack a true smooth muscle layer, only lined by a transitional epithelium and presenting a pseudodiverticulum image.<sup>8</sup> Congenital and acquired UD both share the same common feature: blind-ending outpouchings of the urethra.<sup>9</sup>

Acquired UD in males is a very uncommon and rare condition and the literature associated to it is scarce; as such, its incidence and prevalence remains unknown. It is mostly found at the penile urethra, especially at the penoscrotal angle.<sup>10</sup> Several factors have been described as responsible for UD development: strictures; recurrent urinary tract infections, including periurethral suppuration as a result of gonorrhoea, tuberculosis, or chronic urethritis infections; long-term or recurrent catheterisation; urethral or penile surgery; trauma; and erosion from surgical implants or from the use of penile clamps.<sup>11</sup> Inflammation of the periurethral

glands with the formation of abscesses that burst into the urethral lumen has also been reported.

## 2. Objective

We present our experience with male UD.

## 3. Patient and Methods

We present two cases of Male urethral diverticulum.

Case 1: 37 year male patient presented with Swelling at Penoscrotal junction and discharge from Penoscrotal junction at the time of micturition for 4 years. Patient had history of tubercular meningitis 2011 for which he was admitted and treated in local hospital and was catheterized. Patient is a known smoker for last 20 years. Clinically Cystic Penoscrotal swelling was palpated and a urethra-cutaneous fistula was suspected. RGU (retrograde urethrogram) was performed, which revealed oval sac like structure [Figure 1] at mid penile urethra. Cystoscopy confirmed presence of diverticulum with urethra-cutaneous fistula [Figure 2]. Managed with urethral diverticulectomy with urethral reconstruction [Figure 3]. Follow up RGU after 12 weeks revealed no diverticulum and no penoscrotal leakage [Figure 4].



Figure 1: RGU revealing oval sac like structure



**Figure 2:** Cystoscopic image revealing UD at mid penile urethra



**Figure 5:** RGU with UD



**Figure 3:** Urethral diverticulectomy with urethral reconstruction



**Figure 6:** RGU done after 12 week



**Figure 4:** RGU after 12 weeks

**Case report 2:**

35 year male presented to us with straddle urethral injury with acute urinary retention. Clinically Meatus was Stenosed with BXO changes, with blood at Meatus. Emergency Trocar supra-pubic catheter (SPC) was done. RGU after 6 weeks revealed 2.5x1.5 cm sac like structure at Peno-bulbar junction with Meatal Stenosis. [Figure 5]. Meatoplasty with excision of diverticulum with end to end anastomosis was done. Follow up RGU was performed after 12 week, which was normal [Figure 6].

**4. Result & Discussion**

Acquired UD occurs secondary to stricture, infection, trauma, long standing impacted urethral stones or scrotal / skin flap urethroplasties. RGU and MCU are the best diagnostic technique to confirm and characterize the UD. Urethral diverticulectomy with urethral reconstruction is the recommended treatment for UD. Management should be individualized on patient basis.

Possible explanations for male UD include:

- Increased urethral pressure from a urethral obstruction, with consequent outpouching of the urethral epithelium. Particularly in patients with a background of reconstructive procedures for hypospadias, urethral stricture, trauma, or incontinence.<sup>12</sup>
- Following anorectal malformation repair from a retained portion of the urethral fistula ballooning out as more urine is sequestered in the herniated structure.<sup>13</sup>
- In patients with indwelling urethral catheters: the constant pressure at the Peno-scrotal angle with chronic urethral ischaemia, urethral fibrosis, and scar formation.<sup>14</sup>

**5. Conclusion**

UD in the male is a rare finding and poses challenges in diagnosing and management. RGU and MCU would provide excellent results for diagnosing UD. The goal of surgery is to excise the UD per se, maintain the patency and continuity of urethra and an additional tissue cover or augmentation if required. Urethral diverticulectomy with urethral reconstruction is the recommended treatment. Urinary diversion as a initial procedure for selective cases can be performed, therefore treatment of UD should be individualised.

## 6. Financial support and sponsorship

Nil

## 7. Conflicts of interest

There are no conflicts of interest.

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