



## Diverticulum of the man urethra: a rare case

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### ABSTRACT

Diverticulum of the man urethra (DMU) is a rare clinical entity. It is characterized by a separate saccular dilatation that communicates with the urethra, the origin is essentially gained. The authors report a clinical case of diverticulum of the man urethra acquired after endoscopic internal urethrotomy for urethral strictures. The suspected diagnosis was confirmed by retrograde and voiding urethrocystography as well as urethrocystoscopy. The treatment consisted of excision of the diverticulum with reduction urethroplasty. Epidemiological, diagnostic and therapeutic aspects are reviewed.

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### Introduction

Diverticulum of the urethra is a tubular or saccular dilation of the urethra. This is a condition rarely described in the man. The diverticulum may be congenital or acquired. The latter form is the most frequent representing 90% of urethral diverticulum in man. Through a clinical case of diverticulum of the male urethra acquired after endoscopic internal urethrotomy, we propose to discuss epidemiological, diagnostic and therapeutic aspects of this pathology.

### Observation

Mr. MA, aged 53, without notable medical history especially congenital. it is followed in our department since 2004 years for post-infectious bulbar urethra stricture. He underwent 4 endoscopic internal urethrotomies, the last was in January 2011. Past 6 months, the patient had a disabling false urinary incontinence made of purulent latecomers drops associated with irritative signs and urge incontinence; without dysuria or an acute urinary retention episode.



Figure 1. Bulbo-perineal diverticulum 4cm in voiding urethrocystography

He also reported the appearance of a perineal mass whose volume increase is made gradually. Clinical examination revealed a fluid tumefaction at the perineal scrotal angle, oblong, 3cm diameter, and reducible to manual pressure with externalization of purulent urine by the urethral meatus (Figures

1 and 2). The rest of the examination was unremarkable and revealed no other abnormalities including malformations.

The urine culture showed pyuria with no significant bacteriuria. However, a selective analysis of the urine after expression of the diverticulum, finally objectified infection with *Proteus Mirabilis* sensitive to third generation of cephalosporins. Sterilization of the urine was obtained after seven days of appropriate antibiotics.



Figure 2. Diverticulum after bladder emptying



Figure 3. Endoscopic image of the diverticulum

The urinary flow measurement, with a maximum rate of 20 ml / s for a urinated volume of 270 ml is not for obstruction.

Retrograde and voiding urethrocytography reveals a large diverticulum of the bulbar urethra 4cm long, fusiform and without connecting collar. The bladder is diverticular without residual urine, reflecting the age of the bladder lesions and unobtrusive nature of the diverticulum (2,3,4 Figures).

The urethrocytography confirmed the results of the urethrocytography and showed that the urethra is permeable with good trophism except at the bulbar diverticulum where mucosa was inflammatory (Figure 3).



**Figure 4. No residual pocket at the voiding urethrocytography control, 3 months after surgery**

Perineal surgery exploration showed a bulbar diverticulum, 4cm long, permeable, without upstream or downstream stenosis, with a normal periurethral tissue. We opted for a reduction urethroplasty in one time with excision of the urethral mucosa excess at the ventral side of the diverticulum, and then suture the urethra with a continuous PDS 4/0 on trans-urethral catheter silicone Ch20. This catheter was kept 21 days. The immediate postoperative course was uneventful with no local suppuration. At the removal of the catheter, the patient had no dysuria and the urinary stream was satisfactory. An ultrasound with measurement of residual urine showed good bladder emptying. The patient's complaints concerned urgent urination a partly solved by taking the anticholinergic and erectile dysfunction responsive to inhibitors of phosphodiesterase. An urethrocytography performed at 3 months of the surgical procedure, shows an irregular caliber of anterior urethra without obstruction, residual urethral pocket or post-void residual (Figure 4).

#### Discussion

Diverticulum of the man urethra is a rare entity with only 300 cases. Acquired forms are the most common and represent 80-90% of DMU. They are secondary to urethral trauma, usually iatrogenic. Prolonged Urethral catheterization in neurological patients, urethroplasties for urethral strictures and hypospadias cure would be the main causes of iatrogenic DMU. Diverticulum may also occur as a complication of pelvic or penile trauma, an artificial urinary sphincter or stenosis of the vesico-urethral anastomosis after radical prostatectomy [2,3]. To our knowledge the only case previously published of DMU secondary to endoscopic internal urethrotomy was by Parker in 2007 [4].

The urethra exposed to repeated trauma, would be the site of ischemic and septic injury the sources of abscess leading to the destruction of the urethral mucosa and adjacent spongy tissue the formation of a urethral epithelialised pocket. DMU acquired sit preferably at the bulbo-urethral perineal while congenital forms affect more the penile urethra [1].

The clinical presentation is variable; the DMU is often revealed by recurrent urinary tract infections, but it is also frequent to see hematuria, dysuria, or acute urine retention. Post-void urine leakage associated or not with a genito-perineal

tumefaction, although pathognomonic are rarer. Intra-diverticular stones have also been reported. [5]

Although, retrograde and voiding urethrocytography is the best technique for diagnostic imaging, the contribution of magnetic resonance imaging (MRI) should not be ignored: while the first is still the gold standard for the diagnosis of DMU, MRI allows finer assessment of the nature of the diverticulum, its wall and the quality of the peri-diverticular spongy tissue. These data allow better therapeutic planning (endoscopy or open surgery) [6].

The flexible or rigid urethrocytography is also indicated for DMU: it shows the diverticulum, appreciates the size of his collar and eliminates the presence of any stones or tumor lesions within the diverticulum. [4]

The treatment of choice is surgical excision of the diverticulum with reduction urethroplasty in one time. Plication techniques without opening the diverticulum have also been described, to avoid the risk of fistulas [1,2,7]. In some cases, endoscopy has been successfully applied to small diverticulum, provided that the spongy body and peri-diverticular supporting tissues remain intact. The intervention is to incise the collar of the diverticulum with the cold blade. It remains primarily indicated in children. [8]

Complications of DMU surgery are dominated by fistula, urethral strictures and finally recurrences; hence the necessity to treat only symptomatic and / or large urethral diverticulum [1,7].

#### Conclusion

Diverticulum of the man urethra is a rare entity, usually with acquired origin. It is characterized by a clinical polymorphism. Diagnosis is based on the retrograde and voiding urethrocytography. The urethrocytography is an interesting addition to confirm the diagnosis and rule out any associated lesions. Open surgery with resection of the diverticulum and urethroplasty remains the treatment of choice. An endoscopic approach may nevertheless be considered in children for small diverticulum.

**Conflict of interest:** The authors declare no conflict of interest.

**Authors Contribution:** All authors mentioned have contributed to the development of this manuscript. All authors also declare to have read and approved the final manuscript.

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