

Ten-Year Follow-up of Urethral Stent for Detrusor-Sphincter Dyssynergia

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INTRODUCTION

The treatment options for detrusor-sphincter dyssynergia (DSD) include sphincterotomy, botulinum injection or urethral stent. Sphincterotomy is irreversible and is associated with significant morbidity, including hemorrhage and need for repeat procedure [1,2]. Intrasphincteric botulinum, on the other hand, has lower morbidity but has a variable outcome [3]. As for urethral stents, the results appear to be dependent on the type of stent used and the long-term outcome has not been well studied. We present a case of DSD with a 10-year follow-up for urethral stent.

CASE REPORT

A 64-year-old Chinese man sustained fractures to the cervical vertebrae following a motor vehicle accident. As a result, he had neurological deficit at the levels of C5 & C6 but the spinal cord injury was incomplete and he was able to walk with aid. Multi-channel video urodynamic study showed DSD associated with poor bladder compliance and left vesico-ureteric reflex with concomitant hydronephrosis.

Other urodynamic findings included neurogenic detrusor overactivity. He was initially managed with clean intermittent catheterization but this was abandoned because he developed obstructive uropathy. The patient then opted for a urethral stent and a single 35 cm MemothertTM (Angiomed, Karlsruhe, Germany) was implanted (Fig. 1).

RESULTS

The patient is now 10 years post stent implantation. Repeat urodynamic studies showed reduction of detrusor pressure (30 to 1 cm of water pressure at 100 mL of fill) and improvement in bladder compliance (3.3 to 8 mL/cm of water pressure). In addition, there was resolution of the left-sided vesico-ureteric reflex and the left kidney was no longer hydronephrotic. The patient did not report autonomic dysreflexia prior to or after stent insertion. Cystoscopic examination revealed mucosal epithelization over the stent, without encrustation, urethral stricture or bladder neck obstruction. There was no radiographic evidence of stent migration. During this period, the patient has not developed orchitis or hematuria.

DISCUSSION

For many decades, the standard treatment for DSD has been sphincterotomy. However, this procedure is irreversible and, coupled with its attendant complications including the possibility of repeat sphincterotomy, has often been rejected by patients [1,2]. With regards to intrasphincteric botulinum, this modality was not in clinical practice at the time of implantation of the urethral stent in this patient. Even so, subsequent reports have shown that the outcome after using botulinum is variable [3]. As such, a viable alternative is placement of a urethral stent at the level of the external sphincter [4].

The intention of using the urethral stent is to provide a reversible means of lowering outlet resistance. The North American Multicenter Trial studied the role of the UroLumeTM urethral stent and reported 80% success at the 5-year follow-up [5]. Statistically significant improvements were noted in maximum detrusor pressure and residual volume



Fig. 1. Plain radiograph showing urethral stent.

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in 160 patients. In addition, there was resolution of hydronephrosis and autonomic dysreflexia in the majority of patients. However, many complications were encountered, including encrustation, stent migration, stone formation, and recurrent urinary tract infection. In fact, the stent had to be explanted in 20% of patients, within a mean time of only 22 months [6].

Furthermore, Hamid et al studied the role of the Memokath™ stent and found that the majority of urethral stents (19 of 25) needed to be removed within 3 years. This was despite the fact that significant improvements were noted at 6 months post implantation, including reduction in maximal detrusor pressures, post-void residual volumes and duration of detrusor contraction. The reasons for removal included stent migration, encrustation and stone formation, autonomic dysreflexia and incomplete bladder emptying. They concluded that the Memokath™ stent was a temporary stent and not a long-term solution for patients with DSD [7].

Garcia et al similarly reported favorable experiences with the Memotherm™ urethral stent. Improvements in leak point pressures and residual urine volumes were noted in their series of 24 patients, 4 had stent migration and only 2 stents were removed. However, the follow-up period was short, with a mean of only 15.4 months [8].

In the case presented, the patient similarly had a favorable outcome consistent with the experiences reported in the literature. However, he has also had a favorable post implantation outcome and has been without any of the potential complications for 10 years. Possible explanations include selection of the correct length of stent and complete mucosal epithelization over the stent, thus obviating the problems of encrustation/stone formation, migration and recurrent urinary tract infection.

CONCLUSION

Although the urethral stent is associated with a high rate of explantation, it remains a viable reversible treatment option for DSD.

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台灣尿失禁防治協會

「尿路動力學技術員」訓練證書授予辦法

- 一、台灣尿失禁防治協會（以下簡稱本會）為培育國內排尿訓練及尿路動力學專門技術人員，使其具備專門知識及技能以照護國人之泌尿系統疾患，特制訂本辦法並發給相關證書以資證明。
- 二、向本會申請「尿路動力學」技術員訓練證書者必須具備以下之條件：
 - (一)具中華民國護士、護理師資格，或由單位主管推薦之尿路動力學現職人員。
 - (二)曾從事尿路動力學相關之工作一年以上。
 - (三)曾於二年內參加本會舉辦之各種排尿障礙及尿路動力學研習班並獲得教育積分三十分以上。
 - (四)完成本會舉辦之「尿路動力學技術員訓練班」課程並經筆試及技術考試合格者。
 - (五)通過本會舉辦之「尿路動力學」認證口試。
- 三、凡具有本會授予之「尿路動力學」技術員證書者，有效期限為六年，六年屆滿必需完成本會所舉辦之繼續教育積分三十分，始可辦理展延一次六年。
- 四、繼續教育積分認定標準：出席本會年會十分、出席本會舉辦之研討會積分依時數計算、擔任本會所舉辦研討會座長或講師十分、投稿國內外醫學雜誌一篇十分。
- 五、本辦法經本會理監事會通過後施行，修改時亦同。