

Case report

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## Long-term result of Memokath urethral sphincter stent in spinal cord injury patients

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### Abstract

**Background:** Memokath urethral sphincter stents are used to facilitate bladder emptying in patients with spinal cord injury, but long term follow-up has not been reported.

**Methods:** Case series of ten men with spinal cord injury who underwent insertion of Memokath stents and were followed for up to nine years.

**Results:** Within four years, the stent had to be removed in nine out of ten patients because of: extensive mucosal proliferation causing obstruction to the lumen of the stent; stone around the proximal end of the stent, incomplete bladder emptying, and recurrent urinary infections; migration of the stent into the bladder related to digital evacuation of bowels; large residual urine; concretions within the stent causing obstruction to flow of urine, and partial blockage of the stent causing frequent episodes of autonomic dysreflexia. In one patient the stent continued to function satisfactorily after nine years.

**Conclusions:** The Memokath stent has a role as a *temporary* measure for treatment of detrusor-sphincter dyssynergia in *selected SCI patients* who do not get recurrent urinary infection and do not require manual evacuation of bowels.

### Background

We reported our preliminary experience of using the Memokath urethral stent to facilitate bladder emptying in ten men with spinal cord injury. [1]. During follow-up of 3 to 7 months, results were satisfactory. This article reports extended follow-up of nine years.

### Methods

#### Selection of patients

Men with spinal cord injury and urinary retention due to detrusor-sphincter dyssynergia were selected for insertion of a Memokath urethral sphincter stent. The exclusion criteria, inclusion criteria, technique for insertion and after care are discussed in our previous publication [1]. All 10 men who underwent stenting achieved satisfactory bladder emptying and were followed for up to nine years.



**Figure 1**  
X-ray of urinary bladder of case number 7 (25061996) shows calcification around proximal end of stent within the urinary bladder.



**Figure 2**  
X-ray of urinary bladder of case number 9 (13031995) shows stone formation around proximal end of stent. There is some upward migration of the stent in to the urinary bladder.

**Results**

Patient 1 developed difficulty in passing urine five months after stent insertion. Cystoscopy revealed mucosal oedema at the distal end of the stent. Fulguration of the protruding mucosal tissue was performed and he was able to pass urine satisfactorily. Four months later, he again developed difficulty in passing urine. Cystoscopy showed extensive mucosal proliferation, obstructing the stent. There was no encrustation and no stone. The stent was removed. Eight years later, this patient is using a penile sheath and supplementary intermittent catheterisation.

Patient 2 noticed spasms and sweating about four years after stent insertion. Ultrasound scan showed residual urine in the bladder and a large stone around the proximal end of the stent. Cystoscopy revealed stricture at the bulbo-membranous urethra. Suprapubic cystostomy was done and the stent was removed.

Patient 3 developed sweating and difficulty in emptying his bladder eight months after stent insertion. Flexible cys-

toscopy showed the stent lying in the bladder. Probably, digital bowel evacuation performed against the anterior wall of the rectum (and the urethra) caused upward migration of the stent. The stent was removed from the bladder endoscopically, and indwelling urethral catheter drainage was established.

Patient 4 was admitted nine months after stent insertion with sweating and a moderately large bladder. The stent was removed endoscopically. There was no calcification around the stent. A sacral anterior root stimulator was implanted.

Patient 5 developed difficulty in passing urine about a year after stent insertion while he was on holiday abroad. Multiple unsuccessful attempts were made to insert a catheter per urethra. Suprapubic cystostomy was performed. Five months later, cystoscopy showed multiple false passages in the urethra. Concretions were present over the



**Figure 3**  
X-ray of urinary bladder in case number 10 (03081993), taken soon after insertion of Memokath stent, shows satisfactory positioning of the stent.



**Figure 4**  
X-ray of urinary bladder in case number 10, taken six years after insertion of Memokath stent (16041999), shows stent in place in the prostatic urethra. There is slight uncoiling of the stent at one place.

stent. He underwent urethrotomy, division of external sphincter, and transurethral resection of the bladder neck.

Patient 6 developed progressive difficulty in bladder emptying seven months after insertion of a stent. The stent was removed with a cystoscope. During removal, the stent was found to be patent and in the proper position, with no concretions. This patient is now using intermittent catheterisation.

Patient 7 developed urinary infections 30 months after insertion of a Memokath stent. X-ray of the urinary bladder revealed a stone around the proximal end of the stent. (Figure 1). Suprapubic cystostomy was performed. After cooling the stent with ice cold saline, the stent and the stone were removed. The patient is now using a penile sheath drainage, and intermittent catheterisation.

Patient 8 noticed intermittent partial obstruction of the stent about two years after it was inserted. During these

episodes he experienced sweating. The stent was removed and a sacral anterior root stimulator was implanted.

Patient 9 developed recurrent urinary infections. Intravenous urography performed 18 months after insertion of a Memokath stent, revealed poor visualisation of the urinary bladder due to dilute contrast. There was calcification along the proximal portion of the stent. (Figure 2). Suprapubic cystostomy was done. The stent was cooled and the distal portion was withdrawn easily from the prostatic urethra. The remainder of the stent, along with a pear-shaped stone, was removed from the bladder through the suprapubic wound. This patient now performs intermittent catheterisation.

Patient 10 had been passing urine satisfactorily through a penile sheath for nearly nine years after insertion of Memokath stent. (Figure 3). Recently he had to press the suprapubic region to pass urine. He did not have urinary infections. X-ray of urinary bladder, taken six years after



**Figure 5**  
X-ray of urinary bladder of case number 10, taken nine years after insertion of Memokath stent (27082002), shows stent in place in the prostatic urethra. Now there is slight uncoiling of the stent at two places.

insertion of Memokath stent showed slight uncoiling at one place. (Figure 4). X-ray of urinary bladder, taken nine years after insertion of Memokath stent (Figure 5), showed that the stent had uncoiled itself slightly at two places. This patient is currently under observation.

### Discussion

It is possible that physicians using a new medical device or carrying out a new surgical procedure may be reluctant to publish their failures, as publication of complications may amount to admission of professional incompetence. Unless complications of a procedure are reported and information regarding potential complications is made available to other health professionals, a procedure may continue to be carried out by physicians without incorporating necessary modifications, thus compromising patients' safety. We favour voluntary reporting of all adverse events as they occur in the course of clinical practice in a spinal injuries centre. [2-5]. As we became aware of long-term complications of Memokath urethral sphincter stent,

we stopped using Memokath stent in the Regional Spinal Injuries Centre, Southport. We believe that Memokath stent has a role as a *temporary* measure to cure detrusor-sphincter dyssynergia in *selected SCI patients*, who do not get recurrent urinary infection, and do not require manual evacuation of bowels.

### Competing interests

None declared

### Authors' contributions

SV and BMS performed insertion of Memokath urethral stent. SV and BMS removed Memokath stent in nine cases. All authors contributed to the final manuscript.

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