| Author Year; Country Score Research Design Sample Size | Methods | Outcome |
|---|---|---|
| van der Merwe et al. 2012<br>South Africa<br>Case series<br>Level 4<br>N=28 | **Population:** 28 male patients with neuropathic bladder dysfunction after SCI who had dual flange Memokath stents inserted in the period March 2008 to October 2011; Age in yrs: mean 37.4, range 23-64; Level of injury: 23 cervical, 5 thoracic.<br>**Treatment:** Stents were placed rather than performing an external sphincterotomy in selected patients. With the patient under deep general anesthesia, a thermosensitive expandable metallic stent was positioned over the internal and external urethral sphincters; patients were followed-up at 1 month and again between 3 and 6 months.<br>**Outcome Measures:** stent failure rate, incidence of AD post-stent placement, complications. | 1. 33 stents were placed in 28 patients.<br>2. 6 patients reported severe autonomic dysreflexia related to poor bladder emptying as their reason for stent placement.<br>3. Severe AD decreased significantly from 17 cases before stent placement to 7 after stent placement.<br>4. New severe AD was a complication of stent placement in one case, after which the stent was removed. |
| Ke & Kuo 2010<br>Taiwan<br>Case series<br>Level 4<br>N=22 | **Population:** 19 males; 13 participants with cervical SCI, 9 with thoracic SCI. 17 individuals reported AD. Mean age at diagnosis of BND = 46.7 years. Lower urinary tract symptoms experienced for mean of 3.8 years. | 1. Spontaneous voiding resumed in 19 patients, persistent urinary retention in 3 patients.<br>2. Urodynamic parameters:<br>For patients with a Pdet > 15cmH2O at baseline, after surgery: Pdet and PVR decreased, Qmax increased significantly from 3.7(5.7) to 8.3(5.4)mL/sec; |

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| | **Treatment:** transurethral incision of the bladder neck (TUI-BN)<br>**Outcome Measures**: urodynamic parameters; satisfactory outcome (increase of AUA/IPSS quality-of-life index score by ≥2); autonomic dysreflexia occurrence; spontaneous voiding; detrusor pressure; post void residual; Qmax; bladder outlet resistance. | 3. For patients with a Pdet ≤15cmH2O at baseline, after surgery: Pdet and Qmax increased, PVR decreased significantly from 369(160) to 117(136)mL.<br>4. Degree of AD during micturition was less severe or disappeared in 15 patients (88.2%) after surgery.<br>5. 18 (82%) patients reported satisfactory improvement in QoL index after TUI-BN, and voiding by volitional drills or lower abdominal tapping maneuvers became easier. |
| Perkash, 2007<br>USA<br>Case series<br>Level 4<br>N=46 | **Population:** 46 males; 31 participants with tetraplegia and 15 with paraplegia; Type of injury: 43 AIS A and B, 3 AIS C.<br>**Treatment:** Transurethral sphincterotomy (TURS).<br>**Outcome Measures:** Autonomic dysreflexia during cystometrogram (measures the contractile force of the bladder when voiding), blood pressure. | 1. During cystometrogram, mean maximal systolic pressure was 160(23) pre and 108(17) mmHg post. Mean diastolic pressure was 88(15) pre and 62(11) mmHg post.<br>2. Mean decrease in systolic BP and diastolic BP after TURS was 55(26) and 30(17) mmHG, respectively.<br>3. Amelioration in symptoms of AD.<br>4. Mean post-void residual urine decreased significantly from 233(152) to 137(0.35) mL after TURS.<br>5. 4 patients still exhibited AD within 1 year of laser TURS. |
| Seoane-Rodriguez et al. 2007<br>Spain | **Population:** 47 males; 32 participants with cervical, 11 with thoracic, and 4 with lumbar injuries; mean post-injury time to stenting was | 1. Decrease in symptomatic UTI by 25%.<br>2. Decrease in post void residual urine volume by an average of |

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| Case series<br>Level 4<br>N=47 | 103.8 months. Mean follow-up time from implantation 67 months. Type of injury: 36 AIS A; 4 AIS B and 7 AIS C.<br>**Treatment:** intraurethral stent.<br>**Outcome Measures:** Urodynamic parameters; presence or absence of symptomatic UTI; autonomic dysreflexia; appearance of complications of the upper urinary tract (UUT); bladder management before and after surgery; prosthesis complications. | 224.3 $cm^3$.<br>3. Episodes of dysreflexia decreased from 35.1% to 16.2%.<br>4. Complications in the UUT decreased from 46.8 to 23.4%.<br>5. Urodynamic study showed an average reduction of 44.4 $cm^3$ H2O in the maximum detrusor pressure.<br>6. Most frequent stent complication was displacement, followed by stenosis, lithiasis (pathological formation of mineral concentrations in the body), and intraprosthetic calcification. 8.5% required stent removal. |
| Sidi et al. 1990<br>USA<br>Pre-post<br>Level 4<br>N=12 | **Population:** 9 participants with complete SCI, 3 with incomplete injuries; Level of Injury: C5-T11; 2-27 years post-injury.<br>**Treatment:** augmentation enterocystoplasty.<br>**Outcome Measures:** functional bladder capacity, levels of blood urea nitrogen, creatinine, electrolytes. | 1. By 4 months post-op, 11/12 patients were totally continent on clean intermittent self-catheterization every 4-6 hours.<br>2. Of the 3 patients who had an artificial urinary sphincter, 2 became continent after sphincter activation and 1 had achieved continence without sphincter activation. No patients experienced symptoms of AD during intermittent catheterization post-operatively. |
| Barton et al. 1986<br>USA<br>Case series | **Population:** 5 participants with thoracic, and 8 with cervical injuries, 47-285 months post-injury.<br>**Treatment:** modified | 1. Intravesical and urethral pressures decreased compared to before sphincterotomy.<br>2. Blood pressure responses |

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| Level 4<br>N=16 | transurethral external sphincterotomy with follow-up to 26 weeks.<br>**Outcome Measures:** bladder and urethral pressures and volumes, blood pressures. | decreased during urodynamic stimulation.<br>3. Other cardiovascular responses related to AD during bladder filling markedly attenuated. |