

APPLICATION OF ARTIFICIAL URINARY SPHINCTER IMPLANTATION FOR COMPLEX LOWER URINARY TRACT RECONSTRUCTION: 12 YEARS EXPERIENCE FROM A SINGLE-CENTER IN CHINA

Hypothesis / aims of study

To evaluate the outcomes of artificial urinary sphincter (AUS) in complex lower urinary tract (LUT) reconstruction for the treatment of urinary incontinence.

Study design, materials and methods

From April 2002 to December 2014, we retrospectively reviewed our institution data and selected 24 urinary incontinence patients (median age 40.4 years) with AUS placement in LUT reconstruction treatment. Continence outcome was evaluated on the basis of pad count, impact of urinary incontinence on the quality of life, complications, and additional procedures (Table1).

Results

Median duration of follow-up was 49.6 months. At the last follow-up, 17 patients (70.8%) still had their primary AUS. Four patients (16.7%) had AUS revision. There was a significant reduction in pad count from 3.8 ± 0.3 to 1.1 ± 0.3 diapers per day ($P < 0.001$) leading to dry rate 43.5%. There was a significant reduction on the impact of incontinence decreasing from 6.9 ± 0.3 to 1.9 ± 0.5 ($P < 0.001$) in a visual analogue scale (VAS). The overall complication rate was 33.3%, with infection the most common cause (4), followed by erosion (3) and mechanical failure (1).

Interpretation of results

Interestingly, in our institute, the main indication has been secondary incontinence of urethral injuries (58.3%). The mechanism of incontinence may be related to the original trauma or followed transpubic surgery and damage to nerves or sphincter. In our series, eight urethral injuries patients turned into urethral stenosis after Bank's method and had recurrent contracture after the initial management; two had male sling. The majority of patients had experienced at least two times of urethral surgeries with recurrence incontinence. In the present study, two neurogenic cases had cuff easily and effectively placed, 4 had sphincterotomy or urethral stricture dilation and three of them were subsequently conducted augmentation cystoplasty before AUS implantation. NB patients had preserved upper urinary tract function with AUS placement in the series LUT reconstruction. In the present study, only 16.7% patients were PPI cases with at least 3 years following treatment experiences. In our series, two cases (G and P) had previous male sling surgery but with unsatisfactory outcome, they finally received AUS implantation.

Concluding message

The present study indicates AUS is a safe, effective treatment as a key procedure of LUT reconstruction for select patients with UI. The modalities of management must tailor to the unique needs of each individual. Appropriate patient counseling and adherence to surgical principles are vital for the success of surgery.

Table1. Clinic characteristics of the patients treated with an artificial urinary sphincter (n=24)

Characteristics	Value
Number of patients	24
Age (yrs)	40.42±16.84
Mean follow-up time (yrs)	4.1±0.9
Type of prostate surgery leading to UI	
PFUI	14 (58.3%)
NB	6 (25%)
TURP	3 (12.5%)
RP	1 (4.2%)
No of previous surgery for UI	
0-1	6 (25%)
2	5 (20.8%)
3	5 (20.8%)
≥4	8 (16.7%)
Cuff size	
4 cm	19 (79.2%)
4.5 cm	5 (20.8%)
Operation approach	
Transperineal	15 (62.5%)
Transrotumal	8 (33.3%)
Transcorporal (intracavernous)	1* (4.2%)
trans-retropubic	1 (4.2%)

References

1. Léon P, Chartier-Kastler E, Rouprêt M, et al. Long-term functional outcomes after artificial urinary sphincter (AMS 800®) implantation in men with stress urinary incontinence. *BJU Int.* 2014 Jun 23. doi: 10.1111/bju.12848. Epub ahead of print

2. Kim SP, Sarmast Z, Daignault S, et al. Long-term durability and functional outcomes among patients with artificial urinary sphincters: a 10-year retrospective review from the University of Michigan. *J Urol*. 2008; 179(5):1912-6.
3. Lai HH, Hsu EI, Teh BS, et al. 13 years of experience with artificial urinary sphincter implantation at Baylor College of Medicine. *J Urol*. 2007; 177(3):1021-5. 4. Lucas MG, Bosch RJ, Burkhard FC, et al. EAU guidelines on surgical treatment of urinary incontinence. *Eur Urol* 2012; 62:1118-29.

Disclosures

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Subjects: HUMAN **Ethics Committee:** the Ethics Committee at CRRCC. **Helsinki:** Yes **Informed Consent:** Yes