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Soenens C[1], De Ridder D[1], Van der Aa F[1]
***1.*** *KULeuven*

# OUTCOMES OF ARTIFICIAL URINARY SPHINCTER IMPLANTATION AFTER UNSUCCESSFULL ADVANCE MALE SLING INSERTION.

Hypothesis / aims of study
Stress urinary incontinence is a frequent problem following radical prostatectomy. The reported incidence varies between 5% and 48%. The gold standard for the treatment of post-prostatectomy stress incontinence (PPSI) is insertion of the artificial urinary sphincter (AUS). However, in 2007, the non-obstructive transobturator male sling (AdVance TM) was introduced and can offer a less invasive solution for mild to moderate PPSI. Short term subjective success rates of the Advance sling are comparable to AUS with an average continence rate (definition 0 to 1 pad/day) of 70%. However, there is currently no consensus on the optimal management of patients in whom insertion of the Advance sling is unsuccessful. It is postulated that previous sling placement would not interfere with subsequent AUS surgery and outcome. The aim of this study is to compare secondary sphincter implantation after failed Advance sling with primary sphincter implantation in our hospital in terms of continence status, complication and revision rate.

Study design, materials and methods
We retrospectively reviewed the outcome of AUS implantation as salvage therapy following Advance tape insertion. Postoperative complications, pad usage and need for revision surgery were determined. Patient reported outcomes were measured using the Patient Global Impression of Improvement (PGI-I) and Patient Global Satisfaction Assessment (PGSA) questionnaires. The results were compared to the outcome of primary AUS implantation in our hospital and the outcome described in the literature. Differences between primary and secondary sphincter implantation were calculated by a Chi-squared test.

Results
We conducted a retrospective evaluation of 12 patients who received a secondary artificial urinary sphincter implantation after failed Advance sling with a mean follow-up of 28,8 months. Six patients had a history of pelvic radiotherapy (50%), 3 had a history of urethral surgery (25%). Continence (defined as 0-1 pad/day) was achieved in 9 patients (75%). Dry rate was 25% (n=3). Infection occurred in 1 patient (8,3%) and erosion in 2 (16,7%). Up till now no urethral atrophy was reported. One patient experienced mechanical failure (8,3%). The total re-operation rate was 33,3% (n=4). Three sphincters were removed for erosion and infection (25%), 1 was revised after mechanical failure (8,3%). The mean score of the PGI-I questionnaire was 1,9. The majority of patients therefore felt there current continence status was very much better or much better than before surgery.
We compared these results to a group of 61 men who had primary sphincter implantation for PPSI with a mean follow-up of 61,6 months. Fourteen patients had a history of pelvic radiotherapy (23%) and 21 had surgery for urethral stricture (34,4%). Twenty patients were dry (32,8%). 21 patients were still using 1 pad/day (34,4%) and 9 patients used 2 or more pads/day (14,8%). This means continence was achieved in 67,2% (n=41). Statistical analysis of the outcome of primary sphincter implantation showed no significant difference compared to secondary AUS implantation (p=0,848 for dry rate and p=0,848 for continence rate).

Urethral infection occurred in 1 patient (1,6%), erosion in 8 patients (13,1%) and urethral athrophy in 9 (14,8%). Mechanical failure was reported in 3 patients (4,9%). This comes to a total of 21 patients who developed a complication (34,4%). There was no statistical significant difference in complication outcome when compared to secondary sphincter implantation. Twenty one patients had a revision of the sphincter (34,4%), of which eventually 9 sphincters needed to be explanted (16,4%). One more sphincter got explanted because of radiocystitis and osteitis pubis. One sphincter got desactivated because of an intracranial hemorrhage (1,6%). This means there was a re-operation rate of 36,1% (n=22), which also wasn't statistically significant compared to the re-operation rate of secondary sphincter implantation (p=0,885).

Interpretation of results
Secondary sphincter implantation after failed Advance sling insertion seemed safe and feasible. We found the subjective continence status to be comparable to primary AUS implantation and the rates described in the literature. Post-operative infection, erosion and mechanical failure rates for our patients with secondary sphincter implantation were slightly higher than in the control group, although not statistically significant. Up till now, urethral athrophy was not diagnosed. However, we acknowledge that the rates of post-operative infection and erosion after secondary sphincter implantation are close to the upper limit of the normal described in the literature. We have to notice that in the secondary group, there was a higher rate of pelvic radiotherapy history which can be a negative prognostic factor on the AUS outcome.

Concluding message
We can conclude that AUS implantation after failed Advance sling appears to have equivalent continence outcome compared to primary sphincter implantation. The surgery is not more challenging technically. Complication rates might be somewhat higher in the AUS after failed sling group, but AUS implantation is often the only and last resort for this patient group. Further large multi-centre studies with long-term follow up are needed to confirm these results of the secondary AUS implantation in patients with persisting PPSI following Advance tape insertion.

Disclosures

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