

# Long-term outcomes of artificial urinary sphincter in male patients with spina bifida

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## OBJECTIVES

- To report the long-term functional outcomes of artificial urinary sphincter (AUS) implantation in a population of male patients with spinal dysraphism suffering from stress urinary incontinence related to intrinsic sphincter insufficiency.

## PATIENTS AND METHODS

- Between 1982 and 2014, 34 spina bifida males patients with intrinsic sphincter deficiency underwent implantation of an artificial urinary sphincter.
- Survival rates of the device without needing explantation or revision were estimated using the Kaplan–Meier method.
- Survival rates of the device according to method of bladder emptying (Spontaneous voiding vs. Clean-Intermittent catheterisation) were also reported.
- Reoperation was defined as either revision or explantation of the AUS device.
- Continence status was categorized as follows: complete continence (no pads), improved continence (patient's subjective assessment), unchanged or worsened.

## RESULTS

- There were 42 artificial sphincters implanted in 34 patients.
- The median age at first implantation was 19 years (IQR 15–29). The median follow-up was 21 years (IQR 10-25).
- The AUS cuff was placed at the bladder neck and at bulbar urethra in 11 and 23 patients respectively.
- At last follow-up, 100% of patients had undergone at least one reoperation. Median time to first reoperation was 9.8 years. Nineteen AUS explantations were needed in 16 patients (47%). Out of these 16 patients, 6 patients had a new AUS implanted and 10 remained without AUS at last follow-up (29% of the whole cohort).
- At 1 year, complete continence was achieved in 14 patients (42.4%), continence was improved in 12 patients (36.4%), unchanged in three patients (9.1%) and worsened in four patients (12.1%).
- Survival rates without AUS revision or explantation were 43%, 23%, 5% and 0% at 10, 15, 20 and 25 years respectively. Survival rates, without AUS explantation were 77%, 59%, 52%, 45% at 10, 15, 20 and 25 years respectively.
- When considering the type of bladder emptying, median time without AUS revision or explantation were longer in patients voiding spontaneously than in patients who performed clean-intermittent catheterisation (12.9 years vs 4.9 years;  $p < 0.001$ ).
- Patients with augmentation cystoplasty (regardless of its timing) had shorter device survival (median: 4.4 vs. 15 years;  $p = 0.001$ ). No other parameters were found to impact device survival.
- At the last follow-up visit 27% of patients were fully continent and 35% had improved incontinence. When considering only patients with an AUS in place at last follow-up, 87.5% had improved or complete continence.

## INTERPRETATION OF RESULTS

- In the present series, continence was improved or complete in 62% of patients at last follow-up but 100% of patients had undergone at least one reoperation (explantation or revision) at last follow-up. Median time to first reoperation was 9.8 years.

## CONCLUSIONS

- AUS in male patients with spina bifida offered acceptable long-term functional outcomes but at the cost of a high reoperation rate.



# Analysis of the impact of assistant surgeon experience on peri-operative outcomes of robotic partial nephrectomy

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## OBJECTIVES

- To investigate the impact of the assistant surgeon's experience on peri-operative outcomes of robotic partial nephrectomy (RPN)

## PATIENTS AND METHODS

- We analysed data of 221 patients who underwent RAPN for a small renal tumour.
- Patients were divided into two groups according to the level of experience of the assistant surgeon:
  - A junior level assistant was defined as a resident in his/her three first post-graduate years (PGY) (junior group).
  - Senior-level assistant was defined as a resident in its fourth or fifth post-graduate year (senior group).
- Peri-operative data were compared between the two groups.
- Multivariate analyses were performed using linear and logistic regression models to seek for predictors of main perioperative outcomes.

## RESULTS

- There were 106 RPN involving a "junior" assistant and 115 RPN involving a "senior" assistant.
- Operative time (OT) and length of stay were longer in the junior group (165 vs. 146 min;  $p < 0.003$ , 5.3 vs. 4.2;  $p = 0.04$  respectively). Junior group was associated with an increased risk of positive surgical margin (9% vs 2%;  $p=0.03$ ).
- There were not statistically significant differences regarding blood loss (386 vs 417 ml;  $p=0.73$ ), warm ischemia time (16.4 vs 15.8 min;  $p = 0.29$ ) and risk of conversion to an open approach (3.7 vs 6.7% ;  $p=0.37$ ) between junior and senior groups.
- The incidence of post-operative complications was comparable between the two groups (11.3 vs 6%;  $p=0.35$ ).
- In multivariable analysis that adjusted for the effect of tumour complexity, tumour size, ASA classification and anticoagulant therapy, junior group was significantly associated with a longer OT ( $\beta=0,23$ ;  $p=0,001$ ), positive surgical margin rates ( $OR=10.8$ ;  $p=0.009$ ) and length of stay ( $\beta=0,13$ ;  $p=0,05$ ).

Table 1. Preoperative patients' characteristics

	Junior group (n=106)	Senior group (n=115)	p
Mean pts age at surgery (SD)	62 (9.9)	58 (2.4)	0.06
No. Male (%)	58 (54.7)	74 (64.3)	0.17
Mean kg/m2 BMI (SD)	26.4 (5.15)	26.7 (5.65)	0.58
ASA classification (%)			0.52
1	10 (9.4)	15 (13.04)	
2	82 (77.3)	89 (77.4)	
3	14 (13.3)	11 (59.6)	
Anticoagulant/antiplatelet treatments (%)	21 (19.8)	24 (21)	0.87
Mean mm tumour size (IQR)	37.1 (16)	38.8 (16.2)	0.39
Mean R.E.N.A.L score	7 (2.02)	7.86 (2.03)	0.003

Table 2. Perioperative and postoperative outcomes

	Junior group	Senior group	p
Mean mins operative time (SD)	165 (51.3)	146 (48.7)	0.005
Mean ml EBL (SD)	386 (306.6)	417 (419.1)	0.73
Mean mins WIT(SD)	16.4 (8.33)	15.8 (7)	0.28
No. conversions to radical nephrectomy (%)	3 (2.83)	8 (7)	0.22
No. conversions to open surgery (%)	4 (3.7)	8 (7)	0.38
Transfusion (%)	15 (14.1)	13 (11.3)	0.55
No. major complications (%)	12 (11.3)	7 (6)	0.35
No. positive surgical margins (%)	9 (8.5)	2 (1.8)	0.03
Mean days length of stay (SD)	5.39 (4.8)	2.17 (2.1)	0.04

## MULTIVARIABLE ANALYSIS

### 1- Predictors of OT

	$\beta$	p
BMI	0.07	0.26
Anticoagulant/antiplatelet treatments		
Yes	ref	
No	0.02	0.76
RENAL score	0.03	0.68
Tumour size	0.19	0.02
Level of assistant experience		
Senior	ref	
Junior	0.23	0.001

### 2- Predictors of PSM

	Odds ratio (95 CI)	p
BMI	1.07 (0.91-1.31)	0.47
Anticoagulant/antiplatelet treatments		
Yes	ref	
No	6.48 (1.32-33.21)	0.02
RENAL score	0.25 (0.003-21.5)	0.53
Tumour size	1.06 (0.03-38.84)	0.97
Level of assistant experience		
Senior	ref	
Junior	10.79 (1.69-215.74)	0.009

### 3- Predictors of LOS

	$\beta$	p
BMI	0.07	0.5
Charlson	0.19	0.04
Anticoagulant/antiplatelet treatments		
Yes	ref	
No	-0.02	0.8
RENAL score	-0.09	0.27
Tumour size	0.16	0.06
Level of assistant experience		
Senior	ref	
Junior	0.13	0.06

## CONCLUSIONS

- The results of the present study suggest that the experience of the assistant surgeon influences the peri-operative outcomes of robotic partial nephrectomy, notably operative time and positive surgical margins rate.