

## PEAK URINARY FLOW RATE AT ONE MONTH AFTER OPERATION AS A PREDICTOR OF URETHRAL STRICTURE RECURRENCE AFTER SUCCESSFUL BULBOPROSTATIC ANASTOMOSIS

### Hypothesis / aims of study

The golden triad for a successful outcome in perineal urethroplasty has been defined as complete excision of scarred tissue, a lateral fixation of healthy urethral end mucosa, and the creation of a tension-free anastomosis. However, even if these were successfully carried out, urethral stricture recurrence (USR) can take place in some patients. Thus, we determined the clinical factors that predict USR after successful bulboprostatic anastomosis (BPA) in patients with posterior urethral defect.

### Study design, materials and methods

We retrospectively reviewed the records of 162 patients who underwent perineal BPA for traumatic posterior urethral injury between January 2001 and May 2011. Of these patients, 124 patients who met the following criteria were selected: (1) the peak urinary flow rate (PUFR) was greater than 15 mL/s after urethral catheter removal, (2) the follow-up duration was more than 1 year, and (3) no perioperative complication. The USR was confirmed by retrograde urethrogram or cysto-urethroscopy. Clinical factors associated with BPA were evaluated as predictors of USR (Table 1).

### Results

Among 124 patients, the urethral stricture-free rate was 65.3%, and mean follow-up period was 25.4±20.9 months (range, 12-119 months). Urethral defect length was significantly shorter and PUFR at one month after operation was significantly higher in patients without USR (Table 1). There were significant differences of previous urethroplasty history, cause of urethral injury, pelvic bone injury, rectal injury, urethral lengthening procedure, the use of Gracilis muscle, and pericatheter urinary extravasation between the patients with and without USR (Table 1). Logistic regression analysis revealed that only PUFR at one month after operation was a significant predictor of USR after BPA (OR=1.382, 95% CI=1.214-1.572, p=0.001) (Table 2).

### Interpretation of results

Although urethral defect length, PUFR at one month after operation, previous operation history, cause of urethral injury, pelvic bone injury, rectal injury, urethral lengthening procedure, use of gracilis muscle, pericatheter extravasation were associated with USR, only PUFR at one month after operation was a significant predictor of USR after BPA.

### Concluding message

PUFR at one month after BPA was a significant predictor of USR. Measurement of PUFR at one month after operation may help to better predict the patients with high possibility of USR.

Table 1. Comparison between patients with and without success after transperineal bulbo-prostatic anastomosis [Mean±SD, (range)].

Characteristics	Total	Success	Failure	P Value*
Number of patients (%)	124	81 (65.3)	43 (34.7)	
Age (years)	40.5±13.5 (18-69)	38.9±13.1 (18-68)	43.6±13.7 (19-69)	0.065 <sup>1</sup>
BMI (kg/m <sup>2</sup> )	22.5±2.9 (15.2-31.1)	22.4±2.7 (16.9-29.8)	22.6±3.3 (15.2-31.1)	0.716 <sup>1</sup>
Time interval (month)**	7.1±8.0 (0-51)	6.2±8.6 (0-51)	8.8±6.4 (0-25)	0.074 <sup>1</sup>
Urethral defect length (cm)	2.2±1.3 (0.5-5.0)	2.0±1.2 (0.5-5.0)	2.6±1.3 (0.5-5.0)	0.014 <sup>1</sup>
Qmax 1 month after operation (ml/sec)	16.7±6.1 (1.1-27.5)	19.6±3.9 (8.6-26.8)	11.2±5.6 (1.1-27.5)	0.001 <sup>1</sup>
Previous operation history (Yes / No)	38 / 86	19 / 62	19 / 24	0.024 <sup>2</sup>
Cause (Traffic accident / Straddle injury)	67 / 57	34 / 47	33 / 10	0.001 <sup>2</sup>
Pelvic bone injury (Yes / No)	63 / 61	30 / 51	33 / 10	0.001 <sup>2</sup>
Bladder injury (Yes / No)	8 / 116	3 / 78	5 / 38	0.124 <sup>3</sup>
Rectal Injury (Yes / No)	5 / 119	1 / 80	4 / 39	0.049 <sup>3</sup>
Lengthening procedure				
UM	58	49	9	
UM + CS	21	13	8	
UM + CS + IP	14	9	5	0.001 <sup>2</sup>
UM + CS + IP +UR	31	10	21	
Gracilis muscle use (Yes / No)	31 / 93	12 / 69	19 / 24	0.001 <sup>2</sup>
Pericatheter extravasation (Yes / No)	32 / 92	16 / 65	16 / 27	0.035 <sup>2</sup>

SD = Standard deviation; UM = urethral mobilization; CS = corporal separation; IP = inferior pubectomy; UR = urethral rerouting; <sup>1</sup> = t test; <sup>2</sup> = chi-square test; <sup>3</sup> = Fisher's exact test. \* p < .05 was considered statistically significant. \*\*Time interval between the original urethral injury and the bulbo-prostatic anastomosis or between a previous urethroplasty and the bulbo-prostatic anastomosis.

Table 2. Logistic regression analysis for factors affecting surgical outcome in patients with transperineal bulboprostatic anastomosis.

Parameter	Univariate			Multivariate		
	P	OR	95% CI	P	OR	95% CI
Urethral defect length*	0.016	0.696	0.519-0.935	0.194	1.497	0.815-2.750
Qmax 1 month after operation*	0.001	1.412	1.257-1.587	0.001	1.382	1.214-1.572
Previous operation history	0.019	0.387	0.175-0.854	0.065	0.298	0.082-1.080
Cause	0.001	0.219	0.095-0.505	0.494	1.938	0.290-12.934
Pelvic bone fracture	0.001	0.178	0.077-0.412	0.332	0.384	0.055-2.659
Rectal injury	0.064	0.122	0.013-1.127			
Lengthening procedure (UM)	-	1.000		-	1.000	
UM + CS	0.036	0.298	0.096-0.926	0.090	0.225	0.040-1.261
UM + CS + IP	0.096	0.331	0.090-1.218	0.239	0.317	0.047-2.146
UM + CS + IP + UR	0.001	0.087	0.031-0.246	0.098	0.205	0.031-1.337
Gracilis muscle use	0.001	0.220	0.093-0.519	0.633	0.645	0.107-3.897
Pericatheter extravasation	0.037	0.415	0.182-0.948	0.222	0.429	0.110-1.666

\*Parameters were analyzed as a continuous variable per unit.

OR, odds ratio; CI, confidence interval; UM, urethral mobilization; CS, corporal separation; IP, inferior pubectomy; UR, urethral rerouting

**Disclosures**

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