

## SEVERE BLADDER NECK CONTRACTURE AND STRESS URINARY INCONTINENCE IN PATIENTS STATUS POST PROSTATECTOMY, RADIATION AND CRYOTHERAPY: SUCCESSFUL MANAGEMENT USING A TWO-STAGED APPROACH

### Hypothesis / aims of study

To report our experience using a two-stage, rather than a synchronous approach in the management of bladder neck contracture (BNC). Bladder neck contracture is a major complication after radical prostatectomy and radiation therapy. Patients may present with a decreased force of stream, urinary retention, stress incontinence, urge incontinence, or overflow urinary incontinence.

### Study design, materials and methods

We retrospectively reviewed the pertinent data of 55 patients (age range 52 to 93 years, mean 72) with either post-radical prostatectomy (RRP), radiation (RT) or cryotherapy induced BNC associated with stress urinary incontinence (SUI). Patients with combined modalities of treatment such as RRP + RT and RT + cryotherapy were also included. All patients had severe SUI (mean daily pad use = 5.26) and decreased force of urinary stream. Patients were evaluated with physical examination, appropriate serum laboratory analysis, cystourethroscopy and video-urodynamics (VUDS). All patients were offered two-stage management of BNC. The first step consisted of a deep transurethral incision of the BNC (TUIBNC) using electrocautery with a Collin's knife. The second step consisted of the implantation of an artificial urinary sphincter (AUS, AMS 800, Minnesota, USA) 6 to 8 weeks after TUIBNC. Bladder neck patency was demonstrated cystoscopically for all patients prior to AUS implantation.

### Results

During the mean follow-up period of 31 months, only 6 patients (10.9%) were noted to develop a recurrent BNC after AUS implant. Five of those patients underwent a single repeat TUIBNC and have been clinically patent at a mean follow-up of 53 months. With regards to AUS status and repeat TUIBNC: only one of the 5 patients had a TUIBNC with the AUS in place, 4 of the patients had AUS explant followed by TUIBNC and one patient is awaiting a TUIBNC followed by cuff revision. With regards to the functional status of the AUS: 3 patients do not have a functional AUS in place at the present time; one of the 3 patients is waiting to have the 2<sup>nd</sup> AUS inserted; two patients have a functional AUS in place and are completely dry; one patient is waiting to have a TUIBNC followed by a cuff revision. The remaining 49 patients were clinically patent after a single TUIBNC with good subjective flow and a postvoid residual volume (PVR) of less than 30 ml at a mean follow-up period of 26 months. The pre and post pad usage for patients' post-RRP, RT, cyro and a combination of the aforementioned modalities is illustrated in Table 1. There was no significant difference between the pad usage post-AUS placement amongst the different sub-groups.

**Table 1- Pre and Post pad usage amongst the study group**

Patient Distribution	(n)	Pre-pad usage	Post-pad usage
RRP	32	5.22 +/- 2.05	0.63 +/- 0.94
RT	12	5.20 +/- 2.03	0.63 +/- 0.93
RRP+RT	9	5.26 +/- 2.05	0.65 +/- 0.93
Cyro + RT	2	5.20 +/- 2.03	0.5 +/- 0.94

**Table 2 Outcomes**

	(n)	Mean Follow-up (m)
Patent bladder neck after single TUIBNC	49/55	26
Developed recurrence 2-52 months after TUIBNC	6/55	67
Re-incised after recurrence of BNC	5/6	73
Patency after 2 <sup>nd</sup> TUIBNC	5/6	53
Continent (0-2 pads/day) after AUS (AMS 800) at bulbar urethra	49/55	29

### Interpretation of results

A two-staged approach for treatment of SUI and BNC is highly successful with 89% of the patients not requiring further treatments. Efficacy of the AUS in this group was not jeopardized by history of TUIBNC with delayed AUS implant as demonstrated by patients using < 1 pad/day on average after implantation. Delayed implantation allows adequate resolution and stabilization of the BNC with acceptable long term complications.

### Concluding message

We recommend a two-stage approach (TUIBNC followed by AUS insertion) rather than synchronous management for post prostatectomy, radiation and cryotherapy induced BNC associated with SUI. Such an approach allows for the identification of a BNC recurrence and its safe management before AUS implantation. A careful clinical and video-urodynamic evaluation followed by a staged treatment approach involving initial wide incision of the bladder neck and subsequent AUS placement 6 to 8 weeks after TUIBNC, following documented patency of the bladder neck, appears to be a very successful surgical alternative for this challenging problem.

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<b>Is this a clinical trial?</b>	Yes
<b>Is this study registered in a public clinical trials registry?</b>	No
<b>What were the subjects in the study?</b>	HUMAN
<b>Was this study approved by an ethics committee?</b>	Yes
<b>Specify Name of Ethics Committee</b>	Institutional Review Board
<b>Was the Declaration of Helsinki followed?</b>	Yes
<b>Was informed consent obtained from the patients?</b>	Yes