

Update on management of post-prostatectomy incontinence in 2013

Sender Herschorn, MD, FRCSC

Professor, Division of Urology, University of Toronto, and Head of Urodynamics Laboratory, Sunnybrook Health Sciences Centre, Toronto, ON

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Abstract

Surgical intervention is often required to address urinary incontinence post-prostatectomy. This summary provides an overview of surgical intervention in post-prostatectomy incontinent patients and of the evidence supporting the various surgical interventions currently in use.

Urinary incontinence is a relatively common complication following prostatectomy. Depending on the degree of incontinence and of bother, surgical management is frequently required for these patients.

Epidemiology

Hospital and cancer registry administrative data in Ontario have shown that between 1993 and 2006, 25,346 individuals underwent radical prostatectomy.¹ In this group, the 5-, 10- and 15-year cumulative rates of insertion of an artificial urinary sphincter (AUS) or male urethral sling were 2.6%, 3.8% and 4.8%, respectively. AUS insertion was the more common of the two types of procedures (703 patients: 2.8%), while urethral slings were used in 282 (1.1%) patients.

Male urethral slings

There are several different types of male slings that can be used for the treatment of post-prostatectomy incontinence.

The InVance sling is a bone-anchored perineal sling that has been evaluated in 12 separate studies, with follow-up out to 48 months. The success rates in these reports have varied from 40% to 88% (Fig. 1).² The most common reported adverse events are retention (0-12%), infection (2-12%) and perineal/scrotal pain.

While many individuals will experience treatment success with InVance sling insertion, it should be noted that there is still a sizable proportion of patients for whom this surgery will fail. In one of the studies, for example, patient perception of their status post-insertion was rated as “very much better” by 37%, “much better” by 21%, but was considered to have failed by 42% of patients.³

The AdVance sling is a transobturator tape placed in the retrobulbar location. It is based on the concept of “proximal relocation of the urethral bulb.”⁴ In three large case series, the success rate of AdVance sling placement ranged from 76% to 91%, with follow-up of 12 to 27 months.² The most common adverse events were retention (3-21%) and perineal pain (0-20%). Rare adverse events included compartment hematoma, worsening of urinary incontinence and urethral perforation. The durability of this sling was evaluated in studies by Suskind *et al* (published 2011)⁵ and Rehder *et al* (published in 2012)⁶, both following patients for three or more years post-procedure. The Suskind study reported an increase in the use of pads over time post-surgery, with an average of 2.11 pads per day preoperatively, 0.38 pads daily one month post-surgery and 1.67 pads daily at 19 months post-surgery.⁵ In the Rehder study, however, the success rates (cured or improved) remained stable over time (76.9% at 12 months and 76.8% at three years).⁶

The AdVance sling has also been evaluated in patients who had adjuvant radiotherapy, with success rates (improved or cured) in approximately half of the patients treated.^{7,8}

AdVance slings have also been used to treat recurrent incontinence among 19 men who had previously undergone AUS insertion.⁹ Each of the 19 patients in the study reported improvement, and 15 of the 19 were “dry.”

The Argus adjustable suburethral sling has also been evaluated in multiple clinical trials.^{2,10} Initial success rates were in the range of 70% to 80%.² However, subsequent analysis over a median follow-up of 29 months revealed serious mechanical and infectious complications, a high proportion of failures and removal in approximately one-third of patients.¹⁰

Artificial urinary sphincter

There is abundant evidence in the literature of the efficacy of AUS insertion, with long-term follow-up available for many cohorts. The proportion of patients who continue to experience treatment success (as measured by requiring 0-1 pads per day) ranges from 59% to 90%, with follow-up up to 11 years (Table 1).¹¹

It should be noted that many of these AUS studies report treatment of benign prostatic hyperplasia and post-radical prostatectomy together.

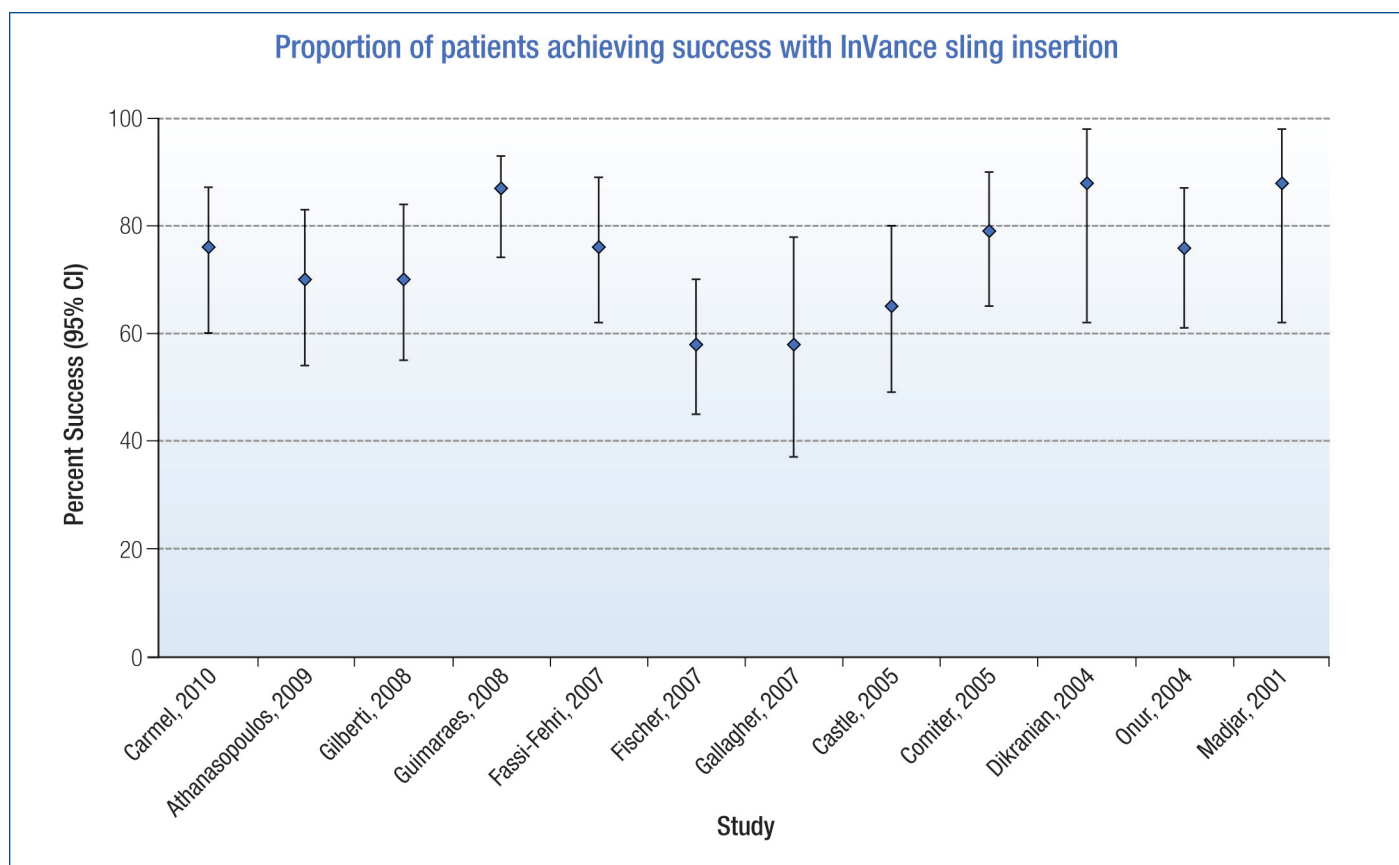


Fig. 1. Percentage of successful outcomes reported in the 12 case series on the BAS (InVance sling).

Table 1. Artificial urinary sphincter: Long-term results

Author	N	Follow-up (year)	% 0-1 pads/day
Montague	66	3.2	75
Perez	49	3.7	85
Martins	28*	2	85
Fleshner	30	3	87
Mottet	96	1	80
Klijn	27	5	70
Haab	36	7.2	80
Elliott	160	5.7	79
Madjar	131	7.7	59
Goldwasser	42	1.2	82
Trigo	40	4.5	90
Kim	124	6.8	69
Lai	218	1.2	82
Fulford	61	11	61
Montague	113	6.1	60
Venn	86	11	84
Gousse	71	6.2	59

*Adjuvant radiation therapy.¹¹

The durability was analyzed in a number of studies. In Lai's report of a 13-year experience in 270 patients, only 6% of devices failed mechanically, at an average of 68.1 months, with 75% of patients requiring no revisions at 5 years.¹² In a review, Venn *et al* analyzed the outcome of 100 patients in whom an artificial urinary sphincter was implanted for more than 10 years ago. Thirty-six percent of them still had the original sphincter and were continent at a median follow-up of 11 years.¹³

Many of the studies also reported results in patients who had undergone radiotherapy. The proportion of patients in these subgroups who achieved treatment success were comparable to the overall results. However, there was a variably higher revision rate than among patients who did undergo radiotherapy, with a higher incidence of erosion, infection and urethral atrophy (possibly from radiation induced vasculitis).¹¹

AUS insertion has also been reported among patients who have had a failed urethral sling insertion. In a series of 11 patients whose bone-anchored slings failed, the satisfaction rate was 74.5%.¹⁴

Potential complications of AUS insertion include incontinence (due to poor compliance in neurogenic bladders [3-57%], urethral atrophy [3-9%], mechanical failure [up to 52%]), erosion and/or infection (0-25%). Urethral diverticulum in previous cuff site is a rare complication.¹⁵

ProACT balloons

These adjustable devices have been reported in several studies and have been found to be efficacious in 52% to 71% of patients evaluated.¹¹

One study compared this technique to the InVance sling among 84 consecutive male patients in two centres.¹⁶ The proportion of patients who achieved continence (0-1 pads per day) was 68% in the ProACT group (30/44 patients) after 19 months and 64% in the InVance sling group (23/36) after 33 months. Device removal was required in 6/44 ProACT patients (14%) and 2/36 InVance sling patients (6%).¹⁶

Conclusions

Based on the available evidence—including a large number of case series, but very few randomized, controlled trials—after a period of conservative management of at least 6 to 12 months, AUS is the treatment of choice for patients with moderate to severe postoperative urinary incontinence. Male slings are an alternative for men with mild to moderate urinary incontinence.

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Correspondence: Dr. Sender Herschorn, Division of Urology, University of Toronto, Sunnybrook Health Sciences Centre, Rm. A309, 2075 Bayview Ave., Toronto ON M4N 3M5; s.herschorn@utoronto.ca