# SECTION 4: POST-PROSTATECTOMY COMPLICATIONS-REVIEW

# Posterior urethral complications of radical prostatectomy

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# Abstract

The incidence of vesicourethral anastomotic stenosis following radical prostatectomy has fallen over the past two decades, but it remains a relatively common complication of this procedure. Options for management include endoscopic and surgical approaches. These options are briefly discussed in this review and a management algorithm is proposed.

Radical prostatectomy (RP) may lead to several potential postsurgical complications. This brief summary provides an overview of one of the most common: vesicourethral anastomotic stenosis (VUAS). The epidemiology is briefly discussed and the options for management presented. These options are summarized in the algorithm in Figure 1.<sup>1</sup>

## **Epidemiology**

Although VUAS remains a common potential complication of RP, the incidence has dramatically fallen over time. A study by Wennberg *et al*, published in 1993, showed that the stricture rate post-RP was approximately 20%.<sup>2</sup> More recently, a large retrospective analysis of RP patients at the Memorial Sloan-Kettering Cancer Center (n=4,592 patients undergoing RP), published in 2010, showed that the incidence of VUAS among post-RP patients had fallen to 2.8%.<sup>3</sup>

#### **Management options**

There are a number of different options available for the management of VUAS. Essentially, they are to dilate, incise/resect (with our without injection), insert a stent, redo the anastomosis or divert. The evidence base for each of these interventions is relatively small, and the success rates in the studies that are available are variable, ranging from 47% to 100% (Table 1).<sup>1</sup> The variability in success rates is likely due to the variability in the properties of the stenoses themselves rather than the techniques. There is no clear evidence to support the use of one type of technology over another. The approximate percentage of patients who can be considered to be recalcitrant (i.e., failed at least one dilation and incision, resection) is 1 to 2%. The recalcitrance may be due to ischemia at anastomotic site and/or anastomotic dehiscence in the early postoperative period (hematoma, technical).

#### Dilation

Dilation is an attractive option for those patients who are reluctant to undergo more invasive surgical interventions and whose strictures allow access of a dilating device. There are a number of such devices available for use in this regard, both for office use and for patients to self-dilate as needed at home. In terms of the type of dilator used, radial dilation (such as with the use of an inflatable urethra-specific balloon catheter) may be preferred over longitudinal dilation, as it avoids the possibility of longitudinal mucosal shearing, with submucosal hemorrhage, hematoma and/or inflammation. This method would also have a lower risk of injury to adjacent normal tissues proximal or distal to the stricture. The level of discomfort with radial dilation is also lower than with semirigid sequential dilation. Finally, radial dilation may allow patient to become self-sufficient with a minimally traumatic procedure.

#### Stenting

Although the UroLume stent (manufactured by American Medical Systems) will no longer be available in Canada, it is important for urologists to be aware of this technique, as it has been used in this country in the past and is still in use in many parts of the world, including the United States. The UroLume is a woven, self-expanding, permanent urethral stent made from a non-magnetic, metallic alloy. It is expandable to 14 mm (42 French) and is available in lengths of 1.5 cm to 3.0 cm (in 0.5 cm increments). There are some significant drawbacks to this technique, including a tendency for the stent to displace distally with deployment. It should not be seen as a simple, permanent solution, but one that requires regular monitoring and maintenance. Patients with these stents in place should undergo routine endoscopic reassessment, at least



Fig. 1. Algorithm for the management vesicourethral anastomotic stricture.

every year and any time there are signs or symptoms suggesting complications (e.g., abnormal urinalysis, gross hematuria, urinary tract infection, irritative or obstructive symptoms, stone passage).

#### Novel approaches

The injection of bioactive agents into the incision site has been explored as a method of improving outcomes and preventing restenosis. Botulinum toxin is one such agent that has been used in a small number of patients in an effort to prevent scars from forming.<sup>4</sup> There has also been a report of successful outcomes in a retrospective review of 18 cases in which recurrent bladder neck contractures were managed with urethrotomy and intralesional injection of mitomycin C.<sup>5</sup> Further study is needed for these interventions.

#### Surgical approaches

Should endoscopic approaches prove insufficient, the surgical options available to address stenoses include reconstruction and diversion. Reconstructive surgery consists of a redo anastomosis. Standard surgical approach, barring anatomic considerations in the individual patients that would preclude such an approach, is from above, retropubically, with perineal incision reserved for those cases where it is necessary to mobilize the anterior urethra to gain sufficient access and length. This can involve full resection of the ischemic tissue and a full new anastomosis, or a Y-V-plasty at the anastomotic site. There are many potential complications of this type of surgery, and it may not even be possible to complete the operation as planned. As such, preoperative counseling with the patients needs to include management of expectations and a frank discussion of the possible complications.

If the patient is not a suitable candidate for reconstruction (or if such an approach has failed), the other surgical option is a permanent diversion (e.g., permanent suprapubic cystostomy, catheterizable stoma to the bladder). Many patients are content to live with this solution if it means avoiding further invasive abdominal surgery(ies).

#### Conclusions

The type of intervention selected for the management of VUAS will depend on the individual patients' symptoms, degree of bother, and anatomical considerations. Endoscopic approaches can be successful for many patients and are preferred over surgical options whenever possible. When considering surgery, one should ensure that the patient is fully aware of the potential complications and the options available. While diversion has been typically reserved for cases in which reconstruction is not possible or has failed, one should consider presenting it as a surgical option upfront after failure of endoscopic approaches.

Table 1. Options for the endoscopic treatment of VUAS				
Treatment	Year	N	Success (%)	
DVIU	1990	18	62	
	1996	17	88	
	2000	52	58	
HO:YAG laser	2005	3	100	
	2005	10	100	
Dilation	1994	27	59	
	2006	43	100	
	1995	80	38	
Urolume	1999	2	100	
	2001	1	100	
	2002	9	89	
TUR	1998	24	100	
Endourethral	2004	15	47	
Brachytherapy				
Endourethroplasty	1996	2	100	
	2010	11	55	
DVIU: Direct visual internal ureth	rotomy; TUR: transı	urethral resect	tion	

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