Novel Methods to Aid Vesicourethral Anastomosis in Radical Retropubic Prostatectomy

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Key Words

Vesicourethral anastomosis • Surgical technique • Radical retropubic prostatectomy

Abstract

Introduction: Vesicourethral anastomosis is a technically challenging aspect of the retropubic radical prostatectomy. We describe 2 novel methods that may be used to facilitate anastomosis of the urethral stump to the bladder neck. **Materials and Methods:** The first technique we describe involves the use of a dental mirror, and the second involves the insertion of a flexible cystoscope per urethra, both of which allow visualization of the urethral stump. **Results:** Both these techniques were utilized successfully to allow accurate suture placement in situations where vision of the urethral stump was restricted. **Conclusion:** These 2 methods that are described are simple and inexpensive, and the equipment required is readily available in theaters.

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Introduction

Radical prostatectomy is a well-recognized form of treatment for localized prostate cancer and at our institution we use the retropubic approach as described by

Walsh [1]. One of the technically challenging aspects of the operation remains the anastomosis of the urethral stump to the bladder neck. Indeed this is a critical step of procedure since a good quality anastomosis minimizes urinary extravasation which can lead to periurethral scarring and delayed removal of catheter [2], and some suggest that it also improves continence rates [3].

We describe 2 valuable techniques to aid construction of the vesicourethral anastomosis (VUA) by essentially allowing accurate needle placement into the urethral stump.

Materials and Method

Our preference for construction of the VUA involves placing 5 sutures into the stump, at the 2, 4, 8, 10 and 12 o'clock positions, of the partially divided urethra. The sixth and final suture is placed at the 6 o'clock position when the urethra is completely divided. The anastomosis is then completed following removal of the prostate.

Dental Mirror Technique (fig. 1)

The dental mirror was utilised in cases where direct visualization of the urethral stump was difficult. The mirror is typically angulated and therefore we were able to achieve indirect vision of the catheterized urethral stump thereby allowing accurate needle placement for the anastomosis. Pre-treatment of the dental mirror with an anti-fog prevented condensation of the mirror, and impaired vision by blood was corrected by suction.

Fig. 1. Use of dental mirror to achieve indirect vision of the urethral stump (US = urethral stump; PS = pubic symphysis).

Fig. 2. Use of the flexible cystoscope to illuminate the transected urethra (FC = flexible cystoscope).

Flexible Cystoscope Technique (fig. 2, 3)

The second method involves the use of a flexible cystoscope. The flexible cystoscope was inserted per urethra with the irrigation running and with the patient in the supine position. Under direct vision, the scope was advanced to the level of the transected urethra. Illumination from the cystoscope improved visibility, produced telescoping of the retracted urethra into the pelvis, and also allowed angulation of the urethral stump thus providing a clear view of the transected urethra.

Discussion

The general principle to achieve a well-healed VUA requires a watertight join that is tension-free, with mucosal-to-mucosal coaptation and proper urethral alignment [4]. The standard method is direct anastomosis however direct suturing can be technically challenging in situations where the patient has a prominent pubic symphysis,

Fig. 3. Use of the flexible cystoscope to telescope the transected urethra with angulation to allow insertion of the posterior suture.

a narrow deep pelvis, is obese or in cases where the urethral stump has retracted into the urogenital diaphragm. In these situations the urethral stump can be difficult to visualize thereby preventing accurate suture placement.

Several techniques have been described to aid visualization of the urethral stump and thereby facilitate reconstruction of the VUA. Techniques described include direct perineal pressure [5–7], use of catheters in various ways [8, 9], use of various sounds [10, 11], endoscopic visualization with a rigid scope [12, 13], use of the cystoscope sheath [14–16], use of a sponge stopper [17], and historically, wedge pubectomy [5] and Vest anastomosis [18].

The techniques we describe are simple, inexpensive and easily reproducible. No special equipment is re-

quired; generally all theaters should possess dental mirrors, and flexible cystoscopes are an essential armamentarium of the urologist. Furthermore both methods avoid the requirement for the patient to be in lithotomy, with its associated risks of nerve or muscle injury, in order to allow direct perineal pressure or insertion of a rigid endoscope. Although we describe techniques for open surgery, the use of the flexible cystoscope would also be beneficial in laparoscopic or robotic radical prostatectomy in place of a urethral sound since insertion of the scope can be performed under direct vision, as opposed to blind insertion of the sound, and the scope can be easily manipulated along the course of the urethra.

We advocate either of these techniques in situations where direct vision of the urethral stump is impaired.

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