

Revisiting Vesicourethral Anastomosis during Open Radical Retropubic Prostatectomy; A Simple and Reproducible Technique: A Single Center Experience with 200 Cases

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Purpose: Vesicourethral anastomosis (VUA) represents a challenging step of open radical prostatectomy (ORP) because of limitation of space in the depth of male pelvis, lack of control on knots during tightening which subsequently causes inadequate coupling of VUA or breakdown of knots, and also extremely difficult reapplication of sutures. To facilitate this step of ORP, we have developed a simple and reproducible technique and reported our 8-year experience.

Materials and Methods: We used two extra-long DeBakey tissue forceps to approximate the bladder neck to the urethral stump. We found it more beneficial than Babcock clamp especially in obese patients with excess fatty tissue in the pelvic area. In this technique, the surgeon's assistant creates more space for the surgeon's hand by sweeping the fatty tissue away from the anastomotic area and then pushes the reconstructed bladder neck down while the sutures are being tied.

Results: We analyzed data from 200 patients with prostatic cancer who underwent open radical prostatectomy performed from 2009 to 2017. There were only 2 sutures disrupted during knot tying. In two cases (1%), drain output was more than 30 mL/day on postoperative day 2 and drainage was left in place for a longer duration. With the help of medications, time voiding and dedicated pelvic floor exercise whenever needed, the goal of full urinary continence (0- 1 pad/day) was achieved in 85%, 94% and 98% of patients immediately after catheter removal, 3 months and 6 months after surgery, respectively. Eight patients (4%) developed urethral stricture.

Conclusion: The surgical technique has been shown to be an independent predictor of urinary continence. We introduce a new simple modification of vesicourethral anastomosis during RP. Using this technique; in addition to reducing anastomotic disruption rate and increasing knot tying control, postoperative urinary continence after ORP may also be improved.

Keywords: vesicourethral anastomosis; open radical prostatectomy; follow up

INTRODUCTION

Radical prostatectomy (RP) is the gold standard treatment for prostate cancer. Perioperative complication rates have been reported between 7.8% and 17.9%, which include prolonged vesicourethral anastomotic leak in up to 3.5% of cases and anastomotic stricture in up to 4.9% of patients during follow-up.^(1,2)

A key step during the procedure is the formation of a watertight vesicourethral anastomosis (VUA). This maneuver, however, remains one of the most challenging parts of the surgery, requiring significant training and experience and is commonly a time consuming task even in the hands of an experienced surgeon.

The impact of urethral stricture and urinary incontinence on patient's quality of life can be devastating even in the case of an oncologically perfect surgery. For these reasons, this step must be mastered by any urologist who wants to perform impeccable radical prostatectomy.⁽³⁾

In laparoscopic RP, running anastomosis is usually used which is quicker and technically less challenging than interrupted anastomosis. For open radical prosta-

tectomy (ORP), most surgeons perform vesicourethral anastomosis using interrupted sutures because of the difficulty of continuous suturing.⁽⁴⁾

There are numerous studies comparing suturing techniques (i.e. interrupted versus continuous suturing) for vesicourethral anastomosis but it seems that limitation of space in the depth of male pelvis, especially in obese patients, and lack of control on knots during tightening are important factors that should be addressed first. To facilitate this step of ORP we have developed a feasible and reproducible technique and aim to report our 8 year experience.

MATERIALS AND METHODS

Between January 2009 and June 2017, 200 consecutive patients with organ confined prostate cancer regardless of patient's characteristics such as age, BMI and comorbidities underwent open retropubic radical prostatectomy for clinically localized prostate cancer and were selected for the novel modified vesicourethral anastomosis technique, which was approved by the ethical committee of the institution.

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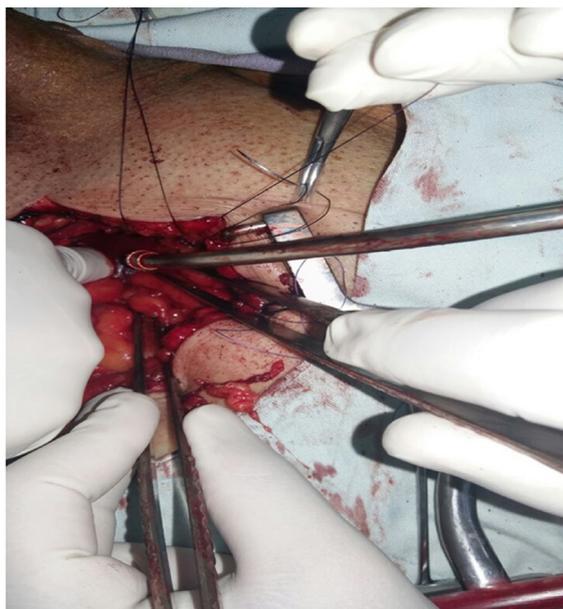


Figure 1. Using two extra-long DeBakey forceps to approximate the bladder neck to the urethral stump

Vesicourethral anastomosis was performed using an interrupted suturing technique. We used six 3-0 vicryl sutures starting by tightening the anterior one then moving on to the 10-, 8-, 6-, 4- and 2-o'clock positions. We used two long DeBakey tissue forceps to approximate the bladder neck to the urethral stump. We found it more beneficial than a single Babcock clamp in the midline which all sutures are tied, especially in obese patients with excess fatty tissue in the pelvic area. By using this technique, the surgeon's assistant can sweep the fatty tissue away from the anastomotic area and create more working space for the surgeon and then push

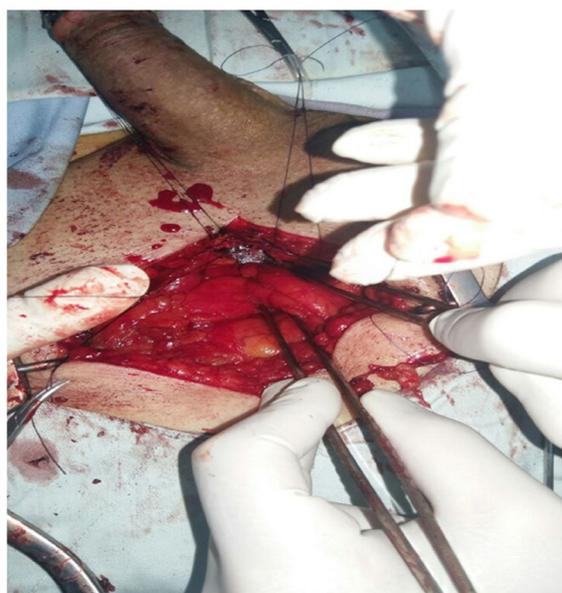


Figure 2. Surgeon's assistant can sweep the fatty tissue posteriorly away from anastomotic area

the reconstructed bladder neck down and hold it close to the urethra while the sutures are being tied. We found it beneficial to prevent tension on sutures as it could avert suture breakdown. (Figures 1 & 2)

RESULTS

We analyzed data from 200 patients with prostatic cancer who underwent RP performed from 2009 to 2017. Only 2 sutures were disrupted while tying in the initial experience. In two cases (2%), we encountered drain output more than 30 mL/day on postoperative day 2 and the drain was left in place for a longer duration. The goal of full urinary continence (0- 1 pad/day) was achieved in 85%, 94% and 98% of patients immediately after catheter removal, 3 months and 6 months after surgery, respectively, with the aid of medications, time voiding and dedicated pelvic floor exercise. Eight patients (4%) developed urethral stricture.

DISCUSSION

VUA represents a challenging step of ORP because of low depth of the male pelvis, lack of control on knots during tightening and subsequent inadequate coupling of VUA or breakdown of knots and also extremely difficult reapplication of sutures. The vesicourethral anastomosis creates watertight closure with urethral realignment and mucosal coaptation. Disruption of the vesicourethral anastomotic sutures while tying is not uncommon and reapplication of sutures is often difficult⁽⁵⁾. It seems that suture breakdown during vesicourethral anastomosis is not a rare experience for surgeons who perform radical prostatectomy. Imperfect vesicourethral anastomosis can cause significant postoperative urinary extravasation which results in a longer catheterization time, increased risk of long-term anastomotic strictures and longer hospital stay. Due to the high number of radical prostatectomy operations being performed annually in the world, even small differences in surgical outcomes and complications can possibly affect a great number of patients. The rate of urinary incontinence after RP is significantly affected by the surgeon's experience, surgical technique and definition of continence. The surgical technique has been shown as an independent predictor of urinary continence. Beyond any technique used to improve the result of vesicourethral anastomosis for short term and long term continence rate, feasibility, convenience and simplicity are the most important factors that should be addressed initially.⁽⁶⁾ Several technical modifications have been introduced to improve postoperative urinary continence. Most studies that address increasing the quality of vesicourethral anastomosis focus on comparing suture techniques (continuous and interrupted), bladder neck reconstruction and reducing anastomosis time.^(7,8) In this study we introduced a simple technique to facilitate vesicourethral anastomosis. Primarily, we did not intend to evaluate the continence rate and urethral stricture but the results are comparable with those obtained using standard techniques. Ficarra et al. reported the 12-month urinary incontinence rate to range from 4% to 31% and also stricture-related complications after open radical prostatectomy was reported by Sujenthiran et al. to be 6.9% .^(9,10)

CONCLUSIONS

Although the quality of the vesico-urethral anastomosis is unlikely to have an impact on the oncological outcome of radical prostatectomy, it undoubtedly affects functional outcome and quality of life⁽¹¹⁾.

Using this simple modified technique helps to prepare more space in the cramped and confined pelvic space to apply proper knot placement and better tissue apposition. This is a preliminary study and we admit that without appropriate randomization, studies are prone to confounding bias and could overestimate or underestimate outcomes of interest.

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