



Robotic Radical Prostatectomy and Urinary Continence: Posterior Reconstruction is Better

Goonewardene SS^{1*}, Goggins A², Kinsella J³ and Cahill D³

¹The Royal Free Hospital and University College London

²Queens Medical School, Belfast

³The Royal Marsden, London

Keywords

Robotic radical prostatectomy; Anterior reconstruction; Posterior reconstruction; Continence outcomes

Introduction

Robotic radical prostatectomy (RARP) is the gold standard for localised prostate cancer. However, a younger cohort are presenting with more locally advanced disease. Early continence following (RARP) is dependent on patient, surgeon and technical factors. Various techniques have been advocated to improve outcomes. A surgeon needs to audit outcomes as techniques are interpretation and execution dependant. Outcomes can then direct change for the better. The potential benefits of RARP are known [1] but what can be done to improve urinary outcomes using technical tips and tricks? This study assesses the modification of RARP using popularised techniques, with the intention of improving urinary continence (UC).

Various intraoperative technical modifications have been described with the goal of improving early return of continence following robot-assisted radical prostatectomy. Continence recovery relies on multiple factors [2]. Anterior suspension of posterior reconstruction sutures, similar to a bladder neck sling can be done for post prostatectomy incontinence [2]. Performing this suspension technique at the time of RARP may improve early continence recovery [2]. However, studies are –required to confirm this.

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*Correspondence:

Goonewardene SS, Department of Urology, The Royal Free Hospital and University College London, London, Tel: 0771 7713036,

E-mail: ssg7727@yahoo.co.uk

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Methods

Between 2012 and 2014, 301 men were treated with RARP with evolving surgical techniques aimed at improving UC outcomes under a single surgeon. This patient data was from collected from a retrospective database with no randomisation involving 4 different techniques. Urethral length and bladder neck plication were not measured quantitatively, but rather outcomes of each technique conducted by analysis of outcomes. Group A had aRocco reconstruction incorporated as a mass technique with the anastomosis (n=530). Group B had a Rocco layer separate to the anastomosis and anterior reconstruction. Group C had separate Rocco and an anterior reconstruction. Group D had separate Rocco and anastomosis layers and posterior reconstruction (Table 1).

Results

Mean age, DRE, clinical stage, PSA, MRI stage and Gleason Score, blood loss and operating time was similar between groups. What is clearly demonstrated from figure 2 and 3 is the fact that Group D-with posterior reconstruction clearly has an earlier time to continence and 100 %continence (pad free) compared to other techniques used, including those with anterior reconstruction. In contrast to this, other methods of anastomosis used, do not have. Outcomes that are comparable with this very often resulting in worsening continence rates or a longer time to continence. This can significantly impact a patients quality of life.

Discussion

An early return to continence, was supported by use of periurethral suspension stitch, bladder neck plication and posterior reconstruction of the rhabdosphincter [3]. However, this paper concluded robotic prostatectomy is still in evolution. Technical modifications resulting in improved oncological and functional outcomes are the result of increasing surgical experience and procedure understanding [3]. The importance of posterior urethral support was confirmed by Dal Moro et

Table 1: Definition of groups.

The primary outcome measure was urinary continence. This was assessed at 8 weeks, 3, 6, 9 and 12 months post operatively. The measured outcome for urinary continence was zero pad usage at patient interview. If patients were using pads, they were deemed as not continent. We used descriptive statistics (ANOVA and Chi-squared test) to compare surgical variables across the 4 groups. Positive surgical margins were defined as any margin, with areas of positivity.

Group	Technique
A	Rocco reconstruction incorporated as a mass technique with the anastomosis
B	Rocco layer separate to the anastomosis and anterior reconstruction
C	Separate Rocco layer and an anterior reconstruction
D	Separate Rocco and anastomosis layers and posterior reconstruction

al [4]. To determine whether a novel intraoperative technique of complete reconstruction of the posterior urethral support (CORPUS) improves early urinary continence after robotic-assisted radical prostatectomy [4]. In a prospective study, patients were assigned to complete reconstruction or Rocco's standard reconstruction [4]. Technical Considerations within the CORPUS group included fibers of the bilateral portions of the puborectalis muscle were used to create a sort of posterior hammock for the urethra. The very early continence rate of the CORPUS patients was significantly improved compared with that of patients undergoing Rocco's standard technique [4]. With the basic principle of restoring a patient's anatomy to its original state postoperatively, Ali et al attempted to identify technical aspects of total anatomical reconstruction that led to early return of urinary continence after robot-assisted laparoscopic prostatectomy [5]. Patients who underwent RARP also had total anatomic reconstruction with the additions of a circum-apical urethral dissection, a dynamic detrusor cuff trigonoplasty, and placement of a suprapubic catheter [5]. This demonstrated reconstructing the pelvic anatomy and supporting bladder structures leads to an earlier return to continence. However larger randomized trials will need to confirm these key steps [5]. Coelho et al also describe a modified technique for PR of the rhabdosphincter during RARP and report its impact on early recovery of urinary continence and on cystographic leakage rates [6]. The modification allows a reinforced watertight closure of the posterior anastomotic wall. Shorter interval to recovery of continence and lower incidence of cystographic leaks were demonstrated with this technique when compared to RARP with no reconstruction [6]. Mendoza et al. [7] looked at bladder plication on continence outcomes after RARP. After completing the vesico-urethral anastomosis, a 3-0 monocryl single suture was used to plicate the bladder neck [7]. The stitch is placed 2 cm proximal to the bladder neck near the 3 and 9 o'clock positions and tied. This plication creates a funnel configuration such that the more distal bladder neck remains narrow during bladder filling [7]. The bladder plication is a simple and

effective technical modification for improving urinary incontinence after RARP [7]. Borin et al reviewed how urethral length affects return to continence. A longer length was found to be beneficial [8].

Conclusion

In conclusion, objective assessment of urinary continence is better than subjective assessment. Patient reported outcomes are the gold standard. The overall conclusion, is that with improved technical ability and a good surgical team, good outcomes can be achieved. At the same time, in line with literature, posterior reconstruction, bladder neck reconstruction and longer urethral length can also contribute to improved continence.

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