



## Robotic Radical Prostatectomy-Continence and Oncological Outcomes in 707 Cases

Goonewardene SS<sup>1\*</sup> and Cahill D<sup>2</sup>

<sup>1</sup>The Royal Free and University College London, London,

<sup>2</sup>Thomas Hospitals, London

### Abstract

**Introduction:** Robotic laparoscopic assisted radical prostatectomy is now considered the gold standard for localized prostate cancer. This patient group have high expectations with regards to oncological and functional outcomes, especially in the younger cohort.

**Methods:** A prospective database of 707 robotic radical laparoscopic prostatectomies (single centre, single surgeon, 2005-2015) was reviewed for primary outcomes of stage, oncological clearance and urinary continence. The results were reviewed for cohorts above and below 70 years of age.

**Results:** The mean age 60.2 years (range 42-75). The mean follow-up time was 4.5 years. 707 cases were reviewed. 670 patients were <70. Immediate continence occurred in 10%. Continence at 3 months was 78% and by 12 months was 93%. The average time to continence (pad free) was 11 weeks <70 years. 3 required slings. 314 men <70 were Gleason <3+4(47%), 356 Gleason >4+3(53.2%). 416 were T2 (positive margins 6.7%), 228 were T3 or above (positive margins 19.2%). Biochemical free recurrence rate (PSA <0.05 ng/ml) 94.4%. Overall positive margins were 10.7%. There were 37 patients >70 years. The mean time to continence was 18 weeks. Immediate continence occurred in 11%, by 3 months 65% were continent and at 12 months 89%. One patient required urethral dilation, none required slings. < Gleason 3+4 40.5%, > Gleason 4+3 59.5%. pT2 70.2% (positive margins 0%). pT3 29.7% (positive margins 4 cases, 36%). Biochemical free recurrence rate 86.5%. Overall positive margins 10.8%.

**Discussion:** This clearly demonstrates the role of robotic surgery in maintaining good urinary continence and oncological control. Age over 70 is not an issue if those men are well selected. Continence techniques evolve as part of the learning curve and continue to improve.

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#### \*Correspondence:

Goonewardene SS, The Royal Free and University College London, London, Tel: 0771 7713036;

E-mail: SSG7727@yahoo.co.uk

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**Keywords:** Robotic radical prostatectomy; Continence; Oncological outcomes

### Introduction

Robotic surgery, is becoming more and more commonplace. At the same time outcomes are central to good patient care. If performed by an experienced surgeon, good results in terms of erection recovery can occur even in a limited caseload centre [1,2]. This demonstrates robotic surgery is beneficial to both patient and surgeon. Another additional factor, is standardization of robotic technique. This is a top priority with robotic surgery as the console surgeon is completely dependent on the bed side assistant [3]. Both must have significant experience to gain the best outcomes. Additionally, a 3 dimensional system gives surgeons benefits of perception of depth [4]. We review continence and oncological outcomes for above and below 70 years of age to see if there is a difference in outcomes.

### Methods

A prospective database of 707 robotic radical laparoscopic prostatectomies (single centre, single surgeon, 2005-2015) was reviewed for primary outcomes of stage, oncological clearance and urinary continence. Secondary outcomes included metastases and death. The results were reviewed for cohorts above and below 70 years of age.

### Results

The mean age 60.2 years (range 42- 75). The average follow-up time was 4.5 years. 707 cases were reviewed.

670 patients were 70 or below. Immediate continence occurred in 69 (10%) patients. Continence

**Table 1:** Separate Rocco and anastomosis layers and posterior reconstruction.

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

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.

**Table 2:** Return of urinary continence for each patient cohort.

	Group A (n=53)	Group B (n=148)	Group C (n=44)	Group D (n=56)
Immediate UC	26%	24%	7%	27%
8 wk UC	35%	49%	18%	63%
3 month UC	54%	67%	34%	93%
6 month UC	63%	87%	59%	98%
9 month UC	69%	87%	68%	98%
12 month UC	73%	92%	99%	100%
T2 +ve margins	0%	8.5%	0%	10%
Overall +ve margins	20.7%	15.9%	13.6%	12.5%

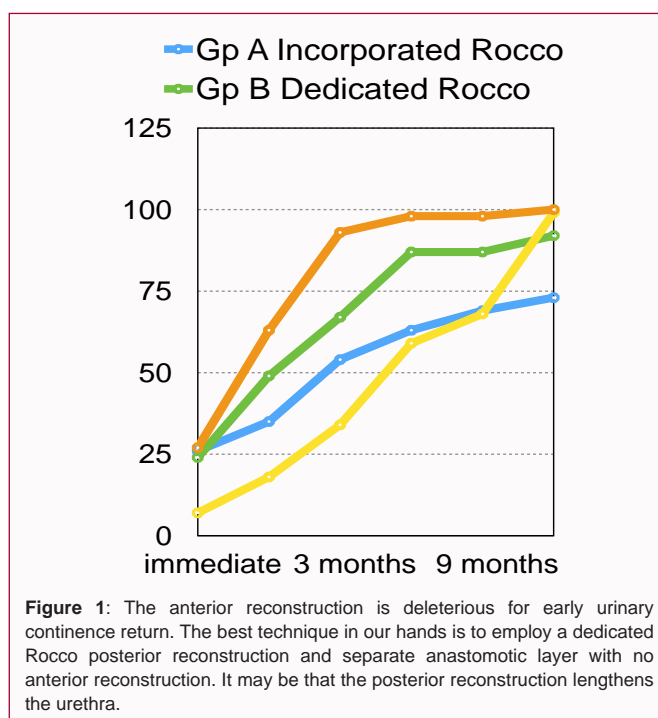
at 3 months occurred in 525 (78%) patients and by 12 months (93%) a further 76 patients were continent. The average time to continence (1 security pad only), was 11 weeks if below 70 years. 3 required male slings.

314 of the below 70s were Gleason 3+4 or lower (46.8%), 356 Gleason 4+3 or higher (53.2%). 416 were T2 (positive margins 6.7%, 28 cases), 228 were T3 or above (positive margins 19.2%, 44 cases). Biochemical free recurrence rate- 21 cases of recurrence requiring hormones/ chemotherapy (3.2%). The average follow up time is 63 months. Metastases were present in 6 cases. There were no deaths. There were 37 patients >70 years. The average time to continence was 18 weeks. All patients were alive. Immediate continence occurred in 4, by 3 months 24 (65%) were continent and at 12 months nine (89%) further patients were continent. One patient required urethral dilation, none required slings. 15 cases Gleason 3+4 or lower (40.5%), 22 Gleason 4+3 or higher (59.5%). 26 patients (70.2%) were T2 (positive margins 0%). 11 patients (29.7%) were T3 or above (positive margins 4 cases, 36%). Biochemical free recurrence rate - 1 case required treatment on abiraterone (hormones before abiraterone) (T3b). Metastases were present in 1 cases. There were no deaths.

## Discussion

These results clearly demonstrate more favorable outcomes with younger patients and a shorter time to continence. A new development within the field, is use of a frozen section- this has been demonstrated in salvage prostatectomy cases, frozen sections can be used to achieve good oncological outcomes [5]. If not positive, perhaps a lesser degree of resection could be conducted, leading to improved outcomes.

Part of patient outcomes is also management of realistic patient expectations. Patients should be followed at least 18-24 months after their treatment, to monitor their continence [6]. Ideally,



**Figure 1:** The anterior reconstruction is deleterious for early urinary continence return. The best technique in our hands is to employ a dedicated Rocco posterior reconstruction and separate anastomotic layer with no anterior reconstruction. It may be that the posterior reconstruction lengthens the urethra.

it should settle by the 12-18 week point. Part of this also involved surgeon evolution in technique, the underlying lesson is, with greater experience, come better outcomes.

## Conclusion

Measuring outcomes are important for consent, measuring improvement and informing change. Select men over 70 with good performance status. Defining that selection is important and needs to be done accurately. Continence techniques evolve as part of the learning curve and continue to improve.

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