

# A survey of patient expectations regarding sexual function following radical prostatectomy

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## Objective

To assess the understanding of patients, who had previously undergone radical prostatectomy (RP), about their postoperative sexual function, as clinical experience suggests that some RP patients have unrealistic expectations about their long-term sexual function.

## Patients and Methods

Patients presenting within 3 months of their open RP or robot-assisted laparoscopic prostatectomy (RALP) were questioned about the sexual function information that they had received preoperatively. Patients were questioned about erectile function (EF), postoperative ejaculatory status, orgasm, and postoperative penile morphology changes. Statistical analyses were performed to assess for differences between patients who underwent open RP vs RALP.

## Results

In all, 336 consecutive patients (from nine surgeons) with a mean (SD) age of 64 (11) years had the survey instrument administered (216 underwent open RP and 120 underwent

RALP). There were no significant differences in patient age or comorbidity profiles between the two groups. Only 38% of men had an accurate recollection of their nerve-sparing status. The mean (SD) elapsed time after RP at the time of postoperative assessment was 3 (2) months. RALP patients expected a shorter EF recovery time (6 vs 12 months,  $P = 0.02$ ), a higher likelihood of recovery back to baseline EF (75% vs 50%,  $P = 0.01$ ), and a lower potential need for intracavernosal injection therapy (4% vs 20%,  $P = 0.01$ ). Almost half of all patients were unaware that they were rendered anejaculatory by their surgery. None of the RALP patients and only 10% of open RP patients recalled being informed of the potential for penile length loss ( $P < 0.01$ ) and none were aware of the association between RP and Peyronie's disease.

## Conclusions

Patients who have undergone RP have largely unrealistic expectations about their postoperative sexual function.

## Keywords

sexual function, radical prostatectomy, expectations

## Introduction

Prostate cancer has a lifetime risk of diagnosis and death of one in six and one in 34, respectively. With the advent of PSA screening there has been a profound stage migration, which has resulted in >90% of patients having clinically localised cancer at the time of diagnosis. There are multiple management options for patients with organ-confined disease, including active surveillance, as well as the potentially curative options of radical prostatectomy (RP), radiation therapy, cryotherapy, and high-intensity focused ultrasound [1,2].

Despite refinements in each of these techniques, sexual dysfunction remains common after treatment, including erectile dysfunction (ED), changes in orgasm, and penile morphology. The incidence of these problems varies depending upon the definition used, as well as the timing and

method of patient assessment after definitive treatment. Robot-assisted laparoscopic prostatectomy (RALP) was used in 63% of all RPs performed in the USA in 2007, 80% in 2008, and 86% in 2009 [2]. According to another study published in 2012 investigating current trends in RPs in the USA; only 8% of patients were treated with RALP in 2004, while 67% underwent that procedure in 2010 [1]. This rise in popularity is largely attributed to marketing rather than the existence of any evidence proving that the robotic approach to RP has improved oncological or functional outcomes over other surgical approaches.

Sexual dysfunction after RP is an important quality of life problem. It is our clinical experience that patients who undergo RP often have unrealistic expectations about their long-term sexual function. ED has been found to have a significant negative impact on quality of life in RP patients, although no analysis of the impact of orgasm changes,

climacturia, or penile morphological changes has been conducted.

Most patients do not achieve penetration hardness erectile rigidity with phosphodiesterase type 5 inhibitors in the first 6 months after RP and thus most are faced with a decision regarding intracavernosal injection (ICI) therapy. Several published reports have highlighted that up to 70% of men have documented penile length loss [3–7]. Furthermore, a significant proportion of men develop Peyronie's disease after RP [7,8].

Previous studies have shown that the perceptions of urologists and the expectations of the patients do not necessarily concur. A study from France demonstrated that by 2 months after RP, 73% of French patients were frustrated by their ED [9]. Furthermore, Schroeck *et al.* [10] showed that the regret level after RP was high and that it appeared to be higher after RALP. The authors suggested that this was related to the heightened expectations of patients using this approach.

Our present study was undertaken in an effort to assess the understanding of patients who underwent RP with regard to their postoperative sexual function.

## Patients and Methods

### Study Population

Patients presenting within 3 months of open RP or RALP to the sexual medicine clinic at our centre were asked to complete a questionnaire about their sexual function expectations. Prostate cancer, demographic, and comorbidity data were obtained from the patients' medical records. Specific attention was paid to the type of RP patients had undergone, specifically whether it was an open or robot-assisted approach. Patients were excluded if they had neoadjuvant therapies (androgen deprivation, radiation) or had PSA elevation by the time they were seen postoperatively.

### Expectations Assessment

The patients were administered a proprietary questionnaire to assess their understanding of alterations in and recovery of various aspects of their sexual function after RP (Appendix 1). The questionnaire included questions on erectile function (EF; expected time to full recovery of erections, requirement for postoperative ICI), postoperative ejaculatory status and orgasm (presence, intensity, pain, and climacturia), postoperative Peyronie's disease, and penile length changes.

Patients were separated by type of RP, open RP vs RALP. The Mann–Whitney *U*-test was used to assess for differences between open RP and RALP patients.

## Results

### Study Population

Information on patient demographics is given in Table 1. The study population included 336 consecutive patients, of whom 216 had open RP and 120 had RALP. The surgeries were performed by nine different surgeons (four open surgeons, three robotic surgeons, and two surgeons who offered both procedures). The mean (SD) elapsed time after RP at the time of sexual medicine clinic presentation was 3 (2) months. Self-referred patients accounted for 22% of the study population. The mean (SD) patient age was 64 (11) years, with no significant difference between the open RP and RALP groups. The percentage of patients with a partner was not significantly different between the open RP (86%) and RALP (82%) groups nor was the mean (SD) partner age at 62 (13) years for the open RP group and 61 (17) for the RALP group. There was no significant difference in comorbidity status between the two groups or in pathological stage. Preoperatively, 88% and 91% of open RP and RALP patients respectively reported erections sufficient for sexual intercourse ( $P = 0.13$ ).

### Expectations

Only 38% of patients had an accurate recollection of their nerve-sparing status. The results of the sexual function knowledge assessment are listed in the Table 2. Patient knowledge about sexual function after RP was poor, with significant differences between the open RP and the RALP groups. RALP patients expected a shorter EF recovery time (6 vs 12 months,  $P = 0.02$ ), a higher likelihood of recovery back to baseline EF (75% vs 50%,  $P = 0.01$ ), and a lower potential need for ICI therapy (4% vs 20%,  $P = 0.01$ ).

For expectations regarding ejaculation and orgasm, only 70% of open and 60% of RALP patients were aware that they were rendered anejaculatory by their surgery ( $P = 0.065$ ). Few, if

**Table 1** The patients' demographics.

Variable	Open RP	RALP	<i>P</i> <sup>†</sup>
Number of patients	216	120	
Mean (SD) patient age, years	65 (14)	62 (10)	0.14
Partnered, %	86	82	0.22
Mean (SD) partner age, years	62 (13)	61 (17)	0.11
Comorbidity status, %			
1 VRF	32	29	0.09
2 VRF	36	41	0.17
≥3 VRF	12	7	0.087
Mean (SD) sexual activity, episodes/month*			
Self	1.5 (0.7)	1.2 (0.4)	0.073
Partner	3.2 (2.6)	2.9 (2.8)	0.10
Ability to have sexual intercourse, %	88	91	0.09

VRF, vascular risk factor. \*Sexual activity before diagnosis of prostate cancer; <sup>†</sup>Comparing open RP and RALP patients.

**Table 2** Expectations regarding EF, ejaculation and orgasm, and penile morphology.

	Open RP	RALP	P*
Expectations regarding EF			
Recollection as to the mean time to recovery of functional erections, months	12	6	0.02
Recollection as to the mean proportion of patients having recovery of EF to baseline level, %	50	75	0.01
Recollection of being told of the potential for the need to use ICI therapy, %	20	4	0.01
Expectations regarding ejaculation and orgasm			
Recollection of anejaculatory status, %	70	60	0.065
Recollection of potential for change in nature of orgasm, %	10	12	0.09
Recollection of potential for orgasmic pain, %	2	0	0.2
Recollection of potential for climacturia, %	2	0	0.15
Expectations regarding penile morphology			
Recollection of potential for penile length loss, %	10	0	<0.01
Knowledge of an association between RP and Peyronie's disease, %	0	0	NS

\*Comparing open RP and RALP patients; NS, not significant.

any, patients in either group were aware of the potential for change in the nature of orgasm ( $P = 0.09$ ), orgasmic pain ( $P = 0.2$ ), or climacturia ( $P = 0.15$ ). None of the RALP patients and only 10% of open RP patients recalled being informed of the potential for penile length loss ( $P < 0.01$ ). No patients were aware of the recently described association between RP and Peyronie's disease.

## Discussion

Patients who have undergone RP have unrealistic expectations about postoperative sexual function. In particular, a significant proportion of patients are unaware of the inability to ejaculate, and almost none understand that there are documented orgasm changes or the association between RP and Peyronie's disease [8]. Patients undergoing RALP are less likely to be aware of the potential need for ICI therapy after RP or the link between RP and penile length changes, and are more likely to think their EF will recover within the first 12 months postoperatively.

Schroek et al. [10] applied a multivariate logistic regression model to a group of 400 patients treated with either open retropubic RP or RALP between 2000 and 2007. The response rate for the survey was 61%, with 84% of patients satisfied with their treatment and 19% of these patients regretting their choice of treatment based on previously validated five-level Likert items. Independent predictors of patient satisfaction included lower income [odds ratio (OR) 0.08, 95% CI 0.03–0.23], shorter follow-up (OR 0.63, 95% CI 0.41–0.98), having undergone open RP vs RALP (OR 4.45, 95% CI 1.90–10.4), urinary domain scores (OR 2.70, 95% CI 1.60–4.54), and hormone domain scores (OR 2.01, 95% CI 1.30–3.12). The authors hypothesised that RALP was associated with a higher rate of regret and dissatisfaction, mainly because of higher expectations associated with a newer, more 'innovative', procedure [10].

Another study, published by Hu et al. [11] found that minimally invasive RP, whether robot-assisted or purely

laparoscopic, was associated with an increased risk of genitourinary complications (4.7% vs 2.1%;  $P = 0.001$ ), diagnoses of incontinence (15.9 vs 12.2 per 100 person-years;  $P = 0.02$ ), and ED (26.8 vs 19.2 per 100 person-years;  $P = 0.009$ ), despite shorter length of hospital stay, and lower rates of short-term complications and strictures.

In a survey of 349 patients who had chosen different treatment modalities for prostate cancer, Clark et al. [12] found that 24% felt that they were poorly informed and 16% regretted their decision. A study by Davison et al. [13] found that men who played active or collaborative roles in deciding whether to undergo RP had lower scores of decision regret when compared with those who took on passive roles.

In the field of vascular surgery, a study by Lloyd et al. [14] evaluated the level of understanding and recall of 71 patients awaiting carotid endarterectomy. At 1 month after initial consultation patients had unrealistic expectations of the potential benefits of carotid endarterectomy. Many patients believed that the procedure would alleviate other problems such as dizziness, weakness, shortness of breath, poor memory, and difficulty walking, despite never being counselled that this was the case.

Crawford et al. [15] reported a disparity in physician and patient recall of discussions surrounding treatment options and outcomes after a diagnosis of prostate cancer. All of the physicians surveyed claimed to always discuss treatment-related side-effects, whereas only 16% of patients recalled being provided with such information. Additionally, all of the physicians felt they had addressed patient concerns about ED, the possibility of decreased libido with therapy, and the impact of therapy on quality of life, whereas only 26%, 28%, and 30% of patients surveyed felt that these issues had been adequately addressed. While this paper was published more than a decade ago, there is little reason to expect that these figures would be any different now. Indeed, the Crawford et al. [15] findings are supported by our own data.

Mirkin et al. [16] found in their study searching direct-to-consumer internet marketing of robotic RP, that many internet sites claimed benefits that were unsupported by evidence and 42% of the sites failed to mention risks.

The strengths of the present study are that it included a significant number of men enrolled consecutively and used a standardised, albeit non-validated, instrument for all patients. The limitations include the absence of an instrument to define expectations, our inability to differentiate between what patients were told and what patients remember, and the inability to define if some patients did their own research before or after they had seen their surgeon before their RP.

These data are illuminating and should give us reason to think about our approach to the education of the patient before RP. Irrespective of whether we as clinicians routinely have a sexual dysfunction discussion or not, patients are not remembering or appreciating the information the way that it is intended and undertake the operation with poor expectations regarding multiple domains of sexual health. The concerns are further amplified for patients undergoing robot-assisted RP, our present data being confirmatory of the Schroeck et al. [10] data. Further analysis of these data is warranted and ongoing analysis is aimed at defining inter-surgeon variability in the delivery of realistic expectations to patients undergoing RP.

## Conclusions

Disclosure does not equate to understanding. The lack of knowledge is probably multi-factorial in nature. Surgeons should be encouraged to be thorough in counselling patients before RP and to document that such discussion is held. Indeed, we go one step further and encourage all clinicians to use written instructions to transmit sexual health information to patients, lest they receive the orally transmitted information in a state of anxiety, where failure to process the information may be highly likely.

## Conflicts of Interest

None disclosed.

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## Appendix 1

### Survey of post-prostatectomy sexual function expectations

Prior to your diagnosis of prostate cancer how often did you have sexual activity/ month?  
 Self \_\_\_\_\_  
 With partner \_\_\_\_\_  
 Total \_\_\_\_\_

Prior to your diagnosis of prostate cancer were you capable of having sexual intercourse?  
 Yes No

How long do you believe it will take to have recovery of your natural erectile function? Answer in months \_\_\_\_\_

What proportion of patients do you understand have recovery of erection hardness to the exact same level they had pre-operatively?  
 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Are you aware of the potential need for penile injections after radical prostatectomy?  
 Yes No

Did you understand that you would not ejaculate (produce semen) after radical prostatectomy?  
 Yes No

Were you aware that the nature of your orgasm may be different after surgery?  
 Yes No

**Appendix 1 (continued)**

Were you aware that pain may occur with orgasm after surgery?
Yes No
Were you aware that urine leakage can occur at the time of orgasm after surgery?
Yes No
Were you aware that loss of penile length may occur after surgery?
Yes No
Were you aware that penile curvature (Peyronie's disease) may occur after surgery?
Yes No

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**Abbreviations:** ED, erectile dysfunction; EF, erectile function; ICI, intracavernosal injection; OR, odds ratio; RALP, robot-assisted laparoscopic prostatectomy; RP, radical prostatectomy.