

# Ejaculatory dysfunction after treatment for lower urinary tract symptoms: retrograde ejaculation or retrograde thinking?

Paul Sturch, Henry H. Woo\*, Tom McNicholas† and Gordon Muir

Department of Urology, King's College Hospital, London, UK, \*Sydney Adventist Hospital Clinical School, University of Sydney, Sydney, Australia, and †Lister Hospital and University of Hertfordshire, Stevenage, UK

For years the wisdom passed down through urological generations, as if from father to son, has been that a dry orgasm after TURP was pretty much inevitable, and due to 'retrograde ejaculation'.

Perhaps due to this perceived inevitability, men were warned of the risk of dry orgasms, and were expected to live with it ('at least you won't have to sleep on the wet patch'). Bladder neck incision has been accepted to have a much lower incidence of ejaculatory dysfunction, raising the paradox that one operation (bladder neck incision) had a lower rate of retrograde ejaculation than one that also destroyed bladder neck integrity (TURP).

In many men  $\alpha$ -blockers cause ejaculatory dysfunction. Patients were initially told this was also due to semen passing backwards into the bladder. We now know this to be anejaculation due to a central inhibitory effect. Ejaculatory dysfunction associated with tamsulosin is dose dependent. At 0.8 mg up to 90% of men in one study had a reduction in ejaculate volume and over a third reported anejaculation, with no significant difference in post-ejaculatory urine sperm concentrations compared with those of men taking alfuzosin or placebo [1]. Clearly, not all  $\alpha$ -blockers are equal. Silodosin, a new  $\alpha_{1A}$ -adrenoceptor-selective antagonist is associated with a greater risk of anejaculation than tamsulosin, which is itself associated with more ejaculatory dysfunction than alfuzosin [2].

This is explained further in animal studies. Both serotonin (5-hydroxytryptamine, 5-HT) and dopaminergic receptors play an integral role in the central control of ejaculation: tamsulosin has a binding affinity for 5-HT<sub>1a</sub> and D<sub>2</sub>-like receptors almost 10 000 times greater than other  $\alpha$ -blockers. Systemic administration of tamsulosin has been shown to significantly reduce bulbospongiosus contractions mediated by 8-OH-DPAT, a 5-HT<sub>1a</sub> and D<sub>2</sub>-like receptor agonist, in male rats [3].

The 1994 *BJUI* paper, and subsequent excellent video, by Gil Vernet's group [4] clearly shows that bladder neck contraction is not necessary for antegrade ejaculation. Using live TRUS, the bladder neck and prostate as far as the bulbar urethra was visualised during masturbation in 30 men. Analysis of

recorded ultrasound video footage during ejaculation shows that semen emitted from the ejaculatory ducts is directed distally by a coordinated contraction of the external sphincter and bulbar urethra, demonstrating the importance of the muscular tissue proximal to and around the verumontanum (what might be called 'the high pressure ejaculatory zone') for outward ejaculation, rather than closure of the bladder neck. One might infer that, as long as this tissue is not disrupted, ejaculation should still occur even with an open bladder neck.

A new development in the surgical management of LUTS is the UroLift® device, which reshapes the anterior prostatic urethra creating a channel by tensioned monofilament sutures placed under cystoscopic guidance. Sutures are anchored with a metallic tab on the prostate capsule and then tensioned on the luminal aspect to compress the prostate, while preserving the muscular tissue around the verumontanum. This has been shown in multicentre randomised controlled trials to achieve a rapid and sustained improvement in flow rate and symptom score in follow-up studies (up to 12 months). There have been no reports of patients developing dry orgasm after its use. This system seems to offer an excellent minimally invasive method to treat LUTS, while preserving sexual function [5].

A video poster and subsequent published abstract of anatomical and multicentre clinical data from patients who underwent ejaculation preserving GreenLight™ laser prostatectomy, suggests that ejaculatory duct angulation and duct obstruction are critical factors in maintaining ejaculation after surgery [6]. By preserving the verumontanum and surrounding tissue even men in retention of urine may have excellent functional outcomes while preserving antegrade ejaculation.

Similar supporting data have been published this year by the Neunkirchen group, showing that preservation of the ejaculatory duct area during TURP can also preserve antegrade ejaculation in most men. Their technique uses standard monopolar resection with the focus on preserving the verumontanum and surrounding tissue, very similar to the technique with GreenLight laser described above. They describe resection of the middle lobe up to a mark 1 cm proximal to the verumontanum. The lateral lobes are resected

to the level of the verumontanum, but without cutting into paracollicular tissue. The bladder neck is resected in the same way as standard TURP techniques. By preserving apical tissue using these anatomical landmarks, 90% of men had preserved ejaculation with voiding outcomes and quality of life scores comparable to standard non-ejaculatory preserving transurethral resection techniques [7].

So, with this emerging evidence, what should we urologists do?

First of all, the phrase 'retrograde ejaculation' should be struck from the urological lexicon **unless** there is proof of significant numbers of sperms in a post-orgasmic urine sample.

'Ejaculatory dysfunction' is a better phrase, but possibly easily confused with 'erectile dysfunction'. We would suggest 'male orgasmic dysfunction', which can cover pain, sensation and ejaculatory issues.

We should discuss ejaculation and orgasmic sensation with all our patients before any intervention for LUTS. In our experience many men of all ages like to ejaculate, and many would accept a reduction in treatment efficacy to preserve ejaculation. We should also start using validated instruments, such as the Male Sexual Health Questionnaire Ejaculatory Dysfunction (MSHQ-EjD) Short Form (abridged version of the 25-point MSHQ focused on ejaculation), just in the same way we use validated instruments to quantify erectile dysfunction and LUTS [8].

Lastly, we should not only begin research to investigate the causes of common complications, but should always be ready to challenge received wisdom.

Patients often have a different outlook on the significance of side-effects than surgeons do. We must listen to them at all times, not only when developing new treatments, but also when re-assessing the existing options.

### Conflict of Interest

Gordon Muir and Henry H. Woo have received research funding and consultancy fees from AMS and consultancy fees

from Neotract. Tom McNicholas has received consultancy fees from Neotract. Paul Sturch has no conflict of interest to declare.

### References

- 1 Hellstrom WJ, Sikka SC. Effects of acute treatment with tamsulosin versus alfuzosin on ejaculatory function in normal volunteers. *J Urol* 2006; 176: 1529–33
- 2 Gacci M, Ficarra V, Sebastianelli A et al. Impact of medical treatments for male lower urinary tract symptoms due to benign prostatic hyperplasia on ejaculatory function: a systematic review and meta-analysis. *J Sex Med* 2014; 11: 1554–66
- 3 Giuliano F. Impact of medical treatments for benign prostatic hyperplasia on sexual function. *BJU Int* 2006; 97 (Suppl. 2): 34–8; discussion 44–5
- 4 Gil-Vernet JM Jr, Alvarez-Vijande R, Gil-Vernet A, Gil-Vernet JM. Ejaculation in men: a dynamic endorectal ultrasonographical study. *Br J Urol* 1994; 73: 442–8. Available at: <http://www.youtube.com/watch?v=MzlewUkSXvo>. Accessed July 2014
- 5 Woo HH, Bolton DM, Laborde E et al. Preservation of sexual function with the prostatic urethral lift: a novel treatment for lower urinary tract symptoms secondary to benign prostatic hyperplasia. *J Sex Med* 2012; 2: 568–75
- 6 Talab SS, Santiago-Lastra YA, Bachmann A et al. The impact of ejaculation-preserving photo-selective vaporization of the prostate (EP-PVP) on lower urinary tract symptoms and ejaculatory function: results of a multicenter study. *J Urol* 2013; 189 (Suppl.): e164, abstract V403
- 7 Alloussi SH, Lang C, Eichel R, Alloussi S. Ejaculation-preserving transurethral resection of prostate and bladder neck: short-and long-term results of a new innovative resection technique. *J Endourol* 2014; 28: 84–9
- 8 Rosen RC, Catania JA, Althof SE et al. Development and validation of four-item version of Male Sexual Health Questionnaire to assess ejaculatory dysfunction. *Urology* 2007; 69: 805–9

**Correspondence:** Gordon Muir, Department of Urology, King's College Hospital, Denmark Hill, London SE5 9RS, UK.

**e-mail:** [gordon.muir@nhs.net](mailto:gordon.muir@nhs.net)

**Abbreviations:** 5-HT, 5-hydroxytryptamine; MSHQ, Male Sexual Health Questionnaire.