Lower Urinary Tract Symptoms

Time for a New Conversation

Mr Neil Barber

It is a well established and almost unique feature of the human male that as we age, the prostate gland undergoes local growth factor changes that stimulate hyperplastic growth. This occurs predominantly in the transition zone of the prostate, resulting in that part of the prostate becoming dominant in terms of influencing the size of the gland. The transition zone in essence is the part of the prostate through which the prostatic urethra runs and therefore it can be no surprise that as a result, in some men, urodynamic obstruction to the outlet of the bladder occurs. Eventually, after a likely period of compensation, urinary symptoms develop and with more time the severity of this effect and associated symptoms deteriorate, so they become increasingly bothersome and thus have a negative impact upon quality of life. This process is almost ubiquitous in the aging male and hence the statistic that some 60% of men aged 60 will have lower urinary tract symptoms, however, it is the impact of those symptoms on quality of life that is more individual and it is this that should be the focus of determining whether intervention is required and what type of treatment might serve that individual the best.

There has been a long held belief in the linear approach in trying to improve men's symptoms secondary to BPH. Initial conservative approaches, particularly in the motivated patient, can be very successful; fluid management (switching away from caffeinated drinks, minimising fluid intake in the evening), bladder training and pelvic floor exercises can all provide measurable relief particularly in those where storage type LUTS dominate. Indeed, it is the development of such storage symptoms that have the greatest impact on quality of life and are therefore the most common reason for a man to eventually decide to see his primary care doctor.

Should the symptoms not improve the next step in this linear model is to offer medical therapy. Bearing in mind the likely background diagnosis of bladder outlet obstruction secondary to BPH, alpha blockers are the usual starting point. However, we know that the best benefit is gained from prescribing the alpha blocker in combination with a 5- reductase inhibitor. But a combination of tablets, means a combination of side effects and particularly those that may negatively impact on sexual function; namely dry ejaculation (alpha blocker), loss of libido and erectile dysfunction (5-ARI).

Moreover, there is good quality evidence to support the concurrent use of medicines aimed at managing storage type LUTS i.e. Anti-muscarinics or Beta 3 agonists. So the concept of prescribing an alpha blocker with an anti-muscarinic is very reasonable and, indeed, it could be argued that in some patients with mixed symptoms, perhaps even those where the whole symptomatic picture is dominated by frequency, urgency and nocturia where there is evidence of bladder outlet obstruction thanks to BPH, a patient may be offered triple therapy, by adding an 5-ARI too.

Finally, should the conservative and medical approaches prove unsuccessful, the patient suffers unacceptable negative side effects or simply just does not enjoy the concept of taking regular tablets now and into the future, then the topic of surgery is likely to be raised as the next step in the ladder.

On the whole, in the U.K., this is still likely to be surgery in the form of the transurethral resection of the prostate or TURP. This procedure does indeed remain the reference standard option, having the weight of time and experience that has repeatedly demonstrated excellent symptom resolution and significantly positive effects upon quality of life as a result.

However, whilst there is data and indeed NICE guidelines to encourage the delivery of this surgery using bipolar diathermy energy, the monopolar TURP continues to be offered in large volumes. This is despite the acknowledged evidence that Transurethral Resection of the prostate in Saline (TURiS) using bipolar technology offers equivalent qualitatative and quantitative outcomes but with less peri and post operative bleeding and some suggestions that this translates in a shorter post operative catheter time and thus faster discharge from hospital.

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However, a quick glance on the internet will reveal to a patient a whole raft of entirely negative potential sequelae of this type of surgery. There are the inevitable risks of bleeding complications, be it in the form that means prolonged in patient stay or secondary bleeding leading to re-intervention and indeed readmission to hospital, particularly if the patient is taking medication that may impact on clotting - be it anti platelet therapy or more formal anticoagulation. There are concerns about the well described delay in getting back to normal activities, and about the albeit very small risk of urinary incontinence. However, increasingly, men are put off by the risks of such a procedure impacting upon sexual function - the 40-70% risk of dry and permanently dry ejaculation and the smaller risk of a degree of loss of potency.

Whilst the last 15 to 20 years has seen the arrival of laser technology to answer some of those concerns, providing surgical options with improved haemostatic properties (the Greenlight laser), increased safety in very large prostate glands (>100mls) allowing the option of minimally invasive surgery as opposed to more invasive approaches (Holmium laser enucleation of the prostate - HoLeP), all these procedures, which are effectively mimicking the concept of removing tissue to make the widest 'hole' through the prostate as safely as possible, continue to carry in particular the same risk profile as regards impact on sexual function.

As we face the future with an aging population, we in the healthcare industry are aware of the future demands we face. However, this isn't only an aging population with greater numbers of men suffering with symptoms such as LUTS secondary to BPH, but also a population that demands to be healthier and active for longer and that does mean active on all fronts. Patients no longer quietly accept the concept of putting up with symptoms that they see as negatively affecting their day to day activities, but also aren't necessarily that fond of the concept of starting and taking medication 'forever', particularly if this means putting up with potential side effects, let alone sign a consent form for surgery that more likely than not will impact on their sex lives.

The last few years has therefore seen a shift in the thrust of engineering advances in the 'med tech' arena, exploring how to develop minimally invasive, surgical options, that are symptomatically effective - that effect being more measured by overall improvement in quality of life as relates to LUTS rather than how much faster the urinary stream is- and yet allow rapid return to normal activity and, in particular, as far as possible completely protect sexual function.

The prostatic urethral lift procedure (PUL) using the Urolift implants has really led the way; a number of high quality studies confirming reproducibility of effect in terms of symptom improvements, a return to normal activities in days and the odd week or two rather than weeks and the odd month or two that one sees with extirpative surgery and with the tantalising prospect of not only avoiding a post operative urinary catheter but the procedure being performed under sedation and most importantly the complete preservation of sexual function in all aspects. As such it has gained approval from NICE and the highest level of recommendation by the European Association of Urology. However, men who choose to go down this route also need to understand that whilst the PUL using the Urolift implants is as effective as say a TURP in improving quality of life as relates to LUTS, it is so to a lesser degree in terms of absolute improvement in symptoms (as measured by IPPS) or speed/strength of the urinary stream. As such, the decision to opt for this minimally invasive surgery as opposed to a laser or TURP is a balance of pros and cons that need to be clearly understood. Furthermore the PUL is not suitable for all, there being size limitations to the prostate and also some impact from the shape of the prostate that may take Urolift implants off the table for all but a handful of high volume, advanced practitioners.

Fast on the heels of Urolift other modalities have been born or older approaches have been modernized, revamped and repackaged. On the latter front, Rezum revisits the concept of interstitial ablation of the prostate using steam rather than the radiofrequency,

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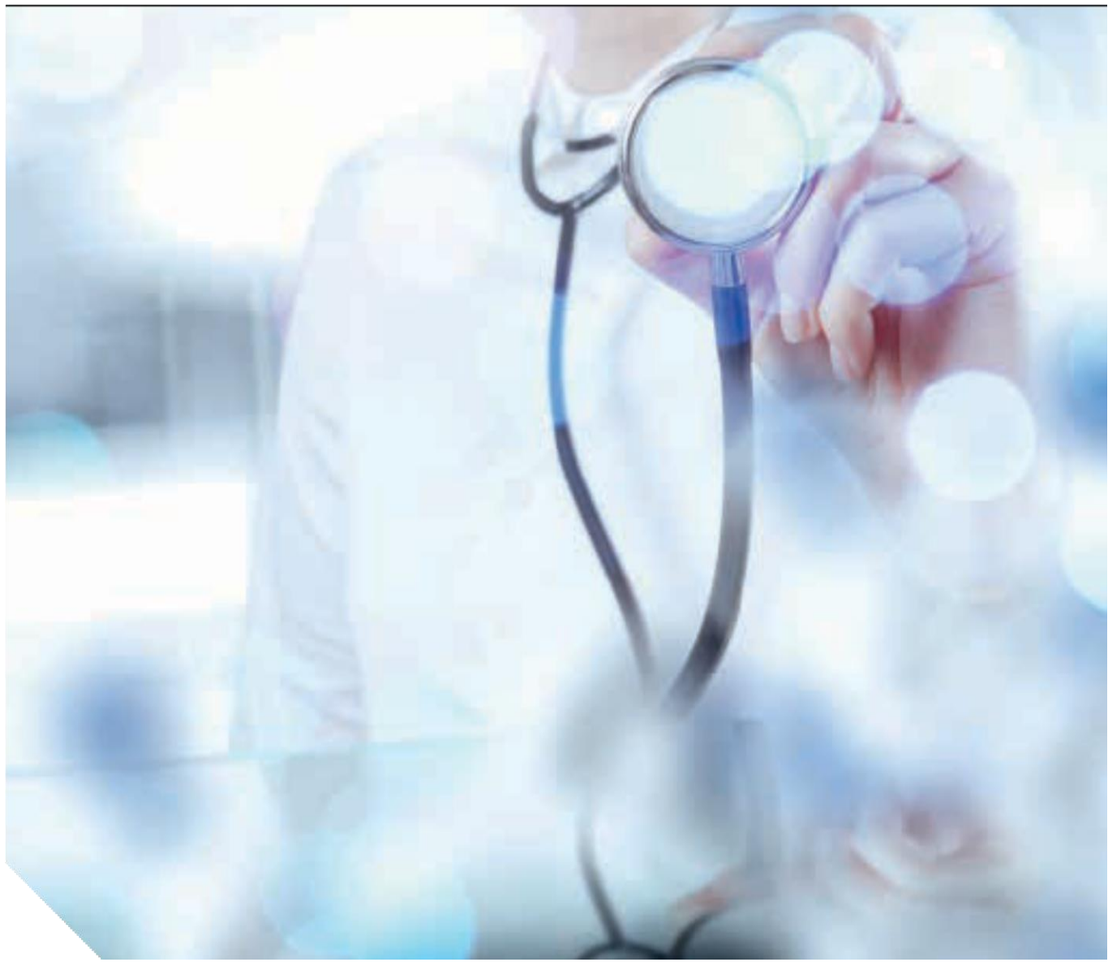
microwave or laser approaches of the late 90s, delivering high energy into the 'meat' of the lobes of the prostate to cause involution and shrinkage of tissue over time and hence dis-obstruction to the outlet of the bladder. Whilst it can be performed under local anaesthetic and sedation and is associated with a rapid discharge, undergoing Rezum does mean having to have a post operative urinary catheter in place for 5 to 7 days and an expected slow pace of improvement in symptoms over 2 to 3 months. The level of improvements being similar to that of Urolift rather than TURP or laser prostatectomy.

Other exciting prospects include the iTIND, a device that can be placed under sedation and is removed 5 days later in a similar fashion. Early results indicate better results than Urolift/ Rezum, but the group of patients most likely to benefit is yet to be fully identified and, as with all minimally invasive treatments, longevity

The AquaBeam Conformal Planning Unit, the planning station for the Aquablation procedure, utilizes an integrated ultrasound image.

Source: Photo courtesy of PROCEPT BioRobotics Ltd.

Real time ultrasound guided, robotically driven aquablation of the prostate using the Aquabeam system.



Rezum generator and handpiece.

iTIND device.

Schematic of urolift and picture 6 weeks after procedure: bladder neck and prostate held widely open and implants now invisible with urothelium covering them.

of benefit is unknown. Nevertheless, there is already the understanding that this procedure may well represent an excellent option for some younger men in particular.

Aqublation of the prostate using the Aquabeam system is an entirely novel surgical approach in this field. A real time ultrasound planned, robotically delivered procedure employing a fine high pressure water jet to 'flush out' prostate tissue to create a TURP like defect through the prostate. Uniquely, the procedure is performed without the use of heat energy in whatever form, so haemostasis remains the challenge and as a result on average 2 nights in patient stay is required, much like a TURP.
For the first time, however, high quality randomised trial data suggests that Aquablation of the prostate, whilst an invasive procedure and resulting in TURP like improvements in symptoms, quality of life scores and flow rate, is associated with a much lesser chance of any negative impact on sexual function. In particular, dry ejaculation rates run at 7% as opposed to the 40-70% seen after TURP or laser prostatectomy as outlined above.

So in 2017, the ever growing numbers of men who will seek advice about bothersome urinary symptoms related to BPH, have more choice than ever. Minimally invasive surgical options that give men an opportunity to see meaningful benefits to their quality of life as relates to their waterworks are available not only as an alternative to other more invasive techniques but also to the taking of tablets with lesser effect in the first place. Increasing numbers of new technologies should allow men to understand the reality, differences and pros and cons of these different treatment options and the urologist can look to identify, in consultation with the patient, which option suits him best. It certainly would seem that the future may mean that surgery will be more of a bespoke, tailored choice rather than what is mainly today - an off the peg option.

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Aquablation of the Prostate, TURiS, Greenlight laser prostatectomy, Urolift, Rezum and iTIND are all available through Phoenix Hospital Group and 19 Harley Street