The management of symptomatic BPH is evolving and there is now an expanding portfolio of minimally invasive surgical therapies (MISTs). These provide an attractive option for men looking for meaningful improvement in urinary symptoms, whilst avoiding the risks of adverse effects, particularly with regards to maintaining sexual function.

The successful introduction of these MISTs is now especially relevant in the COVID-19 era, where the need to further reduce theatre time and hospital stay for surgical patients is greater than ever. Where possible avoiding general anaesthesia (GA) is also likely to be advantageous.

The Rezum procedure involves convective heating of the prostate gland following the transurethral injection of water vapour into the prostate, leading to ablation of obstructive tissue and relief from LUTS [1]. Studies have shown efficacy in treating 30–80 mL prostates [2]. It is not yet known whether Rezum is potentially a good option for larger prostates or men with retention. The first UK case was performed in our centre in March 2017. We prospectively collected data on consecutive patients between March 2017 and November 2018 and report our short-term outcomes in this correspondence.

Our present patients were diagnosed with LUTS secondary to BPH based on symptomatology, validated questionnaires, uroflowmetry and other tests as necessary. Our initial cases were performed under GA and we also recommended this for men with larger glands who required a greater number of steam injections. Patients had a post-treatment urethral catheter fitted, which was typically in place for 3–5 days, but it was deliberately kept in longer for patients with retention. Those with a prohibitively large gland volume or chronic disobstructing procedure. At follow-up visits, uroflowmetry, symptom questionnaires, complications and TRUS prostate volume measurement (when available) were recorded. Our outcomes are reported using the t-test for continuous variables and the chi-squared test for categorical variables.

A total of 210 men underwent a Rezum procedure and have been followed-up to 12 months. The mean age of patients was 66 years. Included in the cohort were 25 men using intermittent catheterisation or with an indwelling catheter. The procedure was carried out under GA in 77 men with the remainder under local anaesthetic with/without sedation. The maximum urinary flow rate ($Q_{max}$ mL/s) improved significantly compared to baseline at 3, 6 and 12 months after treatment (all $P < 0.001$), with similar results for the post-void residual urine volume (PVR). The prostate volume reduced significantly from baseline when compared to the preoperative volume by 33% ($P < 0.001$) (Table 1).

For patient-reported outcomes, both the IPSS and quality-of-life (QoL) score improved significantly from baseline to 3, 6 and 12 months (all $P < 0.001$). The erectile function scores (five-item version of the International Index of Erectile Function Questionnaire [IIEF-5] questionnaire) also improved significantly at 3, 6 and 12 months ($P = 0.001$). There were no cases of de novo erectile dysfunction. Six men reported de novo dry ejaculation after the procedure. In total, 185 men (88%) passed their initial trial without catheter and ultimately 202 men (96%) were catheter/intermittent self-catheterisation free, the 4% with post-treatment catheters were all catheterised pre-procedure.

Regarding complications, 12 men (6%) had a post-treatment UTI requiring antibiotics (one requiring hospitalisation), with one man suffering persistent prostatitis (Clavien–Dindo Grade II). There were also two patients who required a return to theatre, both for secondary haemorrhage requiring bladder washout at 6 weeks after treatment (Clavien–Dindo Grade IIIb), and another two underwent a second procedure within the first year due to persistent or deteriorating symptoms. Ultimately, at 6 months, 191 men (91%) reported that they would go through a Rezum procedure again, should the need arise, and 186 men (89%) rated their satisfaction with the procedure as either ‘satisfied’ or ‘very satisfied’.

This study corroborates prior published results indicating the efficacy of Rezum therapy. Overall, our present results were positive and similar to those reported in the original randomised controlled trial (RCT) that reported 1-year outcomes [3]. The reduction in IPSS and QoL scores were indeed superior to the RCT study results and this is likely to be due to technological evolution and a greater recognition that the median lobe can be successfully treated. Clearly

Table 1 Outcomes measures (mean values).

| Variable              | Baseline | 3 months | 6 months | 12 months |
|-----------------------|----------|----------|----------|-----------|
| $Q_{max}$, mL/s       | 9.2      | 15.8     | 15.2     | 18.1      |
| PVR, mL               | 170.9    | 100      | 96.5     | 108       |
| Prostate volume, mL   | 56.9     | 38.1     |          |           |
| IPSS                  | 20.4     | 5.9      | 5.5      | 4.3       |
| QoL score             | 4.3      | 1.4      | 1.3      | 1.2       |
| IIEF-5 score          | 15.2     | 17.7     | 16.8     | 20.6      |
though, the RCT results and these results are not directly comparable. Our present series differs slightly to those reported previously due to its inclusion of men with larger prostates and catheters. Promisingly, McVary’s group have now reported durable outcomes at 4 years [2].

The National Institute of Health and Care Excellence recently released Medical Technology Guidance 49, which supports the case for treating men with symptomatic BPH with the Rezum system. This guidance does not include any advice about treating men with catheters or significant urinary retention. We feel that Rezum could be considered for men with glands >80 mL or with catheters, especially if they are unfit for GA or more major procedures.

Complications following Rezum, in the present series, were less frequent than those reported for more invasive procedures such as TURP [4] and similar to those reported for the prostatic urethral lift (PUL) procedure [5]. Rates of major complications were similar to those reported for PUL and less frequent than TURP [6,7].

In the present series satisfaction rates were high. Feedback in the form of free text comments from patients noted that the duration of a catheter postoperatively and irritative symptoms in the initial recovery period were the main drawbacks to Rezum.

The present series was a single-centre study without a control group and short follow-up, so has several limitations. However, it utilised prospective data collection and included a broad group of patients. This should help Urological Surgeons feel confident to incorporate Rezum into their portfolio of BPH treatments and possibly include those with larger glands or catheters.

In conclusion, the present series is the first to report outcomes following Rezum in the UK. Our initial experience of this novel treatment has been positive, but more mature data will be required in the future. Further studies are required and the most important of these is to compare Rezum in randomised studies with both medication and other MISTS.

Conflicts of Interest
None reported.

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Abbreviations: GA, general anaesthesia; IIEF-5, five-item version of the International Index of Erectile Function Questionnaire; MIST, minimally invasive surgical therapy; PVR, post-void residual urine volume; PUL, prostatic urethral lift; Qmax, maximum urinary flow rate; QoL, quality of life; RCT, randomised controlled trial.