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Editorial: Minimally invasive techniques in benign prostatic hyperplasia (BPH) surgery

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Editorial on the Research Topic
Minimally invasive techniques in benign prostatic hyperplasia (BPH) surgery

Minimally invasive surgical techniques (MISTs) for the treatment of Lower urinary tract symptoms (LUTS) due to benign prostatic hypertrophy (BPH) nowadays represent a well-established surgical approach aimed to lessen the surgical impact of the procedures compared to more traditional ones (i.e., open adenomectomy).

However, the new concept of ultra-MIST (uMIST) was introduced (1) in the last few years to reach the best balance between surgical efficacy, safety, and functional outcomes, especially in terms of minimal impact on patients' sexual function and preservation of ejaculation .

Nevertheless, there is still a lack of consensus on a number of uMISTs, and longer follow-up and further trials comparing these treatment options with more established techniques are necessary (2).

In this scenario, this Research Topic gathers five high-quality contributions on different techniques (Prostatic arterial embolization, Transperineal laser ablation, Water vapor thermal therapy, Aquablation, and Thulium fiber laser) available for minimally invasive surgery of BPH.

In the first article on this topic, Sessa et al. evaluated the perioperative and short-term functional and sexual outcomes after *transperineal* laser ablation of the prostate (TPLA). TPLA represents a novel option for minimally invasive treatments of BPH, and although data on the best indications for this procedure are relatively scarce in the literature, it has been shown to be feasible, safe, and effective in carefully selected patients. After the procedure, with a 6-month median follow-up, the authors observed a substantial

improvement in flowmetry indexes, quality-of-life measures and questionnaires, and a 100% ejaculation preservation rate. All the procedures were performed in an outpatient setting under local anesthesia, allowing for a high safety profile while also treating frail and comorbid patients.

Likewise, the study by Bertolo et al. fits in this context of *non-transurethral* approaches, evaluating functional outcomes of prostatic arterial embolization (PAE). The authors highlighted the safety and good sexual outcomes of this percutaneous technique, performed in collaboration with interventional radiologists. The most interesting data that can be deduced from this work is the mismatch between the relevant decrease in symptom burden reported by the patients and the data on the uroflowmetry, which show no significant change in Qmax values.

Among *resective* ultra-minimally invasive ejaculation-sparing techniques, Aquablation is certainly one of the most recent introductions in the field of BPH surgery. Although Aquablation has already demonstrated encouraging functional data and a high preservation rate of ejaculatory function, there is still an ongoing debate on the mechanism of action of Aquablation, which might be related to postoperative LUTS (particularly filling phase LUTS) (3). In the third paper on this Research Topic, De Cillis et al. present their data about a total of 60 patients treated with Aquablation with a minimum of 12 months of follow-up. The analysis conducted showed a low prevalence of bothersome postoperative LUTS; nevertheless, patients reported a prevalence of filling phase symptoms in the 3 months following the surgical procedure, accounting for 45% (27/60) of all the study population as having *de novo* filling phase symptoms.

Moving to the *ablative* techniques, Water vapor thermal therapy delivered *via* the Rezūm system is one of the most studied options among this new family of MISTs (4). In their work published on this Research Topic, Ghahhari et al. described their experience with the Rezuūm system in a single-center cohort of patients. They found the procedure safe, effective, and feasible to be performed in an outpatient setting, showing that WVTT is a valid option for the minimally invasive treatment of BPH. Notably, 63% of the patients in their cohort presented with a median lobe, a fact in favor of not considering this condition an absolute contraindication to the technique.

The Special Issue ends with a *systematic review* by Taratkin et al. on a recently introduced technology in the field of minimally invasive endoscopic surgery: the Thulium fiber laser (TFL) for endoscopic enucleation of the prostate (EEP). Thanks to its two different modes - the quasi-continuous wave and the superpulsed – it can be used for both soft tissue surgery and lithotripsy. This work provides a very interesting overview of the surgical outcomes achieved by this technology and a newsworthy comparison with the other solid-state YAG-based lasers.

A new era of ultra-MISTs for the treatment of LUTS due to BPH has begun (1). Despite the low-to-moderate certainty of the available evidence, men currently prefer lower-risk management options that have fewer sexual side effects and are primarily effective at improving urgency incontinence and nocturia (5). In this scenario, the articles published in this Special Issue highlight that all these techniques fit in a cutting-edge context projected into the future, in which it is no longer the *patient* who must adapt to the available technique according to pre-established criteria or provider-related factors. On the contrary, the *technique* should be adapted to the individual patient. In this way, we may hopefully truly tailor the surgical strategy to the patient's anatomy, preferences, and values, aiming to reach the best outcomes after proper shared decision-making.

Author contributions

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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