

Article

“Z” Anatomical Needle Cut Leads Ejaculation (ZANCLE): Unilateral Incision for Primary Bladder Neck Obstruction with Ejaculation-Sparing Intent—An Extended Single-Surgeon Series with 24-Month Follow-Up

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Abstract

Objective: Long-term data on ejaculation-sparing transurethral surgery for primary bladder neck obstruction (PBNO) in young men remain limited. We report the extended outcomes of the ZANCLE technique—a monopolar or bipolar unilateral “Z”-shaped transurethral incision of the prostate and bladder neck (TUIP) designed to relieve obstruction while anatomically preserving the ejaculatory pathway—in the largest single-surgeon cohort published to date, with follow-up extended to 24 months. **Materials and Methods:** We retrospectively analyzed prospectively collected data from 186 consecutive patients who underwent the ZANCLE procedure at a single institution between December 2018 and September 2025. Eligibility required prostate volume < 30 mL and failure of alpha-blocker therapy. Voiding parameters—Qmax, post-void residual (PVR), IPSS, and IPSS-QoL—were recorded at baseline and at 1, 6, 12, and 24 months postoperatively. Ejaculatory function was evaluated at each follow-up visit. **Results:** Median patient age was 43 years (IQR 37–58); median prostate volume was 27 mL (IQR 20–29). Mean Qmax improved from 10.2 ± 2.5 mL/s preoperatively to 22.8 ± 3.9 mL/s at 1 month and remained at 19.8 ± 4.2 mL/s at 24 months ($p < 0.001$). IPSS fell from 16 ± 2.7 to 6.9 ± 1.5 at 1 month and 6.5 ± 1.6 at 24 months; IPSS-QoL from 4.3 ± 0.9 to 1.9 ± 1.6 and 1.6 ± 1.2 , respectively (all $p < 0.001$). Mean PVR decreased from 125.5 ± 16.1 mL to 31.2 ± 8.9 mL at 24 months ($p < 0.001$). Anterograde ejaculation was maintained in all 186 patients (100%) at every postoperative timepoint. Minor complications (Clavien 1–2) occurred in 5 patients (2.7%); no major adverse events were recorded. **Conclusions:** The ZANCLE technique achieves sustained improvements in voiding function and quality of life over 24 months, with a 100% ejaculation preservation rate and an excellent safety profile. These findings support the ZANCLE technique as a clinically promising surgical option for selected young men with PBNO refractory to medical therapy, pending comparative evidence; functional outcomes were numerically consistent with those reported for laser-based approaches, without the associated cost burden, although direct comparison was not possible in this non-comparative design.



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Keywords: primary bladder neck obstruction; ejaculatory function; ejaculation sparing; lower urinary tract symptoms; TUIP

1. Introduction

Primary bladder neck obstruction (PBNO) represents a clinically relevant but frequently underdiagnosed form of bladder outlet obstruction (BOO), predominantly affecting young men in their third to fifth decade of life. The condition arises from incomplete or absent relaxation of the internal urethral sphincter during voiding, generating a functional obstruction with no anatomical counterpart in conventional imaging. Its clinical presentation is heterogeneous and overlaps with other lower urinary tract conditions, contributing to a historically high rate of misdiagnosis and diagnostic delay [1].

Recent epidemiological data suggest that PBNO accounts for 28–54% of cases of lower urinary tract symptoms (LUTS) in men aged 18–50 years, a range reflecting differences in diagnostic thresholds across cohorts [2,3]. The typical phenotype—young patient with low BMI, severe IPSS, small prostate volume, and low PSA—differs substantially from the elderly BPH population, demanding a tailored diagnostic and therapeutic approach [3]. Videourodynamic assessment with voiding cystourethrogram (VCUG) currently represents the diagnostic gold standard, allowing direct visualization of bladder neck failure and objective quantification of the obstruction degree [4].

From a therapeutic standpoint, alpha-1 adrenergic antagonists constitute the first-line medical treatment. However, their long-term efficacy in PBNO is limited and burdened by a high rate of ejaculatory adverse effects, particularly in younger sexually active patients. A recent systematic review and meta-analysis confirmed that failure rates of alpha-blocker therapy in PBNO range from 23% to 52%, with ejaculatory dysfunction occurring in up to 47–50% of patients on sustained medical treatment [5]. Silodosin, despite its selectivity for the alpha-1A receptor subtype, has been associated with anejaculation rates as high as 70%, prompting frequent therapy discontinuation [6].

Surgical treatment via transurethral incision of the bladder neck (TUIP/BNI) remains the reference standard when medical management fails or is refused by the patient. According to the European Association of Urology (EAU) guidelines, TUIP is indicated in patients with obstructive symptoms, prostate volume < 30 mL, and no response to pharmacological therapy [7]. The classical bilateral BNI technique, although effective in relieving obstruction, carries a well-documented risk of permanent retrograde ejaculation ranging from 27% to 80% of cases—a functionally devastating complication for a young, often fertile population [8–10]. Unilateral incision substantially reduces this risk (0–35%), though the impact on ejaculatory function remains variable depending on the technique used [10].

Several modifications of the standard TUIP have been proposed to minimize ejaculatory morbidity while preserving functional outcomes. Among these, the sparing of supramontanal tissues and the identification of ejaculatory duct orifices have been associated with higher rates of anterograde ejaculation preservation in small case series [11]. However, data from larger cohorts with extended follow-up are still lacking, representing a significant gap in the current evidence base.

The ZANCLE technique (“Z” Anatomical Needle Cut Leads Ejaculation) was developed to address this gap by combining a unilateral, monopolar or bipolar approach with a specifically designed “Z”-shaped incision trajectory that preserves the anatomical structures critical for anterograde ejaculation. The aim of the present study is to report functional and quality of life outcomes at 24 months in an extended single-surgeon cohort of 186 patients, with particular emphasis on the durability of both voiding improvement and ejaculatory function preservation.

2. Materials and Methods

2.1. Study Population

This is a retrospective study representing an extended analysis of a previously published single-surgeon series [12]. Data from patients who underwent the ZANCLE procedure at a single institution were analyzed; the present cohort incorporates the original patient series with additional patients enrolled up to September 2025 and follow-up extended to 24 months. Preoperative assessment included flexible cystoscopy in all cases, uroflowmetry with post-void residual urine measurement, and completion of the International Prostate Symptom Score (IPSS) and IPSS-QoL questionnaires. Functional evaluation was repeated at 1, 6, 12, and 24 months postoperatively.

Inclusion criteria were: prostate volume < 30 mL on suprapubic or transrectal ultrasound; maximum urinary flow rate (Q_{max}) < 15 mL/s; IPSS > 8 (moderate-to-severe symptoms); failure or intolerance to alpha-1 blocker therapy; absence of previous prostate surgery; and bladder neck hypertrophy confirmed at flexible cystoscopy. Diagnosis was established on the basis of the characteristic clinical phenotype together with flexible cystoscopic identification of bladder neck hypertrophy/non-relaxation and uroflowmetric obstruction; videourodynamic study (VCUG) was not performed routinely in all patients but was reserved for cases with equivocal cystoscopic or clinical findings, at the treating surgeon's discretion.

Exclusion criteria included: prostate volume > 30 mL; history of prior prostate or bladder neck surgery; urethral strictures; bladder stones; prostate or bladder cancer; indwelling urinary catheter; neurogenic bladder dysfunction or urinary incontinence; and absent or compromised baseline ejaculatory function.

All patients self-reported antegrade ejaculation at baseline and underwent preventive sperm cryopreservation prior to surgery. Postoperative ejaculatory function was assessed at each follow-up visit (1, 6, 12, and 24 months) by direct structured patient self-report, using a binary yes/no question regarding maintenance of antegrade ejaculation; no validated questionnaire was administered, and objective measurement of semen volume was not performed as part of routine follow-up. Written informed consent was obtained from all patients before enrollment. All procedures were performed by the same experienced surgeon (A.C.).

2.2. Surgical Technique

All procedures were performed under spinal anesthesia. A 26-Fr monopolar or bipolar resectoscope equipped with a Collins knife was used. The bladder neck was incised at the 7 o'clock position and the incision extended distally toward the verumontanum. The technique involves a superficial incision in the proximal tract and a deliberately deep incision in the prostatic tissue above the verumontanum, creating a "Z"-shaped profile that achieves adequate bladder neck opening while sparing the genital sphincter complex. Ejaculatory preservation was systematically pursued through the maintenance of paracollicular and supramontanal tissue integrity, preservation of approximately 1 cm of prostatic tissue above the verumontanum, and identification of the ejaculatory duct orifices whenever anatomically feasible. A 22-Ch Dufour catheter with continuous bladder irrigation was placed at the end of the procedure.

2.3. Statistical Analysis

Continuous variables were expressed as means $\pm$ standard deviations (SD) or medians with interquartile range (IQR), as appropriate. Categorical variables were reported as frequencies and percentages. Pre-to-postoperative comparisons were performed using the Mann–Whitney U test for continuous variables and Chi-square or Fisher's exact test

for categorical variables. Patients lost to follow-up or with incomplete data at a given timepoint were excluded from the analysis at that timepoint (complete case analysis); no imputation was performed. All analyses were performed using SPSS software v.26.0 (IBM Corp., Armonk, NY, USA). Statistical significance was set at $p < 0.05$.

3. Results

A total of 186 patients met the inclusion criteria and were enrolled in the study. Median age was 43 years (IQR: 37–58) and median prostate volume was 27 mL (IQR: 20–29). Before surgery, 137 patients (73.7%) were on daily alpha-1 blocker therapy, which was discontinued prior to the procedure. Baseline and perioperative characteristics are summarized in Table 1.

Table 1. Baseline and perioperative characteristics.

Variable	N = 186
Age at surgery, median (IQR)	43 (37–58)
Prostate volume, mL, median (IQR)	27 (20–29)
ASA score, n (%)	
1–2	170 (91.4)
3–5	7 (3.8)
Patients on alpha-blocker therapy before surgery, n (%)	137 (73.7)
Preoperative PSA, ng/mL, median (IQR)	1.6 (0.9–2.3)
Operative time, min, median (IQR)	20 (16–27)
Catheterization time, days, median (IQR)	3 (2–4)
Hospital stay, days, median (IQR)	1 (1–2)
Incontinence rate, n (%)	0 (0)
Complication rate, n (%)	
No complications	181 (97.3)
Clavien (1–2)	5 (2.7)
Transient AUR requiring re-catheterization	5 (2.7)
Clavien (3–5)	0 (0)

IQR: interquartile range; ASA: American Society of Anesthesiologists; PSA: prostate-specific antigen; AUR: acute urinary retention.

Median operative time was 20 min (IQR: 16–27). No patient required perioperative blood transfusion. Median hospital stay and catheterization time were 1 day (IQR: 1–2) and 3 days (IQR: 2–4), respectively. Urinary continence was preserved in all patients upon catheter removal. Five patients (2.7%) experienced Clavien 1–2 complications (transient acute urinary retention requiring re-catheterization); no Clavien 3–5 events were recorded.

At 1-month follow-up, mean Qmax increased from 10.2 ± 2.5 mL/s to 22.8 ± 3.9 mL/s ($p < 0.001$). Mean IPSS and IPSS-QoL scores decreased from 16 ± 2.7 to 6.9 ± 1.5 and from 4.3 ± 0.9 to 1.9 ± 1.6 , respectively ($p < 0.001$). Mean PVR decreased from 125.5 ± 16.1 mL to 33.7 ± 5.3 mL ($p < 0.001$). These improvements were sustained throughout the entire follow-up period, with all outcomes remaining statistically significant at 24 months (each $p < 0.001$; Table 2). Anterograde ejaculation was preserved in 100% of patients at each post-operative evaluation through 24 months of follow-up. No case of bladder neck contracture, urethral stricture, de novo stress or urgency incontinence, or recurrent outlet obstruction requiring repeat intervention was documented during the 24-month follow-up period;

flexible cystoscopy was performed selectively in patients with symptomatic recurrence or insufficient flow improvement rather than at fixed surveillance intervals.

Table 2. Functional outcomes at preoperative baseline and at 1, 6, 12, and 24 months postoperatively.

Variable	Preoperative	1 Month	6 Months	12 Months	24 Months	<i>p</i> -Value
IPSS, mean $\pm$ SD	16 $\pm$ 2.7	6.9 $\pm$ 1.5	6.3 $\pm$ 1.2	6.4 $\pm$ 1.6	6.5 $\pm$ 1.6	<0.001
IPSS-QoL, mean $\pm$ SD	4.3 $\pm$ 0.9	1.9 $\pm$ 1.6	1.5 $\pm$ 1.1	1.5 $\pm$ 1.1	1.6 $\pm$ 1.2	<0.001
Qmax, mL/s, mean $\pm$ SD	10.2 $\pm$ 2.5	22.8 $\pm$ 3.9	21.5 $\pm$ 3.4	20.2 $\pm$ 4.1	19.8 $\pm$ 4.2	<0.001
PVR, mL, mean $\pm$ SD	125.5 $\pm$ 16.1	33.7 $\pm$ 5.3	27.7 $\pm$ 7.3	30.7 $\pm$ 8.6	31.2 $\pm$ 8.9	<0.001

SD: standard deviation; PVR: post-void residual volume; IPSS: International Prostatic Symptom Score; QoL: quality of life; Qmax: maximum urinary flow rate. All *p*-values < 0.001 vs. preoperative baseline.

4. Discussion

The present study reports the largest single-surgeon series of the ZANCLE procedure to date, with follow-up extended to 24 months and a cohort of 186 patients. The results confirm that the technique achieves durable improvements across all functional domains—urinary flow, symptom score, quality of life, and post-void residual—with a complication profile that remains consistently low and a 100% anterograde ejaculation preservation rate throughout the entire observation period.

PBNO in young men represents a clinically underappreciated entity, often misdiagnosed as chronic prostatitis, overactive bladder, or non-specific LUTS. The typical phenotypic profile—young age, elevated IPSS, low PSA, small prostate—should prompt clinicians to suspect a functional bladder neck disorder and proceed to videourodynamic evaluation [3]. A recent study by El Khoury et al. demonstrated a significant correlation between the degree of bladder neck opening impairment on VCUG and urodynamic obstruction parameters, reinforcing the diagnostic value of functional imaging in stratifying patients for surgical intervention [4].

From a therapeutic perspective, the management landscape of PBNO has been systematically appraised in a 2025 meta-analysis by Creta et al. in *European Urology Focus*, which identified bladder neck incision as the most effective therapeutic modality, with IPSS and Qmax improvements at 3 months averaging 11.2 points and 6.9 mL/s, respectively, in surgical cohorts—figures broadly consistent with our own findings at the same timepoint [5]. Notably, the same review highlighted the scarcity of long-term follow-up data and the persistently low level of evidence in the field, underlining the significance of extended series such as the present one.

The central challenge in surgical treatment of PBNO in young men is reconciling adequate deobstruction with preservation of ejaculatory function. The bilateral BNI approach, while conferring superior deobstruction, carries unacceptable rates of permanent retrograde ejaculation—up to 80% in some series—rendering it ill-suited for a fertile, sexually active population [8–10]. The unilateral approach substantially mitigates this risk, though reported ejaculatory dysfunction rates vary widely (0–35%) depending on technique, energy source, and extent of incision [11]. Ejaculation-sparing modifications, including supramontanal tissue preservation and restriction of the incision proximal to the verumontanum, have been associated with near-complete ejaculatory preservation in smaller series [13].

The ZANCLE technique operationalizes these principles into a reproducible anatomical workflow. By combining a superficial proximal incision with a strategically deep prostatic incision above the verumontanum—and by systematically preserving paracollicular tissues and identifying ejaculatory duct orifices—the technique achieves functional deobstruction without disrupting the ejaculatory pathway. The 100% anterograde ejaculation

preservation rate observed in our cohort, sustained at every timepoint through 24 months, is numerically consistent with ejaculatory preservation rates reported for holmium laser incision series [14–17]. However, in the absence of a randomized or matched comparative arm, this similarity cannot be interpreted as evidence of equivalence or superiority, and direct comparative trials are required before such a conclusion can be drawn. Two design features lend some support to the plausibility of this finding despite its reliance on unvalidated self-report: all patients confirmed antegrade ejaculation at baseline and were explicitly counseled on the ejaculatory preservation objective of the technique prior to surgery, and all underwent preventive sperm cryopreservation, a structured pre-operative engagement with fertility concerns that may have heightened reporting attentiveness. A balanced interpretation must nonetheless consider that this figure may also reflect a favorable convergence of patient selection (baseline ejaculatory function was itself an inclusion requirement), an unvalidated and potentially optimistic assessment method, and the technical proficiency of a single high-volume, highly experienced surgeon—factors that may not generalize to broader practice. Nonetheless, only a validated instrument and objective semen analysis in a prospective design can confirm this observation. We emphasize that reliance on a simplified binary self-report, rather than a validated instrument such as the MSHQ-EjD, is a substantial limitation for one of the study's principal endpoints, and the 100% preservation figure should be interpreted with corresponding caution until confirmed by validated patient-reported outcome measures.

The contemporary landscape of minimally invasive surgery for bladder outlet obstruction has expanded considerably, with office-based and low-morbidity alternatives increasingly competing for clinical adoption. Devices such as the prostatic urethral lift (UroLift), water vapor thermal therapy (Rezum), and the temporary implantable nitinol device (iTIND) have demonstrated meaningful improvements in LUTS with largely preserved ejaculatory function in BPH populations [18–21]. However, their applicability to PBNO in young men is fundamentally limited by the distinct pathophysiological substrate of the condition: unlike BPH-driven mechanical obstruction, PBNO is a functional failure of internal sphincter relaxation that neither anatomical stenting nor tissue ablation is designed to address. The ZANCLE technique instead combines a targeted anatomical incision with ejaculatory-duct-sparing intent, using standard monopolar or bipolar instrumentation and thereby avoiding the additional capital and maintenance costs of laser-based platforms. Dedicated cost-effectiveness analyses for PBNO in young men are still lacking and represent a relevant direction for future research.

A further dimension that deserves explicit consideration is the composite nature of the therapeutic goal in this patient population. In young, sexually active men undergoing surgery for PBNO, clinical success cannot be adequately captured by urodynamic parameters alone. The preservation of antegrade ejaculation—and, by extension, of natural fertility and sexual self-perception—constitutes an outcome domain of equal or greater patient-perceived importance than symptom relief or flow rate normalization. This perspective aligns with the conceptual framework of composite endpoint design, in which voiding improvement, ejaculatory preservation, and absence of complications are jointly necessary for a procedure to be considered clinically successful [18]. Our data satisfy all three components of such a composite: IPSS and Qmax improvements are sustained at 24 months, antegrade ejaculation is preserved in 100% of patients, and the Clavien 1–2 complication rate is confined to 2.7% with no major adverse events. The integration of patient-reported outcome measures (PROMs) into future prospective studies of the ZANCLE procedure would further strengthen this evidence base. Instruments such as the Male Sexual Health Questionnaire–Ejaculatory Dysfunction (MSHQ-EjD) short form, the International Index of Erectile Function (IIEF), and disease-specific LUTS bother questionnaires would allow

a multidimensional characterization of treatment success that goes beyond the binary reporting of ejaculatory function currently employed. Additionally, given the young age of the cohort (median 43 years), the fertility implications of preserved antegrade ejaculation should be formally assessed in future studies incorporating semen analysis before and after surgery, as retrograde ejaculation—even when not perceived as bothersome by the patient—may carry meaningful reproductive consequences that are underappreciated in the current literature.

The reproducibility of the ZANCLE technique in the hands of surgeons other than the original developer remains an open question that the current evidence base cannot answer. The present series was performed by a single experienced surgeon at a single tertiary referral center, and the learning curve associated with the “Z”-shaped incision trajectory and the systematic identification of ejaculatory duct orifices has not been formally characterized. Operative skills, intraoperative anatomy variability, and the use of monopolar versus bipolar energy may each influence outcomes in the hands of less experienced operators. Structured training protocols and mentored proctorship programs will therefore be essential prerequisites before broader dissemination of the technique can be recommended. Multi-institutional prospective registries, incorporating standardized preoperative videourodynamic criteria, intraoperative annotations, and validated postoperative outcome instruments, represent the next logical step in establishing the external validity and scalability of this approach.

Indeed, ejaculation-sparing techniques have been explored across multiple energy platforms. Brant et al. randomized 27 sexually active BPH patients to either ejaculatory hood-sparing GreenLight photoselective vaporization (EjS-PVP) or ejaculatory hood-sparing bipolar plasma vaporization (EjS-BPVP), demonstrating durable improvements in IPSS, Qmax, and PVR in both arms, with 6-month ejaculation preservation rates of 85% and 78%, respectively, and no significant intergroup differences [15]. These findings confirm that equivalent functional and ejaculatory outcomes are achievable regardless of the energy source employed, provided the incision is anatomically guided and the ejaculatory structures are deliberately preserved. Our data extend this evidence to the monopolar setting, suggesting that the ejaculation-sparing intent is primarily a matter of surgical anatomy rather than technology, with the additional advantage of lower procedural costs and broader accessibility in public or resource-constrained settings.

With respect to the temporal stability of urodynamic parameters, the 24-month functional data in the present study address a critical limitation of the existing literature. In our previously published series of 106 patients with 12-month follow-up, we reported significant and sustained improvements in Qmax, IPSS, IPSS-QoL, and PVR, with 100% antegrade ejaculation preservation [12]. The present extended cohort confirms and reinforces those findings: the modest reduction in Qmax between the 1-month peak (22.8 ± 3.9 mL/s) and the 24-month value (19.8 ± 4.2 mL/s) is consistent with physiological flow rate stabilization following TUIP and does not represent a clinically meaningful regression. Importantly, IPSS and IPSS-QoL remained stable across all timepoints beyond 1 month, and no patient required a secondary procedure during the observation period—a finding that reinforces the adequacy of a single surgical session with the ZANCLE technique.

Several limitations of this study should be discussed. The retrospective design and single-surgeon, single-center setting introduce potential selection and performance bias and may limit generalizability, despite the use of prospectively collected data within a structured clinical follow-up pathway. These excellent outcomes were achieved by a single, highly experienced surgeon, and it should be emphasized that they may not be directly reproducible at other centers or by surgeons with different levels of training and experience. The absence of a comparative arm—whether against bilateral TUIP, holmium laser BNI,

or conservative management—represents the primary methodological constraint of this study and precludes any definitive efficacy ranking of the ZANCLE technique relative to established alternatives; prospective multicenter comparative trials are required before definitive recommendations can be issued. Additionally, postoperative ejaculatory function was assessed using a binary yes/no question at each outpatient visit; this methodology, while pragmatic, does not capture quantitative aspects of ejaculatory dysfunction such as changes in volume, force, or subjective satisfaction. Future studies should incorporate validated instruments such as the Male Sexual Health Questionnaire (MSHQ) or the ejaculatory domain of the IIEF. Formal fertility intention was not systematically documented in the clinical dataset; the fact that all patients underwent preventive sperm cryopreservation prior to surgery serves only as an indirect indicator of reproductive concern in this population. From a statistical standpoint, the use of the Mann–Whitney U test for pairwise timepoint comparisons does not formally account for within-subject correlation across repeated measures; a mixed-effects model would represent the preferred analytical strategy in a prospective design. Effect sizes and 95% confidence intervals were not calculated for the primary outcome comparisons; reporting these alongside *p*-values would strengthen the interpretation of clinical, and not only statistical, significance in future analyses. Finally, the lack of standardized videourodynamic confirmation of obstruction resolution in all patients represents a further methodological constraint that prospective designs should address. Relatedly, since not all patients underwent preoperative VCUG, diagnosis relied in part on cystoscopic and clinical criteria alone in some cases; as patient selection directly influences postoperative outcomes, this diagnostic heterogeneity should be considered when interpreting the results.

Further prospective, multicenter studies—ideally with a comparative or matched design—would help better define the place of the ZANCLE technique among the surgical options available for PBNO in young men.

5. Conclusions

This extended retrospective series demonstrates durable functional efficacy and complete antegrade ejaculation preservation at 24 months in young men with PBNO and small prostate volumes, although the non-comparative design precludes any definitive efficacy ranking against established alternatives. The technique offers a clinically relevant combination of effective deobstruction, low morbidity, and sexual function preservation, achievable with standard monopolar equipment and without the cost burden of laser platforms, pending confirmation in prospective comparative studies.

Author Contributions: Conceptualization, A.C. and R.L.; methodology, G.M. and P.M.; software, F.A.; validation, C.M.S., M.P. and P.M.; formal analysis, P.V.; investigation, R.L. and M.P.; resources, G.M.; data curation, F.A.; writing—original draft preparation, C.M.S., A.T. and F.A.; writing—review and editing, A.C. and A.T.; visualization, C.M.S. and P.V.; supervision, A.C.; project administration, P.V.; funding acquisition, P.M. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement: Approval for the study was waived in accordance with local legislation (approval number 110/25 of 24 September 2025), as the study did not deviate from standard clinical practice. All diagnostic and therapeutic procedures performed were consistent with routine patient management at our institution. No experimental interventions were introduced, no additional biological samples were collected beyond those required for clinical purposes, and no randomization or allocation to treatment arms was performed. The study exclusively involved the analysis of clinical data already collected as part of ordinary care, thereby not exposing patients to risks beyond those of standard clinical management.

Informed Consent Statement: Written informed consent for the surgical procedure and for preventive sperm cryopreservation was obtained from all patients as part of routine clinical care. Separately, specific patient consent for retrospective analysis and publication of these routinely collected clinical data was waived by the Institutional Review Board, as the study exclusively involved data already gathered during standard patient management, with no deviation from normal clinical practice.

Data Availability Statement: The original contributions presented in the study are included in the article, further inquiries can be directed to the corresponding author.

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Conflicts of Interest: The authors declare no conflicts of interest.

Abbreviations

The following abbreviations are used in this manuscript:

PBNO	primary bladder neck obstruction
BNO	bladder outlet obstruction
TUIP	transurethral incision of the prostate and bladder neck
LUTS	lower urinary tract symptoms

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