Review Article

BIOMEDICAL Journal of Scientific & Technical Research

ISSN: 2574 -1241

DOI: 10.26717/BJSTR.2026.67.010472

Acupuncture Combined with Intermittent Catheterization for Postoperative Urinary Retention in Cervical Cancer Patients: A Clinical Feasibility Study

Running Head: ACUPUNCTURE & CATHETERIZATION FOR URINARY RETENTION

Jing Li[1,2,3], Qi Cao[2,3], Xiaoxia Liu[2,3], Yue Tan[2,3], Yalin Yue[2,3], Cong Qi[1]* and Yun Wang[2]*

[1]*Department of Gynaecology and Obstetrics, Shuguang Hospital Affiliated to Shanghai University of Traditional Chinese Medicine, Shanghai, China*

[2]*Department of Integrated Traditional Chinese and Western Gynecology, Obstetrics and Gynecology Hospital of Fudan University, Shanghai 200011, China*

[3]*Department of Integrated Traditional Chinese and Western Gynecology, Qingpu Branch, Yangtze River Delta Integration Demonstration Zone, Obstetrics and Gynecology Hospital of Fudan University, Shanghai 201713, China*

***Corresponding author:** Cong Qi, Department of Gynaecology and Obstetrics, Shuguang Hospital Affiliated to Shanghai University of Traditional Chinese Medicine, Shanghai, China, Yun Wang, Department of Integrated Traditional Chinese and Western Gynecology, Obstetrics and Gynecology Hospital of Fudan University, Shanghai 200011, China

ARTICLE INFO

Received: October 28, 2026

Published: November 05, 2026

Citation: Jing Li, Qi Cao, Xiaoxia Liu, Yue Tan, Yalin Yue, Cong Qi and Yun Wang. Acupuncture Combined with Intermittent Catheterization for Postoperative Urinary Retention in Cervical Cancer Patients: A Clinical Feasibility Study. Biomed J Sci & Tech Res 67(2)-2026. BJSTR. MS.ID.010472.

ABSTRACT

Background: Postoperative Urinary Retention (POUR) is a significant clinical problem following radical hysterectomy for cervical cancer. Although Intermittent Catheterization (IC) is the recommended gold standard for neurogenic bladder management, its effectiveness is often limited by poor compliance and suboptimal technique. Acupuncture has been explored for voiding dysfunction, but no previous study has investigated the combination of acupuncture and IC for managing POUR in this population. This pilot study assessed the feasibility of this integrated approach.

Methods: In this single-arm pilot trial, eligible patients with POUR received daily acupuncture at bilateral SP6, SP9, BL32, BL33, BL28, BL54, and CV3, combined with a standardized IC protocol, for three weeks. The primary outcome was the change in Postvoid Residual (PVR) urine volume. Secondary outcomes included urodynamic parameters (first sensation of bladder filling, maximum flow rate, maximum detrusor pressure), quality of life (SF-36), and Traditional Chinese Medicine (TCM) syndrome scores. Safety was assessed by adverse events (AEs), and feasibility was evaluated by recruitment, completion, and adherence rates.

Results: Eighty participants were enrolled at the Obstetrics and Gynecology Hospital of Fudan University. The combined intervention significantly reduced the primary outcome: mean PVR volume decreased by 273.8 mL (95% CI: −296.5 to −251.0; $P < 0.0001$) from a baseline of 304.6 mL. Significant improvements were also observed in all secondary urodynamic parameters and patient-reported outcomes (all $P < 0.0001$). The protocol demonstrated high feasibility, with favorable recruitment (82%), completion (87.5%), and adherence rates (87.5–92.5%). No serious adverse events were reported.

Conclusion: Acupuncture combined with IC appears to be a feasible, safe, and potentially effective intervention for managing POUR after cervical cancer surgery. These promising findings justify further investigation in a large-scale randomized controlled trial.

Keywords: Acupuncture; Intermittent Catheterization; Postoperative Urinary Retention; Cervical Cancer; Feasibility Study

Abbreviations: POUR: Postoperative Urinary Retention; IC: Intermittent Catheterization; PVR: Postvoid Residual; FAS: Full Analysis Set; SF-36: 36-Item Short Form Health Survey; TCM: Traditional Chinese Medicine; AE: Adverse Event; UTI: Urinary Tract Infection; FIGO: International Federation of Gynecology and Obstetrics; STRICTA: Standards for Reporting Interventions in Clinical Trials of Acupuncture; CI: Confidence Interval; SD: Standard Deviation

Introduction

Cervical cancer is one of the most common gynecological malignancies, causing more than 300,000 deaths worldwide each year [1]. Despite a decreasing prevalence, it continues to pose a major public health challenge for women in China [2]. For early-stage disease, radical hysterectomy remains the standard therapeutic intervention [3]. However, the extensive surgical dissection involved often leads to postoperative urinary complications, including urinary retention, incontinence, and urinary tract infection [4,5]. The reported prevalence of POUR in this population is approximately 26% [6,7]. POUR not only predisposes patients to urinary tract infections but, when prolonged, can progress to serious complications such as hydronephrosis and renal failure. These issues collectively contribute to prolonged hospital stays, increased economic burden, and a marked decline in quality of life. Effective management strategies are therefore critically needed. Current pharmacological management of urinary retention includes cholinergic agonists, β-3 adrenergic receptor agonists, and antimuscarinic agents; however, these options often yield suboptimal efficacy and are associated with adverse effects such as nausea and diarrhea [8].

IC is recommended by the International Continence Society as the "gold standard" for managing neurogenic bladder [8]. The technique involves periodic insertion of a catheter to empty the bladder without an indwelling device and can be performed under sterile or clean conditions. Despite its standardized status, IC has limited adoption in China, with low compliance and suboptimal success rates, largely due to insufficient patient awareness and non-standardized technique [9]. Moreover, IC alone does not address the underlying pathophysiology of bladder dysfunction caused by nerve injury. In contemporary cervical cancer management, several surgical and oncological strategies—including nerve-sparing radical hysterectomy, reduced radicality, and primary chemoradiation in selected patients—have been developed to reduce postoperative bladder dysfunction. Nevertheless, despite these modifications, a subset of patients still experiences clinically significant POUR because of individual anatomical variation, the extent of nerve injury, or postoperative recovery patterns. There is therefore a pressing need for an effective therapeutic strategy for POUR in cervical cancer patients.

Evidence suggests that combining rehabilitation therapies with IC can significantly enhance treatment outcomes [10]. However, current clinical guidelines lack specific recommendations regarding optimal integrated protocols. Acupuncture, as a minimally invasive and safe modality, may serve as a complementary approach to support neurogenic bladder recovery in patients who have undergone modern surgical and oncological treatment. Preliminary studies indicate that acupuncture may have a notable effect in alleviating POUR after cervical cancer surgery [11,12]. Furthermore, a meta-analysis demonstrated that electroacupuncture can reduce the duration of indwelling catheterization and lower the risk of urinary tract infection [13]. Despite this promise, the existing clinical evidence on acupuncture for post-radical-hysterectomy urinary retention remains limited, characterized by small sample sizes and generally low methodological quality. Therefore, this study aimed to generate robust data on the feasibility of combining acupuncture with IC for managing this condition and to provide clinically meaningful insights for trial design.

Materials and Methods

Study Design

This single-arm pilot clinical trial was designed to investigate the feasibility of the study procedures, interventions, and outcome assessments, and to inform sample size and power calculations for a future large-scale trial of acupuncture combined with catheterization for POUR in cervical cancer patients. The trial was conducted at the Obstetrics and Gynecology Hospital of Fudan University from August 2021 to December 2023. Potential participants were screened against predefined eligibility criteria; those who met all criteria and provided written informed consent were enrolled. Participants received acupuncture once daily (30 minutes per session) for three weeks, or until PVR urine volume was less than 100 mL. Efficacy evaluations were performed before and after each acupuncture course. Feasibility outcomes—recruitment rate, completion rate, adherence rate, and safety-were assessed throughout the study. All participant data were coded to ensure confidentiality. This study was conducted in accordance with the Declaration of Helsinki and the Standards for Reporting Interventions in Clinical Trials of Acupuncture (STRICTA) [14]. The protocol was reviewed and approved by the Ethics Committee of the Obstetrics and Gynecology Hospital of Fudan University (Approval Number: 2021-238).

Participants

Participants who met all the following inclusion criteria were enrolled:

1. Pathologically confirmed cervical squamous cell carcinoma or adenocarcinoma after surgery
2. Inability to urinate spontaneously or difficulty urinating after catheter removal 72 hours post-surgery
3. A distended and tender suprapubic area with dullness on percussion
4. PVR urine volume >100 mL confirmed by ultrasound
5. Female patients aged 20–80 years
6. Prior standardized radical hysterectomy
7. Complete medical records
8. Voluntary provision of written informed consent

Exclusion criteria were:

1. Pre-existing urinary dysfunction before surgery
2. Urinary retention due to non-surgical factors (e.g., spinal cord injury, diabetic neurogenic bladder)
3. Urethral anatomical deformity or bladder safe capacity <200 mL
4. Severe autonomic dysreflexia or uncontrolled urinary tract infection
5. Concomitant severe cardiac, pulmonary, or renal insufficiency
6. Coagulation disorders
7. Contraindications to acupuncture (e.g., local infection, metal allergy)
8. Psychiatric disorders preventing cooperation with assessments
9. Participation in another clinical trial, or within 4 weeks after the end of a previous trial
10. Previous acupuncture treatment for urinary retention

Intervention

Sterile Intermittent Catheterization

The procedure was performed by trained, qualified licensed physicians. Before initiation, urodynamic assessment was conducted to confirm bladder capacity and pressure status. A 12–14 Fr hydrophilic-coated catheter was selected. During the initial phase, catheterization was performed 4–6 times per day; the frequency was subsequently adjusted according to PVR volume, with the goal of eventual discontinuation. A timed fluid-intake plan was implemented, with total daily fluid intake controlled at 1500–2000 mL.

Acupuncture Treatment

All acupuncture procedures were performed by licensed acupuncturists with more than five years of clinical experience. The treatment protocol, including operational standards, was developed by acupuncture specialists. Before the trial commenced, all participating acupuncturists received standardized training covering precise acupoint localization, needle type selection, needling manipulation, and standardized communication scripts. All participants received daily acupuncture until PVR was less than 100 mL, for a maximum of three weeks. Acupoint locations were determined in accordance with the World Health Organization Standard Acupuncture Location system. The acupoints were divided into two sets. Front: Zhongji (CV3) and bilateral Yinlingquan (SP9) and Sanyinjiao (SP6). Back: bilateral Ciliao (BL32), Zhongliao (BL33), Pangguanshu (BL28), and Zhibian (BL54) (Figure 1; Table 1). Sterile, single-use, stainless steel needles (Suzhou Medical Supplies Factory Co., Ltd.) of various sizes (0.30 mm × 50 mm, 0.30 mm × 75 mm, and 0.30 mm × 100 mm) were selected according to the acupoint. Strict disinfection of the acupuncturist's hands and the patient's skin at each acupoint was performed before needling.

Table 1: Locations of acupoints.

Acupoint	Location
CV3 (Zhongji)	On the lower abdomen, 4 cun below the umbilicus, on the anterior midline.
SP9 (Yinlingquan)	On the medial side of the leg, in the depression between the lower border of the medial condyle of the tibia and the medial border of the tibia.
SP6 (Sanyinjiao)	On the medial side of the leg, 3 cun directly above the tip of the medial malleolus, posterior to the medial border of the tibia.
BL28 (Pangguanshu)	In the sacral region, 1.5 cun lateral to the Governor Vessel, at the level of the second posterior sacral foramen.
BL32 (Ciliao)	On the sacrum, medial and inferior to the posterosuperior iliac spine, at the second posterior sacral foramen.
BL33 (Zhongliao)	On the sacrum, medial and inferior to Ciliao (BL32), at the third posterior sacral foramen.
BL54 (Zhibian)	In the buttock region, at the level of the fourth posterior sacral foramen, 3 cun lateral to the median sacral crest.

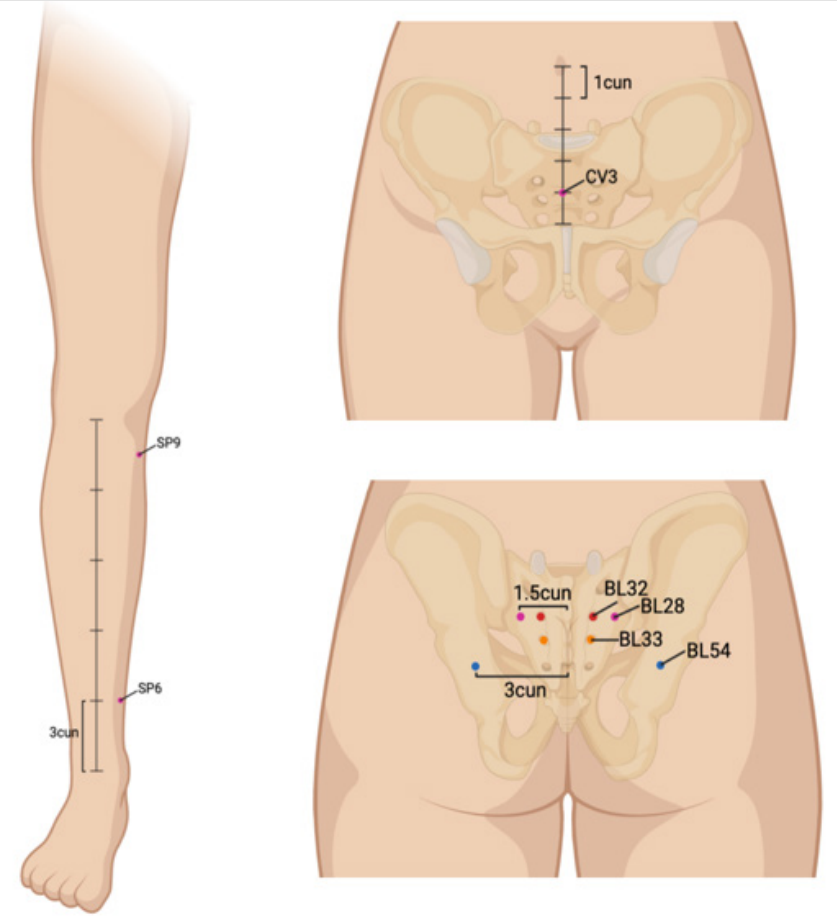


Figure 1: Locations of acupoints (images authorized by BioRender.com).

For the front acupoints, patients were placed in a supine position. The bladder was emptied by catheterization before needling to prevent injury. Zhongji (CV3), Yinlingquan (SP9), and Sanyinjiao (SP6) were needled perpendicularly to a depth of 1.0–1.5 cun. After insertion, manual stimulation (lifting, thrusting, and rotating) was applied to elicit the deqi sensation (aching, numbness, heaviness, or distension; no specific intensity threshold was required, and the presence of any of these sensations was considered adequate). Needles were retained for 30 minutes. For the back acupoints, patients were placed in a prone position. Pangguanshu (BL28) was needled perpendicularly or obliquely 0.8–1.0 cun; Ciliao (BL32) and Zhongliao (BL33) were deeply needled 2.0–3.0 cun with elongated needles; Zhibian (BL54) was needled perpendicularly 1.5–3.0 cun. After achieving deqi, an electroacupuncture device (Model G6805-2B, Shanghai Huayi Medical Apparatus Co., Ltd.) was connected to ipsilateral pairs: BL32–BL33 and BL28–BL54. A dense-disperse wave (2/10 Hz) was used, with intensity adjusted to a tolerable level (1–5 mA). Treatments were administered once daily, with the front and back acupoint sets used on alternating days. Each session lasted 30 minutes.

Outcome Measures

The primary outcome measure was PVR urine volume. After catheter removal, participants were instructed to drink approximately 1000 mL of water; PVR was subsequently measured by catheterization or bladder ultrasound (Mindray Resona 7 ultrasound system, convex array probe, 1–5 MHz). Secondary outcome measures included urodynamic studies (first sensation of bladder filling, maximum flow rate, and maximum detrusor pressure), the 36-Item Short Form Health Survey (SF-36), TCM syndrome scores, and documentation of adverse events throughout the trial.

Feasibility Outcomes

To evaluate trial feasibility, we assessed recruitment rate, completion rate, and adherence rate. The recruitment rate was defined as the ratio of enrolled participants to the target sample size, reported alongside the number enrolled per screened individual. The completion rate represented the proportion of participants who finished the trial without major protocol violations. Adherence was categorized into three domains: trial visit adherence (attendance at all pre- and

post-treatment visits), treatment adherence (completion of prescribed sessions until PVR <100 mL or for 3 weeks), and assessment adherence (completion of all scheduled evaluations and tests).

Safety Assessment

Adverse events were assessed after each treatment session through direct inquiry and were also identified via patient self-reporting throughout the trial. All documented AEs were categorized by relatedness to the study intervention and promptly managed.

Statistical Analysis

The sample size was estimated from preliminary data of our previous research. Assuming a mean difference in PVR volume of 128.5 mL with a pooled standard deviation of 171.2 mL, and using a paired t-test with a two-sided alpha of 0.05 and 80% power, a minimum of 56 participants was required. To allow for an estimated 30% dropout rate, a total of 80 subjects were recruited. All analyses were performed by an independent statistician using SAS software (version 9.4; SAS Institute, USA). Continuous variables are presented as mean (standard deviation) or median (interquartile range) according to their distribution; categorical variables are summarized as frequency (percentage). The primary efficacy analysis, which assessed the shift in patient distribution across urinary retention severity categories (PVR: <100 mL, 100–200 mL, and ≥200 mL) before and after treatment, was conducted using the McNemar–Bowker test for paired categorical data. Between-group comparisons of non-normally distributed continuous data used the Wilcoxon rank-sum test; the chi-square test was used for categorical data. Univariate analysis screened for potential predictors, and a multivariable logistic regression model was then fitted with discharge PVR as the dependent variable, incorporating significant variables from the univariate analysis ($P < 0.05$) and pre-specified covariates (e.g., age, pathological type). A two-sided $P < 0.05$ was considered statistically significant.

Results

Study Participants and Baseline Characteristics

A total of 98 participants were assessed for eligibility, of whom 18 were excluded; 80 eligible subjects were enrolled and allocated to the treatment group. Among them, 70 completed the trial and 10 discontinued (Figure 2). All 80 enrolled participants were included in both the safety set and the full analysis set. Baseline characteristics are presented in Table 2. The mean age was 51.0 ± 9.9 years. Histopathological diagnoses included squamous cell carcinoma (n=57), adenocarcinoma (n=17), adenosquamous carcinoma (n=4), small cell neuroendocrine carcinoma (n=1), and verrucous carcinoma (n=1). Disease staging ranged from IA1 to IIIC1 per the FIGO staging system. All patients underwent laparoscopic radical hysterectomy. Postoperatively, 8 patients received radiotherapy, 24 received concurrent chemoradiotherapy, and 2 received chemotherapy alone. The duration of initial indwelling catheterization was less than 14 days in 5 patients, 14–30 days in 25, and more than 30 days in 50. At baseline, 41 patients had a pre-existing urinary tract infection and 5 had undergone ureteral stent placement. Data are presented as mean ± SD or number (percentage). Abbreviations: FIGO, International Federation of Gynecology and Obstetrics; UTI, urinary tract infection. *Duration of catheterization was defined as the total cumulative time of indwelling catheter use from initial surgery to study enrollment, including initial postoperative catheterization and any subsequent re-catheterization periods following failed removal attempts before trial entry.

Table 2: Demographics and baseline characteristics.

Characteristic	Value
Age, years, mean ± SD	51.0 ± 9.9
Cancer type, n (%)	
Cervical squamous cell carcinoma	57 (71.25)
Cervical adenocarcinoma	17 (21.25)
Cervical adenosquamous carcinoma	4 (5.00)
Cervical small cell neuroendocrine carcinoma	1 (1.25)
Cervical verrucous carcinoma	1 (1.25)
FIGO stage, n (%)	
IA1	1 (1.25)
IA2	4 (5.00)
IB1	28 (35.00)
IB2	17 (21.25)
IB3	5 (6.25)
IIA1	8 (10.00)
IIA2	2 (2.50)
IIB	3 (3.75)
IIIC1	12 (15.00)
Surgical method, n (%)	
Laparoscopic surgery	80 (100)
Adjuvant therapy, n (%)	
Radiotherapy	8 (10.00)
Concurrent chemoradiotherapy	24 (30.00)
Chemotherapy alone	2 (2.50)
Duration of catheterization, n (%)*	
<14 days	5 (6.25)
14–30 days	25 (31.25)
>30 days	50 (62.50)
Pre-existing UTI before treatment, n (%)	41 (51.25)
Ureteral stent placement, n (%)	5 (6.25)

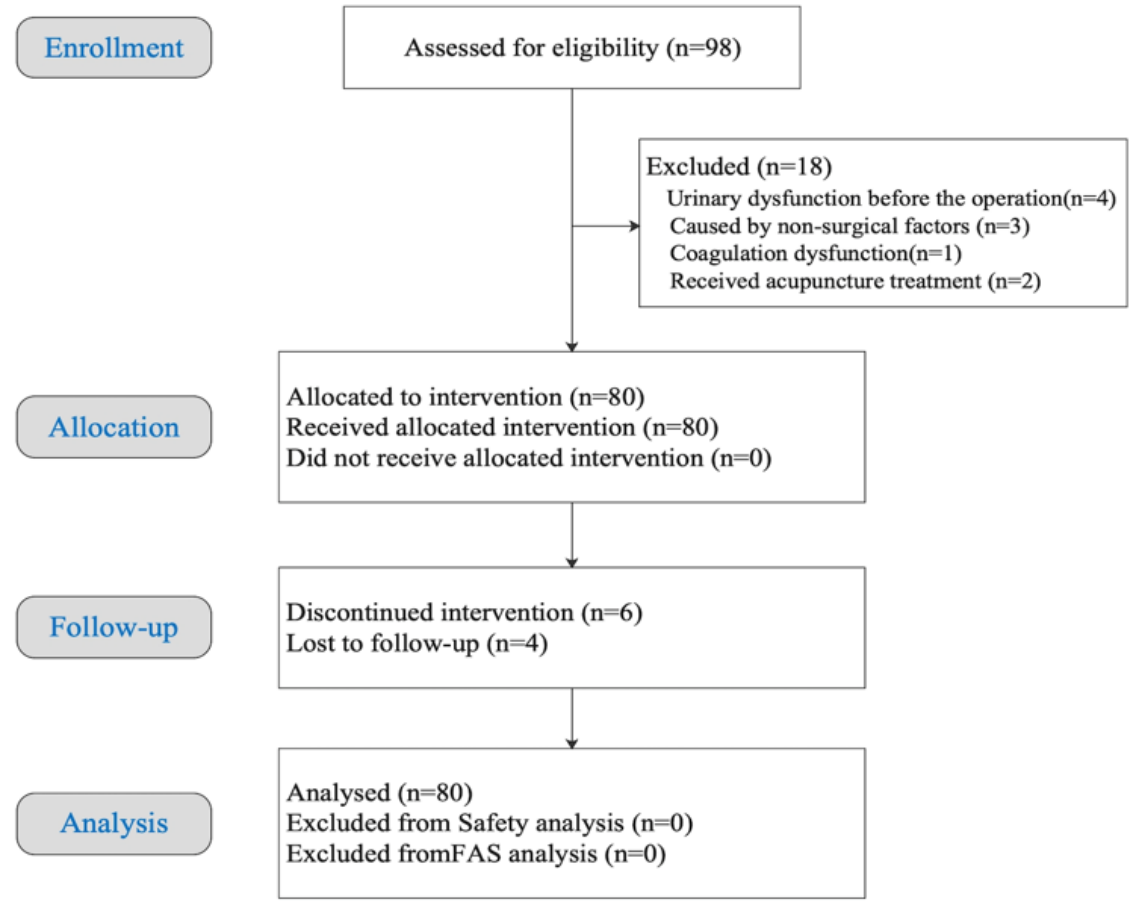


Figure 2: Flow chart of study subjects.

Primary and Secondary Outcomes

Changes in primary and secondary outcomes following the combined intervention are detailed in Table 3. A significant reduction was observed in the primary outcome: mean PVR volume decreased by 273.8 mL (95% CI: −296.5 to −251.0), from 304.6 mL at baseline to 30.8 mL after treatment (P < 0.0001). All secondary outcomes also improved significantly after treatment. Urodynamic parameters showed marked enhancement: the volume at first sensation of bladder filling decreased by 75.0 mL (95% CI: −83.5 to −66.6), the maximum urinary flow rate increased by 7.5 mL/s (95% CI: 6.5 to 8.6), and the maximum detrusor pressure increased by 14.8 cm H₂O (95% CI: 10.6 to 19.0) (all P < 0.0001). Patient-reported outcomes improved substantially, with the SF-36 score increasing by 16.6 points (95% CI: 13.4 to 19.7) and the TCM syndrome score decreasing by 9.3 points (95% CI: −11.0 to −7.6), indicating enhanced quality of life and alleviation of TCM symptoms (all P < 0.0001). Data are presented as mean (95% confidence interval). P values were derived from paired t-tests comparing pre- and post-treatment values. Abbreviations: CI, confidence interval; PVR, postvoid residual urine volume; TCM, Traditional Chinese Medicine.

Table 3: Primary and secondary outcome measures before and after treatment.

Outcome Measure	Baseline, Mean (95% CI)	Post-treatment, Mean (95% CI)	Mean Change (95% CI)	P value
Primary outcome				
PVR volume (mL)	304.6 (282.6 to 326.6)	30.8 (27.1 to 34.5)	−273.8 (−296.5 to −251.0)	<0.0001
Secondary outcomes				
First sensation of bladder filling (mL)	160.2 (153.0 to 167.3)	85.1 (80.3 to 89.9)	−75.0 (−83.5 to −66.6)	<0.0001
Maximum flow rate (mL/s)	8.7 (8.1 to 9.3)	16.2 (15.4 to 17.1)	7.5 (6.5 to 8.6)	<0.0001
Maximum detrusor pressure (cm H2O)	21.4 (19.0 to 23.8)	36.2 (32.7 to 39.6)	14.8 (10.6 to 19.0)	<0.0001
SF-36 score	75.6 (73.0 to 78.3)	92.2 (91.0 to 93.5)	16.6 (13.4 to 19.7)	<0.0001
TCM syndrome score	17.0 (15.4 to 18.6)	7.7 (7.1 to 8.3)	−9.3 (−11.0 to −7.6)	<0.0001

Correlation Analysis

The results of the univariate analysis of associations between baseline characteristics and PVR volume at discharge are presented in Table 4. Participants were dichotomized by discharge PVR into <20 mL (n=47) and ≥20 mL (n=33) groups. No statistically significant differences were observed between the two groups for any of the examined factors: age (P = 0.541), pathological type (P = 0.533), duration of catheterization (P = 0.528), baseline PVR volume (P = 0.657), postoperative radiotherapy (P = 0.194), pre-existing urinary tract infection (P = 0.968), or ureteral stent placement (P = 0.953). Correlation analyses yielded consistent results, with all P values >0.05. In summary, treatment success, defined by low residual urine volume (<20 mL) at discharge, was not significantly influenced by any demographic or clinical covariate included in this analysis. Abbreviations: PVR, postvoid residual urine volume; SD, standard deviation; UTI, urinary tract infection. Statistical tests used: [1]independent samples t-test; 2chi-square test.

Feasibility Outcomes

The trial met its feasibility benchmarks. The recruitment rate was 82%. Among the 80 enrolled participants, the completion rate was 87.5%. Adherence was robust across all domains: trial visit adherence 87.5%, treatment session adherence 92.5%, and assessment completion adherence 87.5%. These results collectively indicate that the protocol is feasible and acceptable for the target population.

Safety Assessment

No serious adverse events were reported throughout the trial. All documented AEs were mild or moderate in severity, and only two were assessed as related to the acupuncture intervention: one case of local bruising and one case of mild pain at the needle insertion site. Both were transient and resolved spontaneously without specific intervention.

Discussion

This single-arm feasibility study demonstrated that adjunctive acupuncture significantly reduced PVR volume in patients with urinary retention after radical hysterectomy for cervical cancer, with a substantial mean reduction of 273.8 mL. The intervention was also associated with marked improvements in patient-reported quality of life. Importantly, the protocol proved feasible, with high rates of recruitment, completion, and adherence, and was safe, with no serious adverse events observed. Our findings are consistent with a growing body of evidence supporting this combined approach. A recent study by Qiu et al. also reported the clinical efficacy of acupuncture combined with IC, noting significant reductions in PVR and improved quality of life [15]. A key distinction, however, lies in the patient population: while that study exclusively enrolled patients with the TCM pattern of "Kidney Qi Deficiency," our study adopted broader, more generalizable inclusion criteria. This suggests that the therapeutic benefits of acupuncture may extend to a wider spectrum of patients with POUR.

Our findings are situated within a growing literature on acupuncture for this condition. A prior investigation using scalp acupuncture combined with warm needling reported an effective rate of 60% [12]. While this supports the potential of acupuncture, that study was limited by a small sample size and the use of distal acupoints. In contrast, our protocol used local lumbosacral points, which may offer a more direct neuromodulatory effect on the bladder, and was conducted in a larger cohort with a more rigorous design. Another study suggested benefit from acupuncture combined with cupping [11], but its intervention was complex and its findings constrained by small sample and methodological limitations. Furthermore, a study of Zishen Tongguan decoction combined with acupuncture demonstrated improved bladder function over a similar three-week period [10]; our study extends this evidence by incorporating the SF-36 and TCM syndrome scores, providing a more comprehensive evaluation that captures not

only clinical efficacy but also overall health status and symptom profile. To our knowledge, a well-designed pilot study specifically assessing this combination was lacking. The present study was therefore designed to evaluate the feasibility, safety, and preliminary efficacy of acupuncture combined with IC. Through its rigorous methodology and comprehensive assessment, our work underscores the value of this integrated approach as a viable management strategy for POUR in cervical cancer patients.

The acupuncture protocol was designed on the basis of TCM principles and supported by modern neuroanatomical evidence. The front points—Zhongji (CV3), Yinlingquan (SP9), and Sanyinjiao (SP6)—were selected to regulate the Lower Jiao and promote urination [16-18]. Specifically, Zhongji, the Front-Mu point of the bladder, is a key point for facilitating bladder function. The back points—bilateral Ciliao (BL32), Zhongliao (BL33), Pangguanshu (BL28), and Zhibian (BL54)—target the lumbosacral region. Pangguanshu (the Back-Shu point of the bladder) and Zhongji form a classic "Shu-Mu point combination" to enhance bladder qi transformation [19]. More importantly, deep needling of the Baliao points (BL31–BL34), particularly Ciliao and Zhongliao, is believed to stimulate the sacral nerve plexus, which governs bladder function. This combination reflects a sophisticated approach in which traditional TCM concepts, such as unblocking the meridians to regulate qi and blood, converge with modern notions of neuromodulation, potentially explaining the observed clinical efficacy.

This study has several limitations. First, the single-arm design without a control group precludes definitive causal attribution of the observed improvements to acupuncture itself; the reduction in PVR volume may reflect natural postoperative neurological recovery, optimized IC technique, regression to the mean, or placebo effects. Second, the study was conducted in a specialized tertiary hospital by experienced acupuncturists (>5 years), which may limit generalizability; feasibility and effectiveness likely depend on practitioner expertise, cultural acceptance of acupuncture, and health-system integration capacity, which may vary across general oncology centers, Western healthcare systems, or low-resource settings. Third, information bias may exist: although the primary outcome (PVR) was objectively measured, other data, such as the duration of prior catheterization, relied on medical records and are subject to potential inconsistencies or recall bias. Fourth, despite adjustment for key covariates, residual confounding from unmeasured factors (e.g., the precise extent of intraoperative nerve damage, detailed medication use, or patient adherence) cannot be excluded, which precludes definitive causal inference. Finally, the assessment of bladder recovery relied heavily on PVR volume, lacking comprehensive urodynamic profiles that could provide a more nuanced understanding of functional outcomes. As a pilot feasibility study, the sample size and observational nature limit the power for robust multivariable analysis of predictive factors. Future research should involve prospective, multicenter randomized controlled trials with larger sample sizes and pre-specified mechanistic outcomes to validate these findings and provide higher-level evidence.

Conclusion

This pilot study demonstrates that the integration of acupuncture with IC is a feasible and safe therapeutic strategy for managing POUR in cervical cancer patients. The intervention was associated with significant improvements in key clinical outcomes, including a substantial reduction in PVR volume and favorable changes in urodynamic parameters and quality of life. These promising findings support the need for a larger randomized controlled trial to definitively establish the efficacy of this combined approach and to further elucidate its mechanisms of action.

Author Contributions

Jing Li: study implementation and conduct, statistical analysis of data, data interpretation, and manuscript writing. Hong Yang: manuscript revision, financial support, and supervision. Jing Shan: study conception and design, financial support, supervision, and manuscript revision. All authors read and approved the final manuscript.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and publication of this article.

Funding

This research was supported by grants from the Shanghai Qingpu District Science and Technology Commission and the Program of Science, Technology, and Innovation Action Plan of Shanghai (grant numbers: QKY2025-36 and 23Y11921200).

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

References

1. Denny L, Kataria I, Huang L, Schmeler KM (2024) Cervical cancer kills 300,000 people a year—here's how to speed up its elimination. Nature 626: 30-32.
2. Ren W, Guo X, Liu Z, Yanqiu W, Peng R, et al. (2025) Burden of female-specific cancers in China from 1990 to 2021: A systematic analysis for the global burden of disease study 2021. Cancer 131(2): e35712.
3. Lin H, Wu CH, Fu HC, Ou YC (2025) Recent advances in cervical cancer treatment: Innovations from early-stage to advanced disease. Taiwan J Obstet Gynecol 64(4): 608-615.
4. Poddar P, Maheshwari A (2021) Surgery for cervical cancer: Consensus & controversies. Indian J Med Res 154(2): 284-292.
5. Wit EM, Horenblas S (2014) Urological complications after treatment of cervical cancer. Nat Rev Urol 11(2): 110-117.

6. Bai Z, Zuo Y, Huang W, Yao L (2024) Prevalence and risk factors of urinary retention in patients with cervical cancer: A meta-analysis and systematic review. Cancer Nurs 47(4): 307-318.

7. Garabedian C, Merlot B, Bresson L, Tresch E, Narducci F, et al. (2015) Minimally invasive surgical management of early-stage cervical cancer: an analysis of the risk factors of surgical complications and of oncologic outcomes. Int J Gynecol Cancer 25(4): 714-721.

8. Panicker JN, Fanciulli A, Skoric MK, Kaplan T, Aleksovska K, et al. (2025) european academy of neurology (ean)/european federation of autonomic societies (efas)/international neuro-urology society (inus) guidelines for practising neurologists on the assessment and treatment of neurogenic urinary and sexual symptoms (neuroged guidelines). Eur J Neurol 32(4): e70119.

9. Urinary Control Group, Urology Branch, Chinese Medical Association (2024) Chinese expert consensus on the clinical application of intermittent catheterization. Chin J Urol 45(9): 654-657.

10. Wang S, Wang M, Zhang H (2021) Effect observation on modified Zishen Tongguan decoction combined with acupuncture in treatment of urinary retention after cervical cancer surgery and its influence on the incidence of adverse reactions. Evid Based Complement Alternat Med 2021: 7338276.

11. Hong M, Lu C (2015) Efficacy observation on acupuncture-moxibustion for urinary retention after surgery for cervical cancer. J Acupunct Tuina Sci 13(3): 203-206.

12. Yao W, Li M, Ruan Q (2016) Scalp acupuncture combined with warming needle moxibustion for 15 cases of urinary retention after cervix cancer surgery. Zhongguo Zhen Jiu 36(2): 145-146.

13. Xu H, He Y, Miao F, et al. (2025) Acupuncture treatment of postoperative urinary retention in cervical cancer: Systematic evaluation and meta-analysis. Medicine 104(8): e41520.

14. Hopewell S, Chan AW, Collins GS, Hróbjartsson A, Moher D, et al. (2025) Consort 2025 statement: Updated guideline for reporting randomised trials. BMJ 389: e081123.

15. Qiu XY, Xu HB, Lu Y, et al. (2025) Clinical effect of electroacupuncture combined with intermittent catheterization on postoperative urinary retention in cervical cancer patients and recovery of bladder function. World J Integr Tradit West Med 20(7): 1382-1387.

16. Tran PD, Nguyen QD, Ngo TD (2024) Effectiveness of electroacupuncture for managing urinary retention post lumbar spine surgery: A retrospective single-cohort study. J Pharmacopuncture 27(2): 123-130.

17. Yang M, Zhu L, Yao H, Chen Y, Liu Z (2024) Effects of electroacupuncture on chronic urinary retention after pelvic or lumbosacral tumor resection surgeries: A retrospective cohort study. Transl Androl Urol 13(3): 397-405.

18. Zhang D (2008) Thirty-six cases of urinary retention treated by acupuncture. J Tradit Chin Med 28(2): 83-85.

19. Hu H, Xie ZG, Qin WL (2013) Effect of electroacupuncture intervention at different phases of post-operation on bladder function in patients undergoing cervical cancer operation. Zhen Ci Yan Jiu 38(1): 64-77.

ISSN: 2574-1241

DOI: 10.26717/BJSTR.2026.67.010472

Cong Qi . Biomed J Sci & Tech Res

This work is licensed under Creative *Commons* Attribution 4.0 License

Submission Link: https://biomedres.us/submit-manuscript.php



Assets of Publishing with us

- Global archiving of articles
- Immediate, unrestricted online access
- Rigorous Peer Review Process
- Authors Retain Copyrights
- Unique DOI for all articles

https://biomedres.us/