Urinary Retention in Pregnancy and Puerperium: Acupuncture Treatment

Poovadan Sudhakaran, MBBS, PhD, MastACU, MastTCM

ABSTRACT

Background: Urinary retention (UR) during pregnancy and postpartum is a common obstetric complication. The accepted method of treatment is catheterization; this is invasive and associated with morbidity and sequelae. There are few uniform protocols for the management of this condition, and most hospitals have implemented their own guidelines. Acupuncture is a widely accepted modality of treatment in Chinese hospitals. It is quite effective and safe. It has not been well accepted globally for treating UR, and this is due to a lack of robust studies involving a large number of patients.

Methods: Various studies are reviewed and a case from the author's practice is presented.

Conclusions: Acupuncture is an effective and safe alternative to catheterization in for UR associated with pregnancy and postpartum.

Keywords: acupuncture, urinary retention, catheterization, residual urine, pregnancy, postpartum

INTRODUCTION

URINARY RETENTION (UR) is defined as the inability to empty the bladder completely or partially.¹ Overt UR denotes a sudden inability to pass urine spontaneously.² Covert UR occurs when a woman passes small amounts of urine, associated with an elevated postvoid residual volume of more than 150 mL, with no symptoms of UR.³ Postpartum voiding dysfunction is defined as failure to void spontaneously within 6 hours of vaginal delivery or catheter removal.²

Neglected voiding dysfunction can lead to overdistension of the bladder, underactivity, prolonged voiding dysfunction with a recurrent urinary tract infection (UTI),⁴ and urinary incontinence.⁵ Postpartum incontinence has been linked to subsequent depression.⁶ Persistent postpartum UR (PPUR) is defined as the inability to void spontaneously by the third day postpartum despite the use of intermittent catheterization.⁵ Urinary frequency, voiding small amounts, a slow or intermittent stream, bladder discomfort or pain, straining to void, incomplete voiding, reduced sensation to void, and/or urinary incontinence should raise a clinical suspicion of

voiding dysfunction.⁷ PPUR can be silent because of reduced sensation and contractility due to trauma to the nerves supplying the bladder.⁸

UR can occur at any stage of pregnancy or early postpartum period. The pathophysiology is not well-understood. Causes can be multifactorial, including physiologic, neurologic, or mechanical reasons.³ Bladder capacity increases during pregnancy, beginning in the third month due to reduction in detrusor muscle tone.⁹

Use of regional analgesia can cause neurologic damage leading to micturition difficulties. Detrusor function impairment can also result from overdistension of the bladder. In one report, women who received neuraxial analgesia were likely to need bladder catheterization due to larger postvoidal residual volumes.¹⁰ Instrumental vaginal delivery, prolonged first and second stages of delivery, and labor lasting longer than 12 hours are associated with higher incidences of UR.¹¹ Reduced uterine pressure postpartum on a hypotonic bladder can lead to incomplete emptying, and this can last for 6–8 weeks postpartum.¹² Other risk factors are constipation and oxytocin infusion.¹³

Reported incidences of UR vary considerably due to differences in definitions and modes of delivery. Overt UR incidence varies from 0.45%³ to 17.9%¹⁴ and to 37%.⁷ Incidence of covert UR ranges from 9.7%¹¹ to 37%.⁸ Incidence of UR after cesarean section varies from 3.38%¹⁵ to 11.5%.¹²

All postpartum women should be monitored to ensure that normal bladder function returns and is maintained. Prompting women to pass urine from 4 to 6 hours postpartum, measuring the void, and using conservative methods can prevent bladder distension and subsequent voiding dysfunction.¹⁶

DIAGNOSIS

Abdominal palpation in pregnancy, and even in puerperium, to identify a distended bladder can be difficult. Bladder scanning by ultrasound (US) and catheterization are the preferred options. There are conflicting reports regarding the accuracy of bladder US scanning. Pallis and Wilson¹⁷ and Blomstrand et al.¹³ found that such scanning measured bladder size as being greater than actual bladder size, compared to the results of bladder catheterization. In contrast, Lucasse et al.,¹⁸ Yip et al.,² Nusee et al.,¹⁹ and Mulder et al.²⁰ found bladder scans to be reasonably accurate.

Bladder catheterization is the gold standard for measuring bladder volume (Pallis and Wilson).¹⁷ However, this procedure has risks of infection, hematuria, urethral trauma, and subsequent stricture formation.¹¹

PROGNOSIS

For the majority of women, normal bladder function will return usually within 4–5 days. The greater the residual volume, the more likely that they require longer periods of catheterization. Carley et al. in their study of 51 patients with overt distension, found that 45.1% had resolution by 48 hours, 29.4% by 72 hours, and 25.5% by >72 hours; in 10 patients it took 45 days.³ Postpartum residual volumes of 700–750 mL or more had poorer prognoses (see Lim⁷). In a 4-year follow-up study, Yip et al. found that there was no difference in urinary incontinence in women with or without postpartum UR.²

MANAGEMENT

There is no consensus regarding the management of postpartum voiding dysfunction.²¹ The following guidelines are usually followed. The National Institute of Healthcare and Excellence (United Kingdom) recommends that the

urinary catheter should be removed once a woman is mobile after regional anesthesia, but no sooner than 12 hours after the last epidural procedure.²² The National Institute also recommends that women who have not voided by 6 hours postpartum should be encouraged to micturate, using measures such as taking a warm bath or shower. If these measures are not immediately successful, bladder volume should be reassessed and catheterization should be considered as an urgent action.²² The Royal College of Obstetricians and Gynaecologists (United Kingdom) recommends that no postoperative or postdelivery patients should be left more than 6 hours without voiding or catheterization.²²

UR IN CHINESE MEDICINE

In UR, irrespective of the causes, the Urinary Bladder is the diseased organ. Sinking of Spleen and Kidney Qi leads to the fetus dropping down and pressing on the bladder. The downward movement of the fetus and bladder may lead to further sinking of Spleen and Kidney Qi, producing a vicious circle. It is important for a Western medicine-trained physician to understand that, in Chinese Medicine, Spleen refers to more than the anatomical organ. Because Chinese Medicine is based on an energetic perspective, it includes Spleen Yin, Spleen Yang, Spleen Meridian, the energy behind the transportation of fluids, holding organs in their proper place, housing the intellect, raising the Qi and pensiveness. Spleen is, therefore, a whole functional unit. When Spleen Qi is Deficient, all the above functions are compromised, leading to sinking of the Uterus and Bladder, causing difficulty in voiding. Spleen Qi Deficiency is usually associated with Kidney Qi Deficiency (Sinking Qi) causing further aggravation of the problem. These are Deficiency patterns. When there is added infection in the urine, the pattern becomes Damp Heat in the Bladder, which is an Excess pattern.

Diagnosis and Treatment

The diagnosis and treatment of the three common patterns are shown in Table 1. Certain points are to be avoided during pregnancy. These include LI 4, SP 6, BL 60, BL 67, GB 21, BL 39, abdominal points below the umbilicus in the first trimester, and all abdominal points after that time-period; LU 7 and KI 6 in that order (stimulate the CV channel). These points are historically considered forbidden points in pregnancy due to their potential to cause miscarriage, preterm rupture of membranes, and preterm labor, but this is not supported by scientific evidence either in humans or animals.

CV 3 (the Alarm point of the Bladder), BL 39 (the Lower Uniting point of the Triple Burner), and SP 6 (the Meeting point of the three Yin channels of the leg) are very effective

TABLE 1. SIGNS, SYMPTOMS, AND TREATMENT FOR RETENTION OF URINE IN PREGNANCY AND PUERPERIUM

<i>Pattern</i>	<i>Signs & symptoms</i>	<i>Tongue</i>	<i>Pulse</i>	<i>Acupuncture points</i>
Spleen Qi Deficiency	Tiredness , pale complexion, bearing-down sensation in the abdomen, scanty urination, loose stools	Pale	Weak	BL 20 (back <i>Shu</i> point of the Spleen) ST 36, GV 20 (raise and tonify Qi) BL 28 (tonifies the Bladder) All points reinforced
Kidney Qi Deficiency	Tiredness, backache , scanty urination, pale urine, dribbling after urination	Pale, wet	Deep weak	BL 23, KI 3, KI 7 (tonify the Kidney) GV 20, ST 36 (raise and tonify Qi) BL 28 (tonifies the Bladder) All points reinforced
Damp Heat in the Bladder	Heaviness in lower abdomen, sticky taste, poor appetite, dark turbid urine with burning	Red spots, thick yellow coating on the root	Slippery rear pulse	BL 28, BL 32, BL 53 (resolve Damp Heat in the Bladder) SP 9, BL 22 (resolves heat in the Lower Burner) BL 63 (Accumulation point removes obstruction in the Bladder) All points stimulated by even method

Notes: Symptoms given in bold are the cardinal features and can be used as guidance for selection of points.
The author does not use herbal medicines during pregnancy and lactation.

points for addressing UR and can be used in puerperium, but not in pregnancy, for the reasons stated above.

Illustrative Case

This case is presented as a clinical practice example. It is not intended to be used as a source of evidence, nor is this article centered around this case.

A 23-year-old primigravida, had recurrent episodes of scanty micturition associated with increased frequency, without burning. Associated symptoms were tiredness, a low backache, and a bearing-down sensation in her lower abdomen. Her tongue was pale and her pulse was weak. Urine microscopy and culture produced normal results. Tiredness and bearing-down sensations were due to Spleen Qi Deficiency; the low-back pain indicated Kidney Qi Deficiency. Pale tongue and weak pulse are common to both patterns. A diagnosis of combined Spleen and Kidney Qi Deficiency was made and she was treated, using BL 20 to tonify the Spleen; GV 20 and ST 36 to tonify the Qi in general; BL 23, KI 3, and KI 7 to tonify the Kidney; BL 28 to tonify the Bladder; and GV 4 to tonify the Gate of Life. All points were reinforced; treatment was given once per day. Three treatments resolved her symptoms completely and she had further acupuncture using the same points whenever her symptoms recurred.

DISCUSSION

Acupuncture is quite effective for addressing UR, as shown by studies and is free from side-effects and complications.

Lauterbach et al. studied 55 patients with postpartum retention of urine.²³ In the study's acupuncture group, 92% achieved spontaneous micturition within 1 hour following treatment. Bedside sonographic evaluation of bladder volume showed excellent correlations to actual volumes as measured by catheterization.²³

Zhang studied 36 cases of UR using acupuncture to treat them; 30 cases were cured, 4 cases improved, and 2 cases had failures (an effective rate of 94.44%).²⁴

Lin Hua-dong treated 130 patients with postpartum urinary retention using electroacupuncture SP 6 and SP 9 bilaterally. After 1–5 treatments, all could discharge urine successfully.²⁵

Chen et al. reviewed 31 clinical trials (9 randomized clinical trials, 2 nonrandomized clinical trials, and 20 observational research trials). The researchers found that either the use of acupuncture alone or with herbal medicines relieved UR and achieved very high satisfaction.²⁶

Yip et al. reported 3 studies involving 172 patients in total using acupuncture in postpartum urinary retention.² All except 1 patient were cured with no side-effects.

Wang et al. found from 15 randomized controlled trials involving 953 patients that acupuncture alone was more effective for addressing PPUR than intramuscular neostigmine, with no adverse effects. The adverse effects associated with neostigmine were bradycardia, bronchospasm, nausea, vomiting, and increased secretions.²⁷

Acupuncture is noninvasive. Bladder catheterization is associated with potential morbidity and sequelae. UTIs account for 17.5% of hospital-acquired infections and 80% of these are caused by urethral catheters.²⁸ The longer the catheter is in place, the greater the risk of infection will be. For catheters left in place for more than 7–10 days, the risk

of infection rises by 50%.²⁹ Other complications include tissue trauma, blockage, encrustation, and urethral strictures, which means additional surgical procedures.

Despite the fact that acupuncture is highly effective for addressing pregnancy-related UR and is noninvasive, the evidence is still limited due to a lack of high-quality trials. A convincing demonstration of the positive effectiveness and safety of acupuncture, using studies with larger samples and high methodological quality will have positive implications for future clinical practice.

CONCLUSIONS

Acupuncture is a valuable alternative to catheterization in pregnancy-related UR due to acupuncture's high effectiveness and safety, as shown by clinical experience and studies.

ACKNOWLEDGMENTS

The author thanks Ms. Alice Scott and Ms. Helga Breier for their secretarial service in the presentation of this article.

AUTHOR DISCLOSURE STATEMENT

No financial conflicts exist.

FUNDING INFORMATION

No funding was received for this article.

REFERENCES

1. Selius BA, Subedi R. Urinary retention in adults: Diagnosis and initial management. *Am Fam Physician*. 2008;77(5):643–650.
2. Yip SK, Sahota D, Pang MW, Day L. Postpartum urinary retention. *Obstet Gynecol*. 2005;106(3):602–606.
3. Carley ME, Carley JM, Vasdev G, Lesnick TG, Webb MJ, Ramin KD, Lee RA. Factors that are associated with clinically overt postpartum urinary retention after vaginal delivery. *Am J Obstet Gynecol*. 2002;187(2):430–433.
4. Rizvi RM, Khan ZS, Khan Z. Diagnosis and management of postpartum urinary retention. *Int J Gynaecol Obstet*. 2005;91(1):71–72.
5. Groutz A, Levin I, Gold R, Pauzner D, Lessing JB, Gordon D. Protracted postpartum urinary retention: The importance of early diagnosis and timely intervention. *Neurourol Urodyn*. 2011;30(1):83–86.
6. Fritel X, Tsegan YE, Pierre F, Saurel-Cubizolles MJ; EDEN Mother–Child Cohort Study Group. Association of postpartum depressive symptoms and urinary incontinence: A cohort study. *Eur J Obstet Gynecol Reprod Biol*. 2016;198:62–67.
7. Lim JL. Post-partum voiding dysfunction and urinary retention. *Aust N Z J Obstet Gynaecol*. 2010;50(6):502–505.
8. Ismail SI, Emery SJ. The prevalence of silent postpartum retention of urine in a heterogeneous cohort. *J Obstet Gynaecol*. 2008;28(5):504–507.
9. Glavind K, Bjørk J. Incidence and treatment of urinary retention postpartum. *Int Urogynecol J Pelvic Floor Dysfunct*. 2003;14(2):119–121.
10. Weiniger CF, Wand S, Nadjari M, Elchalal U, Mankuta D, Ginosar Y, Matot I. Post-void residual volume in labor: A prospective study comparing parturients with and without epidural analgesia. *Acta Anaesthesiol Scand*. 2006;50(10):1297–1303.
11. Yip SK, Brieger G, Hin LY, Chung T. Urinary retention in post-partum period: The relationship between obstetric factors and the post-partum post-void residual bladder volume. *Acta Obstet Gynecol Scand*. 1997;76(7):667–672.
12. Liang CC, Chang SD, Chang YL, Chen SH, Chueh HY, Cheng PJ. Postpartum urinary retention after cesarean delivery. *Int J Gynaecol Obstet*. 2007;99(3):229–232.
13. Blomstrand M, Boij R, Christensson L, Blomstrand P. Systematic bladder scanning identifies more women with postpartum urinary retention than diagnosis by clinical signs and symptoms. *Int J Nurs Midwifery*. 2015;7(6):108–115.
14. Saultz JW, Toffler WL, Shackles JY. Postpartum urinary retention. *J Am Board Fam Pract*. 1991;4(5):341–344.
15. Chai AH, Wong T, Mak HL, Cheon C, Yip SK, Wong AS. Prevalence and associated risk factors of retention of urine after caesarean section. *Int Urogynecol J Pelvic Floor Dysfunct*. 2008;19(4):537–542.
16. Buchanan J, Berkman M. Postpartum voiding dysfunction: Identifying risk factors. *Aust N Z J Obstet Gynaecol*. 2014;54(1):41–5.
17. Pallis LM, Wilson M. Ultrasound assessment of bladder volume: Is it valid after delivery? *Aust N Z J Obstet Gynaecol*. 2003;43(6):453–456.
18. Lukasse M, Cederkvist HR, Rosseland LA. Reliability of an automatic ultrasound system for detecting postpartum urinary retention after vaginal birth. *Acta Obstet Gynecol Scand*. 2007;86(10):1251–1255.
19. Nusee Z, Ibrahim N, Rus RM, Ismail H. Is portable three-dimensional ultrasound a valid technique for measurement of postpartum urinary bladder volume? *Taiwan J Obstet Gynecol*. 2014;53(1):12–16.
20. Mulder FE, Oude Rengerink K, van der Post JA, Hakvoort RA, Roovers JP. Delivery-related risk factors for covert postpartum urinary retention after vaginal delivery. *Int Urogynecol J*. 2016;27(1):55–60.
21. Zaki MM, Pandit M, Jackson S. National survey for intrapartum and postpartum bladder care: Assessing the need for guidelines. *BJOG*. 2004;111(8):874–876.
22. Institute of Obstetricians and Gynaecologists, Royal College of Physicians of Ireland, and Directorate of Clinical Strategy and Programmes, Health Service Executive. Clinical Practice Guideline: Urinary Retention. Management of Urinary Retention in Pregnancy, Post-Partum and After Gynaecological

- Surgery. Online document at: rcpi-live-cdn.s3.amazonaws.com Accessed on May 14, 2019.
23. Lauterbach R, Ferrer Sokolovski C, Rozenberg J, Weissman A. Acupuncture for the treatment of post-partum urinary retention. *Eur J Obstet Gynecol Reprod Biol.* 2018;223:35–38.
 24. Zhang D. Thirty-six cases of urinary retention treated by acupuncture. *J Tradit Chin Med.* 2008;28(2):83–85.
 25. Hua-dong L. Treatment of 130 cases of postpartum retention of urine by electroacupuncture. *J Acupunct Tuina Sci.* 2005;3(4):40–41.
 26. Chen Y, Zhang X, Fang Y, Yang J. Analyzing the study of using acupuncture in delivery in the past 10 years in China. *Evid Based Complement Alternat Med.* 2014;2014:672508.
 27. Wang XM, Gong J, Li SC, Han M. Acupuncture compared with intramuscular injection of neostigmine for postpartum urinary retention: A systemic review and meta-analysis of randomized controlled trials. *Evid Based Complement Alternat Med.* 2018;2018:2072091.
 28. Gokula RM, Smith MA, Hickner J. Emergency room staff education and use of urinary catheter indication sheet improves the appropriate use of Foley catheters. *Am J Infect Control.* 2007;35(9):589–593.
 29. Pratt RJ, Pellowe CM, Wilson JA, et al. epic2: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England. *J Hosp Infect.* 2007; 65(suppl1):S1–S64.

Address correspondence to:
 Poovadan Sudhakaran, MBBS, PhD
 MastACU, MastTCM
 26 Tuckers Road
 Templestowe 3106
 Australia

E-mail: dr.p.sudhakaran@gmail.com