

Treatment of urinary incontinence after total hysterectomy with acupuncture

A case report

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Abstract

Rationale: Acupuncture is a significant feature of traditional Chinese medicine, which can dredge the channels, harmonize qi and blood, replenish deficiency and relieve excess, strengthen the body and remove pathogens to treat urinary incontinence after hysterectomy, and improve the quality of life, which is simple, convenient, inexpensive, and practical.

Patient concerns: After a total hysterectomy, the catheter was retained every day, causing urinary incontinence and elderly urine wetness for 30 days.

Diagnoses: Postoperative urinary incontinence for 1 month; type 2 diabetes for 4 years. Hypertension for 2 years.

Interventions: From the first month after operation, acupuncture on bilateral, Ciliao (BL32), Zhongliao (BL33), and Xialiao (BL34).

Outcomes: The patient experienced bladder fullness on the 2nd day. On the 3rd day, the patient could arise from bed and urinated on her own. On the 4th day, she could urinate freely. The time and frequency of urination were normal.

Lessons: acupuncture is safe and effective mode for the treatment of urinary incontinence issues after total hysterectomy. It greatly improves the quality of life and daily wellbeing.

Abbreviation: ICIQ = international consultation on incontinence questionnaire.

Keywords: acupuncture, after hysterectomy, urinary incontinence

1. Introduction

Urinary incontinence refers to the involuntary outflow of urine, which cannot be controlled by willpower. It is a common disorder. The rate of urinary incontinence in women aged 30 to 60 is as high as 30%.^[1] Urinary incontinence is one of the clinical manifestations of pelvic organ prolapse. The clinical manifestations of pelvic organ prolapse are vaginal swelling, dysuria, and

defecation dysfunction.^[2,3] Surgical treatment of pelvic organ prolapse includes vaginal, abdominal, and other areas. Bladder and urethral injuries are frequent during operation. After hysterectomy, the most common complication is pelvic floor dysfunction.^[4] The injury of pelvic floor muscle and nerve tissue is inevitable during operation, such as urinary incontinence after operation. Just as urinary incontinence, pelvic organ prolapse patients are more likely to be treated again,^[5] which has the disadvantages of high cost, significant side effects and are a painful process. Urinary incontinence is usually related to bladder or pelvic floor muscles and nerve dysfunction.^[6] Pelvic floor muscle exercise is the main conservative treatment for urinary incontinence,^[1] but its compliance and operability are poor. However, studies have shown that the effect of pudendal nerve stimulation on urinary incontinence is better than pelvic floor muscle training.^[7] Using acupuncture to treat pelvic floor muscle dysfunction, to relieve chronic pelvic pain and to promote defecation brings few adverse events.^[8] In addition, studies have shown that after a hysterectomy, acupuncture can improve bladder function,^[9] and acupuncture lumbosacral acupoints has the best effect.^[10] This paper presents a 71-year-old patient with urinary incontinence after hysterectomy. Good effect was achieved after acupuncturing Ciliao (BL32), Zhongliao (BL33) and Xialiao (BL34) (Fig. 1) and other nonsurgical treatments were invalid and ineffective.

2. Case presentation

The report was approved by the ethics committee of the Second Affiliated Hospital of Nanjing University of Chinese Medicine. The patient had been informed of the course of treatment.

Editor: N/A.

JS and XZ are co-first author.

his study was approved by the ethics committee of Second Affiliated Hospital of Nanjing University of Chinese Medicine. This article does not contain any data pertaining to the participant's identification. Written informed consent for publishing this case was obtained from the participant.

The authors have no funding and conflicts of interest to disclose.

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Medicine (2019) 98:20(e15687)

Received: 18 December 2018 / Received in final form: 10 April 2019 / Accepted: 22 April 2019

<http://dx.doi.org/10.1097/MD.00000000000015687>



Figure 1. The location of BL32 (Ciliao), BL33 (Zhongliao), and BL34 (Xialiao) acupoints for therapy in a 71-year-old woman with urinary incontinence after hysterectomy.

Informed consent for publication was obtained from the patient. In March 18, 2018, a 71-year-old woman was hospitalized for 3 years due to her prolapse of the vulva. Her medical history included type 2 diabetes for 4 years, with regular use of metformin to control her blood glucose levels; hypertension for 2 years, with a maximal blood pressure of 150/90 mm Hg in the regular use of Amlodipine Besylate; The patient reported a negative history of coronary heart disease and other chronic diseases. Her examinations included Gynecological B-mode ultrasonography, which showed uneven uterine texture, uneven echo of endometrium, right cystic mass, and possible source of accessories (Nanjing First Hospital, 2018-03-09). On March 20, 2018, excluding the contraindication of operation, the patient underwent “vaginal hysterectomy + vaginal anterior and posterior wall repair.” The vital signs were stable after the operation. On the second day after the operation, urine involuntarily flowed out from the catheter. During this period, the catheter had failed and the urine cushion was prevented from spilling daily. The basic treatment included Amlodipine besylate 5 mg to lower blood pressure, metformin 0.5 g to control blood sugar, vitamin E (in capsule form) 0.1 g and progesterone 100 mg

Table 1

ICIQ. Many people leak urine some of the time.

1. How often do you leak urine? (Tick one box)	
never	<input type="checkbox"/> 0
About once a week or less often	<input type="checkbox"/> 1
Two or three times a week	<input type="checkbox"/> 2
About once a day	<input type="checkbox"/> 3
Several time a day	<input type="checkbox"/> 4
All the time	<input checked="" type="checkbox"/> 5
We would like to know how much you think leaks	
2. how much urine do you usually leak (whether you wear protection or not)? (Tick one box)	
none	<input type="checkbox"/> 0
a small amount	<input type="checkbox"/> 2
A moderate amount	<input checked="" type="checkbox"/> 4
a large amount	<input type="checkbox"/> 6
3. Overall, how much does leaking urine interfere with your everyday life? Please ring a number between 0 (not at all) and 10 (a great deal)	
0 1 2 3 4 5 6 7 8 9 10	not at all
A great deal	
ICIQ score: sum score 1+2+3: 18	
4. When does urine leak? (Please tick all that apply to you)	
never-urine does not leak	<input type="checkbox"/>
leaks before you can get to the toilet	<input type="checkbox"/>
leaks when you cough or sneeze	<input type="checkbox"/>
leaks when you are asleep	<input type="checkbox"/>
leaks when you are physically active/exercising	<input type="checkbox"/>
leaks when you have finishing urinating and are dressed	<input type="checkbox"/>
leaks for no obvious reason	<input checked="" type="checkbox"/>
leak all the time	<input type="checkbox"/>

We are trying to find out how many people leak urine, and how much this bothers them. We would be grateful if you could answer the following questions, thinking about how you have been, on average, over the PAST 4 WEEKS.

instead of estrogen to relieve urinary incontinence, and Chinese medicine Aconite 10g, Astragalus 30g, Atractylodes macrocephala 20g powder, and salt 5g daily, wrapped in cotton cloth, heated and applied to acupoint of Shenque (RN8) to tonify middle-Jiao and Qi, in addition to pelvic floor muscle training. No improvement was seen. In the early morning of April 19, 2018, the catheter was removed and the weight of urine pad was used to assess the patient's condition. Her international consultation on incontinence questionnaire (ICIQ)^[11] score was 18 (Table 1). Acupuncture BL32, BL33, and BL34 on both sides of the sacrococcygeal region of the patients (0.30mm × 75 mm mill needles produced by Jiajian Medical Instruments Co, Ltd. of Wuxi, China). In April 19th, when the first acupuncture occurred, the patient complained of a similar sensation of electric shock, and felt radiation to the small abdomen. After that, the daily acupuncture treatment was continued with the consent of the patient, and no other intervention measures were used. On the second day, the bladder was filled with sensation, and the leakage of urine decreased (the weight of urine pad was reduced by 230g).

On the third day, that is, in the morning of April 21st, the patient had not been able to defecate for several days and then defecated once. At noon, patients could control urine freely, and the elderly urine pad was no longer used. Symptoms improved on April 22nd. Acupuncture was performed 4 times during the period. No recurrence was observed after 2 months follow-up, ICIQ score was 0 (Table 2).

The acupuncture procedure is as follows. First, the patient was in a prone position during acupuncture treatment. After the sacrococcygeal region skin was sterilized, the acupuncture needles (diameter 0.3mm; length 75mm) were inserted into Ciliao (BL32), Zhongliao (BL33), and Xialiao (BL34). BL34 was inserted at about 90 degrees, BL33 was inserted at about 70 degrees, and BL32 was inserted at about 50 degrees. The inserted depth was 70mm (Fig. 2). The needle manipulation technique included lifting and thrusting, twirling, and rotating the needles, which were repeated 3 times every 10 minutes to let the patient have electric shock, which can pass to the lower abdomen. Keep the needle for 30 minutes (detailed process is shown in Table 3).

Table 2
ICIQ. Many people leak urine some of the time.

1. How often do you leak urine? (Tick one box)	
never	<input checked="" type="checkbox"/> 0
About once a week or less often	<input type="checkbox"/> 1
Two or three times a week	<input type="checkbox"/> 2
About once a day	<input type="checkbox"/> 3
Several time a day	<input type="checkbox"/> 4
All the time	<input type="checkbox"/> 5
We would like to know how much you think leaks	
2. how much urine do you usually leak (whether you wear protection or not)? (Tick one box)	
none	<input checked="" type="checkbox"/> 0
a small amount	<input type="checkbox"/> 2
A moderate amount	<input type="checkbox"/> 4
a large amount	<input type="checkbox"/> 6
3. Overall, how much does leaking urine interfere with your everyday life? Please ring a number between 0 (not at all) and 10 (a great deal)	
① 1 2 3 4 5 6 7 8 9 10 A great deal not at all	
ICIQ score: sum score 1+2+3: 0	
4. When does urine leak? (Please tick all that apply to you)	
never-urine does not leak	<input checked="" type="checkbox"/>
leaks before you can get to the toilet	<input type="checkbox"/>
leaks when you cough or sneeze	<input type="checkbox"/>
leaks when you are asleep	<input type="checkbox"/>
leaks when you are physically active/exercising	<input type="checkbox"/>
leaks when you have finishing urinating and are dressed	<input type="checkbox"/>
leaks for no obvious reason	<input type="checkbox"/>
leak all the time	<input type="checkbox"/>

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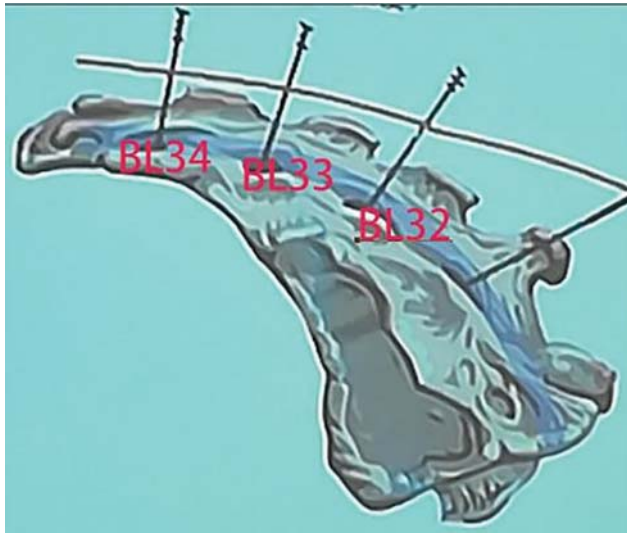


Figure 2. The location of BL32 (Ciliao): S2 posterior sacral foramen; BL33 (Zhongliao): S1 posterior sacral foramen; BL34 (Xialiao): S4 posterior sacral foramen.

3. Discussion

Normally, the bladder, urethra and urethral sphincter work in coordination. When bladder pressure is low, urine is stored, and when pressure is high, urination is automatic. The internal sphincter and external sphincter coordinate the movement of the urethral switch. In addition, the bladder is also innervated by nerves. The sympathetic nerve dominates the storage period, and the parasympathetic nerve dominates the urination period.^[6] In the case of an elderly woman, preoperative pelvic organ prolapse, flabby pelvic floor muscle and decreased bladder sphincter function occurred. After operation, pelvic floor tissue, pudendal nerve, and urethral muscle cells were damaged, and urine overflowed uncontrollably from the external urethral orifice. Acupuncture stimulates nerves and muscles and regulates their functions. Ciliao (BL32), Zhongliao (BL33), and Xialiao (BL34) belong to the foot-sun bladder meridian, and their own meridians

and acupoints mainly treat diseases including urinary system diseases. In addition, the needle length should be more than 75 mm in the process of needling BL33, BL32, and BL34 of the patient. It can penetrate into the posterior sacral foramen and stimulate the sacral nerve more easily.^[12] In order to stimulate the sacral nerve regularly, needle insertion and twisting are done. Acupuncture treatment not only cured urinary incontinence, but also improved the constipation of patients, greatly improving their quality of life of patients. This treatment is very short and the effect is obvious. After acupuncture treatment, the patient felt that the bladder had a feeling of filling on the second day, and on the third day, she could arise from bed and urinate down her own. On the fourth day, she could control the urine by herself, and the time and frequency of urination were normal. The physiological and pathological mechanism of urinary incontinence in this patient is loss of bladder sphincter function and neurological dysfunction. Acupuncture can significantly improve bladder function after hysterectomy. Other studies have shown that acupuncture contributes to the recovery of bladder dysfunction, including urinary incontinence.^[13,14] The mechanism of acupuncture for BL32, BL33, and BL34 in the treatment of urinary incontinence may be as follows: first, S2-4 nerve through the secondary sputum, middle squat, squat anatomical position,^[15] dominate the pelvic organs defecation, urination, sexual function, and so on. This also explains how the patient's constipation was cured after treatment. The detrusor muscle is contracted by parasympathetic nerve stimulation from sacral nerve S2-4.^[16] Acupuncture stimulates sacral nerve, thus affecting the behavior of bladder, urethral sphincter and sacral nerve innervation effector, and exerting the role of nerve regulation.^[6,12] Moreover, acupuncture has a positive effect on nerve regeneration. For patients following a hysterectomy, acupuncture can help to restore and rebuild damaged nerves, which can not only improve bladder dysfunction, but also prevent bladder dysfunction.^[9] Second, the dysfunction of bladder sphincter and urethral internal sphincter is one of the important pathophysiological mechanisms of urinary incontinence. Acupuncture of BL32, BL33, and BL34 can increase the maximum pressure of urethral closure by stimulating sacral nerve. The sensation produced by acupuncture can cause pelvic floor muscle contraction and simulate pelvic floor muscle

Table 3
Timeline of intervention with acupuncture.

	Medical history: type 2 diabetes for 4 yr, hypertension for 2 yr			
Date	2018.04.19	2018.04.20	2018.04.21	2018.04.22
Basic medications				
Amlodipine Besylate	5 mg	5 mg	5 mg	5 mg
Metformin	0.5 g	0.5 g	0.5 g	0.5 g
Acupuncture for urinary incontinence				
Acupoint	BL32, BL33, BL34	BL32, BL33, BL34	BL32, BL33, BL34	BL32, BL33, BL34
Duration	30 min	30 min	30 min	30 min
Depth	70 mm	70 mm	70 mm	70 mm
Needle manipulation	Lifting and thrusting, twirling and rotating the needles	Reducing method	Mild reinforcing and attenuating	Reinforcing method
	Reducing method	Strong stimulation	Weak stimulation	Weak stimulation
Symptom				
Urinary incontinence	Improve	Improve	Improve	Improve
Constipation	Yes	No	No	No
Urine cushion weight*	1240 g	920 g	100 g	None

* 90 cm × 140 cm; Brand: Dr.p; Manufacturer: Vada Paper Group; Producing area: Zhejiang, China.

training.^[10] Third, acupuncture regulates neurotransmitter production, such as catecholamine.^[17] Through the mediation of sympathetic alpha-adrenergic receptor and beta-3-adrenergic receptor, the smooth muscle of urethra is stimulated and the detrusor of bladder is inhibited.^[18]

4. Conclusions

This case suggests that acupuncture for urinary incontinence after total hysterectomy is safe, simple, and effective, and stimulation can be strengthened by manipulation and electro-acupuncture in the process. Due to the limitations of single case studies, large-scale clinical trials are needed to conduct a systematic and comprehensive study. We believe that future studies will reveal the mechanism of this method and more precise clinical efficacy.

Acknowledgment

The authors thank Juliana SR Choi for English language editing.

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