

Effectiveness of acupuncture for recovery of flatulence after cesarean section

A case report

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Abstract

Rationale: Postoperative ileus with flatulence is a common symptom in patients who have undergone cesarean section, and it can lead to peritonitis and intestinal perforation. However, few previous reports described therapeutic effects of acupuncture in women with flatulence after cesarean delivery. We reported a case of 29-year-old woman with abdominal flatulence after cesarean section.

Patient concerns: The patient developed right abdominal pain and distention with no discharging bowel movement or passage of gas through the anus after cesarean section.

Diagnosis: The computed tomography revealed bowel loops filled with gas. She was diagnosed with postoperative ileus.

Interventions: From the second day after cesarean section, acupuncture was administered at the bilateral Zusanli (ST36), Shangjuxu (ST37), Yinlingquan (SP9), Sanyinjiao (SP6), Zhigou (TE6), and Hegu (LI4) acupoints.

Outcomes: The patient exhibited the successful passage of gas through the anus 30 minutes after acupuncture needles were removed. The time to first defecation with a normal total stool weight and moderate hardness was 3 hours after acupuncture treatment.

Lessons: Acupuncture can be an effective alternative treatment in patients with flatulence after cesarean section.

Abbreviation: CT = computed tomography.

Keywords: acupuncture, cesarean section, flatulence, postoperative ileus

1. Introduction

Cesarean delivery is a common surgical operation in China, with approximately 5 million performed annually, and it accounted for an estimated 34.9% of all deliveries in 2014.^[1] It often leads to postoperative ileus, which is common after abdominal

surgery.^[2] One of the main conditions associated with postoperative ileus is flatulence, which is associated with up to 20% of cesarean deliveries,^[3] and is characterized by nausea, vomiting, loss of appetite, abdominal pain, and distention. The condition has also been associated with longer hospital stays.^[3,4]

In literature reviews, postoperative ileus after cesarean section is often defined in terms of the passage of gas through the anus, and bowel movements. Several approaches to achieving recovery from flatulence after cesarean section and a promotion to gastrointestinal motility as soon as possible have been investigated, including early hydration, ambulation, and chewing gum. Chewing gum may be an effective method for improving the recovery of postoperative gastrointestinal function after cesarean delivery, and it is used widely throughout the world.^[5–8] In addition, patients with postoperative ileus are often advised to restrict food intake due to concerns that early postoperative feeding may aggravate postoperative ileus,^[9] as well as the rare postcesarean complication of intestinal strangulation due to adhesions.^[10] Importantly, however, not eating after cesarean section can result in delayed lactation after delivery.^[9,11]

Alternative nonpharmacological therapies such as acupressure can be beneficial in the treatment of gastrointestinal disorders.^[12] To the best of our knowledge, however, the therapeutic effects of acupuncture in women with flatulence after cesarean delivery have not been thoroughly investigated. Herein, we describe the case of a 29-year-old woman with flatulence after cesarean section. She was successfully treated with acupuncture at bilateral Zusanli (ST36), Shangjuxu (ST37), Yinlingquan (SP9), Sanyinjiao (SP6), Zhigou (TE6), and Hegu (LI4) acupoints (Fig. 1) after other treatment was ineffective.

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Figure 1. Location of ST36, ST37, SP9, SP6, TE6, and LI4 acupoints for acupuncture in a 29-year-old woman with postoperative ileus after cesarean section.

2. Case presentation

A 29-year-old woman was admitted for elective cesarean section on 5 June 2018. On the first postoperative day, she complained of right abdominal pain associated with distention. She underwent abdominal computed tomography (CT), which revealed bowel loops filled with gas, suggesting postoperative ileus (Fig. 2A). She still had abdominal pain and distention with no discharging bowel movement or passage of gas through the anus on the second postoperative day. According to the patient, she had a negative history of diabetes and other chronic diseases. Her basic treatment included erythromycin tablets (2g) to prevent infection, 0.9% sodium chloride injection for hydration, and octreotide tablets (200 μ g) to reduce gastric peristalsis (Table 1). She was instructed to fast until commencement of the passage of gas through the anus. Neostigmine was administered to resolve the abdominal pain and distention, but it had no effect.

Because of the persistence of symptoms, from postoperative day 3, we applied acupuncture to resolve her abdominal pain and distention. Acupuncture was performed for one 30-minute session by an experienced acupuncture doctor. Sterile acupuncture needles (length 25 mm, diameter 0.30 mm; Huatuo, Suzhou Medical Supply Factory Co, Ltd, Suzhou, China) were inserted at bilateral ST36, ST37, SP9, SP6, TE6, and LI4 acupoints, as shown in Figure 3.

To our surprise, just 15 minutes after she felt gas movements in her abdomen, her abdominal pain and distention were substantially relieved. The patient's waist circumference changes before and after acupuncture are shown in Figure 4A and B, and distention before and after acupuncture is shown in Figure 4C and D. The time to the first flatus was 30 minutes after the acupuncture needles were removed, and the time to first defecation with normal total stool weight and moderate hardness was 3 hours. On the following day, abdominal CT depicted a

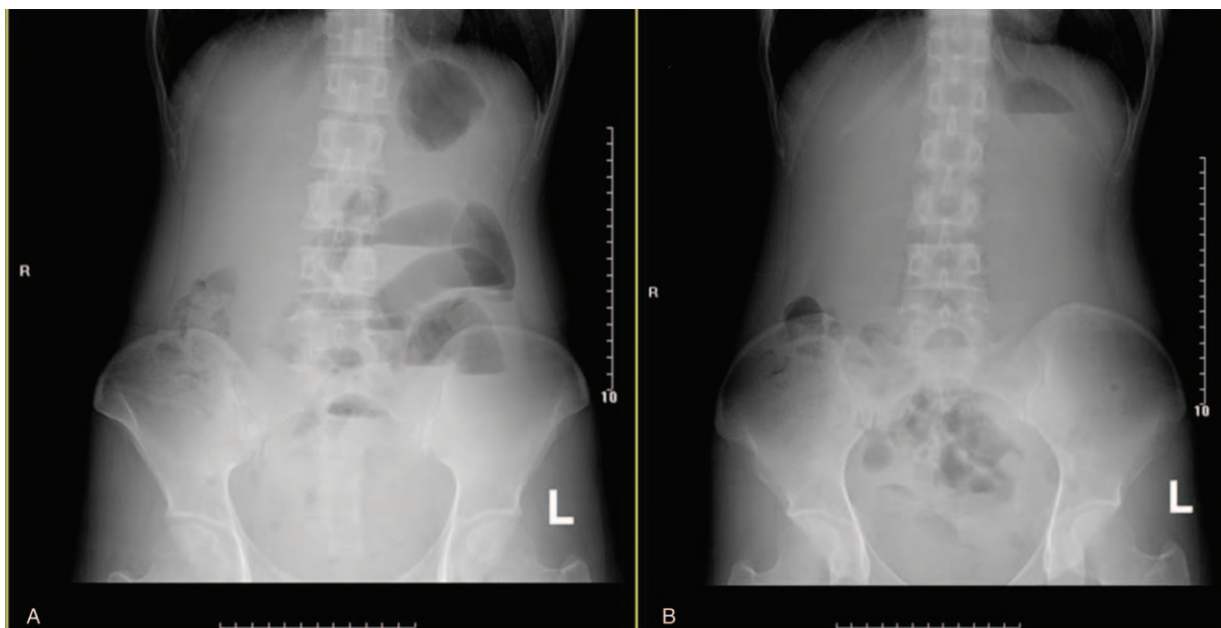


Figure 2. Computed tomography results of the patient before and after acupuncture treatment. A, Abdominal computed tomography revealed massively dilated colon before acupuncture. B, After acupuncture, abdominal computed tomography depicted a normal colon.

Table 1
Timeline of intervention with acupuncture treatment for a 29-year-old woman with postoperative ileus after cesarean section.

Main symptoms: abdominal pain and distention			
	6/6/2018	7/6/2018	8/6/2018
Admission of patient			
Basic medications			
Erythromycin tablets, g	2	2	2
0.9% Sodium chloride injection	—	—	—
Octreotide tablets, µg	200	200	200
Therapy for postoperative ileus			
Neostigmine tablets, mg	45	45	—
Acupuncture	—	—	30 min
Symptom			
The passage of gas through anus	—	—	Yes
Defecation	—	—	Yes

“—” Means not used or not recorded.

normal colon (Fig. 2B). She was discharged from hospital on June 10, 2018 and was followed up for 5 days after discharge, and underwent acupuncture 2 more times at our clinic. During the follow-up period, she maintained unobstructed defecation 1 or 2 times a day and her abdominal pain and distention resolved.

With regard to the acupoints used, ST36 is located 3 cun directly below Dubi, and 1 finger-width lateral to the anterior border of the tibia. ST37 is located 6 cun directly below Dubi, and 1 finger-width lateral to the anterior border of the tibia. SP9 is located posteroinferior to the medial condyle of the tibia. SP6 is located posterior to the mesial border of the tibia, and 3 cun above the tip of the medial malleolus. TE6 is located on the line joining Yangchi and the tip of the elbow, 3 cun above the dorsocarpal transverse crease, between the ulna and the radius. LI4 is located between the first and second metacarpal bones, and in the midpoint of the radial side of the second metacarpal bone (Table 2). Cun is defined based on the rules of traditional

acupuncture as the width of the interphalangeal joint of the patient’s thumb.^[13]

After the skin was sterilized with disposable 75% alcohol swabs, sterile acupuncture needles were inserted into the acupoints to a depth of 1 cun for 30 minutes. The needles were manipulated via lifting and rotation until the patient felt a sensation (denominated de-qi). The needles were then removed. The “quality” of the acupuncture would depend solely on the “quality” of the materials used and the skills of the person (i.e., the practitioner) performing it.

3. Discussion

Acupuncture is widely accepted in China and throughout the world as an effective treatment option for the management of postoperative nausea and vomiting, and various functional gastrointestinal disorders. However, there are few reports pertaining to its role in treating flatulence after cesarean section.^[14–16]

In order for acupuncture to be applied effectively for the treatment of flatulence after cesarean section, it is important that acupuncture doctors choose appropriate acupoints. Based on traditional Chinese medicine theories, ST36, ST37, SP9, SP6, TE6, and LI4 acupoints were used in the present case. ST36 is the lower He-Sea point of the stomach meridian. Acupuncture at ST36 harmonizes qi and blood, adjusts the spleen and stomach, and improves general weakness, which are all suitable for the treatment of flatulence.^[17,18] ST37 is the lower He-Sea point of the large intestine and is one of the Sea of Blood points. Acupuncture at ST37 improves bowel activity, abdominal pain, and constipation, and helps to cure operative ileus. The combination of ST36 and ST37 regulates gastrointestinal qi, relieves pain, smooths the qi of the intestinal organs, and eliminates flatulence.^[19] Moreover, in a previous study electroacupuncture stimulation at ST36 and SP6 significantly increased myoelectric activity of the small intestine in Wistar rats.^[20] The



Figure 3. The patient was administered acupuncture at bilateral ST36, ST37, SP9, SP6, TE6, and LI4 acupoints.



Figure 4. Waist circumference and symptoms of abdominal distention before and after acupuncture treatment. A, B, The patient's waist circumference was 85 cm before acupuncture, and 81 cm after acupuncture. C, D, Comparison of the patient's abdominal distention before and after acupuncture.

choice of the other acupoints used in the present case is also well supported by human studies, for example, TE6 is beneficial for treating chronic functional constipation,^[21] LI4 can alleviate abdominal pain,^[22] and SP9 can relieve inflammatory pain.^[23] The combination of acupoints described above proved useful for improving the symptoms of postoperative ileus after cesarean section.

Gum chewing, a kind of simulated eating, is effective and widely used in western countries. The physiologic mechanism for the enhanced recovery of bowel motility by gum chewing is assumed to be activation of the cephalic-vagal pathway.^[24] According to a meta-analysis that included 17 trials and 3041 women, chewing gum improves postoperative recovery of gastrointestinal function after cesarean section, and overall the mean time to the first flatus was 23.1 hours, and the mean time to the first defecation was 33.9 hours.^[25] Compared to chewing gum, in the present case, the time

to the first flatus was 30 minutes and the time to the first defecation was 3 hours, which are much shorter times. In addition, acupuncture has been proven to restore impaired gastrointestinal motility mediated by the cholinergic pathway.^[26,27] Extensive research indicates that acupuncture has the potential to treat gastrointestinal disorders by regulating the gastrointestinal barrier, visceral sensitivity, and the brain-gut axis.^[28] However, the precise mechanisms by which acupuncture may reduce postoperative ileus are unknown. The effectiveness of acupuncture in the current case suggests that it may be a viable alternative for curing flatulence after cesarean section.

Generally speaking, acupuncture is a potential option for the clinical treatment of postoperative ileus with flatulence after cesarean section, and it is widely available; thus, it could be promoted among women who undergo cesarean section in the future.

Table 2

Acupoints used for acupuncture treatment of postoperative ileus with flatulence after cesarean section.

Acupoint	Location	Depth, mm
ST36	3 Cun directly below Dubi, and one finger-breadth lateral to the anterior border of the tibia	25–50
ST37	6 Cun directly below Dubi, and one finger-breadth lateral to the anterior border of the tibia	25–50
SP9	Posteroinferior to the medial condyle of the tibia	25–50
SP6	Posterior to the mesial border of the tibia, and 3 cun above the tip of the medial malleolus	25–37.5
TE6	On the line joining Yangchi and the tip of elbow, 3 cun above dorsocarpal transverse crease, between the ulna and radius	12.5–25
LI4	Between the first and second metacarpal bones, and in the midpoint of the radial side of the second metacarpal bone	12.5–25

The findings in the present case suggest that acupuncture is a rapid and effective treatment for flatulence derived from postoperative ileus after cesarean section, shortening the stay in hospital. We expect that future studies will reveal the underlying mechanisms by which acupuncture improves recovery from flatulence after cesarean section. Because of the limitation that the above-described observations were derived from a single case, clinical observational studies and a large-scale randomized clinical trial with a sufficient follow-up period is required.

Author contributions

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