

The effect of dry-cupping combined with lavender oil massage on postpartum perineal pain: a case study

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Abstract

Background: Perineal pain is an important complaint in the postpartum period for several weeks. This study aimed to examine the effect of dry cupping therapy with lavender oil massage on the intensity of postpartum perineal pain. **Methods:** A 33 years old female had suffered with postpartum perineal pain. She experienced bilateral episiotomy on the third birth. Dry cupping therapy was administrated on selected areas two times. Before giving cupping therapy, at the 4th and 24th hours of birth was investigated effectiveness of dry cupping therapy on postpartum perineal pain based on the short-form of McGill pain scale. **Results:** According to the McGill pain scale, the mean of postpartum perineal pain intensity decreased from 37.9 ± 10.5 before the dry cupping therapy with lavender oil massage to 12.1 ± 5.3 in 4th hour, and $6.3 \pm 1.3.2$ in 24th hour after delivery. The patient on cupping therapy with lavender oil message showed better results terms of pain intensity ($P < 0.001$). **Conclusion:** The study confirmed that dry cupping therapy with lavender oil massage reduced postpartum perineal pain. In this regard, this intervention may be considered as affective method for reducing postpartum perineal pain. However, further trials are required to identify the effectiveness of this therapy regiment.

Keywords: Dry cupping therapy, Lavender oil massage, Postpartum perineal pain

Author contributions:

Hulya Tosun and Gul Pinar participated in the design of this clinical trial. They drafted this manuscript, conducted the clinical trial and participated the statistical analyses. All authors read and approved the final manuscript.

Competing interests:

The authors declare no conflicts of interest.

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Abbreviations:

PPP, postpartum perineal pain; CT, cupping therapy; MPS, McGill pain scale.

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Background

Postpartum perineal pain (PPP) was seen acutely due to episiotomy or spontaneous perineal trauma that initiator a local inflammatory process in most women in the early hours of postpartum period. PPP has negative effects on breastfeeding, in mobility, in urination and defecation. PPP can lead to insecure attachment with their baby, circulation problems due to immobility, and disability in caring about their babies, breastfeeding difficulties, weakness and fatigue [1, 2]. Furthermore, prolonged PPP can cause dysfunctional sexual life, anxiety, insomnia, and depression in long term. However, most of mothers may consider all of these problems as a natural consequence of childbirth [3].

Pharmacological agents have some side effects that results in limitation and, in relief of PPP that need some alternative and complementary methods such as massage, warm or ice compress, laser, transcutaneous electrical stimulation, herbal or dietary supplements, aromatherapy, moxibustion, reiki, yoga, hypnosis, meditation, cryotherapy, homeopathy, infrared lamp, acupressure, acupuncture, and electrical nerve stimulation, including cupping therapy (CT) [4–21]. Like acupuncture, CT follows the lines of meridians. Generally, CT can be use alone or in combined with different complementary methods, especially with herbal oil massage and acupuncture. Integrating CT with current therapeutic methods may provide a synergistic effect for mental and physical relaxation through promoting capillary endothelial cell repair and accelerating microcirculation. Also, CT can stimulate immune system and remove harmful substances from the body to improved pain control, and eventually it might induce relaxation [22] (Figure 1). In fact, CT is an ancient method of treatment that can be divided into two general forms; dry CT (non-invasive) is used on the affected skin by creating a vacuum effect within cups, which uses a mechanical device. In wet CT (Hijama-invasive), the skin is lacerated by superficial incisions so that blood is drawn into the cup using a vacuum since antiquity in the symptomatic treatment of various diseases through the world [23, 24].

Recently, CT is re-emerged of popular interest due to its feasibility to relief symptoms of various diseases. Notably, the number of clinical trials of CT has increased as an official practice. CT is an easily handled, natural, safe, cost effective and holistic relaxation resource in treatment of chronic or sub-acute painful conditions such as back pain, headache or migraine, muscle soreness, knee, neck, shoulder pain, and fibromyalgia by resolving inflammation and increasing in endogenous opioid production similar to analgesic effect [25–33]. Despite the possibilities of the favorable multidimensional effects of CT, few randomized controlled trials the

benefits of CT on PPP are available and also we did not encounter any previous trials testing the effectiveness of dry CT with lavender oil massage in the treatment of PPP. Lavender is widely used to reduce pain in aromatherapy, which has anti-inflammatory, anti-depressant, hypnotic, sedative, muscle-relaxant, anti-bacterial, and anti-spasmodic effects. With these practices, it is though that being discharged under better physical and mental conditions will positively affect the quality of life of women [34–37]. Therefore, the present study was designed to identify the effectiveness of the dry CT with lavender oil on PPP.

Methods

The study was conducted as a case presentation in the Postpartum Clinic of University Hospital in Ankara, Turkey in 2016. The patient was a 33 years old married female with PPP (pain intensity ≥ 4 by visual analog scale) in the external genital due to episiotomy after normal vaginal delivery. The case had graduated from high school. She was housewife and good socioeconomic level. She had no history of systemic or chronic disease, smoking and alcohol consumption. She had a healthy male newborn. Her baby was born at term (4,200 gram). She was breastfeeding, and she had restriction movements of body due to PPP. Her pulse rate and blood pressure were normal. According to the clinical examination of the women's perineum in the lithotomy position, she had moderate edema and discomfort in the perineum. There was no any laceration and ecchymosis. She had no any spontaneous ruptures accompanied by episiotomy. Also she had no any other painful problems (deep venous thrombosis, vertebral problems or low back pain etc).

She underwent dry CT with lavender oil massage two times (4th and 24th hours) after delivery on lumbosacral, hips and both legs through the thigh areas using essential lavender oil applied by the researcher who trained in CT due to its regional healing and antiseptic properties. We bought lavender essential oil from the pharmacy.

The researcher selected the case based on the patient' record and interviews. The inclusion criteria included: 1) low risk singleton pregnancy with PPP (at least ≥ 4 hours than delivery); 2) the age between 18–40 years; 3) open to communication and cooperation, ability to read, write and speak in Turkish; 4) volunteering patient was included in the study; 5) patient without an auditory or mental disability; 6) not receiving specific treatments for PPP during study period; 7) having live and healthy baby. Exclusion criteria included: 1) possible genitourinary malignancies or laceration; 2) being currently C/S and severe or progressive heath condition; 3) having epidural anesthesia; 4) use of analgesic agents during

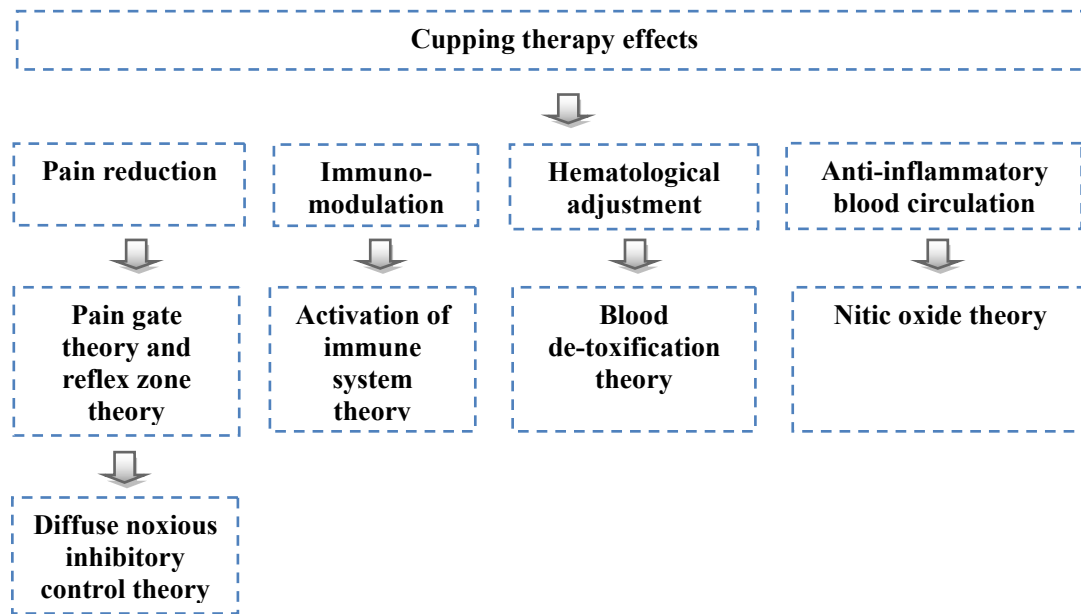


Figure 1 CT effects and mechanism action theories. CT, cupping therapy.

study period; 5) having perineal incision infection; 6) endometriosis; 7) having no history of allergy to lavender oil. In the study, the data regarding the case were obtained from the patient file. Also, the McGill pain scale (MPS) short form was used to assess effectiveness of intervention. This scale has been developed to assess pain scores in 2007 by Bagheri et al, the reliability of this scale was reported as 98%. The scale consists of 15 questions in two section; eleven items in the sensory subscale and four items in the emotional subscale. The participants have to determine their pain quality through 4 options of none, mild, average, and severe [38]. Pre/post intervention was tested using the repeated measure ANOVA, $P < 0.05$ was considered statistically significant.

Rules specified in the Helsinki Declaration were observed in the data collection phase and approved by the University Review Board. Written informed consent was obtained from the women and she had been thoroughly explained the study purpose, benefits, the right to refuse and withdraw at any time, as well as obtain confidentiality before the beginning of the study.

Procedures

Dry CT in combination with aromatherapy was repeated two times (4th, 24th hour) after delivery in the patient room. In the light of the information obtained from the literature, postnatal CT application sessions were decided [15, 18, 21, 39]. The procedure was performed as follows. Firstly, the MPS was used before intervention. Then, the patient laid down on the bed with her below torso bared, application areas were cleaned with antiseptic solutions, lavender essential oil

(2% concentration) was applied (the mother was separated from her baby during the aromatherapy period to manage any harm for baby) and disposable plastic cups (5 cm) were placed at the selected four points of the fourth lumbar vertebra, sacral and low limb based on the basic guidelines of acupuncture points [40]. Then negative pressure was applied using a manual pump, gently sliding cups around the whole points rhythmically for a massage-like effect, the cups were left on the each point for about 15 minutes and then the cups were gently removed. After this application area were cleaned again. The patient was tested after each session immediately using MPS short form. All other analgesics were prohibited within 24 hours after delivery. The patient was satisfied with the CT and no adverse reaction was encountered.

Results

According to the MPS, the mean of sensory subscale intensity was 24.3 ± 5.1 before intervention, in 4th hours was 10.2 ± 4.4 , and in 24th hours was 5.2 ± 4.5 after intervention, respectively. The mean of emotional subscale was 10.7 ± 2.2 in baseline, in the 4th hour was 2.4 ± 2.1 , and in the 24th hour was 2.0 ± 1.1 . The mean pretest total MPS score there were high pain scores (37.9 ± 10.5), in the 4th hour was 12.1 ± 5.3 , and in the 24th hour was 6.3 ± 1.3 (Table 1).

Statistically significant differences were seen in pain intensity baseline, 4th and 24th hours after intervention. According to pre and posttest analysis, the patient on CT with lavender oil message showed better results terms of pain intensity ($P < 0.001$) (Table 1). As a result of the last evaluation CT and lavender contains with sedative effects have been shown to provide pain

Table 1 The results of the mean pretest posttest MPS scores of case

MPS subscales	Baseline (mean $\pm$ SD)	4th hour (mean $\pm$ SD)	24th hour (mean $\pm$ SD)	P-value
Sensory	24.3 $\pm$ 5.1	10.2 $\pm$ 4.4	5.2 $\pm$ 4.5	< 0.001
Emotional	10.7 $\pm$ 2.2	2.4 $\pm$ 2.1	2.0 $\pm$ 1.1	< 0.001
MPS-total	37.9 $\pm$ 10.5	12.1 $\pm$ 5.3	6.3 $\pm$ 1.3	< 0.001

MPS, McGill pain scale; SD, standard deviation.

relief and to help remove edema.

Discussion

PPP is a common obstetrical complication in women after childbirth around the world, which has negative effects women's quality of life [2]. This case study revealed that CT with aromatherapy is very effective in reducing PPP intensity. Similarly some studies have tested the effects of CT regarding painful conditions. For example, Akbarzade et al (2016) determined that CT indicated that significant improvements in PPP and low back pain [15].

In randomized controlled studies, it was showed that both CT and aromatherapy played an important role in relieving the pain complaints. The effects of lavender oil on PPP have been assessed in a study performed by Sheikhan et al (2012), they reported that lavender oil group experienced less PPP at 4th days after delivery [7]. Steen et al (2000) stated that the use of drug alone has not been enough to promote pain relief. In addition, because many patients are concerned about the side effects of these drugs on themselves or their infants, natural approaches are becoming increasingly more preferable [4].

In a different study, the intervention group on CT showed positive results terms of muscle tenderness, knee pain and movement disability when compared with control group on acetaminophen. The same study proved CT to be a good analgesic and anti-inflammatory with efficacy better than analgesic [41]. Furthermore, in a previous study, a single CT improved physical ability and reduced chronic non-specific neck pain and low back pain for at least one week [29]. In different studies, transcutaneous electrical nerve stimulation-TENS and cryotherapy demonstrated significant for reducing of pelvic pain [10, 17]. In a study conducted by Seikhan et al (2012) on 60 primiparous women in Iran, lavender oil massage has been found helpful in treating PPP ($P < 0.001$) [7].

Authors stated that CT combined with other treatments such as aromatherapy, acupressure, massage, and other methods may provide a synergistic benefit affect for various diseases [21, 34]. Currently, aromatherapy is also very popular worldwide. Considering the literature, CT is based on the basic principals; to increase Qi and blood flow for bringing oxygen and other forms of nutrients to the are, to

release beta endorphins and serotonin, to sedate peripheral nervous system, to provide deep tissue massage, to relieve venous stasis, to ameliorates muscle tension, to prevent the transfer of pain signals, to divert waste products from the body, to promote capillary endothelial cell repair, and to enhance immunity. Similarly, lavender oil massage also relieves the tension or pain by interfering with pain signal pathway to the brain and stimulates the release of endorphin, sedation-like substance from the brain and spinal cord. All these factors help to relax, renew pain and heal the tissues [6, 34, 37]. Lakhan et al (2016) conducted a clinical study in order to examine the effect of acupressure type massage with lavender oil on low back pain [36]. They found that this intervention caused significant reduction in the intensity of pain. Oliveria et al (2012) investigated the effect of CT on pain relief; they found significant results after intervention of a single application [8]. All these findings is relatively compatible with our results. On the contrary, Vakilian et al (2011) showed that the intensity of PPP in the lavender oil group was not less than control group [6]. According to Dutra et al (2019), laser therapy indicated no statistically effect on PPP when compared to the placebo group [39]. In a study investigated by Lu et al (2015) and Morais et al (2016), ice compress has not favorable effects on reducing pain [13, 16].

Limitation

This study is limited by its sample size; results of the case study cannot be generalized. Despite the positive findings, the study did not present randomized controlled trial data on PPP. The study is also limited by a single center and the sample size of the study group. Also, additional examination of the factors on PPA such as increasing muscle tension, emotion, peripheral inflammatory factors and other evaluation indicators that may affect PPA will serve to obtain more detailed information.

Conclusion

In conclusion, dry CT with lavender oil massage can combine to provide therapeutic effects for reducing PPP and wound healing. However, further comprehensive and larger trials are needed in order to understand the confirmation of this intervention for

pain management.

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