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## CLINICAL ARTICLE

## Effect of perineal massage on the rate of episiotomy and perineal tearing

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## ABSTRACT

**Objective:** To examine the effects of perineal massage during active labor on the frequency of episiotomy and perineal tearing. **Methods:** A randomized controlled study was conducted at a center in Sivas, Turkey, between January 1, 2010, and May 31, 2011. Healthy pregnant women presenting for their first or second delivery at 37–42 weeks of pregnancy were enrolled during the first stage of labor. Participants were randomly assigned (1:1) to the massage group (10-minute perineal massage with glycerol four times during the first stage and once during the second stage of labor) or control group (routine care). The frequency of episiotomy and perineal tearing were compared between the groups. Participants and investigators were not masked to group assignment. **Results:** Both groups contained 142 participants. Episiotomy was performed among 44 (31.0%) women in the massage group and 99 (69.7%) in the control group ( $P = 0.001$ ). Lacerations were recorded among 13 (4.2%) women in the massage group and 6 (4.2%) in the control group ( $P = 0.096$ ). **Conclusion:** Application of perineal massage during active labor decreased the frequency of episiotomy procedures.

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## 1. Introduction

Perineal trauma—spontaneous or episiotomy-induced damage to the genital organs during delivery [1]—affects the quality of active labor, especially among primiparous women [2,3]. It is frequently observed during delivery and can have detrimental effects on a mother's health and quality of life [3]. Women who experience perineal trauma can subsequently be affected by conditions such as dyspareunia, urinary and anal incontinence, perineal pain, and delayed mother–neonate interaction [4–6].

Perineal trauma can be caused by episiotomy [2,3]—one of the most frequently used obstetric interventions [7,8]. Although some studies argue that performance of episiotomy should be limited owing to the negative effects of perineal trauma on maternal and neonatal health [8,9], this obstetric procedure continues to be widely applied in many countries. For example, the prevalence of episiotomy is 8% in the Netherlands, 14% in the UK, 50% in the USA, and as high as 99% in many eastern European countries [10]. One study found that episiotomy is performed in more than 65% of all deliveries and more than 90% of those among primiparous women in Turkish hospitals [11]. Another found that the rate of episiotomy among all deliveries was 74.2% [12].

Overall, episiotomy is still routinely used in Turkey among primiparous women and women with two or more previous deliveries [13,14].

The accumulation of evidence that episiotomy does not ensure perineum integrity and has overwhelming negative effects has led to an increase in the number of studies on other protective variables (e.g. prenatal perineal massage and hot treatment) [2,3]. Perineal-protective birth techniques are recommended to prevent perineal lacerations and their associated morbidity [3,15]. Perineal massage can prevent perineal lacerations, protect perineal integrity, and enable women to rapidly regain function after delivery [2,3,5]. It can stimulate both rehabilitation and the re-elasticization of tissues and muscles, and is thought to have a positive effect on vaginal delivery owing to its impact on tissues and muscles in the perineal area [2,3].

However, previous studies have provided varied results regarding the effectiveness of perineal massage for the prevention of perineal trauma. Some studies indicated that prenatal perineal massage [2,3,13] and perineal massage during the second stage of active labor [16,17] reduce the rate of perineal trauma. By contrast, others have reported that perineal massage provides neither an advantage nor a disadvantage in terms of the rate of perineal trauma [1,6]. Thus, further studies are needed on whether perineal massage secures perineal integrity. In addition, there are few studies on the application of perineal massage during both the first and second stages of labor.

As a result, the aim of the present study was to examine the effects of perineal massage applied during labor on the frequency of episiotomy procedures and perineal tearing. A secondary aim was to assess the effect of massage on the duration of the second stage of labor.

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## 2. Materials and methods

The present randomized controlled study was conducted between January 1, 2010, and May 31, 2011 among pregnant women presenting for delivery at Sivas State Hospital, Sivas, Turkey—a hospital with approximately 3200 normal vaginal births per year. Women were eligible for inclusion when they had had no pregnancy-related complications during pregnancy, they had no systemic condition, it was their first or second birth, the fetus was in cephalic presentation, they had no definitive indication for cesarean delivery, they were at 37–42 weeks of pregnancy with verification of fetal dimensions, and they were in the latent phase of the first stage of labor with dilatation of less than 4 cm and effacement of less than 50%.

Ethical approval (decision no. 2009-12/07) was obtained from the Ethics Board for Clinical Research at Cumhuriyet University, Sivas, Turkey, and written approval was obtained from the study institution. All women participated voluntarily and provided written informed consent.

On arrival at the hospital, pregnant women were given a pre-evaluation form and assessed for compliance with the inclusion criteria. Women who were eligible and agreed to participate were then divided on the basis of parity (primiparous and multiparous). After the start column in a table of random numbers was designated by one researcher (G.D.), the primiparous pregnant women were randomly assigned (1:1) to the two groups by starting with the first number for the control group, the second number for the massage group, and so on. The multiparous pregnant women were randomly assigned to the two groups in the same way. Participants and investigators were not masked to group assignment.

Perineal massage was administered to all women in the massage group in the first stage of labor. The massage was performed in line with a previous report [13]. Before massage was started, it was ensured that the bladder and bowel of the patient was empty. Each participant lay on her back in the lithotomic position, because in this position, the abdominal muscles and hips are relaxed. The resting phase, when the severity of contractions was reduced, was chosen for the massage. In this phase, one researcher (G.D.) washed their hands and put on gloves. Next, they poured a few drops of the lubricant (glycerol) onto their fingers and placed two thumbs 2–3 cm into the vagina and applied pressure to the vaginal lateral walls with their thumbs. Pressure was maintained at an intensity at which the woman did not feel any pain. The pressurizing action was continued for 2 minutes. Alongside the massage, the woman was asked to contract and relax the muscles in the perineal area and to become aware of these muscles. The massage was paused at the onset of contractions and resumed when the contractions subdued. The massage continued for 10 minutes in this manner. The participant was then

allowed to rest for a minimum of 30 minutes before the 10-minute massage was repeated. The massage was performed four times during the first stage of labor. When approaching the second stage of labor, each patient was taken to an obstetric table and received another 10 minutes of perineal massage. Women in the control group received routine care.

After delivery, the massage and control groups were evaluated in terms of the rate of episiotomy and perineal tearing, and the duration of the second stage of labor (Supplementary Material S1). In both groups, women would be delivered by cesarean if necessary.

The necessary sample size was calculated by power analysis. Previous studies indicate that the rate of intact perineum can be increased by 10% by applying prenatal perineal massage [3,18]. In 2009, the frequency of episiotomy procedures at Sivas State Hospital was 63% among all pregnant women and 99% among primiparous women. The sample size needed to obtain a significant difference with an  $\alpha$  value of 0.05, a confidence level of  $1-\alpha$  of 0.95, a  $\beta$  value of 0.20, and a power of  $1-\beta$  of 0.80 was identified as 284 individuals. Equal numbers of primiparous and multiparous women were approached.

The study data were evaluated using SPSS version 14.0 (SPSS Inc, Chicago, IL, USA). Women who received their assigned treatment were included in analyses. The rates of episiotomy and spontaneous laceration were compared between the massage and control groups by  $\chi^2$  test, and the average duration of the second stage was compared by an independent two-sample  $t$  test.  $P < 0.05$  was considered significant.

## 3. Results

During the study period, 284 women met the inclusion criteria and agreed to participate (Fig. 1). Both groups contained 142 patients. All participants completed the study and were included in analyses. The control and massage groups both contained 71 multiparous pregnant women. No significant differences between groups were recorded for age, length of pregnancy, or neonatal head circumference (Table 1). No women delivered by cesarean.

Episiotomy was significantly more common in the control group than in the massage group ( $P = 0.001$ ) (Table 2). Frequency of laceration did not differ significantly between groups ( $P = 0.096$ ) (Table 2).

The mean duration of the second stage of labor was significantly shorter in the massage group than in the control group among the whole population, among primipara, and among multipara ( $P < 0.01$  for all) (Table 3).

## 4. Discussion

In the present study, the effects of glycerol-mediated perineal massage applied during the first and second stages of labor were compared

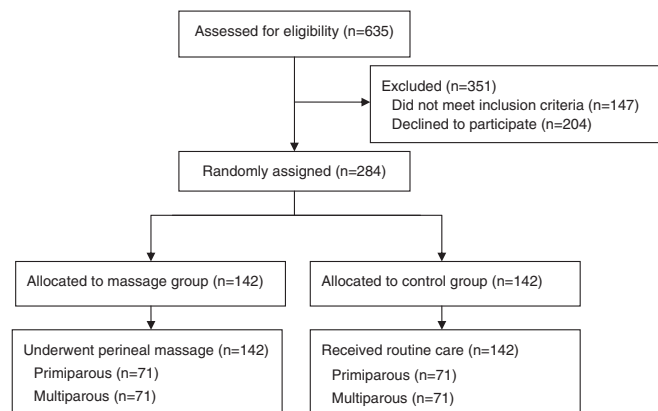


Fig. 1. Flow of patients through the study.

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