

Perineal Massage during Pregnancy: A Prospective Controlled Trial

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Abstract

Background: Women frequently suffer perineal trauma while giving birth. Interventions to increase the possibility for an intact perineum are needed.

Objectives: To evaluate the effectiveness of antenatal perineal massage in increasing the likelihood of delivering with an intact perineum.

Methods: This single blinded prospective controlled trial included 234 nulliparous women with a singleton fetus. Women allocated to the study group were instructed to practice a 10 minute perineal massage daily from the 34th week of gestation until delivery. Primary outcome measures included the episiotomy rate; first, second, third and fourth-degree perineal tear rates; and intact perineum. Secondary outcomes were related to specific tear locations and the amount of suture material required for repair.

Results: Episiotomy rates, overall spontaneous tears and intact perineum rates were similar in the study and control groups. Women in the massage group had slightly lower rates of first-degree tears (73.3% vs. 78.9%, $P = 0.39$) and slightly higher rates of second-degree tears (26.7% vs. 19.3%, $P = 0.39$), although both of these outcomes did not reach statistical significance. The rates of anterior perineal tears were significantly higher in the massage group (9.5% vs. 3%, $P = 0.05$), whereas internal lateral tears rates were slightly lower but without statistical significance (11.5% vs. 13.1%, $P = 0.44$).

Conclusions: The practice of antenatal perineal massage showed neither a protective nor a detrimental significant effect on the occurrence of perineal trauma.

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Women frequently suffer perineal trauma while giving birth, particularly during their first delivery. Perineal trauma is defined as any damage to the genitalia during childbirth, either spontaneously or due to an episiotomy. Episiotomy is equivalent in its extent to a spontaneous second-degree perineal tear [1]. Perineal trauma during childbirth is associated with short and long-term morbidity. Perineal damage may result in urinary and fecal incontinence, painful intercourse, persistent perineal pain, and weakness of the pelvic floor musculature [1,2]. There is considerable variation in the reported rate of perineal trauma because of inconsistency in definition and reporting practices [3].

Episiotomy was proven to be not only ineffective but sometimes even harmful. Strong evidence in support of restricting

the use of episiotomy is now well established. However, more studies should address the issue of specific indications [4,5]. Nevertheless, more than half of the women who deliver without an episiotomy still suffer from a tear requiring multilayer closure [6]. In studies of restrictive use of episiotomy, 51–77% of women still sustained trauma that required suturing [3]. Interventions to reduce the risk of episiotomy and perineal tears are needed. Furthermore, women who delivered with an intact perineum reported less perineal pain immediately after delivery and better sexual function 3 months postpartum [7].

Performing a perineal massage by the woman or her partner a few weeks prior to the delivery has been advocated to increase elasticity and reduce the risk of perineal trauma from episiotomy or spontaneous tears [1,2,8]. The effect of perineal massage during pregnancy has been evaluated in a few trials. The two major randomized trials were carried out in the United Kingdom and Canada. Evaluating the effect of antenatal perineal massage on 861 nulliparous women, the UK trial found a non-significant benefit of 6% in the prevalence of perineal trauma (75% vs. 69% in the study and control group, respectively, $P = 0.07$) [6]. The Canadian trial, with 1034 participants, demonstrated a significant increase of 9.2% (from 15.1% to 24.3%, $P = 0.01$) in the rate of intact perineum for the intervention group [1].

Another study, which randomly allocated 20 women to either a massage or non-massage group, concluded that the women who practiced the massage had a lower incidence of episiotomy and tears than those who did not [9,11]. A later study compared 29 women who practiced perineal massage with a control group of 26 women. The authors concluded that there was a statistically significant difference between the two groups, with fewer episiotomies performed in the massage group. However, both samples were small and were not limited to nulliparous women [10,11].

We planned this prospective controlled clinical trial in nulliparous women to determine whether perineal massage with oil from the 34th week of gestation until delivery increases the chances of delivering with an intact perineum. As secondary objectives, we evaluated the effects of perineal massage on specific tear sites, the severity of perineal tears, and the amount of suture material required for repair. This study was conducted in response to an increasing interest in antenatal perineal massage and its value by women, midwives and physicians in the medical community.

Patients and Methods

This study was performed at the Soroka University Medical Center, Beer Sheva between November 2002 and March 2004. It was approved by the local institutional review board. Women eligible for the study group were recruited mainly during antenatal birth preparation courses during their 30–34th week of gestation. Inclusion criteria included nulliparous women at 30–34 weeks gestation who were planned for a vaginal delivery at our institution. Exclusion criteria comprised a history of any vaginal surgical procedure, multiple gestation, use of a different perineal massage oil during the current pregnancy, and communication difficulties.

Participants were provided with an oral and written information form regarding episiotomy and perineal trauma during vaginal delivery. After signing an informed consent the recruited women could choose to join the study or control group. Most (N=93) of the women in the control group were recruited in the delivery room prior to delivery and after verifying no prior use of massage during the current pregnancy. The study coordinators taught the participants a uniform technique of conducting perineal massage. The women were taught to place their oiled thumbs inside the posterior vagina (2–3 cm), and to gently press downwards and slide to both sides at the same time. The stretching action was to be maintained until they felt a slight sensation of burning or tingling, at which point they were instructed to hold the pressure for 1 minute until the area turned slightly numb. The women were asked to continue the massage back and forth over the posterior distal half of the vagina for 10 minutes every day. They were asked to begin this daily perineal massage in their 34th week of gestation. A bottle of Calendula oil with added Vitamin E (J.D. Schloss Inc, Tel Aviv, Israel) was provided to each participant. The women were instructed to keep a daily diary for compliance purposes. In order to improve and reinforce compliance and for any questions that might arise, a weekly telephone call to all participants was made by a study coordinator throughout the study period.

All participants were instructed not to reveal to the attending staff during labor to which group they were allocated, and attending midwives and physicians were asked not to inquire about the women's study group allocation. All midwives were instructed to perform a perineal massage during the second stage of labor while the vertex was in the crowning position, using the same Calendula oil for both the study and control groups and to avoid episiotomy whenever possible.

For each participant, upon arrival to the delivery room in active labor, two data forms regarding perineal damage postpartum and episiotomy performance were added to the medical file. These forms were filled out immediately postpartum by the physician and midwives assisting in the delivery. For all participants the following additional parameters were also evaluated: gestational age at delivery, birth position, fetal birth weight, type of analgesia used during delivery, and method of delivery (i.e., instrumental vs. spontaneous). Postpartum questionnaires were completed by the parturient concerning her subjective experience of the delivery and perineal massage (if performed), allowing five grades of response.

Perineal outcomes were categorized into the following: intact perineum; lacerations of the perineum; first, second, third and fourth-degree tears; and performance of an episiotomy. Laceration was defined as a perineal tear or bruise not requiring suturing. Specific locations of the perineal tears were reported by the examining physician immediately postpartum, as well as suturing time and material. The physician was also asked to complete a data form including a vulvar sketch, indicating the specific tear location. All of the perineal suturing was performed by residents attending the deliveries. Women delivered by emergent cesarean section were excluded from the study.

Statistical analysis

Statistical analysis was performed with the SPSS package (SPSS, Chicago, USA). The chi-square test and Fisher's exact test were used as appropriate. The one-way ANOVA test was used for continuous variables. $P < 0.05$ was considered statistically significant. For power analysis purposes, the primary hypothesis was that the likelihood of an intact perineum following vaginal delivery will increase by 10% in women who practice perineal massage in the last weeks of pregnancy. This required a sample size of 180 women (90 women in each group) for providing 90% power.

Results

A total of 282 nulliparous women were recruited for this trial; 48 women were excluded, 128 joined the study group and 106 joined the control group [Figure 1]. The main reason for exclusion from the analysis was an urgent cesarean section during the course of labor (21 women, 7.4%). The rest were not included mainly due to loss of follow-up, and delivery at a different hospital. Mean maternal age in the massage group was significantly higher than in the control group (27.6 and 25.4 years respectively, $P < 0.05$). Gestational age at delivery and fetal birth weight were also greater in the massage group (mean 39.3 vs. 38.9 weeks; $P = 0.03$ and mean 3237 vs. 3130 g, $P = 0.06$ respectively). Other baseline demographic characteristics and birth circumstances were similar between the two groups [Table 1]. The postpartum questionnaire, compliance in keeping the diary, and our surveillance telephone calls revealed that 48.1% of the women in the massage group performed the massage more than two-thirds of the time, 33.8% between a third to two-thirds and 18.2% less than a third of the time.

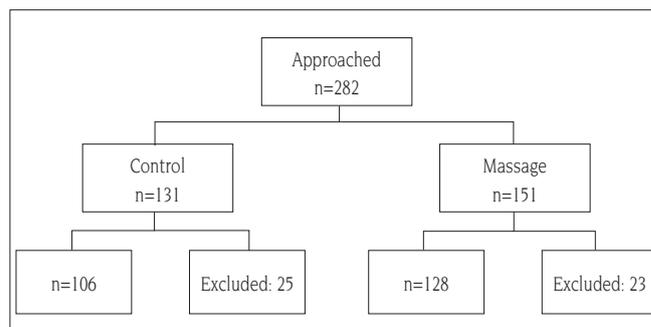


Figure 1. Perineal massage trial profile

Table 1. Maternal and neonatal characteristics

Outcomes	Massage (n=99)	Control (n=104)	P
Age (yrs) (mean ± SD)	27.6 ± 3.5	25.4 ± 3.8	< 0.05
Gestational age at delivery (wk) (mean ± SD)	39.3 ± 1.3	38.9 ± 1.5	< 0.05
Mean birth weight (g) (mean ± SD)	3237 ± 394	3130 ± 434	0.06
Use of epidural block (%)	59.6	54.8	0.49
Mode of delivery			
Spontaneous delivery (%)	88 (75.2%)	97 (92%)	< 0.05
Vacuum extraction (%)	10 (8.5%)	6 (5.6%)	< 0.05
Cesarean section (excluded) (%)	19 (16.2%)	2 (1.9%)	< 0.05
Fetal gender (males, %)	51.5	49	0.72
Attending midwife experience (yrs)	13.2 ± 9.3	11.4 ± 9.4	0.17
Apgar 1 minute (mean ± SD)	8.9 ± 0.6	9.0 ± 0.29	0.21
Apgar 5 minutes (mean ± SD)	10.0 ± 0	10.0 ± 0.21	0.19
Massage performance (days) (mean ± SD)	27.5 ± 12.7	NA	

NA = not applicable

Table 2. Perineal outcome – primary and secondary outcomes

	Massage group		Control group		P
	No.	%	No.	%	
Primary outcomes					
Intact perineum	31	29.8	40	40.0	0.12
Episiotomy	23	20	20	18.9	0.83
Tear grade					
First-degree / laceration	44	73.3	45	78.9	0.39
Second-degree	16	26.7	11	19.3	0.39
Third/fourth-degree	0	0	1	1.8	0.39
Secondary outcomes					
Tear location					
Anterior	9	9.5	3	3	< 0.05
External lateral	15	15.8	12	12.1	0.29
Internal lateral	11	11.5	13	13.1	0.44
Posterior	32	33.7	24	24.2	0.98
No. of tears					
Single tear	38	40.0	33	33.3	
More than one	20	21.1	21	21.2	0.50
No. of suture materials					
None	30	31.6	41	40.6	
Single pack (90 cm)	57	60.0	53	52.5	
More than one	8	8.4	7	6.9	0.42
Suturing time (min) (mean ± SD)	5.32 ± 6.6		5.14 ± 8.0		0.88

In contradiction to our hypothesis, we found lower rates of an intact perineum in the massage group (29.8% vs. 40%, $P = 0.12$), although this did not reach statistical significance. While first-degree tear and laceration rates were lower in the massage group as compared with the control group (73.3% vs. 78.9%, $P = 0.39$), the rates of second-degree tear were higher (26.7% vs. 19.3%, $P = 0.39$). Both of these outcomes did not reach statistical significance. We found no statistically significant differences in the number of episiotomies or overall spontaneous tear rates

[Table 2]. The risk for anterior tear in the massage group was significantly higher, whereas for external lateral tear and posterior tear it was higher but without statistical significance. The risk for internal lateral tear in the massage group was lower but without statistical significance [Table 2].

No difference was found between the groups in the duration of suturing or amount of suturing material used. No significant difference was found between massage performance compliance (in days prior to delivery) and perineal outcome within the study group. The total number of massage days in the first-degree tear or laceration, second-degree and intact perineum study groups was 29.3 ± 10.8 , 30.8 ± 14.2 and 26.2 ± 14.2 days respectively ($P = 0.73$).

Almost 90% of the women in the massage group stated that they would perform perineal massage during their next pregnancy.

Discussion

The results of this study showed that antenatal perineal massage had neither a protective nor a detrimental significant effect on the likelihood of delivering with an intact perineum. We found no benefits in the study group regarding the rates of almost all categories of perineal trauma. A slight non-significant benefit was demonstrated in the study group in reducing first-degree perineal tears and lateral internal tears. However, the likelihood of a second-degree tear and all other tear locations increased. All these mentioned trends were not statistically significant.

Although no significant change in intact perineal rates was found, women were significantly older, with higher gestational age at delivery and higher mean birth weight in the interventional group [Table 1]. There were also higher rates, although not significant, of vacuum delivery and cesarean section in this group. On the other hand, there was virtually no difference in episiotomy or tear rates between the control and intervention groups. These results imply some protective effect of perineal massage. In addition, the intervention group had more tears in the anterior part of the vagina, which is the only part not directly influenced by the perineal massage.

It is important to note the following two factors that may have affected the results of our study. Our trial was not randomized and the women chose their own allocation. This fact surely enhanced the compliance during pregnancy in the study group. Nevertheless, perineal outcome was not favorably influenced.

A few study limitations should be taken into consideration. Our surveillance of the actual compliance and massage technique carried out by the participants was limited. Most of the women in the control group were recruited in the delivery room, during active labor, after verifying no prior use of massage. The fact that they were in active labor is the probable explanation for the lower cesarean section rate in this group (1.9% in the control group vs. 16.2% in the massage group).

Earlier studies of perineal massage were largely inconclusive. In the study by Labrecque and co-workers [1] a significant benefit was found in the massage group, whereas Shipman et al. [8] reported a non-significant effect. Two additional trials [9,10] had

small sample sizes and were not limited to nulliparous women. Bodner-Adler et al. [12] published a clinical trial of perineal massage with methods much like those described in our trial. In a population of 531 primiparous women delivering vaginally, no significant difference between the groups was observed. The authors found no benefit of perineal massage with respect to the incidence of perineal trauma among primiparous women. Our study agrees with these findings. The Cochrane collaboration [3] recently published a review based mainly on the studies by Labrecque et al. [1] and Shipman et al. [8], with a conclusion supporting perineal massage.

We conclude that although perineal massage in the last weeks of pregnancy did not increase the likelihood of an intact perineum, it is probably harmless. Women who wish to perform massage should not be discouraged but they should be informed that the scientific proof of any possible benefit is still controversial.

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You can tell the ideals of a nation by its advertisements

Norman Douglas (1868-1952), British novelist

Obstinacy is the result of the will forcing itself into the place of the intellect

Arthur Schopenhauer (1788-1860), German philosopher who expanded upon Immanuel Kant's philosophy regarding the way in which we experience the world. His metaphysical theory is the foundation of his influential writings on psychology, aesthetics, ethics, and politics which influenced Friedrich Nietzsche, Wagner, Ludwig Wittgenstein, Sigmund Freud and others

Capsule

Regulate on the roll

Regulatory T cells are highly immunosuppressive lymphocytes that help the body avoid autoimmunity and overzealous immune reactions. However, their existence also presents a dilemma for the immune system, because they might inadvertently shut down useful pathogen-specific immune responses. Lund and associates present evidence that suggests that regulatory T cells can in fact optimize immune responses during the early stages of infection. Using a mouse model of herpes simplex

virus infection, depleting regulatory T cells delayed the arrival of the relevant immune cells at the site of infection. At the same time, inflammatory chemokines became elevated in the lymph nodes. Thus, under normal circumstances, regulatory T cells may minimize the expression of these soluble factors in the lymph nodes in order to redirect immune cells for a timely arrival at the site of infection.

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