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Effect of perineal massage on the incidence of episiotomy and perineal laceration

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ABSTRACT

Background: Perineal traumas particularly caused by following vaginal delivery are associated with short and long term morbidity for women. Therefore, interventions that increase the probability of intact perineum are necessary. The aim of study was to determine the effect of perineal massage with a sterile lubricant on the incidence of episiotomy and perinea laceration. Materials: This clinical trial study was performed on 145 nulliparous women who referred to Amol Emam Ali teaching center for normal delivery. They were randomly participating in interventional group (massage with lubricant) (45 cases) or control group (100 cases). In massage group when they progressed to full dilatation of the cervix, the midwife inserted two fingers inside vagina and using a sweeping motion gently stretched the perineum with lubricant 5 up to 10 minutes, in and between mother's pushing in the second stage of labour. In control group just Ritgen Maneuver was applied. At last, we compared the rate of intact perineum, episiotomy and laceration, mean duration of the second stage of labor and Apgar score in 1 and 5 minutes between two groups. Statistical analyses were performed using t-test, Chi Square to determine potentially significant associations, and a *p* value less than 0.05 was considered significant. Results: The incidences of intact perineum, episiotomy and laceration were 22.2% (10), 44.4% (20), 33.3% (15) respectively in interventional group. In control group, intact perineum, episiotomy and laceration were: 20.2% (20), 49.3% (71), 28.3% (28) respectively. This difference was not statistically significant. Rate of first-degree laceration was 33.3% (15) in massage group, while this percent was 28.3% (28) in control group. This difference was not statistically significant. In massage and control groups, second, third and fourth-degree lacerations did not occur. Conclusion: The results showed that massage with a sterile lubricant provides no apparent and significant advantage or disadvantage in reducing perineal trauma. Therefore, the use of massage as technique for perineal control is safe based on labour criteria and woman's preference during delivery.

KEYWORDS

Perineal Massage; Episiotomy; Trauma; Laceration; Delivery

1. INTRODUCTION

Any damage to the perineum during childbirth is defined as perineal injury; it occurs after episiotomy or it may happen automatically. A study on natural childbirth found that 85% of women experience a variety of perineal traumas. More than 2/3 of such women are in need of repair [1,2]. Childbirth perinial injuries are short-term or long-term, including bleeding, infection, suturing, urine and fecal incontinence, painful intercourse, persistent perineal pain (that this disorders can affect on interaction of child and mother, breastfeeding, sexual intercourse, post-delivery recovery sensation), and weakening of the pelvic floor muscles [3-5]. Episiotomy is defined as the second-degree of spontaneous tear of perineum muscles including tear of skin, mucosa and also damage of perineum muscles. It is more prevalent in America and Canada

than in Europe, because European mothers chose side position during childbirth that provides the gradual stretching of perinea and also the lower incidence of episiotomy [6]. Definitely, available evidence illustrates that routine episiotomy is harmful rather than to be an effective healthcare technique [7-10]. Due to limited use of episiotomy, 51% - 77% of women expressed that they need suture yet for the damages. Some interventions are needed to reduce risk of episiotomy and perineal tear. Women with intact perineal childbirth reported that they had felt less pain promptly after giving birth to the child, and they could have better intercourse too [3,11]. Supportive evidence of systematic randomized clinical trials confirms limited episiotomy [12]. Since 1980, proportion of childbirth episiotomy has fallen from 64% to 30%, while perineal tear has risen from 11% to 40% [11,12]. Postpartum hemorrhage is due to large incision, tear and delayed repair of episiotomy endangers mother's life. Expanded episiotomy involves tear grade 3 and 4, bleeding and more irreversible damages such as incontinence fecal, and painful intercourse. 20% of women complained that they had painful intercourse 3, 15, and 24 months after childbirth. Also, 70% to 85% of women had perineal pain due to tear and episiotomy, 22% of them complained even 8 weeks postpartum, although some of them may complain even a year or more postpartum [1]. Midwives have recourse to various techniques at the second stage of childbirth to eliminate damages to perineal and genital system. But there isn't evidence on effective technique for perineal control. It is impossible to reduce perineal tears before delivery. Perineal massage with lubricant is a potential therapeutic approach implemented at the second stage of delivery. Its mechanism of action is vasodilatation, increasing muscle relaxation, more blood supply, as well as creating a pleasant feeling for mother [12-14]. In a clinical study in Canada on Nullipara women, the investigators thought that perineal massage would increase intact preneal to 10%. They obtained 9%, and the meaningless increase was based on their calculations. For the next three months, follow-up did not reveal any perineal performance difference for both control and massage groups. Perineal massage and expansion are used to prevent perineal tear. It is also for relaxation to eliminate more episiotomy [12]. This research had done to evaluate the effect of perineal massage with lubricant on the incidence of episiotomy and perineal laceration in the second stage of childbirth.

2. METHODOLOGY

A randomized controlled clinical trial was conducted 145 nulliparous women were referred to Imam Ali Teaching center in Amol for normal delivery.

2.1. Data Collection

All nulliparous women were randomized into two groups. (45 subjects) randomly underwent massage with lubricant as interventional group while (100 subjects) just underwent Ritgen's maneuver (control group). The interventional group underwent 5 - 10 minutes perineal massage with lubricant but control group just underwent Ritgen's maneuver. All childbirths were managed by a midwife. The investigator leaded them to know how to fill the questionnaire, then the correct method of massage was observed and its reliability was confirmed. At the second stage of childbirth (when cervix dilated full to expulsion of the fetus head), the midwife put on sterile glove, began to gently massage via u shaped reciprocal movement with 2 index and the middle finger dipped in water-soluble lubricant surrounding walls of the vagina one by one, she gently moved her fingers towards of the rectum in up and down for at least one minute, and then continued the process for another, the midwife continued to massage even when labor continued and mother tried to deliver baby (between pushing time). Downward press was dependent on mother's response, when she felt pain and irritation, midwife tried to push her lubricated fingers more gently. If mother did not like to participate in childbirth research, dystocia, fetal distress, prescribed opioids, forceps and vacuum delivery, and any unpredictable medical or obstetric complications were excluded. After ending of finger massage, the rate of Possible intact perineal, episiotomy, 1st, 2nd, 3rd and 4th-grade perineal tear, other tears of genital tract, mean term second stage, and Apgar score in first and fifth minute were recorded.

2.2. Inclusion Criteria

The inclusion criteria were: Term pregnancy (37 - 42 weeks), singleton, cephalic presentation, lack of placental abruption, No vaginal bleeding, macrosomia, fetal distress, narrowed pelvis, vaginal infections, premature rupture of membranous, and genital herpes.

2.3. Analysis

Statistical analyses were performed using t-test, Chi Square to determine potentially significant associations, and a p value less than 0.05 was considered significant.

3. RESULTS

The study results confirmed that there were no statistically significant differences among the two groups in age, education level, and job. The mean age of women were 26.96 ± 4.3 and 26.06 ± 4.5 in massage and control groups. The majority of Women's job in two groups was housekeeper (93.3% vs. 91.8%). The highest percentage included women who were with senior high school education in massage and control groups (62.2%, 55.6%). The demographic characteristics of the study sample are summarized in **Table 1**.

Table 1. The frequency of demographic characteristics in intervention (massage group) and the control groups.

Groups characteristics	Control group		Intervention group		*p* value
	Number (45)	Percent	Number (100)	Percent	
Job					NS
Housewife	42	93.3	92	91.8	
Employed	3	6.7	8	8.2	
Level of education					**NS**
Illiterate and low literacy	1	2.2	1	1	
Junior high school	10	22.2	30	30.3	
Senior high school and diploma	28	62.2	56	55.6	
University	6	13.4	13	13.1	
Fetal gender					
Male	19	42.2	51	51.5	
Female	26	57.8	49	48.5	

The percent of intact perineal, episiotomy and perineal tear were 22.2, 44.4, and 33.3 in massage group and 20.2, 49.3, 28.3 in control group, respectively that the difference was not meaningful for the two groups. 33.3% of the massage group had perineals tear, but there were not any 2nd, 3rd or 4th-grade tears. 28.3% of the control group had 1st-grade tear but there were not any 2nd, 3rd or 4th-grade tears (**Table 2**). The frequency of anterior prineal tear (labia and vagina) were 6.7% and 4.4% in massage group; this percent was 8.1 and 1 that the difference was not meaningful in between groups. Need of repair perineal tear was 11.1% and 9.1% in massage and control groups, respectively. There weren't the statistically significant differences in between groups (**Table 2**). Mean length of second stage labor was 40.3 ± 9.3 minutes in massage group and 40.7 ± 9.9 minutes, the differences were not meaningful for both groups. Mean of first minute Apgar score for the massage group and control group was 8.9 ± 0.2 and 8.9 ± 0.1 respectively, while mean the 5th minute of Apgar score for both massage and control group was 10, the difference was not meaningful (**Table 3**).

4. DISCUSSION

Results showed that preineal massage had no effect on rate of perineal health. Both groups needed identical episiotomy, tears repair and rate of 1st grade tears repair, frontal perineal tears was same in two groups. Studies of Stamp (2001) demonstrated that perineal massage in labor 2th stage didn't affect on frequency of intact perineal, its damage prevention, pain, incontinence of urine and feces as well as sexual intercourse [12]. Alberts (2005) studied reducing method of vaginal tract trauma during delivery on 3 groups including: perineal hot compress, massage with lubricant, and non-intervention till groaning, there were not significant differences in 1st and 2nd grade tears, episiotomy, and tear repair [5]. Mei-Dan (2008) suggested that perineal massage had not affect on frequency of intact perineal and there weren't the significant difference in rate of trauma perineal [3]. But Aasheim (2011) and Attarha *et al.* (2009) believed that perineal massage reduces 3rd and 4th tears rather than non-contact technique [15,16]. In a study, Attarha *et al.* [11] observed that perineal massage with lavender essence at the second stage of labor increased blood flow, softened perineal tissues and made it more flexible in the involved group rather than the control group. Frequency of perineal tear for the massaged group with lavender essence was more than that of the control group. Although the severities of perennial tear was the less in intervention group than control group (2009). In Australia, Beckmann (2006) studied the effect antenatal perineal massage for reducing perineal trauma in 34 weeks pregnancy till the labor time on tear reduction, he concluded that perineal massage group had less frequent episiotomy and the frequency rate was meaningful for the primiparous females rather than women who experienced childbirth, they concluded that perineal massage in pregnancy reduces possibility of perineal damage, episiotomy, and postpartum perineal pain [17]. Kalichman (2008) believes that in the final weeks of the pregnancy, perineal massage reduces perineal pain especially episiotomy and perineal pain. During 3rd trimester of the pregnancy, perineal massage reduces episiotomy, 2nd and 3rd grade tear as well as operation delivery. This effect is more for women more than 30 years old [1]. In a study, Granmayh *et al.* (2012) observed that perineum massage with Vaseline in the second stage of labor had more intact perineum, less episiotomy as well as more 1st and 2nd grade tear in intervention group than control group [18]; Studies have indicated that using aroma caused perineal soft and it helped to flexibility and elasticity perineal area and prevent perineal laceration during pregnancy. Mixing 5 drops of oil rose in 5 cc of sweet almond oil and massage it along the perineum to the rate of once a day, a week before the

Table 2. Comparison of perineal outcomes in intervention and control groups.

Group outcome	Massage		Control		*p* value
	N	%	N	%	
Intact perineum	10	22.2	20	20.2	NS
Episiotomy	20	44.4	71	49.3	NS
Perineal tear	15	33.3	28	28.3	NS
Labial tear	3	6.7	8	8	NS
Vaginal tear	2	4.4	1	1	NS
First degree tear	15	33.3	28	28.3	NS
Second degree tear	0	0	0	0	NS
Third degree tear	0	0	0	0	NS
Fourth degree tear	0	0	0	0	**NS**
Need to repair	5	11.1	9	9.1	**NS**

Table 3. Comparison maternal and neonatal characteristics in intervention and control groups.

Outcomes	Intervention mean ± SD	Control mean ± SD	*p* value
Age (yrs)	26.96 ± 4.3	26.06 ± 4.5	NS
Gestational age at delivery (wk)	38.84 ± 1.03	38.67 ± 0.94	NS
Mean of length second stage (minutes)	40.3 ± 9.3	40.7 ± 9.9	NS
Means birth weight (g)	3348 ± 452	3280 ± 407	NS
Apgar 1 minute	8.9 ± 0.2	8.9 ± 0.1	NS
Apgar 5 minutes	10	10	NS

expected birth, prepared perineum and prevent perineum tear during delivery [19].

Hastings-Tolsma (2007) reported that in Lithotomical position when oils and lubricants were used, rate of tears were more but episiotomy was less. Side position, perineal control, and compress were remarkably interventions for reducing perineal trauma [20]. The limitation of this study was inability in blindness because of unavoidable intervention. The results showed that massage with a sterile lubricant provides no apparent significantly advantage or disadvantage in reducing perineal trauma.

5. SUMMARY

In summary, with attention to the finding of this research, it concluded that perineum massage with lubricant does not affect episiotomy and perineal tears. Therefore, perineum massage as a control technique of perineum is safe based on childbirth criteria, tendency of woman and her convenience. Also, it recommended studying more the effect of perineum massage with oil essences in the second stage labor.

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DISCLOSURES

All authors state that no conflicts of interests exist.

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