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Research Article

Effect of *Marham-i-Raal* on Episiotomy Wound Healing: A Single-Arm pre-and post-treatment study

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ABSTRACT

Episiotomy is the commonest obstetrics intervention in the world to reduce severe perineal injuries. Its prevalence is 43% to 100% in primiparous women in Asia. Further, worldwide approximately 10-95% of pregnant women undergo episiotomy incision during birth. Delay in wound healing probably increases the risk of wound infection, changes the muscular structure, and ultimately causes muscle tone loss. So, wound care is of specific significance to postnatal maternal outcomes. Hence, this case study aimed to evaluate the effect of *Marham-i-Raal* in episiotomy wound healing and pain relief. The study was conducted in eleven postpartum primi or multipara pregnant women aged between group 19 and 35 years with term gestational age, singleton pregnancy in a cephalic presentation who had a normal vaginal delivery with mediolateral episiotomy, without a perineal tear, and perineal hematoma. Externally, application of *Marham-i-Raal* 2g on episiotomy incisional wound, twice a day for 10 days was advised. Wound healing of episiotomy and pain intensity was assessed with REEDA ["redness, oedema, ecchymosis, discharge and approximation of the edges"] scoring and VAS scoring for pain intensity respectively. At one hour (baseline), the REEDA mean score of eleven patients was 3.90±1.04 whereas on day 7-10 it was 0.18±0.40 with statistically significant difference ($p<0.001$). The VAS mean score at one hour was 6.90±1.22 whereas on day 7- 10 it was 0.72±0.78 with a statistically significant difference ($p <0.001$). *Marham-i-Raal* would be effective in episiotomy wound healing and reducing pain intensity. Further, randomized double-blind controlled trials in large sample size are recommended.

Keywords *Episiotomy, Marham-i-Raal, REEDA score for wound healing, VAS score for pain intensity*

INTRODUCTION

Episiotomy is the surgical incision given on the perineum to make available sufficient space for delivery and to reduce severe perineal injuries (Vakili *et al.,* 2018). Its prevalence is 43% to 100% in primiparous women in Asia and it is the commonest obstetrics intervention in the world. Further, worldwide approximately 10-95% of pregnant women undergo episiotomy incision during birth (Mohammadi *et al.,* 2014; Vakili *et al.,* 2018). Instrumental delivery injuries possibly will lead to pelvic floor disorders and there is an increased perineal laceration threat in absence of episiotomy. During vaginal delivery, Asian women are at a higher risk owing to the short perineum body and the kind of tissue to develop severe perineal injuries (Vakili *et al.,* 2018). Delay in wound healing probably increases the risk of wound infection, changes the muscular structure, and ultimately causes muscle tone loss. So, wound care is of specific significance to postnatal maternal outcomes and can expedite women's return to regular life (Nikpour *et al.,* 2019). In the postpartum period, episiotomy probably causes an increased risk of wound healing problems and a four-fold prevalence of perineal pain in comparison with no episiotomy. Hence, effective pain relief is a foremost feature of postpartum care certainly affecting women's life (Asgharikhatoon *et al.,* 2015). The conventional treatment for wound healing and pain are ice bags, nonsteroidal anti-inflammatory drugs and analgesics (Vakili *et al.,* 2018). After an episiotomy, the routine procedure for perineal care includes the application of povidone-iodine (Betadine) solution on the perineal wound for healing and antiseptic. Evidence indicates that using CAM is known as a safe treatment among women of reproductive age in industrialized countries and also supports the independence of mothers (Vakili *et al.,* 2018). In the last decade, approximately 20% of the population are using herbal products and it is gaining popularity (Asgharikhatoon *et al.,* 2015).

Unani medicine is the oldest system that prevails to date with its effective remedies. There is a varied systemic and topical treatment to manage perineal injuries (Nikpour *et al.,* 2019). Various compound formulas such as *Roghan-i-Hina, Roghan-i-Raal* and *Marham-i-Hina* are useful in wound

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healing and pain relief. Among these drugs, *Marham-e-raal* (Anonymous. National Formulary of Unani Medicine, 2006) contains *Raal* [*Vateria indica* L.], *Kafoor* (*CinnaMomum. Camphora* L.), *Kath sufaid* [*Acacia catechu* L.] and *Mom* [Bee wax]). *Marham-i-Raal* is useful in the treatment of *Jarahat, Quruh-i-Aathishak, Nasur* and *Quruh-i-Anaf* (Anonymous. National Formulary of Unani Medicine, 2006). *Raal* (Kabiruddin, 2007) and *Mom* (Beewax) (Khan *et al.,* 2016) has *Mudammil-i-Quruh* (wound healing), and *Muhallil-i-Waram* (anti-inflammatory) (Kavitha and Geetha, 2017) properties. Hence useful on the local ulcer and reduces itching and wound scar. Kath is reported to have anti-inflammatory, analgesics, and tissue-protective properties in an experimental model (guinea pigs) (Tangeti *et al.,* 2018). A systematic review has shown the effect of various herbs to improve wound healing and reduce pain (Shahrahmani et al. 2016). Therefore, the objective was to determine the effect of *Marham-i-Raal* on episiotomy wound healing and pain relief.

METHODOLOGY

This study included eleven postpartum pregnant women admitted to the Maternity Unit, National Institute of Unani Medicine, Bengaluru between 16 February 2020 and 9 April 2021. The inclusion criteria were primi or multipara women aged between 19 and 35 years, singleton with term gestation in a cephalic presentation who had a normal vaginal delivery with mediolateral episiotomy, without a perineal tear, and perineal hematoma. The exclusion criteria were history of reconstructive surgery history of the vagina and the perineum, history of health conditions that could negatively affect wound healing (such as diabetes mellitus, kidney diseases, or severe anaemia), use of medications that could affect wound healing, perineal hematoma and fourth-degree perineal tear.

Details history and clinical examination were collected from the case record form. "REEDA [redness, oedema, ecchymosis, discharge and approximation of the edges] score for wound healing of episiotomy was used. The items of the REEDA scale were scored on a Likert type scale from 0 ("not occurred") to 3 ("severe problem")" (Mohammedi *et al.,* 2014; Nikpour *et al.,* 2019). Visual Analogue Scale (VAS) score was used to assess pain intensity. "Pain based ruler from zero to ten cm. Zero represent 'no pain', 1-3 Mild pain; 4-6 Moderate pain; and 7-10 consider as severe pain" (Mohammedi *et al.,* 2014). As a routine protocol, for all pregnant women who were admitted for normal delivery, written informed consent was obtained.

Externally, the application of *Marham-i-Raal* was advised after 2 hours of episiotomy suturing. Patients were taught how to use it and they were advised to use it after washing hands and perineum. Patients were instructed to apply 2 g cream on the perineal wound (stitches) surface, twice a day for 10 days. Pain in the perineal area and the effect of wound healing were evaluated at baseline (1 hour), 12 hours, and on days 7-10. The ingredients of *Marham-i-Raal* were Ghee (60 g), *Raal, Kafoor, Kath sufaid* and *Mom* (each 15g). *Marham* was prepared in the pharmacy unit of the Institute according to standard Unani parameters as per the classical method described in Unani literature and supplied in our dispensary (Anonymous. National Formulary of Unani Medicine, 2006). Pregnant women received injection ceftriaxone 1 gm in the intrapartum period.

The results were analyzed statistically by using Graph Pad Statistical software. One way ANOVA was applied and $p<0.05$ was considered significant.

RESULTS

The baseline details of each case are summarized in table 1. The mean age of postpartum women was 24.18±4.70 years. At baseline (one hour), the REEDA mean score of eleven postpartum women was 3.90±1.04 whereas on day 7-10 it was 0.18±0.40 with a statistically significant difference ($p<0.001$). The VAS mean score at one hour was 6.90±1.22 whereas on day 7-10 it was 0.72±0.78 with a statistically significant difference ($p<0.001$) [Table 2].

Table 1. Baseline and Obstetrics history of pregnant women

Cases	Age (y)	Parity	OCC	Ed	Habitat	G	P	A	Wt of baby (Kg)	Sex of baby
1	20	Primi	HW	10	Urban	1	0	0	2.6	F
2	35	Multi	HW	10	Urban	5	3	1	2.9	M
3	19	Primi	HW	10	Urban	1	0	0	3.25	M
4	28	Primi	Nurse	Grad	Urban	1	0	0	2.75	M
5	20	Primi	HW	10	Urban	1	0	0	3.1	M
6	26	Multi	HW	10	Urban	2	1	0	3	M
7	23	Multi	HW	10	Urban	3	1	1	3.1	M
8	21	Multi	HW	7	Urban	3	1	1	2.5	F
9	22	Multi	HW	10	Urban	2	1	0	3	F
10	25	Primi	HW	Grad	Urban	1	0	0	3.25	F
11	27	Multi	HW	10	Urban	2	1	0	2.5.	F

OCC: Occupation; Ed: Education; G: Gravida; P: Parity; A: Abortion; F: Female; M: Male

Table 2. REEDA Score for episiotomy wound healing and visual analogue scale for pain intensity

Cases	REEDA score for wound healing			VAS score for pain intensity		
	Base line (1hr)	12 hour	Day 7-10	Base line (1hr)	12 hour	Day 7-10
1	4	2	0	8	3	1
2	6	3	0	7	4	0
3	4	2	1	8	4	2
4	5	4	0	8	5	2
5	4	2	0	9	4	1
6	2	1	0	6	1	0
7	3	2	0	7	4	1
8	4	1	1	5	0	0
9	3	2	0	6	1	0
10	4	1	0	6	2	0
11	4	1	0	6	2	1
Mean	3.90±1.04	1.90±0.94	0.18±0.40	6.90±1.22	2.72±1.61	0.72±0.78
P value from baseline		0.001	0.001		0.001	0.001

Data presented: Mean ± SD; Test used: One way ANOVA

DISCUSSION

The observation showed that *Marham-i-Raal* would be effective in episiotomy wound healing and ameliorating pain as it has anti-inflammatory, analgesic and wound healing properties (Khan *et al.,* 2016; Tangeti *et al.,* 2018). Two postpartum mother complained burning sensation after applying the ointment. However, they were explained that because of *Kafoor* drug, mild burning sensation is felted after applying the ointment. However, other mothers had no complaint or any other side effects

The present study showed statistically significant difference in the REEDA and VAS mean score at post-treatment compared to pre-treatment (p<0.001). Similarly, Asgharikhatooni *et al.,* (2015) observed that *Equisetum Arvense* ointment reduced REEDA score (0.8±1.3) and efficacious topical formulation in episiotomy wound healing. Lavaf *et al.,* (2017) also reported that honey and phenytoin cream showed episiotomy wound healing and pain relief effect. Mohammadi *et al.,* (2014) in their study reported that *C. zeylanicum* was effective in episiotomy wound healing with REEDA mean score, 1.6±1.3 and perineal pain relief with VAS mean score, 1.2±1.6 on 10-11 day after delivery. Nikpour *et al.,* (2019) in their study showed that Curcumin and honey creams had similar effects on wound healing and pain relief of episiotomy wound. Vakili *et al.,* (2018) reported that *Hypericum perforatum* ointment reduced VAS score and effective topical formulation in episiotomy pain relief.

As per the Unani literature, *Marham-i-Raal* helps in wound healing by aiding in the development of healthy tissue. The same has been proven in the molecular action experiment in albino rats that *Marham-i-Raal* enhances collagen concentration, epithelialization process and stabilizes the fibres at the wound bed (Ahmad *et al.,* 2019). *Raal* has *Mudammil-i-Quruh, Muhallil-i-Waram, Da'f-i-Ta'affun,* and *Mujaffi* properties (Kabiruddin, 2007) and it is useful on the local ulcer and reduces itching and wound scar. *Kath* has *Musaffi-i-Khun* (blood purifier), *Mujaffif-i-Zakhm* (desiccant of the wound), and *Mujaffif* (desiccant) properties (Kabiruddin, 2007). It is sprinkled over the wound, itching, and burn ulcer. In syphilitic ulcers, it is used in the form of ointment. It has strong astringent and antiseptic properties. *Mom* (beeswax) increases the deep penetration of the contents of the *Marham-i-Raal* (an ointment) in the wound bed. *Mom* has healing property as it possesses *Muhallil-i-Waram*, *Musakkin-i-Auja'a* (analgesic), *Mundamil-i-Quruh* (wound healing), *Munbit-i-Leham* (muscle fibre grower), *Mujaffif-i-Quruh* (Siccative), and *Daf-i-Hikka* (anti pruritus) activities. It also promotes wound healing and reduces pain in the wound side (Khan *et al.,* 2016). *Kafoor* has stimulant, rubefacient, demulcent, analgesic and antiseptic activity, when applied locally, it dilates the peripheral blood vessels, is hyperemic and improves the circulation (Chen *et al.,* 2013). Further study has reported that *Kafoor* de-sensitized the capsaicin receptor (TRPV1) at the same time inhibit the garlic receptor (TRPA1) and act as an analgesic (Chen *et al.,* 2013). It also has skin penetration property. *Raal* has anti-inflammatory, anti-ulcer, astringent and wound healing activities and it also aids in the wound cleansing activity as it has detergent properties. Ghee has anti-ulcer and antifungal activities (Ahmad *et al.,* 2019). A study has proven Kath (*Acacia catechu*) has strong incisional wound-healing effect in the animal models (Tangeti *et al.,* 2018). Further, the authors reported that tannins are recognized to enhance the wound- healing process mostly because of their astringent and antimicrobial properties (Li *et al.,* 2011) Furthermore, phytoconstituents such as alkaloids and saponins might play an important role in tissue regeneration in the progression of wound healing (Tangeti *et al.,* 2018). *Marham-e-raal* contains several phytoconstituents such as linalool, borneol, cineole, terpenoids, Bergenin, phenols, flavonoids, hopeaphenol, oligostilbenoid, monoterpenes, kaempferol, and quercetin. Catechin has been proven for anti-inflammatory, antimicrobial, wound healing, analgesic and antioxidant properties (Ahmad *et al.,* 2019).

CONCLUSION

Marham-i-Raal would probably be effective in episiotomy wound healing and reducing pain intensity as it possesses

Muhallil, *Mujaffif* and *Mundamil* properties. Further, randomized controlled trials in large sample sizes are recommended.

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CONFLICT OF INTEREST-

The authors have no conflicting financial interests.

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None to declare

AUTHOR CONTRIBUTIONS

AS has designed and planned the study, analysing the data, drafting, critically reviewing and proofreading, interpreted the data; AF has collected the data, critical reviewed and proofread the manuscript; KR has contributed in drafting, critically reviewing and proofreading the manuscript.

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