Relieving Perineal Pain after Perineorrhaphy by Diclofenac Rectal Suppositories: A Randomized Double-Blinded Placebo Controlled Trial

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Background: *Perineal pain after episiotomy is a common problem following vaginal birth. The pain affects either physical or mental function negatively. There are many methods in perineal pain relief, such as local ice pack and a bath, ultrasound, oral anesthesia, and intravenous anesthesia. Analgesic rectal suppository is one of various methods in pain relief, especially in drowsy patients, or when oral preparation causes gastric discomfort, nausea or vomiting.*
Objective: *To assess the effectiveness of diclofenac rectal suppositories for relief perineal pain after perineorrhaphy.*
Design: *A randomized double-blinded placebo controlled trial.*
Material and Method: *Seventy-two term, singleton, pregnant women who gave vaginal birth with second to third degree episiotomy tears were randomized with envelop concealment to either diclofenac or placebo rectal suppositories group. Each group received two tablets of 50 mg diclofenac or two tablets of look-alike placebo rectal suppositories. Visual analogue scale was used for scaling pain score before administration of the medications, and at 30 minutes, 1, 2, 12, and 24 hours after administration.*
Results: *No differences were found in the median pain scores before administration of medications and at 30 min, 1 hour, and 2 hour after administration ($p > 0.05$), while the median pain scores were significantly reduced in the diclofenac group at 12 and 24 hours after administration compared to the control group (4.5 vs. 0.0; $p < 0.001$ and 2.0 vs. 0.0; $p = 0.02$ for 12 hours and 24 hours, consecutively).*
Conclusion: *The present study suggested that diclofenac suppository was effective on reducing perineal pain after episiotomy, especially at 12 and 24 hours after administration.*

Keywords: *Perineal pain, Episiotomy, Diclofenac, Rectal suppositories*

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Perineal pain after episiotomy is a common problem following vaginal birth. Pain originates from tear, inflammation, swelling of the adjacent tissues and contraction of perineal muscles[1-3]. More than 60 percent of women who had perineal tear from either episiotomy or spontaneous tear experienced perineal pain were shown in one study[4]. The pain impacts either physical or mental function negatively, including successful breastfeeding[5]. Physical impacts associated with reduced motility, sitting, urinary and faecal incontinence, and sexual dysfunction. One-forth of postpartum women may continue to experience perineal pain for up to 2 weeks postpartum, while 10% of these women may persist until 3 months after childbirth[5].

Concerning strategies to reduce perineal pain, there are many methods in perineal pain relief including non-medications and medications. Numerous non-medication methods such as therapeutic ultrasound, local ice pack and a bath were found to have a positive effect[5].

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In daily practice, if perineal pain is mild, acetaminophen is the analgesic drug of choice. However, if the perineal pain increases to a moderate and severe degree, a variety of drugs have been prescribed including oral opioids, non-opioids, and combination of both. Non-steroidal anti-inflammatory drugs (NSAIDs) are also widely used in the latter groups. However, the side effects of NSAID, such as gastric discomfort, peptic ulcer, nausea, and vomiting are warranted us to be cautious in using these medications. Furthermore, some drugs such as aspirin have a potent ability to pass into breast milk, causing metabolic acidosis in infants[5].

Analgesic administration can be used via many routes such as oral, intramuscular, intravenous, and rectal administration. Analgesic rectal administration may be used when the oral analgesic drugs make gastric discomfort, nausea, and vomiting, when the patient is drowsy or oral route is prohibited. Rectal administration is advantageous in that half of the drug absorbed by the rectum bypasses the liver and therefore is not metabolized, compared with a higher proportion of hepatic first pass metabolism with oral administration. It results in faster pain relief and longer action of treatment[5].

Many studies have reported the side effects of local NSAID rectal suppositories such as ischemic colitis, and proctitis, but the number of cases was small[6-9].

In Thailand, rectal administration has hardly been used in general practice, because of lacking information and unfamiliarity of this method. The advantage of rectal administration might be another choice of treatment in post-episiotomy puerperal women.

Many studies showed the advantage of the rectal administration, so the authors were interested in conducting the present study to compare diclofenac with placebo rectal suppositories in relief perineal pain after perineorrhaphy.

Material and Method

The present study was performed at the Department of Obstetrics and Gynecology, Siriraj Hospital, Mahidol University, Bangkok, Thailand during the period between September and October 2007, and was approved by the Institutional Ethic Committee. Thirty-six weeks of gestational age pregnant women who visited the antenatal care clinic of Siriraj Hospital were invited and informed about the present study. The informed consents were signed by the women who accepted the invitation.

Women who met the inclusion criteria that included singleton pregnancy, gestational age more than 37 weeks, second to third degree episiotomy tear, were randomly allocated to receive either diclofenac or placebo rectal suppositories. Exclusion criteria were vaginal tear other than second or third degree tear, operative vaginal deliveries, major postpartum hemorrhage, a manual removal of placenta, and a history of NSAID allergy, gastric or duodenal ulcer, hepatic disease, renal disease, asthma.

Vaginal repair was performed by resident physicians. The vaginal mucosa and adjacent tissues were sutured by either continuous or interrupted technique using chromic catgut No 2/0. The perineum was sutured by subcuticular technique using chromic catgut No 3/0. All repairs were injected with 1% xylocaine without adrenaline about 20 cc before suture.

After the completion of perineorrhaphy, the pregnant women were randomized to receive the diclofenac or placebo rectal suppositories. The randomization was allocated by random number table, use by the even and odd numbers in equal proportions. The even numbers in random number table represented the control group while the odd numbers represented the study group. Each treatment pack contained two tablets of 50 mg diclofenac or two tablets of placebo with similar preparation to diclofenac. The medications were packed in the opaque sealed container to mask treatment allocation. The drugs were inserted into the rectum after immediate completion of perineorrhaphy. The rectal suppositories were inserted just above the external sphincter assisted by lubricant. The pregnant women and the operators were blinded from the treatment allocation.

The visual analogue scale (VAS) was used for scoring the perineal pain experiences from 0-10 (0 = no pain, 10 = worst pain) at immediate, 30 minutes, 1, 2, 12, and 24 hours after perineorrhaphy. The interviews were made at the postpartum ward by the researcher of the present study who was also blinded to the randomization.

In the puerperal period, if the women were still faced with perineal pain, additional oral analgesic medications, using two tablets of 500 mg acetaminophen were prescribed on her demand every 4 to 6 hours.

Chi-square test was used to compare qualitative variables between the two groups. Unpaired t-test was applied to test the difference in normally distributed data between the two groups. Comparison of visual analogue scale each time between the two groups was

performed by Mann-Whitney U test. The p-value less than 0.05 was considered statistical significance.

Results

Seventy-two women were eligible for enrollment in the present study. They were equally randomized allocated into two groups. Thirty-six women in each group were administered either diclofenac or placebo rectal suppositories. All women were assessed for perineal pain experiences at immediate, 30 minutes, 1, 2, 12, and 24 hours after perineorrhaphy.

Concerning the demographic characteristics, there were no statistically significant difference in age, occupation, education, gestational age, parity, length of labor, degree of vaginal tear, suture technique, operator, blood loss, fetal weight, and additional analgesic drugs usage between each group (Table 1).

Using the visual analogue scale, there was no statistical difference in perineal pain experiences at immediate (p = 0.17), 30 minutes (p = 0.34), 1 hour (p = 0.38), and 2 hours (p = 0.47) between diclofenac and placebo group consecutively. Women in the diclofenac

Table 1. Maternal demographic data and pregnancy outcomes

	Control group (n = 36)	Diclofenac group (n = 36)	p-value
Maternal age (years)	24.28 [4.8]*	23.39 [6.3]	NS
Occupation			
Worker	18 (50)	13 (36.1)	NS
Office worker	2 (5.6)	1 (2.8)	
Own business	6 (16.7)	4 (11.1)	
Student	2 (5.6)	1 (2.8)	
Housewife	8 (22.2)	17 (47.2)	
Education			
Primary	10 (27.8)	16 (44.4)	NS
Secondary	26 (72.2)	19 (52.8)	
Bachelor	-	1 (2.8)	
Gestational age (weeks)	38.17 [0.97]	38.14 [1.13]	NS
Primiparous	24 (66.7)	19 (52.8)	NS
Multiparous	12 (33.3)	17 (47.2)	NS
Length of labor (minutes)			
1st stage	553.8 [283.7]	468.3 [217.9]	NS
2nd stage	31.5 [24.7]	23.58 [22.6]	
3rd stage	9.44 [4.8]	8.67 [5.6]	
Degree of tear			
2nd degree	36 (100)	34 (94.4)	NS
3rd degree	-	2 (5.6)	
Suture technique			
Continuous	20 (55.6)	22 (61.1)	NS
Interrupted	16 (44.4)	14 (38.9)	
Operator			
Extern	4 (11.1)	9 (25)	NS
Resident	32 (88.9)	27 (75)	
Blood loss (ml)	191.7 [82.2]	177.8 [81.5]	NS
Fetal weight (grams)	3042 [409.8]	2916 [442.6]	NS
Apgar score			
< 7 at 1 min	-	3 (8.4)	NE
< 7 at 5 min	-	-	
Additional drugs usage	20 (55)	13 (36)	NS

n = number
NS = not significant
NE = not evaluable
* The values are presented as mean [SD], or n (%)

Table 2. Median pain scores at various times

	Control group (n = 36)	Diclofenac group (n = 36)	p-value
Immediate	2.5 [0, 5]*	2.0 [0, 4]	0.17
30 minutes	2.0 [0, 5]	2.0 [0, 3.75]	0.34
1 hour	2.0 [1, 4]	2.0 [0, 3.75]	0.38
2 hour	2.0 [1, 3]	2.0 [0, 3]	0.47
12 hour	4.5 [2, 6]	0.0 [0, 2]	<0.001
24 hour	2.0 [0, 4]	0.0 [0, 2]	0.02

* The values are presented as median [25th percentile, 75th percentile]

group experienced less pain at 12 hours after perineorrhaphy than the control group ($p < 0.001$). There was also statistical difference in median pain score at 24 hours later ($p = 0.02$) (Table 2).

No serious side effects, such as nausea and vomiting, gastric upset, or rectal discomfort were found in the present study.

Discussion

The present study suggested the effectiveness for perineal pain relief of diclofenac administration at 12 hours after perineorrhaphy statistical significance. The median pain score at 24 hours was also statistically significantly different; however, its difference may not yield any clinical significance since the difference was very small. It seems the effectiveness of diclofenac rectal suppositories maintain up to 24 hours after perineorrhaphy.

Searles et al[10] studied forty-five post-episiotomy women who were given 100 mg of diclofenac rectal suppositories, found the statistical significance in perineal pain relief at 24, 48, and 72 hours after giving birth.

A similar result was found in the study of Dodd et al[6] which showed that diclofenac rectal suppositories were potential in reducing perineal pain at 24 up to 48 hours after giving birth in all activities, sitting, walking, passing urine and opening bowels. The present study showed the same results as the studies mentioned above.

However, the present study showed no statistical difference of median pain scores at immediate and up to 2 hours after perineorrhaphy but showed the difference at the 12 hours and later. The authors hypothesized that the time at immediate and up to 2 hours after perineorrhaphy were still under local effect of xylocaine injection, which masked the different median pain scores, but, after these periods of time the median pain scores happened to show the difference in pain score. These should be from the tapering off effect of the injected xylocaine.

The Drugs and Therapeutic Committee of the Women's and Children's Hospital in Adelaide, South Australia has developed a clinical guideline for the use of NSAID suppositories in the management of post-partum pain, indicating cautious use of these drugs in women with hypovolemia, pre-eclampsia, gastrointestinal bleeding or ulceration, asthma, allergies to aspirin or other NSAID, or hematologic conditions associated with prolonged bleeding time[11]. However, the guideline did not detect the occurrence of any adverse effect associated with rectal diclofenac suppositories, similar to the meta-analytic study of Hedayati et al[5].

Compared to the oral form, rectal administration is completely absorbed within 1 hour. Half of the rectal drug absorbed by the rectum will bypass the liver and therefore, not be metabolized. The plasma concentration can be maintained for up to 12 hours. Diclofenac is almost completely protein bound, and as a result, minimal amounts of the drugs are excreted in the breast milk, which is an important issue for women who are breastfeeding. These suggested that the rectal suppository might result in faster pain relief and be more effective on local action[5,6].

The acceptability of the patient in rectal suppositories is one of the important issues. If the women do not accept this method for pain relief, the effectiveness will become inapplicable. Concerning the patients' acceptability in the route of administration, Dodd et al[7] found more satisfaction in the women with rectal administration for perineal pain relief, while Carrol et al[12] found more satisfaction in intramuscular route, only 18% chose rectal administration method. In Thai culture, the patients respect their own physician's decision and treatment, so the exact acceptability may be overestimated in the present study.

Conclusion

The present study suggested that diclofenac suppository was effective in reducing perineal pain after episiotomy, especially at 12 and 24 hours after administration. Therefore, this method should be further promoted and implemented as routine use in women following episiotomy.

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การเปรียบเทียบการลดความเจ็บปวดของฝีเย็บภายหลังเย็บแผลฝีเย็บทันทีระหว่างการบริหารยาไดโครฟีแนคและยาหลอกทางทวารหนัก

วุฒินันท์ อัจฉริยะโพธา, วิทยา ถิฐาพันธ์

วัตถุประสงค์*: เพื่อศึกษาประสิทธิภาพของการบริหารยาไดโครฟีแนคทางทวารหนักในการลดความเจ็บปวดแผลฝีเย็บภายหลังการเย็บแผลฝีเย็บทันที*

วิธีการศึกษา*: การทดลองแบบสุ่มอำพรางโดยการเปรียบเทียบกับยาหลอก*

วัสดุและวิธีการ*: สตรีตั้งครรภ์เดี่ยวจำนวน 72 ราย ที่คลอดบุตรปกติทางช่องคลอดร่วมกับมีบาดแผลบริเวณฝีเย็บที่เกิดจากการตัดฝีเย็บที่มีระดับความรุนแรงของบาดแผลระดับ 2 หรือ 3 จะถูกแบ่งออกเป็น 2 กลุ่มแบบสุ่มอำพรางเพื่อรับยาไดโครฟีแนคขนาด 50 มิลลิกรัมหรือยาหลอกอย่างละ 2 เม็ดทางทวารหนักภายหลังการเย็บแผลฝีเย็บเสร็จทันที สตรีคลอดบุตรดังกล่าวจะได้รับการประเมินความเจ็บปวดภายหลังการเย็บแผลฝีเย็บเสร็จทันที และเมื่อ 30 นาที, 1, 2, 12, และ 24 ชั่วโมงต่อมา โดยประเมินความเจ็บปวดด้วย Visual analogue score ซึ่งมีค่าคะแนนจาก 0-10*

ผลการศึกษา*: จากการศึกษาไม่พบความแตกต่างในค่ามัธยฐานระดับคะแนนความเจ็บปวดของฝีเย็บภายหลังเย็บแผลฝีเย็บเสร็จทันทีจนถึง 2 ชั่วโมงต่อมา ($p > 0.05$) แต่พบว่า ในกลุ่มที่รับยาไดโครฟีแนคเหน็บทางทวารหนักจะมีค่ามัธยฐานระดับคะแนนความเจ็บปวดลดลงอย่างมีนัยสำคัญทางสถิติที่ 12 และ 24 ชั่วโมงภายหลังการเย็บแผลฝีเย็บเสร็จ เปรียบเทียบกับกลุ่มทดลอง (คะแนน 4.5 เทียบกับ 0.0, $p < 0.001$ และ คะแนน 2.0 เทียบกับ 0.0, $p = 0.02$ ที่ระยะเวลา 12 และ 24 ชั่วโมงตามลำดับ)*

สรุป*: ยาไดโครฟีแนคเหน็บทางทวารหนักมีประสิทธิภาพในการลดความเจ็บปวดแผลภายหลังเย็บแผลฝีเย็บที่ระยะเวลา 12 และ 24 ชั่วโมงภายหลังการบริหารยา*