Second-Trimester Pregnancy Interruption with Vaginal Misoprostol in Women with Previous Cesarean Section

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Objective: *To describe the experience of misoprostol use for pregnancy interruption in the second trimester of women with previous cesarean section*

Material and Method: *Seventeen pregnant women with viable fetuses and with previous cesarean section indicated for second trimester pregnancy interruption attending Maharaj Nakorn Chiang Mai Hospital were recruited. All received the same regimen of 400 mcg intravaginal misoprostol every 6 hours. The data was analyzed for demographic characteristics, the adverse outcomes, success rate, and time interval to fetal expulsion.*

Results: *The incidences of adverse outcomes were as follows, fever (47.1%), chill (23.5%), and nausea (17.6%). No uterine rupture occurred in this series at all. The rate of oxytocin use and analgesia requirement was 29.4%. Success rate of pregnancy interruption was 100%, though two of them had an abortion time of more than 48 hours. Time interval from misoprostol administration to fetal expulsion was 25.9 $\pm$ 34.1 hours (range 4.0-142.7 hours).*

Conclusion: *This case series reaffirms the efficacy of misoprostol and suggests that misoprostol may relatively be safe even in cases with previous cesarean section. Therefore, misoprostol may be an option of pregnancy interruption in the second trimester to avoid unnecessary surgical procedure including hysterotomy. However, the safety should be tested by further studies with a larger sample size.*

Keywords: *Misoprostol, Second–trimester pregnancy interruption, Previous cesarean section*

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Misoprostol, a prostaglandin E 1 analog has become a major method used for pregnancy interruption and has been used worldwide. The efficacy of misoprostol for termination of pregnancy with a live or dead fetus in both second and third trimester has been established. However, the experience of misoprostol use in the second trimester interruption of pregnancy with a live fetus in the women with previous uterine scar is very limited with only a few small case series[1-3]. The authors reported the preliminary study on misoprostol use in this manner but with various regimens, inconsistent dosage and time interval of drug administration[1]. Therefore, the authors conducted this prospective study to describe the experience of misoprostol use in such a condition with the same regimen.

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Material and Method

This prospective descriptive study was conducted at Maharaj Nakorn Chiang Mai hospital, during the period from January 2003 to April 2005. This case series included pregnant women, who had a history of previous low transverse cesarean scar. The patients had an indication for termination of pregnancy in the second trimester and had an unfavorable cervix, closed and uneffaced cervix. The patients were recruited into the present study and gave written informed consent. All patients received the same treatment protocol for pregnancy interruption, 400 mcg intravaginal misoprostol every 6 hours. To ensure safety, each subject

was comprehensively informed and closely attended and monitored for uterine rupture. Vital signs, uterine contraction and adverse outcomes of misoprostol were monitored at a minimum of 1 hour interval.

Misoprostol was repeated as the protocol regimen until adequate uterine contraction or dilated cervix was established. Acetaminophen 500-1000 mg, metoclopramide HCl 10 mg, diphenoxylate HCl 50 mg were orally given for fever, nausea/vomiting, or diarrhea, respectively. Intravenous infusion of oxytocin was allowed to augment the labor as needed, and intravenous analgesia was used if and when needed by the patients.

The outcome measures included the adverse effects of misoprostol, in particular, uterine rupture, success rate, and time interval to fetal expulsion.

Statistical analysis

Study data were analysed by means of mean, SD and percentage.

Results

Seventeen women were recruited into the present study. The mean ± SD maternal age and gestational age were 34.6 ± 5.1years and 20.5 ± 2.8 weeks, respectively. Nearly all had only one previous low transverse cesarean section, whereas one had 2 previous sections.

The most common indication for pregnancy interruption was severe fetal structural malformation (58.8%), diagnosed by antenatal ultrasound. The adverse outcomes were as follows: fever (47.1%), chill (23.5%), and nausea (17.6%). None was detected for uterine rupture. The detailed outcomes are presented in Table 1 and Table 2.

The mean (± SD) time interval from drug administration to fetal expulsion in all cases was 25.9 ± 34.1 hours (range 4.0-142.7 hours). All had successful vaginal delivery with a success rate of 100%. However, 2 cases (11.8%) failed to abort within 48 hours. One case aborted within 73.3 hours and needed 6 doses, whereas the other aborted within 142.7 hours and needed 11 doses of misoprostol.

Discussion

Second trimester termination of pregnancy with previous uterine scar has always been a challenge. No methods have been proven to be the best and new techniques are needed.

In 2003, the authors' reported the preliminary experience on using misoprostol for second-trimester interruption in pregnant women with previous cesarean section[1]. However, though the authors' previous study suggested that misoprostol may safely be used in cases of uterine scar, several drawbacks existed, since it included both pregnancies with live and dead fetuses and various regimens were used for interruption. In the present study, the authors focused on only one regimen for pregnancy with a live fetus. However, the results of the present study were similar, suggesting that misoprostol may be safe for use in this regimen with precaution. Although, the authors cannot conclude that misoprostol is safe, it may be an option to avoid an unnecessary surgical approach. Several studies suggest that 600-800 mcg transvaginal misoprostol is effective for second trimester termination. However, a scarred uterus is at higher risk for uterine rupture than an unscarred uterus. Moreover, a case report of uterine rupture following administration of misoprostol in the second trimester for pregnancy termination has also been reported[4,5]. Therefore, the authors preferred using a smaller dosage, 400 mcg every 6 hours in the present study. Every case was undertaken with extreme precaution.

Table 1. Characteristics of pregnant women (n = 17)

	Mean ± SD or Number (%)
Maternal age (years)	34.6±5.1
Gestational age (weeks)	20.5±2.8
Total dose of misoprostol (mcg)	1035.3±1000.6
Indications for pregnancy termination	
Severe fetal structural anomalies	10 (58.8%)
Severe fetal thalassemia	5 (29.4%)
Others	2 (11.8%)

Table 2. Outcomes of misoprostol used and related outcomes (n = 17)

	%
Adverse outcomes of misoprostol	
Fever	47.1
Chill	23.5
Nausea	17.6
Vomiting	17.6
Diarrhea	11.8
Estimated blood loss > 500 ml	0
Uterine rupture	0
Syntocinon requirement	29.4
Analgesia requirement	29.4

Herabutya and et al[2] assessed the safety of vaginal misoprostol for second trimester pregnancy termination in patients with a history of cesarean section. However, the regimens of misoprostol use in their studies were varied in dosage ranging from 600 to 800 mcg and drug administration interval ranging from 6-12 hours. The result was similar to that of the present study in terms of its efficacy. Likewise, Rouzi AA[3] reported 10 cases using 200 mcg intravaginal misoprostol every 6 hours with good outcome (the average duration between the start of therapy and fetal expulsion was only 13.1 hours without any complication). However, although uterine rupture was not found in these studies, the safety of misoprostol in the scarred uterus could not be assumed since the small sample size in every study did not gain enough power to assess for such a rare dangerous complication.

The case series presented here contained 17 cases in the second trimester with previous uterine scar using 400 mcg intravaginal misoprostol every 6 hours. It showed that there was no serious adverse outcome and no uterine rupture. It indicates that misoprostol use may be safe and may be an option for such a purpose. Moreover, misoprostol was effective, though the result of the present study is not as effective as reported by Rouzi AA[3]. Some of the presented cases here needed a longer time as two cases (11.8%) in the present series failed to abort within 48 hours.

While the safety of misoprostol for a scarred uterus could not be concluded and the optimal regimen has not been established, the present study adds a significant number of cases to an existing body of inconclusive knowledge on this issue.

In conclusion, this small series indicated that vaginal misoprostol of 400 mcg was effective for the second trimester pregnancy interruption and resulted in good outcomes. Its use can avoid invasive procedures such as dilatation & evacuation or hysterotomy. However, the safety of misoprostol in the scarred uterus cannot be assumed from the present study. A larger series is needed to gain this confidence.

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การยุติการตั้งครรภ์ในไตรมาสที่ 2 ด้วยมีโสพรอสตอลทางช่องคลอด ในสตรีที่เคยผ่าตัดคลอดมาก่อน

สายพิณ พงษธา, ธีระ ทองสง

วัตถุประสงค์*: เพื่อรายงานประสบการณ์การใช้มีโสพรอสตอลเพื่อยุติการตั้งครรภ์ในไตรมาสที่ 2 ในสตรีที่เคยผ่าตัดคลอดมาก่อน*

วัสดุและวิธีการ*: สตรีตั้งครรภ์ในไตรมาสที่2 ซึ่งมีประวัติการผ่าตัดคลอดที่มีข้อบ่งชี้ให้ยุติการตั้งครรภ์โดยทารกยังมีชีวิตอยู่ ทุกรายได้รับมีโสพรอสตอลขนาด 400 ไมโครกรัมสอดทางช่องคลอดทุก 6 ชั่วโมง ทำการวิเคราะห์ข้อมูลเบื้องต้นรวมทั้งผลข้างเคียงจากยา, อัตราการประสบผลสำเร็จและระยะเวลาตั้งแต่เริ่มให้ยาจนแท้ง*

ผลการศึกษา*: สตรีตั้งครรภ์ทั้งสิ้น 17 ราย ที่เข้าสู่การศึกษา พบผลข้างเคียงจากยาดังนี้ ไข้ 47.1%, หนาวสั่น 23.5%, คลื่นไส้ 17.6% ไม่พบการแตกของมดลูกเลย อัตราการใช้ออกซิโตซินและยาแก้ปวดคือ 29.4% ทุกรายประสบผลสำเร็จคือแท้งออกเอง มี 2 รายที่ระยะเวลาการแท้งเนิ่นนานกว่า 48 ชั่วโมง ระยะเวลาเฉลี่ยตั้งแต่เริ่มให้ยาจนแท้งในสตรีทั้งหมดคือ 25.9 $\pm$ 34.1 ชั่วโมง (พิสัย 4.0-142.7 ชั่วโมง)*

สรุป*: รายงานสตรีตั้งครรภ์ 17 รายที่เคยผ่าตัดคลอดมาก่อนชี้ว่าการใช้มีโสพรอสตอลมีประสิทธิภาพดีและน่าจะมีความปลอดภัยดังนั้นจึงเป็นอีกทางเลือกหนึ่งสำหรับเพื่อยุติการตั้งครรภ์ โดยหลีกเลี่ยงการใช้หัตถการที่ไม่จำเป็น เช่น การผ่าตัด อย่างไรก็ตามความปลอดภัยควรได้รับการศึกษายืนยันต่อด้วยจำนวนประชากรที่มากขึ้น*