ORIGINAL ARTICLE

Misoprostol for Second Trimester Pregnancy Termination in Women with Prior Caesarean Section

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ABSTRACT

The objective of this study was to assess safety of misoprostol in women with prior caesarean section undergoing a mid-trimester pregnancy termination by labour induction. All the terminations performed between 14 and 24 weeks of gestation were induced by using 400µg of intravaginal misoprostol. The same dose of intravaginal misoprostol was repeated every 6 hours for a maximum of five doses. Main outcome measures were severe haemorrhage requiring blood transfusion, post-abortal infection, retained placenta and uterine rupture. We found that misoprostol is a safe drug for induction of labour in women with prior caesarean section undergoing a mid-trimester pregnancy termination.
Keywords: Caesarean section, haemorrhage, misoprostol, second trimestre abortion, uterine rupture.

INTRODUCTION

The termination of second trimester pregnancy due to maternal or foetal indication is a common problem in obstetric practice because of its complications and psychic trauma to patients. Although various methods for second-trimester termination are effective, there are many risks to patients. Misoprostol, a synthetic analogue of prostaglandin E1, is gaining worldwide popularity not only for induction of labour but also for pregnancy termination. It is a gastric cytoprotective agent that has been marketed in US since 1988 for the prevention of peptic ulcers. Misoprostol is not FDA approved as a pregnancy category drug, however FDA recognizes that in certain circumstances, off label uses of approved product is appropriate, rational and accepted[1]. According to American College of Obstetricians and Gynaecologists (ACOG), misoprostol has been used too frequently and so effectively that it has become the treatment of choice "for ripening of cervix prior to induction of labour among pregnant women"[2]. Consequently misoprostol has become an important drug in obstetrical practice. It is useful for elective medical abortions, cervical priming before surgical abortions[3,4] and evacuation of the uterus in case of embryonic foetal death[5,6].

Several recent studies have reported excellent results with its intravaginal use for pregnancy termination in second trimester[7,8,9,10] unfortunately, most of the studies have generally excluded patients with previous caesarean section. For these women, induction of labour with prostaglandins during the mid or third trimester, is considered dangerous due to the risk of uterine rupture[11,12]. Because of the increasing rate of caesarean deliveries which has been observed during the last two decades, the number of women with such an obstetric history who are offered pregnancy termination is also increased. The aim of our study was to examine whether a previous caesarean section carries a higher risk of complications in women who undergo a mid-trimester pregnancy termination with prostaglandins, compared with women without such a history.

MATERIAL & METHODS

This study was conducted at Lady Willingdon Hospital Lahore from Jan 2008 to December 2011. A total of 200 patients, having had medical indications for termination of pregnancy in second trimester were included. One hundred with a previous caesarean section (study group) and one hundred women without such a history (controls) were included. Inclusion Criteria were, patients with medical indications for therapeutic abortions in second trimester (un-controlled hypertension, diabetes mellitus, cardiac diseases and renal diseases), patients with obstetrical indications (severe oligohydramnios and anhydramnios), and patients with foetal indications (structural foetal anomalies, genetic disorders and chromosomal anomalies). The exclusion criteria were patients hypersensitive to prostaglandins, having bleeding disorders, previous uterine surgery such as myomectomy, or surgery for uterine malformations, or patients with an overdistended uterus (polyhydramnios, multiple pregnancies).

Patients, fulfilling the criteria were admitted in the labour ward of the hospital. Complete history was taken and physical examination was performed. Ultrasonographic examination was conducted to confirm the gestational age of the foetus, placental localization and uterine abnormalities**.** All the women of the study group had a lower segment caesarean section. The control group consisted of women without a history of caesarean section, matched for the maternal and the gestational age to those of the

study group, who also underwent termination of pregnancy during the same period. The matched control group was selected by including the two next women with the same maternal and gestational age in the list.

All the terminations performed between 14 and 24 weeks of gestation were induced by using 400µg of intravaginal misoprostol. The same dose of intravaginal misoprostol was repeated every 6 hours for a maximum of five doses.. Vigilant monitoring of the process of abortion was done to avoid any complications. The following complications of pregnancy termination were examined: severe haemorrhage requiring blood transfusion, presence of post-abortal infection, retained placenta and uterine rupture.

RESULTS

The characteristics of women of both group, as well as the indications for pregnancy termination, are presented in table 1. Four women of the study group had a history of two caesarean sections, while one had three caesareans in the past. All of the caesareans had been performed at term. The median gestational age was 18 weeks (range: 14–24 weeks) in the study *versus* 19 weeks (range: 14–24 weeks) in the control group.

Table 1: Patients' characteristics in both groups. values are presented as *n* or median (range).

Patients' characteristics	**Previous C-section (*n*= 100)**	**No C-section (*n*= 100)**
Maternal age (years)	29(20-37)	28(21-36)
Previous C/S		
Pr. 1	95	
Pr.2	4	
Pr.3 or more	1	
Gestational age (weeks)	18(14-24)	19(14-24)
Indication for termination		
Fetal abnormalities	48	45
Oligohydramnios—preterm premature rupture of membranes	10	11
Fetal death/missed abortion	40	42
Maternal disease	2	2

The median dosage of misoprostol was 1600µg in both the study (range: 1200–2400µg) and in the control group (range: 800–2400µg). Moreover, the median duration of labour was 20 hours (range:11–31 hours) and 19 hours (range: 9–33 hours) in the study and control group, respectively. The majority of women (82 and 79 women, in the two groups respectively), delivered within 24 hours, while the others delivered within 36 hours of the first dose.

Table 2: Complications in the two groups following termination of pregnancy with misoprostol

Complications	**Previous C-section (*n*=100)**	**No C-section (*n*= 100)**
Severe haemorrhage	2	3
Post-abortal infection	3	5
Retained placenta	10	11
Uterine rupture	0	0
Caesarean section	0	0

The side effects of prostaglandins were predominantly gastrointestinal symptoms. Twenty patients (11 of the study and 9 of control) reported nausea, vomiting occurred in five women in the study and three in the control group and diarrhoea occurred in two women in each group. Moreover, 28 women (12 studies and 16 controls) experienced pyrexia between 38°C and 39°C.

DISCUSSION

Abortion presents a significant problem, especially in mid-trimester as well as, in patients with previous caesarean section. The development of standardized commercially available prostaglandins has improved management.

Our results clearly indicate that women with history of previous caesarean section can safely terminate their pregnancy in the second trimester by inducing vaginal birth. We achieved a 100% vaginal delivery rate, which is in accordance with a previous study[13], reporting a 99.4% vaginal birth rate at term in women with a similar history. Another important finding of our study was that a previous caesarean delivery does not appear to increase the incidence of complications in women who undergo a pregnancy termination in the second trimester by induction of labour. However, much larger study would be needed to provide accurate assessment of the risk of uterine rupture.

Uterine rupture is the most serious complication in cases with a previous uterine scar and may occur either in the mid-trimester[14,15] or in the third trimester[16]. We did not observe a uterine rupture in our both groups. We hypothesize that this may be due to the lower gestational age of our cases. The risk of rupture has been reported to be higher when oxytocin is associated with prostaglandins[17]. Atienza *et a*[18] reported one case of uterine rupture among 76 patients with a previous caesarean section managed with amnioinfusion of PGF2a. Another case of asymptomatic uterine rupture was also reported by Boulot *et al*[19] among 23 women with a with a history of caesarean section managed with a combination of mifepristone and gemeprost (PGE_2).

CONCLUSION

We found that misoprostol is a safe drug for induction of labour in women with prior caesarean section undergoing a mid-trimester pregnancy termination. In order to estimate the risk of uterine rupture more precisely, a very large case series is required, probably using nationally or multicenter collected data. By using national or multicenter data, confounding variables could be explored, and an exact estimate of the relative contribution to adverse outcome could be calculated.

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