Vaginal misoprostol for first trimester pregnancy termination

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OBJECTIVE(S): To determine the efficacy of vaginal misoprostol in the prevention of complications during first trimester pregnancy termination.

METHOD(S): Five hundred and twenty pregnant women who underwent first trimester pregnancy termination were divided into two groups. In the study group of three hundred women, intra-vaginal misoprostol was used prior to suction evacuation. In the control group of 220 women, intra-vaginal misoprostol was not used. The requirement of cervical dilatation, amount of bleeding, and complications that occurred in the two groups were compared.

RESULTS: Cervical dilatation was required in only 29 women (9.7%) in the study group and 176 (80%) in the control group (P<0.001). Blood loss greater than 75/mL occurred in only 7 women (2.3%) in the study group as compared to 48 (21.8%) in the control group (P<0.001). Uterine perforation occurred in five women in the control group and none in the study group.

CONCLUSION(S): Use of intra-vaginal misoprostol prior to first trimester pregnancy termination by suction evacuation is effective and helps to reduce the amount of blood loss and complications such as uterine perforation.

Key words: first trimester pregnancy termination, misoprostol, suction evacuation

Introduction

Surgical methods of abortion in the first trimester of pregnancy carry several risks like hemorrhage, uterine perforation, incomplete abortion and cervical injury. A reduction in the incidence of these complications would prevent both short term and long term morbidity. Use of PGE₁ analogue misoprostol, as a vaginal pessary, prior to surgical abortion was started in our hospital from July 2003. The efficacy of pre-procedure use of PGE₁ analogue misoprostol on cervical dilatation, blood loss and prevention of uterine perforation was studied, and compared with that in the period prior to July 2003 when misoprostol was not used.

Methods

The 520 women who underwent voluntary termination of 1st trimester pregnancy (MTP) formed the study population. Of these, 300 women who underwent MTP between July 2003 and June 2004, when misoprostol was used, formed the study group. The 220 women who underwent a similar MTP between July 2002 and June 2003 when misoprostol was not used, formed the control group.

Inclusion criteria were gravidity one to four with gestation of 5-12 weeks irrespective of maternal age or socio-economic status.

Exclusion criteria were gestational age greater than 12 weeks, gravidity five or more, cardio-respiratory disorders, and hemoglobin less than 8.0 g/dL.

Gestational age was estimated by LMP and confirmed by pelvic examination and sonography.

A detailed history was taken, basic investigations were...
done, and written informed voluntary consent was taken. In the study group, two tablets (200/µg each) of misoprostol were inserted in the posterior fornix of the vagina 3 hours prior to suction evacuation. In the control group, misoprostol was not used. Injection atropine 0.6 mg IM and capsule spasmoproxyvon were given prior to suction evacuation in both the groups. No anesthesia was used. The women were counseled about the possibility of pain in the lower abdomen, nausea, vomiting, fever and bleeding. All were submitted to dilatation and suction evacuation. Statistical analysis was done using Epi Info 2000 statistical software.

Results
Baseline characteristics of the women in the two groups were compared. Mean age, parity and gestational age were comparable (Table 1).

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Control group (n=220)</th>
<th>Study group (n=300)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (years)</td>
<td>28.7 ± 2.23</td>
<td>29.1 ± 2.42</td>
</tr>
<tr>
<td>Parity</td>
<td>2.3 ± 0.45</td>
<td>2.4 ± 0.32</td>
</tr>
<tr>
<td>Gestational age</td>
<td>8.9 ± 0.62</td>
<td>9.4 ± 0.54</td>
</tr>
</tbody>
</table>

Table 2. Comparison of effects and complications.

<table>
<thead>
<tr>
<th>Parameters evaluated</th>
<th>Control group (n=220)</th>
<th>Study group (n=300)</th>
<th>P value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical dilatation</td>
<td>176 (80%)</td>
<td>29 (9.7%)</td>
<td>&lt; 0.001</td>
<td>Significant</td>
</tr>
<tr>
<td>Blood loss &lt; 75 ml</td>
<td>172 (78.2%)</td>
<td>293 (97.7%)</td>
<td>&lt; 0.001</td>
<td>Significant</td>
</tr>
<tr>
<td>Blood loss &gt; 75 ml</td>
<td>48 (21.8%)</td>
<td>7 (2.3%)</td>
<td>&lt; 0.001</td>
<td>Significant</td>
</tr>
<tr>
<td>Pain</td>
<td>180 (81.8%)</td>
<td>52 (17.3%)</td>
<td>&lt; 0.001</td>
<td>Significant</td>
</tr>
<tr>
<td>Vomiting</td>
<td>6 (2.7%)</td>
<td>14 (4.7%)</td>
<td>&lt; 0.26</td>
<td>Not significant</td>
</tr>
<tr>
<td>Uterine perforation</td>
<td>5 (2.3%)</td>
<td>Nil</td>
<td>&lt; 0.01</td>
<td>Significant</td>
</tr>
<tr>
<td>Incomplete abortion</td>
<td>29 (13.2%)</td>
<td>10 (3.3%)</td>
<td>0.001</td>
<td>Significant</td>
</tr>
</tbody>
</table>

* Chi Square test  
* Fisher Exact Test

The requirement of cervical dilatation, amount of bleed loss and complications that occurred are given in Table 2.

In the control group, cervical dilatation was required in 80% (176/220) compared to 9.7% (29/300) in the study group. In 44 women in the control group and 271 in the study group, the suction cannula (6 mm size for a pregnancy of less than 8 weeks and 8 mm size for a pregnancy of 8 or more weeks) passed very easily without the need of any dilator. Blood loss up to 75 mL occurred in 172 (78.2%) women in the control group and 293 (97.7%) in the study group. Blood loss greater than 75 mL occurred in 48 (21.8%) women in the control group and 7 (2.3%) in the study group. In the control group, 180 women (81.8%) complained of pain as compared to 52 (17.3%) in the study group. Six (2.7%) women in the control group and 14 (4.7%) in the study group had vomiting. Uterine perforation occurred in 5 women (2.3%) in the control group and none (0%) in the study group. Twenty-nine (13.2%) women in the control group and 10 (3.3%) in the study group had incomplete abortion. Only one woman had diarrhea and she belonged to the study group (Table 2).

Discussion
Misoprostol is a prostaglandin E₁ analogue that has been approved by the Food and Drug Administration (FDA) to be taken orally for the prevention and treatment of gastric ulcers associated with the use of non-steroidal anti-inflammatory drugs. It has also become an important drug in obstetric practice because of its uterotonic and cervical ripening properties. Its efficacy as a cervical ripening agent has been documented by many studies. Singh et al used vaginal misoprostol in 180 women between 6 to 11 weeks of gestation for pre-abortion cervical ripening. They concluded that 400µg of misoprostol is the optimal dose and 3 hours after vaginal insertion is the optimal time for suction evacuation of the uterus.

In the present study, the endeavor was to compare the complications, blood loss and requirement of mechanical dilatation in two groups of women, one in whom misoprostol was not used and the other in whom 400 µg of vaginal
misoprostol was used 3 hours pre-procedure. 91.7% of women who received 400 µg vaginal misoprostol 3 hours earlier had cervical dilatation of at least 8 mm in the study by Singh et al. The requirement of mechanical cervical dilatation before vacuum aspiration in our study was 80% in the control group and 9.7% in the study group; this difference is statistically significant (P<0.001), the odds ratio (OR) being 37.38 and 95% confidence interval 21.91 to 64.18.

During surgical abortion in the first trimester, prior cervical ripening reduces the incidence of cervical lacerations and uterine perforation 6,7. In our study, there were significantly less side effects, namely abdominal pain, perforation and incomplete abortion, in the study group compared with those in the control group (P<0.001). One hundred and eighty women in the control group and 52 (17.3%) in the study group complained of abdominal pain, 5 (2.3%) in the control group and none (0%) in the study group had uterine perforation, and 29 (13.2%) women in the control group and 10 (3.3%) in the study group had incomplete abortion.

The intra-operative blood loss was also statistically less in the study group compared to that in the control group (P<0.001). The incidence of vomiting in the two groups was not significantly different (P < 0.26).

Pre-procedure use of vaginal misoprostol, prior to vacuum aspiration in the first trimester of pregnancy causes adequate cervical dilatation so that the use of mechanical dilators is minimized, blood loss is significantly less and major complications such as perforation of the uterus are avoided.

References