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Comparison of the Efficacy of Misoprostol and Manual Vacuum Aspiration for the Treatment of the First Trimester Termination of the Pregnancy.

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Abstract:
Objective: Objective of this study was to compare the efficacy of misoprostol and manual vacuum aspiration for the treatment of the first trimester termination of pregnancy. **Study Design:** Randomized controlled trial **Setting:** This study was carried out in department of obstetrics and gynaecology of Nishtar Hospital Multan. **Duration of Study:** This study was conducted from December 2016 to May 2017. **Material and methods:** A total of 652 women with gestational age ≤ 12 weeks with open cervical os were included in the study. Women with scarred uterus and multiple pregnancies or having asthma, heart disease, jaundice, glaucoma or known sensitivity to prostaglandin were excluded. Total women were divided into two groups. 326 in misoprostol group while 326 in manual vacuum aspiration group. Misoprostol group received misoprostol tablet 400 mcg vaginally every 4 hour for a maximum of three doses, according to cervical softening, dilatation and uterine contractions. Oxytocin infusion was started after 6 hours of first dose administration, at a rate of 2 mIU/min with increments of 1mIU/min after every 30 minutes, to a maximum of 8 mIU/min. Manual vacuum aspiration group had not receive any uterotonics and directly underwent manual vacuum aspiration. Patients were called on 7th day of procedure for follow up. Transvaginal ultrasonograph was performed, to measure the endometrial thickness at the maximum anteroposterior diameter on the long-axis view of the uterus. Efficacy was measured in form of complete abortion. **Results:** Age range in this study was from 18 to 40 years with mean age of 31.791±4.86 years in misoprostol group while 32.386±4.83 years in manual vacuum aspiration group. Majority of the patients were between 31-35 years in both groups. Mean gestational age was 9.892 ±1.38 weeks in misoprostol group and 9.871±1.22 weeks in manual vacuum aspiration group, while mean doses in misoprostol group was 2.358±0.65. Efficacy was seen in 94.2% patients in misoprostol group as compare to 92% in manual vacuum aspiration group (P=0.148). **Conclusion:** For the treatment of the first trimester termination, both manual vacuum aspiration and 400 µg intravaginal misoprostol are effective treatments. Based on availability of each method and the wishes of individual women, either option may be presented to women for the treatment of the first trimester termination.
Keywords: Abortion, Misoprostol, Manual vacuum aspiration.

Introduction.

Unwanted pregnancy is a major health problem. Worldwide an estimated 53 million abortions are performed each year, resulting in upto 100,000 maternal deaths.[1] The majority of abortions are performed before 12wks of pregnancy (90%) and by surgical methods (65%). [2] Prior to 14wks gestation surgical termination can be performed by vacuum aspiration. Vacuum aspiration is currently used in 57% of abortion performed prior to 10 weeks gestation and 89% of those performed at 10-12 weeks gestation.[4] The technique is safe and efficacious; major complications (uterine perfocation), pelvic sepsis and haemorrhage requiring blood transfusion occur in 0.2-0.9% of cases. [4-6] However, up to 5% of women return to hospital with post abortion symptoms, of whom 50-65% requires surgical evacuation of retained products. [5-6] Complication rates increase with gestation[4], with incomplete abortion reported in up to 12% of cases ≥ 12weeks gestation. [6] Regarding medical termination, for abortion at up to 63 days gestation evidence suggests that mifepristone (200mg orally) followed 36-48 hours later by either gemeprost (1mg vaginally) or misoprostol (800ug vaginally) are equally safe and effective, with 94-97% of women achieving complete abortion. [7-9] Because of much lower costs 72% of units use misoprostol. Complete abortion rates with single dose mifepistone / misoprostol fall from 98.5% at ≤ 49 days gestation to 96.7% at 50-63 days[12] but are much lower after 63 days. [10] Between 64 and 91 days gestation efficacy is increased if the initial dose of misoprostol is followed by repeated doses of 400ug.[15] However even using up to a maximum of five further doses the need for surgical evacuation increased from 0.9% at 9-10 weeks. The most common reason cited for preferring medical termination of pregnancy is the avoidance of surgery and or

anesthesia. [12-16] Preference for surgical termination of pregnancy appears to increase with gestational age [13-14], early in pregnancy women appear to perceive the medical procedure as easier and more natural.

Although TOP is one of the most common procedure in Pakistan, little work has been done that will contribute to robust understanding of preferences for types of procedure. Hence we decide to conduct this study with the aim of comparing efficacy of manual vacuum aspiration verses misoprostol in the first trimester termination of pregnancy in our local population.

Material and methods:
This study was carried out in department of obstetrics and gynaecology of Nishtar Hospital Multan. From December 2016 to May 2017. A total of 652 women with gestational age ≤ 12 weeks with open cervical os were included in the study. Women with scarred uterus and multiple pregnancies or having asthma, heart disease, jaundice, glaucoma or known sensitivity to prostaglandin were excluded. Total women were divided into two groups. 326 in misoprostol group while 326 in manual vacuum aspiration group. Misoprostol group received misoprostol tablet 400 mcg vaginally every 4 hour for a maximum of three doses, according to cervical softening, dilatation and uterine contractions. Oxytocin infusion was started after 6 hours of first dose administration, at a rate of 2 mIU/min with increments of 1mIU/min after every 30 minutes, to a maximum of 8 mIU/min. Manual vacuum aspiration group had not receive any uterotonics and directly underwent manual vacuum aspiration. Patients were called on 7th day of procedure for follow up. Transvaginal ultrasonograph was performed, to measure the endometrial thickness at the maximum anteroposterior diameter on the long-axis view of the uterus. Efficacy was measured in form of complete abortion.

Results.
Age range in this study was from 18 to 40 years with mean age of 31.791±4.86 years in misoprostol group while 32.386±4.83 years in manual vacuum aspiration group. Majority of the patients were between 31-35 years in both groups as shown in Table I & II. Majority of patients were with parity >2 in both groups as shown in Table-III and Table-IV. Mean gestational age was 9.892 ±1.38 weeks in misoprostol group and 9.871±1.22 weeks in manual vacuum aspiration group, while mean doses in misoprostol group was 2.358±0.65. Mean weight was 58.791±9.59 kg in misoprostol group and 58.377±9.78 kg in manual vacuum aspiration group. Efficacy was seen in 94.2% patients in misoprostol group as compare to 92% in manual vacuum aspiration group (P=0.148) as shown in Table V.

Table- I: Age distribution in misoprostol group n=326

Age Groups (years)	No of Patients	%age
18-25	38	11.7%
26-30	50	15.3%
31-35	160	49.1%
36-40	78	23.9%

Mean ± SD = 31.791±4.86 years

Table- II: Age distribution in manual vacuum aspiration group n=326

Age Groups (years)	No of Patients	%age
18-25	32	9.8%
26-30	31	9.5%
31-35	174	53.4%
36-40	89	27.3%

Mean ± SD = 32.386±4.83 years

Table- III: Distribution of parity in misoprostol group
n=326

Parity Group	No of Patients	%age
<1	15	4.6%
1-2	121	37.1%
>2	190	58.3%

Table- IV: Distribution of parity in manual vacuum aspiration
n=326

Parity Group	No of Patients	%age
<1	7	2.1%
1-2	106	32.5%
>2	213	65.3%

Table V: Comparison of efficacy in both Groups
n=652

Outcome	Misoprostol group	manual vacuum aspiration	P value
Efficacy	94.2%	92%	0.148

Discussion.

This study shows that 400ug intravaginal misoprostol is as effective as manual vacuum aspiration for the treatment of the first trimester termination of pregnancy and in doing so suggests that the medical management of this condition may be feasible and successful in less development countries. The high success rate observed in the misoprostol group is consistent with that reported in similar European studies. [17, 18] Efficacy was comparable in both groups, a finding similar to previously established findings. [19, 20] The rate of efficacy with misoprostol was 94.2% which is comparable with previous results from other countries. [20-24] Similarly rate of efficacy with MVA was 92%, a result similar to previous studies and reviews. [19, 23, 25] Tasnim N and her associate has also found the efficacy with MVA was 89.6% in a study in Pakistan. [26] A success rate of 85-90% with misoprostol was reported by Ghora. [27] A success rate of 74.1% with misoprostol was reported by Sirimai. [28] For low resource settings, this study suggests that misoprostol may have a number of advantages over manual vacuum aspiration. Firstly, misoprostol appears to be a much more flexible treatment. For manual vacuum aspiration a definite diagnosis of both abortion status and gestation needs to be made. This study suggests that both methods can be safely offered to women without unnecessary resources to ultrasound examination which is expensive and dependent on skilled providers. The second benefit of misoprostol is its ease of use, manual vacuum aspiration requires a specific piece of equipment along with a trained operator.

Conclusion

For the treatment of the first trimester termination both manual vacuum aspiration and 400 µg intravaginal misoprostol are effective treatments. Based on availability of each method and the wishes of individual women either option may be presented to women for the treatment of the first trimester termination.

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