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Original Research Article

## Factors leading to surgical evacuation in first trimester medical termination of pregnancy

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### ABSTRACT

**Background:** Aim of the study was to determine factors leading to surgical evacuation in first trimester medical termination of pregnancy of women attending SAT hospital, medical college, Thiruvananthapuram.

**Methods:** A case control study was conducted at the department of obstetrics and gynaecology, Government Medical college, Thiruvananthapuram. The sample size was calculated to be 58 in each group. Antenatal women attending family planning OPD for termination of pregnancy in first trimester at SAT hospital over a period of one year were recruited for this study. A structured questionnaire was used to record history, examination findings, and investigations including ultrasound. The clinical outcome was defined as successful medical abortion and failed medical abortion which leads to surgical evacuation due to retained products.

**Results:** Previous caesarean, previous induced abortion, previous pregnancy loss or increasing gestational age showed increasing rate of failed medical abortion. Also, in patients with anaemia with haemoglobin <11 gm/dl or diabetes or hypertension showed independent association with failed medical abortion.

**Conclusions:** If patient planning for medical abortion, can do at earlier gestational age as advancing gestation will leads to increasing rate of failed medical abortion and also after correcting anaemia, with proper medication.

**Keywords:** First trimester, Medical termination of pregnancy, Surgical evacuation

### INTRODUCTION

First trimester induced abortion is medical or surgical termination of pregnancy before 13 weeks + 6 days of gestation. Which is classified into therapeutic and elective abortion. Abortion is a common health intervention. It is safe when carried out using a method recommended by the WHO, Appropriate with the gestational age and person with the necessary skills. 6 out of 10 of all unintended pregnancies end in induced abortion. Around 45% of all abortions are unsafe, of which 97% occurs in developing countries.<sup>1</sup>

Unsafe abortion is leading but preventable cause of maternal mortality and morbidities. It can lead to physical and mental health complications, social and financial burden to women, health system and community. Lack of

safe, timely, affordable and respectful abortion care is critical public health. At around 26 million pregnancies are terminated legally throughout the world and 20 million are terminated illegally, with more than 78,000 deaths. Annually in India alone 10-12 million abortion takes place resulting in 15000-20000 maternal death, mainly due to illegal abortion. Non availability of medical professional or unwarranted secrecy surrounding the unwanted pregnancy sometimes force women to go for illegal abortion which may be fatal.<sup>2</sup>

In the first trimester of pregnancy, a medical abortion can also be safely self-managed by the pregnant women outside of a health care facility, in whole or in part. This requires that the woman has access to accurate information, medicines and support from a trained health worker

Advantages of medical abortion over surgical abortions are, it is a safe procedure with high percentage of success rate in early pregnancy, offers more privacy, feasible with minimum technical assistance. less overall complication rate. no risk of cervical or uterine injury, no instrument and anaesthesia required, hence less invasive.<sup>3</sup>

Hence aim of this study was to know the factors which leads to surgical evacuation after medical termination of pregnancy, so that we can reduce the surgical evacuation by correcting the factors.

## METHODS

A case-control study was conducted in Department of Obstetrics and Gynaecology, Medical College, Thiruvananthapuram for a period of 1 year from June 2020 to June 2021. Antenatal women attending gynaecology out-patient clinic for medical termination of pregnancy in first trimester was consecutively recruited to the study and they were followed till the outcome. We used the oral regime of mifepristone 200 mg followed by misoprostol 800 microgram per-vaginally after 48 hours and then 400 microgram third or fourth hourly till the process of expulsion. All patients given informed consent to undergo medical abortion. Pregnancy gestational age was confirmed by ultrasound in all patients. Medical abortion was allowed in the absence of contraindications to use medications like mifepristone and misoprostol like allergy to any of these drugs, chronic adrenal disease, concurrent long term corticosteroid therapy, obstructive lung disease, haemorrhagic disorder, concurrent anticoagulant therapy or porphyria.

A structured questionnaire was used to record history, examination findings, and routine investigations. The clinical outcome was defined as successful medical abortion and failed medical abortion which leads to surgical evacuation due to retained products. Patients wants termination in view severe comorbidities like SLE with lupus nephritis, class 3 or 4 heart disease (according to modified WHO classification), renal failure or for taking treatment for malignancies were admitted and managed accordingly, other low risk patients was send home after taking consent with prescribed regime after proper counselling and advised to review after 2 weeks with ultrasound report to rule out retained products or as soon as if heavy bleeding per-vaginally. Surgical evacuation of the uterus was performed based on clinical indications such as heavy or prolonged bleeding, ultrasound scan showing continuing pregnancy or any retained products of conception. Clinical outcome was evaluated based on complete expulsion of uterine contents with or without surgical intervention.

Data was entered in Excel sheet and analysed using SPSS software. Quantitative variables expressed in means and standard deviation. Qualitative variables expressed in percentage. Difference in parameters between two groups compared using 2 sample t test and chi square test. Odds

ratio of 'factors leading to surgical evacuation in first trimester medical termination of pregnancy' calculated. Comparisons between 2 or more groups were made using the Chi square test or Fishers exact test as appropriate for independent nominal data. Differences were regarded as statistically significant if  $p < 0.05$ . Confidence intervals (95%) were applied where appropriate.

## RESULTS

A total of 116 antenatal women underwent medical abortion in first trimester were included in this study, in which 58 patients were taken as control and 58 were taken as cases.

**Table 1: Previous medical, surgical and obstetric history.**

Previous medical, surgical and obstetric history	Successful medical abortion (n=58)	Failed medical abortion (n=58)
Diabetes mellitus	8 (13.8)	11 (19.0)
Hypertension	3 (5.2)	10 (17.2)
Previous LSCS	14 (24.1)	24 (41.4)
Suction evacuation	3 (5.2)	5 (8.6)
Spontaneous abortion	9 (15.5)	16 (27.6)
Induced abortion	2 (3.4)	13 (22.4)
First gravid	9 (15.5)	9 (15.5)
Second gravid	21 (36.2)	14 (24.1)
Third gravida	20 (34.5)	16 (27.6)
Fourth gravid	8 (13.8)	19 (32.80)
History of previous pregnancy loss	12 (20.7)	28 (48.3)

Majority of the patients were in the age group of 18-34 (80.2%) years. Mean age group was 28.99 years. Initially baseline characteristics of antenatal women like maternal comorbidities, previous surgical history, previous obstetric history taken into account which is shown in the Table 1. Of the 116 study participants, 19 patients have diabetes mellitus, 8 (13.8%) patients underwent successful medical abortion and 11 (19%) patients underwent failed medical abortion. 13 patients have chronic hypertension, in which only 3 (5.2%) patients have successful medical abortion and 10 (17.2%) patients have failed medical abortion. Also studied previous surgical history and outcome, 38 patients underwent previous caesarean section, of these 14 (24.1%) patients have successful medical abortion and 24 (41.4%) patients have failed medical abortion (underwent surgical evacuation). There was not much association between previous suction evacuation, myomectomy and other surgeries with the outcome.

Among patients with history of previous pregnancy loss, previous spontaneous abortion, 9 (15.5%) patients had successful medical abortion and 16 (27.6%) patients had failed medical abortion. In patients with history of induced abortion, only 2 (3.4%) patients had successful medical

abortion and 13 (22.4%) patients had failed medical abortion. There were only 2 (3.4%) patients with recurrent abortion have failed medical abortion. In this study, among gravida, first, second and third gravidae had not much association with outcome, but fourth gravida, out of 27 patients, 8 (13.8%) patients had successful and 19 (32.8%)

patients have failed medical abortion, shows some association with the outcome. In patients with previous pregnancy loss 12 (20.7%) patients have successful medical abortion and 28 (48.3%) patients had failed medical abortion.

**Table 2: Present pregnancy details.**

	Successful medical abortion (n=58)	Failed medical abortion (n=58)
<b>Gestational age</b>		
<6 weeks	2 (3.4)	0
6-8+6 weeks	25 (43.1)	26 (44.8)
9-11+6 weeks	24 (41.4)	19 (32.8)
12-13+6 weeks	6 (10.3)	13 (22.4)
<b>Ultrasound findings</b>		
Singleton pregnancy	57 (98.3)	58 (100.0)
Congenital anomalies	2 (3.4)	5 (8.6)
Fibroid	2 (3.4)	4 (6.9)
<b>Haemoglobin</b>		
Less than 7	1 (1.7)	1 (1.7)
7 to 9.9	4 (6.9)	13 (22.4)
10 to 10.9	5 (8.6)	6 (10.3)
More than 11	48 (82.8)	38 (65.5)

**Table 3: Analysis of medical, surgical and obstetric history.**

	$\chi^2$ value	OR	(95% CI)	P value
<b>Diabetes mellitus</b>	0.566	1.463	(0.541-3.952)	0.452
<b>Hypertension</b>	4.245	3.819	(0.993-14.690)	0.039
<b>Previous LSCS</b>	3.914	2.218	(1.000-4.921)	0.048
<b>Suction evacuation</b>	0.537	1.730	(0.394-7.600)	0.717
<b>Spontaneous loss</b>	2.498	2.074	(0.831-5.177)	0.114
<b>Induced abortion</b>	9.265	8.089	(1.735-37.714)	0.002
<b>History of previous pregnancy loss</b>	9.760	3.578	(1.579-8.106)	0.002

**Table 4: Present pregnancy details of univariate analysis.**

	Chi square value	OR	(95% CI)	P value
<b>Gestation age</b>				
<6 weeks	5.172	0	0	0.999
6-8+6 weeks		0.480	(0.158-1.460)	0.196
9-11+6 weeks		0.365	(0.117-1.142)	0.083
12-13+6 weeks		Reference	Reference	-
<b>Ultrasound findings</b>				
Multiple pregnancy	1.009	0	0	1*
Congenital anomalies	1.368	2.642	(0.491-14.206)	0.242
Fibroid	0.703	2.074	(0.365-11.794)	0.402
Ovarian cyst	0.120	0.785	(0.200-3.085)	0.729
Haemoglobin less than 11gm/dl	4.496	0.396	(0.166-0.945)	0.034

Secondly, we studied present pregnancy details (Table 2). We included only patients in first trimester, that is less than 14 weeks. In <6 weeks only 2 patients were there. Majority of patients underwent MTP between 6-12 weeks. 19 patients underwent MTP between 12 to 13+6 weeks

gestation, in which 13 (22.4%) patients underwent surgical evacuation after failed medical termination. Findings of ultrasound, out of 7 patients with congenital anomalies 5 (8.6%) underwent failed medical abortion, 6 patients

present with fibroid uterus, 4 underwent surgical evacuation due to failed medical abortion.

Based on investigation, 30 patients have anaemia with Haemoglobin <11 gm/dl, 20 (34.4%) patients underwent failed medical abortion.

### **Univariate analysis**

Logistic regression was performed entering the following parameters, age, maternal comorbidities, previous surgical history, previous obstetric history, gestational age, ultrasound findings, investigations. In this study, maternal comorbidity like chronic hypertension with failed medical abortion presents with odds ratio (OR) of 3.819 and p value of 0.039 and CI 0.541-3.952 which was statistically significant. In previous surgical history, there was statistically significant association of previous LSCS and failed medical abortion with p value of 0.048 and OR of 2.218 and CI 1.000-4.921. There was no statistically significant association of previous surgical evacuation with the outcome. Analysis of medical, surgical and obstetric history given in Table 3.

In patients with previous pregnancy loss, patients with previous induced abortion shows increasing rate of failed medical abortion with OR of 2.074, p value of 0.002 and CI 1.735-37.714. There was no statistically significant association between gravida or parity, gestational age, ultrasound findings with the outcome. But in patients with history of previous pregnancy loss shows statistically significant association with the outcome with OR 3.578, p value of 0.002 and CI 1.579-8.106. Also, in patients with haemoglobin <11 gm/dl shows statistically significant association with the outcome with p value of 0.034 and CI 0.166-0.945 which is shown in present pregnancy details Table 4.

## **DISCUSSION**

This case-control study was conducted with the aim of assessing factors leading to surgical evacuation in first trimester medical termination of pregnancy. The study was conducted for a period of 1 year from June 2020 to June 2021. A total of 116 patients attending outpatient clinic, obstetrics and gynaecology, SAT hospital, Medical College, Trivandrum for medical termination of pregnancy were included in this study. Clinical examination and routine investigation done for all patients and also ultrasound done to confirm whether intrauterine/extra uterine pregnancy.

Majority of the patients were in the age group of 18-34 (80.2%) years. Mean age group was 28.99 years. In this study there was no statistically significant association of advancing maternal age with the outcome. According to Haimov-Kochman et al risk factors of unsuccessful medical abortion.<sup>4</sup> Age has been cited as prognostic factors of incomplete abortion and on-going pregnancy following

an attempt to terminate the pregnancy with mifepristone and a prostaglandin analogue.

Among maternal comorbidities, out of 116 study participants, 19 (16.4%) patients have diabetes mellitus, 8 (13.8%) patients underwent successful medical abortion and 11 (19%) patients underwent failed medical abortion. Also 13 (11.2%) patients have chronic hypertension, in which only 3 (5.2%) patients have successful outcome and 10 (17.2%) patients have failed outcome. There was statistically significant association present between maternal comorbidity like chronic hypertension with OR of 3.819 and p value of 0.039 with the outcome, factors leading to surgical evacuation, it may be an incidental finding as most of the patients attending in a tertiary care centre may be high risk patients.

In the present study, 32 patients with previous LSCS, 24 (41.4%) patients underwent surgical evacuation after failed MTP, showed statistically significant association with the outcome with p value of 0.048%. According to Agrawal et al study, comparison of standard MTP kit in first trimester missed abortion in scarred versus non scarred uterus.<sup>5</sup> An experience of single tertiary care centre study found that the success rate of the medical regime in the non-scarred uterus was significantly high as compared to scarred uterus. Most of the cases of scarred uterus landed up in incomplete abortion and underwent manual vacuum aspiration and other surgical techniques. In another study, Mazouni et al termination of pregnancy in patients with previous caesarian, abortion failure rate was high in previous caesarian group compared with others, observed highest rate of retained placenta in patients with previous uterine scar.<sup>6</sup>

Previous spontaneous abortion, 9 (15.5%) patients have successful outcome and 16 (27.6%) patients have failed outcome. In patients with history of induced abortion, only 2 (3.4%) patients have successful outcome and 13 (22.4%) patients have failed outcome. There was statistically significant association with history of induced abortion and failed MTP. According to the study of Haimov-Kochman et al risk factors of unsuccessful medical abortion study, history of induced abortions was claimed as another predictive factor for unfavourable outcome, 15% patients underwent successful medical termination and 23% patients underwent failed medical termination with history of previous artificial abortion.<sup>4</sup>

According to Gupta et al study, majority (84.21%) of the women were having 2 or more number of living children, 14.47% had 1 living child and 1.32% had no child.<sup>7</sup> In this study, among gravida, first, second and third gravidae has not much association with outcome, but fourth gravida, out of 27 patients, 8 (13.8%) patients had successful and 19 (32.8%) patients have failed outcome, showed some association with the outcome. No significant association seen between parity and failed medical abortion.



But in patients with previous pregnancy loss 20.7% patients have successful outcome and 48.3% patients had failed outcome. According to Haimov-Kochman study with history of prior miscarriages leads to 11.6% of patients underwent successful MTP and 38.5% of patients have failed MTP.<sup>4</sup>

According to gestational age, most of the induced abortion takes place between 6-12 weeks (81%). In earlier gestational age, chances of success of medical termination is high. But as gestational age advances, failure of medical termination also increasing, between 12-14 weeks, 10.3% underwent successful medical abortion but 22.4% patients have failed medical termination. According to Raymond et al, first trimester medical abortion with mifepristone and misoprostol study, groups in which at least 25% of the women were in the ninth week of pregnancy had higher medical abortion failure rates than groups in which fewer women were so advanced in gestation.<sup>8</sup>

In patients with haemoglobin <11 gm/dl on routine investigation also found to have increased number of failed medical abortion, out of 30 patients with anaemia 20 (34.5%) underwent surgical evacuation after failed medical abortion, this may be an incidental finding as many of the patients underwent surgical evacuation after failed medical abortion also have history of prolonged bleeding per-vagina due to retained products.

## CONCLUSION

Factors leading to surgical evacuation in first trimester medical termination of pregnancy in the present study are previous caesarean section, previous induced abortion, previous pregnancy loss. Advancing maternal age, gravida, parity and ultrasound abnormalities do not show statistically significant association with the outcome. Advancing gestational age shows increasing rate of failed medical abortion but which is not significant.

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