ORIGINAL ARTICLE

Management of Early Pregnancy Loss by Surgical Evacuation or Medical Termination – Which is a Better Choice?

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ABSTRACT

Background and Objective: Comparative efficacy of medical termination has always remained debatable as compared to surgical techniques. The study was designed to assess the safety, acceptability and success of oral Misoprostol as an agent of medical termination as compared to surgical evacuation in cases of early pregnancy loss.

Methods: This was a quasi-experimental study conducted in Department of Obstetrics and Gynaecology at Sughra Shafi Medical Complex, affiliated with Sahara Medical College Narowal from August 2017 to February 2019. Diagnosed cases of missed miscarriage before 13 weeks (n = 150) were allocated either for surgical evacuation (n = 50) or medical termination by oral Misoprostol (n = 100) on patients' own choice after counselling. Effective dosage schedule of Misoprostol, its adverse effects, number of days taken for complete expulsion and duration of hospital stay were recorded. Main outcome measure was successful termination.

Results: Patients enrolled for surgical evacuation had 100% success rate while those in medical termination had 80% success rate and 20% treatment failure.Significant differences were also observed in symptoms, bleeding and hospital stays between the two groups.

Conclusion: Surgical evacuation is still a gold standard method recommended for suitable cases, while medical termination by Misoprostolis low cost, better accepted and effective but has unpredictable outcomes.

KEYWORDS: Early pregnancy loss, Medical termination, Surgical evacuation.

How to Cite This:

Hayat TK, Afzal M, Bilal H, Latif W. Management of early pregnancy loss by surgical evacuation or medical termination - which is a better choice? Biomedica. 2020; 36 (2): 160-5.

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- Received for publication: 09-01-2020
- First Revision received: 03-03-2020
- Second Revision received: 06-05-2020
- Third Revision received: 10-06-2020
- Accepted for publication: 15-06-2020

INTRODUCTION

Early pregnancy loss is a non-viable intra-uterine pregnancy within 13 weeks or less than 14 weeks of gestation also called missed miscarriage.[1] Miscarriage is quite a common condition, seen almost in 15 – 20% of the total pregnancies while 80% of these are termed as early pregnancy losses.[2,3]

Surgical evacuation is the standard method used for almost 50 years all over the world and should be offered as the first line treatment where there is heavy bleeding; sepsis or haemodynamic instability.[4] However, the cost of surgery and hospitalisation as well as anxiety associated with

anaesthesia and its complications is the major worry for the patients.

Medical termination has been developed as a standard method of providing abortion care in the United States for the last three decades.[5] Misoprostol, a synthetic Prostaglandin E1 analogue is being used and widely researched in the recent years for this purpose. The results and success rates are varied with different dosage schedules and routes of administration.[6] A single dose of 800 micrograms by oral or vaginal route was recommended by National Institute for Health and Care Excellence (NICE).[7] One study reported that oral or vaginal Misoprostol of 800 microgram was comparable in terms of efficacy.[8]But a standard single dose of Misoprostol 800mcg has low efficacy among female patients with a closed cervical os. As many as 15 – 40% of such female patients require a second dose of Misoprostol. As a result, the treatment period is prolonged and ultimately may require a uterine evacuation procedure.[9]

Another detailed study on management of missed miscarriage recommends that Misoprostol gives about 80 – 90% success rate in females with incomplete or delayed first trimester pregnancy loss and its efficacy is similar when used orally, sublingually or vaginally. Ultimately, the optimal route of administration should be based on the patient's preference.[10]

Many females choose medical means for early pregnancy loss as it seems more natural to them but it takes a longer time to complete, is more unpredictable and is usually associated with variable amount of bleeding and cramping. The process of expulsion usually completes at home and some female patients may need surgical evacuation. Quite frequently, complete expulsion needs to be confirmed by ultrasound.[11]

On the other hand, benefits of surgical evacuation include a one visit procedure, less waiting and usually no doubts in its completion. Bleeding is well controlled and after a few hours of the procedure, most of the patients can be discharged on the same day.[12]

Many of the patients getting managed by medical methods are received in the emergency or in the OPD with continuous bleeding (mild or moderate) for many days or weeks and even sometimes a month or two after taking treatment.

This study was carried out to compare the effectiveness and acceptability of both modes of treatment in a non-randomized group of patients with similar characteristics, and final decision of treatment was made freely by the patient. Oral route was preferred by majority of female patients, for its benefits of self-administration and no need for hospitalization. Misoprostol 800 micrograms orally was given on day 1 and repeated on day 3, if required.

The outcome measures were the dose of Misoprostol required, its side effects and the time taken for complete expulsion. Amount of blood loss and hospital stay was also recorded. Success of medical termination was considered when process of expulsion was completed without any surgical intervention and that of surgical evacuation when the process was completed in one attempt.

METHODS

This study was conducted in the Obstetrics and Gynaecology Department of Sughra Shafi Medical Complex which is a teaching Hospital affiliated with Sahara Medical College Narowal, Pakistan from August 2017 to February 2019, during a period of one and a half year. Ethical approval from Institutional Ethical Board and was taken. Informed written consent from all enrolled female patients was acquired.

Non-probability purposive sampling technique was used and all the patients who came to the outpatient department with the diagnosis of missed miscarriage before 13 weeks of gestation confirmed by ultrasound were included in the study.

Bleeding, pain or any other symptom and signs of threatened miscarriage were ruled out. Patient's general health was assessed. They were all healthy, young adult females and there were no contra indications to the use of prostaglandins and no haemorrhagic disorders. The total patients (150) were enrolled. They were given two options for treatment, either surgical evacuation or medical termination by Misoprostol. All the possibilities and risks were discussed especially the expense associated with the hospital stay in surgical evacuation and possible repeated visits in cases of medical termination. Final allocation was confirmed after a detailed counselling.

Those who opted for surgical evacuation were

admitted in the Hospital. After screening and cross matching, the donors for the blood were arranged as per routine. They were kept NPO (Nil Per Orum) and other pre-operative rituals were followed. The two tablets of Misoprostol i.e., 400 micrograms were placed in the posterior vaginal fornix for cervical ripening about three hours before the planned time for surgical evacuation under general anaesthesia. Cervix was found to be dilated at least upto 10mm. Only a few insignificant numbers of cases had dilatation upto 8 mm which was enhanced by passing a Hegar dilator no-10 so that a sponge holder could easily be passed to remove the products of conception followed by an easy curettage. No complications of anaesthesia were noticed. A five-day course of antibiotics given as per routine and no case of endometritis was recorded. During this period, all the outcome measures were recorded as mentioned in the results.

The medical termination group were counselled in detail before sending them home. They were advised to take 2 tablets of Misoprostol i.e. 400 mcg twice at an interval of 6 hours on day – 1 and were advised to keep a record of all the events of the day. If no expulsion took place, they were advised to wait till 2nd day. On Day – 3, the same dosage schedule was repeated (2doses of 400 mcg orally at an interval of 6 hours, total 800 mcg). If partial expulsion or excessive bleeding took place, they were advised to report to the hospital emergency. In such situation, the process of expulsion was completed by surgical evacuation. Completion of expulsion was confirmed by ultrasound. After giving oral Misoprostol 800 micrograms on day 1 and day 3, no further doses of Misoprostol were given. Instead, the patients were advised to wait and revisit on day- 8 and report immediately in case of a complaint of unusual bleeding or any other medical problem.

By Day – 8, if expulsion was not complete, proved by ultrasound, patient was managed by admission in the Hospital and surgical evacuation was carried out. Main outcome of treatment success was considered to be complete expulsion without surgical intervention otherwise such patients were labelled as treatment failure.

Table-1: Dose of Misoprostol required for medical termination group.

	Dose Micrograms	No of Patients	Percentage
Day 1	800	80	80%
Day 3	Dose 1 + 800 1600	20	20%

STATISTICAL ANALYSIS

The data analysis was done by using Statistical Package for Social Sciences (SPSS 23.0). Frequency and percentages were given for symptoms, blood loss and hospital stay. Chi square and Fisher's exact test was used to compare the proportion of symptoms, blood loss and success rate between surgical evacuation and medical termination groups. A p-value ≤ 0.05 was taken as significant.

RESULTS

All the patients were having failed pregnancy ranging from 6 – 13 weeks with a mean gestational age of 10 ± 2.12 weeks. Age range was 20 to 31 years, (Mean age: 26 ± 6.72 years). Parity ranged from primigravida to Gravida-4. Maximum number of patients (n = 82) were primigravida while rest of the patients had their 2nd, 3rd or 4th pregnancy. A total of 08 patients reported previous two Caesarean sections while 13 patients had history of one section.

Number of days taken for complete expulsion

Table-2: Comparison of symptoms between surgical evacuation and medical termination groups.

Symptoms	Surgical Evacuation n=50		Medical Termination n=100		p-value
	No of Patients	Percentage	No of Patients	Percentage	
Nausea	4	8%	58	58%	< 0.001*
Vomiting	2	4%	23	23%	0.003*
Abdominal pain	3	6%	26	26%	0.004*
Headache	3	6%	31	31%	0.001*
Temperature rise	4	8%	44	44%	< 0.001*
Diarrhoea	1	2%	27	27%	< 0.001*
Dizziness	3	6%	35	35%	< 0.001*

*Significant. (Fisher Exact test)

was also higher in medical termination group as shown in (Table-3).

Table-3: Comparison of number of days taken for complete miscarriage between surgical evacuation and medical termination groups.

	n = 50 Surgical Evacuation	n = 100 Medical Termination	p-value
1 Day	50 (100%)	0 (0%)	
2 Days	0 (0%)	62 (62%) [a]	
3-5 Days	0 (0%)	28 (28%) [b]	< 0.001*
8 Days	0 (0%)	8 (8%) [c]	
More than 15 Days	0 (0%)	2 (2%) [d]	

[a] Expulsion with 1 dose. [b] Expulsion with 2nd dose [c] Surgical evacuation (D&C for bleeding per vaginum in first 8 days with one or 2 doses). [d] Surgical evacuation for retained products of conception on 24th and 28th day

Bleeding was observed in both groups, however, with variable frequency and intensity (Table-4).

The distribution of hospital stays of patients

Table-4: Comparison of amount of blood loss between surgical evacuation and medical termination groups.

	n = 50 Surgical Evacuation	n = 100 Medical Termination	p-value
Mild	50 (100%)	70(70%)	
Moderate	0 (0%)	28 (28%)	< 0.001*
Marked	0 (0%)	2 (2%)[a]	

[a] blood transfusion given to 2 patients, 1 pint of blood each.

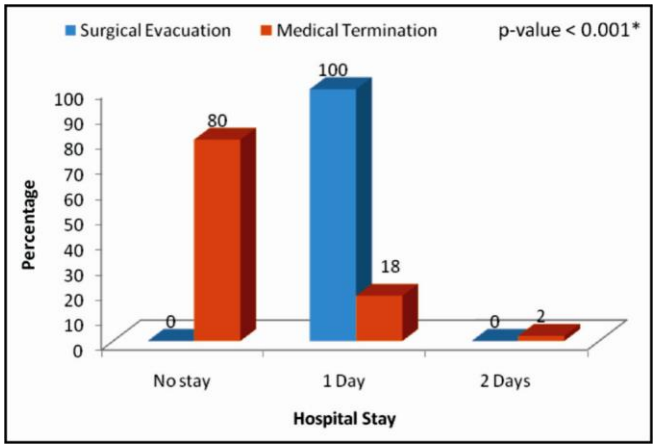

Fig.1: Comparison of hospital stay between surgical evacuation and medical termination groups.

between surgical evacuation and medical termination groups was higher for the earlier patients (Fig.1).

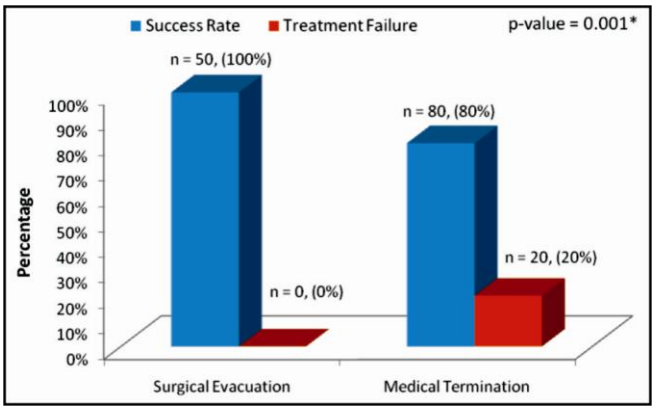

Fig.2: Comparison of success rate and treatment failure between surgical evacuation and medical termination groups.

Chi-square test was used to compare the success rate between both groups. Success rate in surgical evacuation was 100% while it was 80% in medical termination group. This difference was found to be statistically significant *(p value = 0.001)* (Figure 2).

DISCUSSION

Surgical evacuation in this study was done with preliminary priming of the cervix using 400 mcg of Misoprostol vaginally, 3 hours before shifting to operation room. Priming with Misoprostol is recommended 400 mcg vaginally 3 hours or sublingually 1 hour prior to surgical evacuation in a study performed to find out the route of administration and the time required for priming of the cervix.[13] The same regimen was followed in other reported studies. Ana et al.[14] primed the cervix of their patients in the same way for surgical evacuation and for medical termination using Misoprostol 800 mcg in 2 doses by vaginal route. Only mild side effects were recorded and managed by side medications. They declared overall effectiveness of medical treatment as 81% and surgical treatment of 100% which is quite comparable to the present study.[14]

Side effects by oral Misoprostol in this study were definitely more marked as compared to other

studies which used the same dose but by vaginal route.[15] Oral route is used as majority of the patients were apprehensive for self-administration of vaginal Misoprostol and hospital stay would have interfered with the cost effectiveness of the treatment. The same dosage schedule is used in another study and they showed an overall success rate of 77%.[16]

The largest randomized controlled trial conducted in the United States of America (USA) demonstrated 71% expulsion with first dose of Misoprostol by day 3 and increased to 84% with the 2nd dose (800 microgram). For surgical evacuation, a success rate of 93% was reported.[17]

In all these studies, vaginal route was used in the same dosage schedule. As a result, the success rate was almost similar but the side effects were only mild and tolerable while in the present study, the side effects experienced by enrolled patients were more frequent as shown in the results especially nausea and bleeding. In a study using repeated dose of 800 mcg through vaginal route, over the counter analgesics (82.1% versus 69.0%, *P = 0.04*) were administered.[18] This shows that not only the oral route but also the repeating dose (larger intake) must be responsible for higher frequency of side effects.

As reported in literature, 5 – 50% of the patients treated with Misoprostol have a chance of incomplete expulsion which can be detected by ultrasound.[15] This (medical) treatment failure was seenin the present study in 20% patients enrolled in that group.

The success rate in this study on medical termination is hence 80% with 1 – 2 doses of Misoprostol without any need of surgical intervention. A total of 10% of the patients had emergency dilatation and curettage during day 3 – 5 for continued bleeding. It was observed that 8% patients were found to have incomplete expulsion on their day-8 visit and hence were managed by surgical evacuation. This emergency evacuation was convenient and easy to perform as the cervix was already primed by the medical treatment received by the patient. The same is reported by other studies.[19]

The success rate of medical management of another study on first trimester miscarriage is reported to be 80.7% on a similar dose of Misoprostol and they also found emergency evacuation easier in their 19.3% patients due to already taken medical treatment while comparing to 18% in the present study.[15] Surgical intervention in patients on medical termination was considered to be a treatment failure. The same is reported to be 16% in another study.[16] Overall the results of this study are almost parallel to the research work reported in other similar studies.

CONCLUSION

Surgical evacuation (with priming of the cervix by vaginal Misoprostol 400 mcg 3-hours prior) is safer, quicker and better controlled in patients with early pregnancy loss. Patients can be sent home within a few hours after the procedure and hospital stay is usually never more than 24 hours. Medical management is more acceptable, far less expansive and safe alternative but it has got its own complications like pain, uncontrolled bleeding, need for emergency evacuation and unpredictable time to complete the procedure. To reduce the side effects, we recommend that vaginal route should be preferred.

LIMITATIONS OF STUDY

It was a single centre study with a small sample size. More such studies at larger scale should be carried out for wider reporting and use of vaginal route instead.

ACKNOWLEDGEMENT

The authors are grateful to the staff and faculty of Department of Obstetrics and Gynaecology Sughra Shafi Medical Complex and Sahara Medical College, Narowal, Pakistan for all their support and facilitation to conduct and complete this study.

CONFLICT OF INTEREST

None to declare.

GRANT SUPPORT & FINANCIAL DISCLOSURE

None to disclose.

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Author's Contribution

HTK: Conception and design of study, drafting the manuscript with intellectual input.

MA&HB: Acquisition of data collection, intellectual contribution in drafting and critically revising the manuscript.

WL: Analysis and interpretation of data, intellectual contribution in drafting and critically revising the manuscript.

ALL AUTHORS: Approval of the final version of the manuscript to be published.