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Original Research Article

Comparative study of medical vs surgical abortion in the first trimester- which one is better choice?

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ABSTRACT

Background: Abortion is defined as the spontaneous and induced termination of a pregnancy before foetal viability. Abortions accounted for one-third of all pregnancies, and nearly half of the pregnancies were unintended. An effective way to prevent the burden of unsafe abortion could be access to safe abortion services. Both surgical and medical methods are available for abortion or the termination of a pregnancy. Thus, we compare the two methods of medical and surgical abortions in this study.

Materials and Methods: The study was conducted on women attending obstetrics and gynaecology OPD for seeking treatment for abortion in the first trimester. 100 women were allocated to Group A, who opted for medical treatment, and Group B, for surgical abortion. Two groups were compared in terms of clinical parameters like blood loss, aftereffects, post-procedure visits, and efficacy.

Results: In group A, 14% of women had minimal bleeding, 70% had moderate bleeding, and 6% had heavy bleeding. In group B, 72% had minimal bleeding, 28% had moderate bleeding, and no one had heavy bleeding. The combined complication rate in surgical abortion was significantly lower as compared to medical abortion, but the difference in clinical efficacy is not significant.

Conclusion: The medical method is a good alternative to surgical abortion. The medical termination was associated with more bleeding and more post-procedural aftereffects, although both procedures were comparable in clinical efficacy.

1. Introduction

Abortion is defined as the spontaneous or induced termination of pregnancy before foetal viability.[1] The consequence of most unwanted pregnancies is abortion. Overall, 12.7 million (81%) abortions were medically terminated, 2.2 million (14%) abortions were surgical, and 0.8 million (5%) abortions were done through other methods that were probably unsafe.[2] According to WHO, 21-22 million unsafe abortions occur worldwide.[3] These unsafe abortions and related complications are potential causes of maternal death, a financial burden on women, and on the health care system. Abortion was legalized in India under the Medical Termination of Pregnancy Act, 1971, by the Ministry of Health and Family Welfare, Government of India.[4] The goal of the act was to decrease unsafe and illegal abortion practices. For medical termination, Tab. Mifepristone in combination with Tab Misoprostol (200 mg, 1 tab + 4 tabs, 200 mcg each) was approved by Central Drugs Standard Control Organization Services for termination of pregnancy up to 63 days of gestation.[5] For surgical methods for termination of pregnancy, one of the following methods is used: manual vacuum aspiration, suction and evacuation.[5] Both surgical and medical methods are effective and safe and are widely used for the termination of first-trimester abortions. They have their advantages

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and disadvantages, but which one is more safe, has fewer complications, and is more efficacious is unknown. In this study, two groups were compared in terms of clinical parameters and efficacy.

2. Materials and Methods

A randomized control study was conducted on 200 women coming for termination of early pregnancy at the outpatient department at PGIMS, Rohtak. Written informed consent was obtained after explaining the advantages and disadvantages of each method of pregnancy termination. The randomization of these women was done using the envelope method. Group A received the medical method, and Group B was considered for the surgical method of termination of pregnancy. 100 women in group A received tablet mifepristone 200 mg stat in OPD, and 4 tablets of misoprostol were handed over to these women. They were instructed to insert these 4 tablets of misoprostol (800 mcg) vaginally after 48 hours. Women were instructed to report to the hospital if they had any excessive vaginal bleeding, abdominal pain, fever, excessive nausea and vomiting, or any other complaint. Women were called for follow-up in OPD after 2 weeks to confirm the complete expulsion of products by sonography. The presence of retained products after 2 weeks of treatment was considered a failure of the medical method, and these women were offered the surgical method of termination of pregnancy. 100 women in group B underwent suction and evacuation in the postpartum centre in OPD. Oral antispasmodics were given 1 hour before evacuation in all these women. The duration of the procedure, amount of blood loss, and pain scale were noted, and the product of conception was sent for histopathological examination.

3. Results

Both groups are comparable in terms of age distribution, education, and occupation. Table 1 shows the demographic distribution according to age, parity, and period of gestation. The mean age of women in Group A was 29.066 years, and in Group B, it was 28.428 years. Most of the women in both groups had received higher secondary or senior secondary education (43% and 52% in groups A and B, respectively). 76% in Group A and 88% in Group B were homemakers. According to the period of gestation, 55% of women came at 6 weeks ± 6 days in both groups, 27% and 30% came at 7 weeks ± 6 days in Groups A and B, and 14% and 15% at 8 weeks ± 6 days, respectively. Table 2 shows the distribution of patients according to the duration of bleeding after the procedure. 6% of group A and 98% of group B had bleeding duration up to 5 days. 86% of group A and no one in group B had bleeding between 6 and 10 days. Only 8% in group A and 1% in group B had bleeding between 11 and 15 days. A P value < 0.001 is highly significant. When we see the amount of blood flow, in group A, 14% of women had minimal bleeding, 70% had moderate bleeding, 6% had heavy bleeding, and 10% had excessive bleeding. In group B, 72% had minimal bleeding, 28% had moderate bleeding, and no one had heavy or excessive bleeding. The difference among all the categories was found to be statistically significant. The fall in haemoglobin was greater in the surgical group as compared with the medical group, but the difference was not significant. Table 3 shows the comparison of the aftereffects of the two procedures. 54% of participants in Group A and 32% in Group B experienced abdominal cramps. 3% had fever, 9% had nausea, 7% had headaches, and 5% had vomiting in group A, in addition to abdominal cramps. No one in group B had any other additional symptoms. Its p-value is highly significant. 10% of women in group A had hospital visits more than once. No one in Group B had additional visits. The mean pain scale during the procedure was higher in the surgical group (5.8) as compared to the medical group (4.99), with a p-value found to be significant. The success rate of medical abortion decreased with an increase in gestation period (100% at 6 weeks, 80% at 7 weeks, 16.67% at 8 weeks), but no such relation was found in the surgical group. The clinical efficacy/total success rate in group A was found to be 96%, compared to 99% in group B. 4% in group A and 1% in group B had treatment failure.

4. Discussion

Termination of pregnancy is an integral part of the reproductive healthcare system. In developing countries like India, abortion is a health issue associated with controversy and conflict. Unsafe abortion is the third-leading cause of maternal mortality in India; nearly eight women die every day due to unsafe abortion.[6] In 2012, WHO and the Guttmacher Institute reported that 56% of abortions in developing countries are unsafe.[7] There is a large unmet need for a safe and effective method for early pregnancy termination. To reduce the number of unsafe abortions, the government of India passed the MTP Act in 1971, which came into force on April 2, 1972, and was modified in 2003.[7] In the current study, we compared medical and surgical methods of early termination of pregnancy approved under this act.

In study conducted by Shetty et al, Banerjee et al, Murry et al, the mean age was 29.8± 4.4, 27±4.2, 26.5 years respectively which is similar to the present study.[8–10] Moreau et al and Woldetsadik et al found similar literacy rate as in present study, most of women had received secondary and higher education.[11,12] Barghazan et al. compared the clinical efficacy of surgical versus medical methods for first-trimester pregnancy termination in Iran. The composite complication rate in surgical abortion was very low as compared to medical termination of pregnancy (4.76% vs. 39.3%). Medically terminated women

Table 1: Demographic profile

	Medical termination	Surgical termination	P value
Number of women	100	100	
Mean age in years (range)	29.06 (20–45)a	28.42(19-41)	P=0.375
Parity			
0	3(61.9)	251 (62.9)	
1	13 (13.5)	51 (12.8)	
2	61 (16.7)	53 (13.3)	
3	13 (7.9)	44 (8.3)	
4	6 (6%)	5 (5%)	
>4	4 (4%)	3 (3%)	
Gestation (days)			
6 weeks ± 6 days	55 (55%)	55 (55%)	
7 weeks ± 6 days	27 (27%)	30 (30%)	P =
8 weeks ± 6 days	14 (14%)	15 (15%)	0.289
>9 weeks	4 (4%)	0	(>0.05 NS)
Mean ± SD	7.07 ± 1.08	6.88 ± 0.79	

NS = Non significant

Table 2: Distribution of patient according to duration and amount of bleeding

Duration of bleeding (days)	Group A N (%)	Group B N(%)	Statistical analysis
Up to 5 days	6 (6%)	98 (98%)	P<0.001(HS)
6 -10 days	86 (86%)	0	P<0.001(HS)
11- 15 days	8 (8%)	1 (1%)	P<0.01(Sig.)
>15 days	0	1(1%)	0.316(>0.05 NS)
Amount of bleeding			
Minimal (up to 3pads/day)	14 (14%)	72 (72%)	P<0.001(HS)
Moderate (3-4pads/day)	70 (70%)	28 (28%)	P<0.001(HS)
Heavy (5-7pads/day)	6 (6%)	0	P<0.01(Sig.)
Excessive (7-9pads/day)	10 (10%)	0	P<0.001(HS)

HS- Highly significant, Sig.- Significant, NS- Non sgnficant

Table 3: Comparison of perceived after effects between two groups

After effects	Group A	Group B	Statistical analysis
Abdominal crams(ac)	54 (54%)	32 (32%)	P value < 0.001 significant
Excessive bleeding	3 (3%)	1 (1%)	P = 0.312(>0.05 Non Significant)
Fever	3 (3%)	0	P = 0.155(>0.05 Non Significant)
Nausea	8 (8%)	0	P=0.003(<0.001 significant)
Headache	7 (7%)	0	P=0.007 (<0.001significant)
Vomiting	5 (5%)	0	P=0.02(<0.05 significant)
None	19 (19%)	67 (67%)	P<0.001(significant)

experienced more bleeding, pain, and symptoms of pelvic infection. Quality of life scores were estimated at 0.6605 and 0.5419 for the surgical and medical groups, respectively. So surgical abortion is safe and successful.[13] Child et al. did a retrospective study to compare the efficacy and complications of medical and surgical termination of pregnancy at or before 63 days or 9 weeks of gestation. It was found that women with medical termination (9.8%) required additional procedures to terminate their pregnancy than those who underwent surgical methods (5.5%); the p-value is significant at p< 0.001. The medical termination group (90.2%) had a lower completion rate as compared to the surgical group (94.5%). 9% of women in the medical termination group and 8.8% of women in the surgical termination group reported emergency timing within 6 weeks of treatment. The difference was not significant.[14] Gharwal et al. compared the medical termination of pregnancy and manual vacuum aspiration (MVA) up to 9 weeks of pregnancy. The average duration of bleeding among medical terminations (8.9±3.5 days) was higher as

compared to the MVA group (6.837±2.928 days). 78.3% of women in the medical group and 8.7% in the MVA group had heavy menstrual bleeding; the p-value was <0.001. There is a higher rate of pain, nausea, vomiting, diarrhoea, and incomplete abortion in the medical group as compared to the surgical group.[15] In the index study, the number of days of bleeding was less in the surgical group (≤ 5 days) as compared with the medical group (6–10 days). Our study was comparable to that of Gharwal et al. The current study was in line with studies conducted by Barghazan et al. and Gharwal et al., who all found abdominal cramps, pain, bleeding, nausea, and vomiting were more associated with medical-group women than with surgical-group women. In the present study, a higher number of women were required to visit the hospital in the medical group; similar findings were also found in the Child et al. study.[7] In the study done by Cabezas, change in haemoglobin levels were found to be significantly greater in medical group than surgical one (0.57 g/dl VS -0.03 g/dl).[16] Similarly in our study, fall in haemoglobin was more in medical group than in surgical, but difference was not significant. The procedure completion rate, efficacy rate, and quality of life score were higher with the surgical method as compared to the medical group in all the above-mentioned studies as well as the present study.

5. Conclusion

The medical method is a good alternative to surgical abortion, but there are more questions, more insecurities, and more complaints associated with the procesdure as compared to the surgical method. In the present study, it was found that the duration and amount of bleeding were higher with the medical method. The post-procedural aftereffects like abdominal cramps, nausea, vomiting, fever, and headaches were more common with medical methods, but most of them were self-limiting. It was noticed that the intensity and duration of pain experienced during the procedure were greater in the surgical group. The efficacy and rate of completion were almost similar. Hence, it can be concluded that medical and surgical methods of termination of pregnancy are comparable.

6. Author Contribution

Dr Sonia Dahiya - Conceptualization, Methodology, Software, Investigation, Data curation, Writing – original draft, Writing – review & editing Resource. Dr Mahak Singaal - Conceptualization, Methodology, Investigation, data curation. Dr Pushpa Dahiya - Conceptualization, Writing – review & editing Resource. Dr Shikha Madan- software, software, Dr Smriti Anand- Writing – review & editing Resource

7. Ethical Approval

This study was performed following the 2013 Declaration of Helsinki guidelines on human participants. Data confidentiality and patient anonymity were maintained at all times. Written Informed consent was obtained from all subjects. The approval of BIOMEDICAL RESEARCH ETHICS COMMITTEE, operating at The Pt. B.D. SHARMA Post Graduate Institute of Medical Sciences, University of Health Sciences (UHS), ROHTAK, Haryana was obtained and these institution gave their approval for this study.

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9. Interest Conflict Declaration

There is no conflict of interest, according to the authors.

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