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# A Comparative Study of Medical Vs Surgical Methods in First Trimester Abortion

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***Abstract:*** *In India each year about 125,000 women die from pregnancy related causes([1,2,)] At least 1/5 th of these deaths are caused by induced abortion, sepsis being one of the causes. In the majority of cases the infection occurs following illegal induced abortion but can occur even after spontaneous abortion. Abortion was legalized in our country through MTP act in 1971, still the incidence of septic abortion ranges from 2 –10%.[(3,4)] Septic abortion is the major life threatening complication that could be tackled significantly through good quality health care. The common cause is abortion by untrained personnel, dais and quacks. Poverty, ignorance and non availability of trained personnel contribute to high incidence of septic abortion. These cases are mostly referred to hospitals very late after occurrence of complications leading to high maternal morbidity and mortality. Our study aims to compare Medical Vs Surgical Methods In First Trimester Abortion This Hospial based cross sectional study was conducted in the deparment of Obstetrics & Gynaecology, KMCH, Guntur from January 2015 to September 2016. A total of 100 patients were included in the study to analyze the efficacy of medical abortion and surgical abortion in first trimester pregnancies. Hence forth the above study showed that Medical method of termination of early pregnancy will not replace the surgical methods, but is an alternative to vacuum aspiration and ideally both methods should be available to give the woman a choice.*

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## I. Introduction

Unplanned and unwanted pregnancies are common occurrences in all societies, regardless of level of medical, economic, educational or religious development present within them. Despite wider availability of contraceptive methods, the incidence of induced abortions is increasing. Medical abortions has the potential, to be provided in the community by nursing staff are lower in cost, compared to surgical methods. The surgical nature of abortion procedure is problematic, requiring experience and technology and costly that challange many patients and their healthcare systems, particularly in undeveloped nations. Medical and surgical methods are both safe and effective approaches for appropriately selected patients[(5)]**.** The choice is based upon availability, gestational age (medical abortion is less successful in the late first trimester), and patient preference. Abortion was legalized in our country through MTP act in 1971, still the incidence of septic abortion ranges from 2 – 10%.[(3,4)] Septic abortion is the major life threatening complication that could be tackled significantly through good quality health care. The common cause is abortion by untrained personnel, dais and quacks. Poverty, ignorance and non availability of trained personnel contribute to high incidence of septic abortion. These cases are mostly referred to hospitals very late after occurrence of complications leading to high maternal morbidity and mortality.In view of the above situation the present study was undertaken to compare Medical and Surgical methods in First Trimester Abortion in a tertiary care setting.

**Objectives**

1. To study and analyze the efficacy of medical abortion (oral mifepristone and misoprostol) in first trimester MTP (42 days to 63 days).
2. To analyze and compare the complications with surgical abortion.
3. To compare the efficacy of medical and surgical methods of abortion.

## II. Material And Methods

A hospital based comparative study was carried out in Department of Obstetrics & Gynaecology, Katuri medical college and Hospital, Guntur, Andhra Pradesh. from January 2015 to September 2016.

**Methods :**
1. **Type of the study** – Hospital based and cross sectional study.
2. **Period of the study** – January 2015 – September 2016.
3. **Study setting** – Katuri medical college and Hospital, Department of Obstetrics & Gynaecology, Guntur, Andhra pradesh.
4. **Source of data & selection of study subjects** – out of 100 study subjects, 50 subjects were taken for medical methods and 50 study subjects for surgical methods randomly by inclusion and exclusion critieria.

**Materials:**
**Subjects :**
Study subjects included 100 pregnant women requesting termination of pregnancy in early first trimester (upto 63 days of gestation) attending the Katuri medical college and Hospital, Department of Obstetrics & Gynaecology,Guntur, Andhra pradesh.

**Instruments/ medication used :**
1. Tab. Mifepristone
2. Tab. Misoprostol
3. MR Syringe
4. Karman's cannula
5. D&C set
6. Electrical suction apparatus
7. Pre-tested and structured proforma used for the recording of data.

**Inclusion Criteria:**
1. Women with GA upto 63 days from the first day of the last menstrual period with previous regular cycles.
2. Patients without medical or surgical contra-indications to Mifepristone and misoprostol.

**Exclusion criteria:**
1. Confirmed or suspected ectopic pregnancy or undiagnosed adnexal mass.
2. Hb < 8.0 g/dl

**For medical methods alone exclusion Criteria.**
1. Patient's with 2 previous LSCS.
2. Patients on antifungal drugs, antiepileptic and concurrent anticoagulant therapy, long term corticosteroid therapy.
3. Haemorrhagic disorders or inherited porphyrias.
4. Patients with cardiac, pulmonary diseases, Asthma, renal failure, epilepsy.

A complete case record was prepared and detailed history of all the patients was taken. A thorough clinical examination including general, per abdominal and per vaginal examination was done. All the patients were subjected to investigations like complete urine examination, hemoglobin estimation (Hb%), blood grouping and Rh typing and random blood sugar were done prior to the administration of the regimen.
Ultrasonogram was done to confirm the intrauterine pregnancy, gestational age and also to rule out uterine or adnexal pathology.

**Counselling:** Counselling is an integral part of abortion service, counselling was done to establish rapport, allay anxiety, clarify doubts, to briefly explain about the method of abortion and efficacy and risks associated with the procedure. A voluntary informed and written consent taken.

**Procedure of the study :**
**For medical method:**

All the patients were informed the success rate of medical treatment and explained that if it fails they may need surgical intervention. A voluntary written and informed consent was taken.Each patient was given Tab. Mifepristone 200mg orally on the first day of the clinic visit. The women were allowed home half an hour after the Mifepristone administration with an instruction to return the gynaecology ward after 48 hours. Patients were also informed that in some cases abortion might occur at home following Mifepristone. After 48 hours Tab Misoprostol 600µg was kept in the posterior fornix of vagina under strict aseptic precautions. Vitals were monitored half an hourly before and after the insertion of tablet. Patients were discharged 4 hours later on the same day, and were advised to report if there was excessive bleeding, fever, foul smelling discharge, vomiting or any other complications were experienced. All the patients were kept on Tab Doxycycline 100mg bid for 5 days. Patients were instructed to report on the $14^{th}$ day if no complications occurred in between.USG repeated

on 14th day to confirm the completeness of abortion. Success was defined as the complete expulsion of the products of conception without the need for surgical intervention. Women who have not responded to medical treatment within 24 hours of misoprostol administration, were offered surgical methods to terminate the pregnancy.

**SURGICAL METHODS:**

**Pre-Operative Care:**

General instructions given to all clients after taking written, informed consent are:

1) The client should be accompanied by a responsible person.
2) The client should not eat anything 6hrs before the procedure.
3) She must bathe and wear loose and clean clothing to the operation theatre.
4) Inj. Tetanus toxoid given before.
5) IV antibiotics given.

Suction evacuation carried out under local or general anaesthesia.

Patients in both groups scheduled for a follow up visit after 2 weeks. USG done on 14th day to confirm completeness of abortion.

The patients were advised family planning follow up.

**Statistical analysis:**

The data was entered to a MS-Excel and necessary tables were generated by running quires with analytical relationships. Percentages and chi square test were commonly used for pertinent tables. The chi square tests were done using Epi info 2000 software with necessary correction as applied.

**Presentation :**

Presentation was done after full compilation, tabulation, probability and significance evaluation and compared with several other studies available in literature. Logical conclusions were drawn and corresponding recommendations were made.

## III. Result

Results were analysed according to the parity, gestational age, marital status, induction abortion interval, completeness of abortion, failure of procedure, complications and acceptability of the method.

**Table -1**
**DISTRIBUTION AS PER PARITY**

| Parity | Medical | | Surgical | |
|---|---|---|---|---|
| | No. of Cases | % | No. of Cases | % |
| Primi Gravida | 15 | 30% | 5 | 10% |
| 2nd Gravida | 17 | 34% | 7 | 14% |
| 3rd Gravida | 9 | 18% | 27 | 54% |
| 4th Gravida and above | 9 | 18% | 11 | 22% |
| Total | 50 | 100% | 50 | 100% |

In medical abortion 64% of the patients were primi and second gravida as compared to 76% who were 3rd and 4th gravida in the surgical group.

**Figure -1**
**DISTRIBUTION AS PER PARITY**

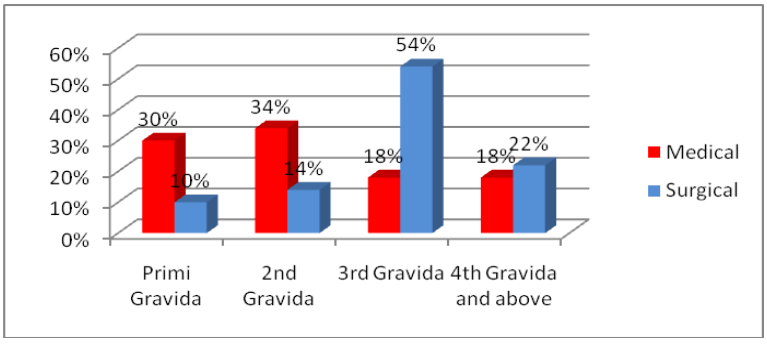


**Table – 2**
**DISTRIBUTION AS PER GESTATIONAL AGE**

| Gestational Age in weeks | Medical | | Surgical | |
|---|---|---|---|---|
| | No. of Cases | % | No. of Cases | % |
| Upto 7 Weeks | 11 | 22% | 6 | 12% |
| Above 7Weeks | 39 | 78% | 44 | 88% |
| Total | 50 | 100% | 50 | 100% |

This table show that majority of the patients present to the hospital for medical or surgical abortion after 7 weeks of gestational age, i.e., 78%, in medical and 88% in Surgical group. In the medical group it is easier to perform the procedure when patient presents early.

**Figure – 2**
**DISTRIBUTION AS PER GESTATIONAL AGE**

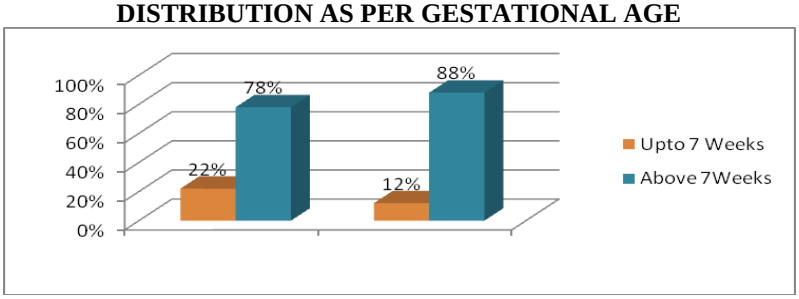



**Table-3**
**DISTRIBUTION AS PER MARITAL STATUS**

| Marital Status | Medical | | Surgical | |
|---|---|---|---|---|
| | No. of Cases | % of Cases | No. of Cases | % of Cases |
| Unmarried | 4 | 8% | 3 | 6% |
| Married | 46 | 92% | 47 | 94% |
| Total | 50 | 100% | 50 | 100% |

92% of patients in medical and 94% in surgical group were married and termination was done as a birth spacing measure.

**Figure - 3**
**DISTRIBUTION AS PER MARITAL STATUS**

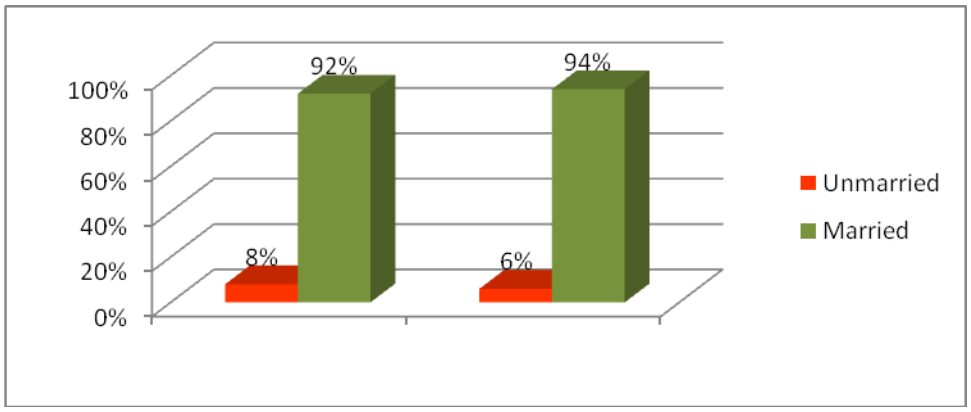



**Table - 4**
**ANAESTHESIA DURING SUCTION EVACUATION**

| Anaesthesia / Analgesia | Surgical Evacuation | |
|---|---|---|
| | No. of Cases | % |
| IV Sedation (Inj. Fortwin + Inj. Phenergan | 14 | 28% |
| Ketamine | 36 | 72% |
| TOTAL | 50 | 100% |

Patients who underwent MTP only or MTP with Cu-T insertion were given IV Sedation. Patients who underwent MTP with simultaneous tubectomy were done under Ketamine Anaesthesia.

**Figure - 4**
**ANAESTHESIA DURING SUCTION EVACUATION**

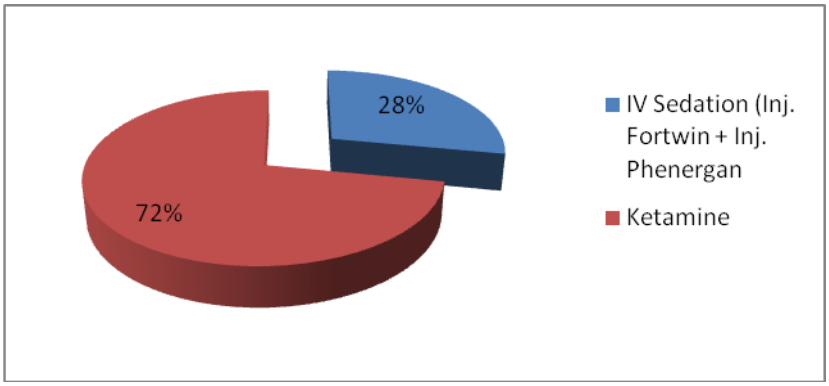



**Table - 5**
**INDUCTION ABORTION INTERVAL IN THE MEDICAL GROUP**

| Duration in Hours. | Medical Group | |
|---|---|---|
| | No. of Cases | % |
| 1-5 hrs. | 21 | 42% |
| 6-10 hrs. | 15 | 30% |
| 11 -15 hrs. | 6 | 12% |
| 16-20 hrs. | 1 | 2% |
| 21 - 25 hrs. | 7 | 14% |
| TOTAL | 50 | 100% |

The mean induction abortion interval is 8.8 hrs, the standard deviation from the normal was 0.96 hrs. 72% of the patients aborted within 10 hours and all the patients aborted within 24 hrs.

**Figure - 5**
**INDUCTION ABORTION INTERVAL IN THE MEDICAL GROUP**

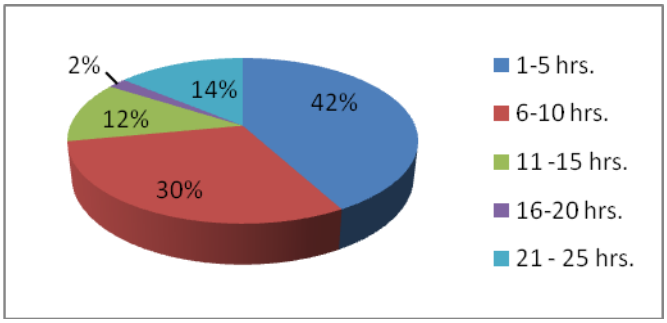



**Table – 6**
**COMPLETENESS OF THE ABORTION**

| Abortion | Medical | | Surgical | |
|---|---|---|---|---|
| | No. of Cases | % | No. of Cases | % |
| Complete | 47 | 96% | 49 | 98% |
| Incomplete | 2 | 4% | 1 | 2% |
| Total | 49 | 100% | 50 | 100% |

The study of this chart regarding completeness of abortion shows no statistical difference because between 94-98% had a complete abortion in both the groups and the P value is 0.5 which is not statistically significant. It also shows that both medical and surgical methods are equally effective in < 8 weeks. Ultrasound was done after 14 days to establish the completeness of the procedure objectively. One case was lost for follow up in the medical group.

**Figure – 6**
**COMPLETENESS OF THE ABORTION**

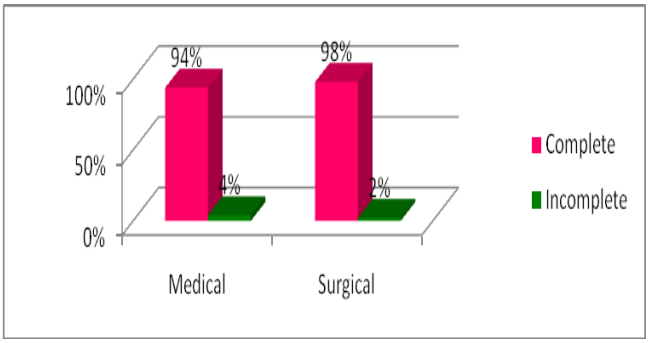



**Table - 7**
**COMPLICATIONS ASSOCIATED WITH THE PROCEDURE**

| Complications | Medical | | Surgical | |
|---|---|---|---|---|
| | No. of Cases | % | No. of Cases | % |
| Pain or cramps | 45 | 90% | 10 | 20% |
| Nausea vomiting | 28 | 56% | 2 | 4% |
| Excess bleeding | 3 | 6% | 0 | 0% |
| Bleeding for more than seven days | 21 | 42% | 0 | 0% |
| Diarrhoea | 2 | 4% | 0 | 0% |
| Others(Febrile illness infection, Cervical trauma, Uterine perforation) | 0 | 0% | 0 | 0% |

All the complications are with medical regime (prostaglandins, Mifepristone). 90% of patients complained of pain and cramps in lower abdomen, 56% had nausea or vomiting, in 42% there was bleeding for more than 7 days. In 6% there was excess bleeding. In Surgical group <1% had excess bleeding i.e., post abortally.
The disparity in complications between the two groups is not statistically significant. (P= 0.268).

**Figure - 7**
**COMPLICATIONS ASSOCIATED WITH THE PROCEDURE**

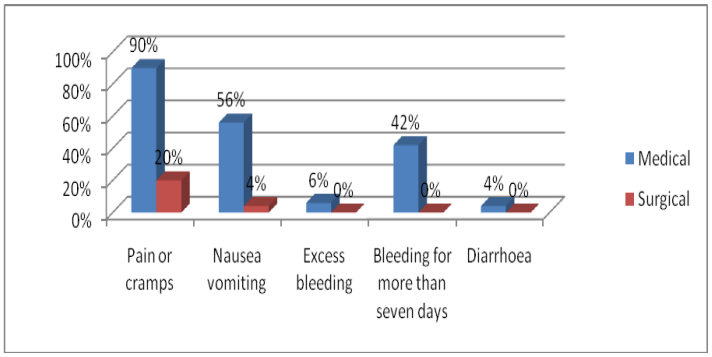
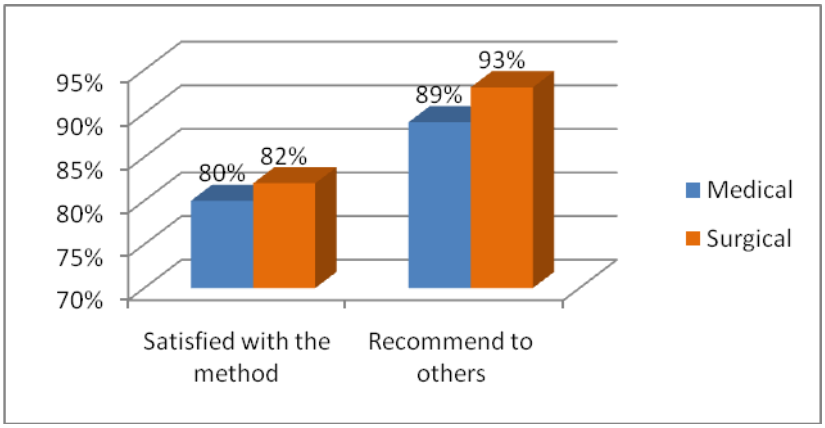



**Table** - 8
**ACCEPTABILITY OF THE METHOD**

| Acceptability | Medical | Surgical |
|---|---|---|
| Satisfied with the method | 80% | 82% |
| Recommend to others or choose it again | 89% | 93% |

This chart proves the hypothesis that when patients are properly counselled and followed-up and when steps of the procedure especially the drug dosages are complied with, both these procedures satisfy the patient there is no difference between the two and no evidence of dissatisfaction with either of the methods.

**Figure - 8**
**ACCEPTABILITY OF THE METHOD**




## IV. Discussion

The present study shows that in medical abortion 64% of the patients were primi and second gravida as compared to 76% who were 3rd and 4th gravida in the surgical group. Whereas a study conducted by Child TJ, [6] stated that there were no age or parity differences between the study groups.

In our study, the patients who underwent MTP only or MTP with Cu-T insertion were given IV Sedation. Patients who underwent MTP with simultaneous tubectomy, done under Ketamine anaesthesia. Where as in Child TJ et al,[6] Medical termination was performed with mifepristone 200 mg orally and misoprostol 800 microgram vaginally; surgical aspiration termination was performed under general anaesthesia.The completeness of abortion in medical method is 94% and in surgical method is 98%. The P value is 0.5 which is not statistically significant. It also shows that both medical and surgical methods are equally effective in < 8 weeks. Ultrasound was done after 14 days to establish the completeness of the procedure objectively. One case was lost for follow up in the medical group. Outcome measures were: surgical curettage for presumed retained products of conception; ongoing pregnancy; and planned and emergency review in the unit. Early medical and surgical termination were associated with a 90.2 and 94.5% complete abortion rate respectively (P = 0.025). The complete abortion rate with medical termination decreased significantly with increasing parity; no such relationship with surgical abortion was found. Women of parity three or more were less likely to have a complete abortion following a medical (83.3%) compared to surgical procedure (97.7%) (P = 0.028). The ongoing pregnancy rate was 0.9% with medical and 0.5% with surgical termination (P = NS). Medical termination was associated with a lower complete abortion rate than surgical termination, particularly for women of higher parity.[7]The present study, proves the hypothesis that when patients are properly counselled and followed-up and when steps of the procedure especially the drug dosages are complied with, both these procedures satisfy the patient, there is no difference between the two and no evidence of dissatisfaction with either of the methods. Whereas in Jensen JY et al [7], in their study, Subjects undergoing medical abortions reported significantly greater satisfaction than those undergoing surgical abortions (mean rank, 121 vs 149; P <0.001) but were no more likely to recommend the method they had just experienced to a friend (97% vs 93.3%).

| Reference | Duration of Pregnancy (no. of patients) | RU 486 and PG dose | Complete abortion |
|---|---|---|---|
| WHO Task Force multicenter[8] | <56 days (1182) | 200-600mg+lmg gemeprost vaginally | 94% |
| Peyron et. al[9] | <49 days (890) | 600mg+400u-g Oral misoprostol | 96% |
| McKinley et. al[10] | <63 days (220) | 200-600mg +600^xg Oral misoprostol | 94% |
| Spitz et. al[11]. | <49 days (827) | 600mg+400ug Oral misoprostol | 92% |
| **Present study** | <63 days | 200mg mifepristone+600mcg misoprostal | 94% |

## V. Conclusion

1st trimester abortion before 8 weeks or 56 days can be done either by medical or surgical methods.Advantages of medical abortion is that it does not involve any risk of surgery or anaesthesia, is more natural, being simple, more private does not require an operating room, is more like a "natural miscarriage".The drawbacks of medical method are longer time to abortion (induction abortion interval) and is associated with longer duration of bleeding post-abortally, they require follow-up for 2 weeks, remain at risk for surgical completion curettage for several weeks. Advantages of surgical abortion is one step and quicker procedure and

some clients prefer not to know what happens. The disadvantages are requirement of more trained personnel, risks of anaesthesia and surgical complications. The biggest advantage of medical abortion is that confidentiality can be maintained and the patient can get back to work quickly. Proper counselling by the obstetrician or a counselor is mandatory in preparing a patient in medical abortions because of side effects, like bleeding after the procedure and complications. Proper counselling by the obstetrician or a counselor is mandatory in preparing a patient in medical abortions because of side effects, like bleeding after the procedure and complications of drugs used in the procedure. The relatively high cost of mifepristone is another barrier to implementing this practice in under resourced settings. Therefore if the hospital (Government Institution) can provide the drugs free of cost, the acceptability rate of medical procedure will be higher.The success rates for medical and surgical methods are not clinically and statistically significant between 94-95% respectively. It seems adequate that medical methods is equally, or almost equally as effective as vacuum aspiration. Duration of bleeding and amount of blood loss is greater following medical, frequency of uterine pain, vomiting diarrhea is higher following medical abortion than following vacuum aspiration. On the other hand, the frequency of major complications for example such as excessive bleeding, blood transfusion and pelvic infection does not seem to differ between the two procedures. Surgical complications for example uterine perforation and cervical tears are obviously not a risk for medical abortion.

It is not possible to state which method is best. Medical method of termination of early pregnancy will not replace, but is an alternative to vacuum aspiration and ideally both methods should be available to give the woman a choice.

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