Journal of Cardiovascular Disease Research

ISSN:0975 -3583,0976-2833 VOL 15, ISSUE 11, 2024

Original research article

Simple and safe method of first trimester abortion with MVA syringe

Dr. Susheela B R
Associate Professor, Department of OBG, SSIMS, T Begur, Bengaluru, Karnataka, India

Corresponding Author: Dr. Susheela B R

Abstract

Introduction: Vacuum aspiration has become standard surgical procedure for safe first trimester pregnancy termination. Most of these operations are performed in the operating theatre using suction curettage and an electric vacuum pump. MVA (manual vacuum aspiration) is an alternative that is well suited for use as a clinical procedure, which could have advantages both for the patient and the health care system. In order to compare conventional VA and MVA in an Indian setting, a randomized study was undertaken.
Methods: 100 women requesting abortion in gestational age less than 12 weeks, and choosing surgical termination, were randomized to VA or MVA. Main study outcome was frequency of complete abortion but also other variables were recorded, at a tertiary centre in Karnataka.
Results: There were no significant differences between the two groups regarding background characteristics. Altogether 100 MVA operations were performed. There was no significant difference in frequency of complete abortion; two patients in each group subsequently needed re-curettage because of incomplete evacuation. No case of ongoing pregnancy occurred. Two patients in each group received treatment for endometritis. No other complications were recorded.
Conclusion: This study indicates that MVA is effective in emptying the uterine cavity, on par with the standard vacuum aspiration. The rate of complications with MVA was on the same low level as with conventional VA.
Keywords: Manual vacuum aspiration, first trimester, abortion

Introduction

Where available, medical termination of first trimester pregnancy has lately become the method of choice for many women. In surgical termination, vacuum aspiration (VA) is the standard method for safe early pregnancy termination. While most operations are performed using a plastic or metal tube with an opening close to the blunt tip connected to an electrical vacuum pump, there are alternatives. A system with special hand-held syringes is termed manual vacuum aspiration (MVA) and has been promoted so far mostly in resource poor areas of the world.

The efficacy of vacuum aspiration for terminating first trimester pregnancy has been widely shown with a frequency of complete abortion between 96 and 99.5 per cent, in most studies 98 per cent or more. The efficacy of MVA has been shown with similar results [1, 2].

India most surgical abortions are performed in the operating theater using suction curettage and an electric vacuum pump. The use of the operating theater and staff implies a considerable consumption of health care resources and costs. Doing the operation as a clinical procedure in the hospital could mean considerable reductions in economical as well as psychological costs, saving the patient time on the waiting list and the embarrassment and greater exposure coming with visits to the main operating theatre.

As the MVA is well suited for use in the clinic it might be an alternative to VA for those wishing surgical termination of early pregnancy. A prerequisite for widespread use of MVA must be documented safety on par with VA.

According to the World Health Organization, an estimated 800 women die each day from preventable causes related to pregnancy, delivery and unsafe abortion, as well as 7000 newborns, the majority on the first day or during the first week of life. Almost all maternal (99%) and neonatal (98%) deaths occur in resource-limited countries. Essential obstetric and newborn care is designed to help reduce maternal and neonatal mortality in unfavourable contexts. This guide does not replace years of specialised training and experience. It is intended for midwives, doctors, and qualified health care personnel who respond to obstetric emergencies. Not all the procedures described in this guide are within reach of all medical staff. For example, while many obstetrical procedures fall within a midwife's scope of practice, she does

ISSN:0975 -3583,0976-2833 VOL 15, ISSUE 11, 2024

not perform caesarean sections-though she usually helps determine that one is indicated. On the other hand, a nurse may be permitted to perform antenatal or postnatal consultations, with appropriate training. The medical demography of resource-limited countries often requires the decentralisation of competencies. Similarly, it is important to take the paucity of obstetricians in these countries into account, and recognise that in some countries, general practitioners in remote areas are trained to perform complicated deliveries. Therefore this guide aims to serve all of these personnel with diverse qualifications, by describing basic technical procedures and general management of obstetric emergencies. It can also be used as a training tool.

While some of the methods in this guide, such as symphysiotomy and embryotomy, may appear obsolete, they have purposely been included for situations in which performing a caesarean section would be dangerous or impossible. Broadly speaking, there are two types of medical facilities that provide care for mothers and newborns: BEmONCs, which dispense Basic Emergency Obstetric and Newborn Care, and CEmONCs, which offer Comprehensive Emergency Obstetric and Newborn Care. The geographic distribution of these facilities should permit proximity to care, in the case of the BEmONCs, with the CEmONCs serving as reference facilities for more complicated deliveries. The different procedures and techniques described in this guide are to be performed in the relevant medical facility. Despite all efforts, it is possible that certain errors may have been overlooked in this guide. Please inform the authors of any errors detected. To ensure that this guide continues to evolve while remaining adapted to field realities, please send any comments or suggestions [3-5].

Materials & Methods

100 women requesting abortion in first trimester pregnancy and choosing surgical termination, were randomized to MVA. Main study outcome was frequency of complete abortion but also other variables were recorded, at a tertiary centre in Karnataka.

Evacuation of the uterine contents using suction.

1 Indications

- Molar pregnancy.
- Termination of pregnancy before 12 weeks LMP.

Note: Beyond 13 weeks LMP, MVA is ineffective, except in case of molar pregnancy.

2. Precautions

- Purulent cervicitis and pelvic infection: start antibiotics before performing the procedure.
- Coagulation disorders: risk of haemorrhage. MVA must be performed in a facility where emergency surgery and blood transfusion are available.

3. Equipment

Sims Speculum, Volsellum, MVA set:

- 2 Ipas MVA Plus® 60-ml syringes.
- 2 bottles of silicone for lubricating the syringe.
- 20 sets of Ipas Easy Grip® flexible cannulae (4, 5, 6, 7, 8, 9, 10, 12 mm) sterile, single use.
- 5 double-ended Hegar's uterine dilators (3-4, 5-6, 7-8, 9-10, 11-12 mm).
- 1 Pozzi forceps, Volsellum.
- 1 Collin vaginal speculum.
- 1 uterine sound.
- 1 Cheron dressing forceps.
- 1 100-ml gallipot.
- 1 stainless steel instrument basket.

All the equipment is autoclavable, except the cannulae, which are strictly single use.

For the procedure:

- 1 sterile drape for laying out the sterile equipment.
- 1 aperture drape to place over the patient's vulva.
- Povidone iodine scrub solution or, if not available, ordinary soap.
- 10% povidone iodine dermal solution.
- Sterile compresses and gloves.
- Absorbent pad to place under the patient's buttocks.
- 1 bright light.

For local anaesthesia:

- Long sterile needle (either 22G LP or 21G IM).
- 1% lidocaine (without epinephrine) + sterile syringe and needle.

ISSN:0975 -3583,0976-2833 VOL 15, ISSUE 11, 2024

Results

Table 1: Effectiveness of MVA

No. of patients	Effectiveness	Percentage
97	Effective	(97%)
3	Not effective	(3%)

Table 2: Distribution of study subjects according to age & parity

Age (years) MVA	MVA
<20	13
20-30	59
30-40	28
>40	-
Total	
Parity	MVA
Nulliparous	15
Multiparous	85
Total	100

Table 3: Distribution of study subjects according to gestational age (weeks) and time taken (minutes)

Gestational Age (Weeks)	Number	Time taken (Mins)
6-8	18	7.3
8-10	60	9.4
10-12	22	10.2

Table 4: Distribution of study subjects according to complications

Complications	MVA
I. During procedure	
a) Excess bleeding	1
b) Uterine perforation	0
c) Cervical injury	0
II During follow up	
a) Pain abdomen	8
b) Excess Bleeding	2
c) Incomplete evacuation	2
Total	13

Discussion

Vacuum devices, first described in medical literature in the 1800s, allowed the development of suction aspiration methods of abortion. The invention of the Karman cannula, a flexible plastic cannula which replaced earlier metal models in the 1970s, reduced the occurrence of perforation and made suction aspiration methods possible under local anesthesia. The 1970s also witnessed the legalization of Medical Termination of Pregnancy (MTP) in India by the MTP Act which was passed on 10th August, 1971 and came into force from 1972. All the women in our study were in the 1st trimester. Maximum number were of the gestational age range 10-12 weeks, median gestational age being 10 weeks for both the procedures. In the retrospective Cohort analysis of Goldberg *et al.* [6] all the women undergoing either EVA or MVA were upto 10 weeks gestational age. Westfall [6] studied MVA on 1677 patients where majority were upto 10 weeks gestation with only 10 patients i.e. 0.6% between 10-12 weeks. Hemlin and Moller [7] studied MVA in patients with gestational age <56 days i.e. upto eight weeks. Bird *et al.* [8] did a comparative study of acceptability of MVA and EVA on 42 women all <77 days gestation i.e. <11 weeks. Though it may apparently appear from Table 4 that the blood loss was more in the EVA group yet the p-value is 0.737 which is statistically insignificant. Similar observations Goldberg *et al.* [9] who found that although blood loss was apparently lower with MVA, the difference between estimated blood loss of 35 ml and 42 ml was not clinically important and both procedures were associated with very low blood loss i.e. 35.4±16.8 ml and 41.6 ± 18.2 ml. However their P-value was <.001 which was statistically significant. The two procedures did not show much difference as far as their effectiveness was concerned (98% in MVA and 97% in EVA). Similar studies done elsewhere show the same results for MVA. Paul *et al*., 7 2002, showed 98% efficacy for MVA, Hemlin & Moller8 2001 showed it to be 98%. Goldberg *et al.* [9] found MVA to be effective in 97.8% and EVA in 98.3% cases (p-value 0.43). Westfall found MVA to be effective in 99.6% cases. Abortions still constitute a significant proportion of the cause of maternal mortality and morbidity. A safe, effective procedure for procuring medical termination of pregnancy is highly needed in this scenario. Both manual vacuum aspiration and electrical vacuum aspiration are established safe and effective surgical methods of 1st trimester MTP. The manual aspiration equipment is inexpensive its

ISSN:0975 -3583,0976-2833 VOL 15, ISSUE 11, 2024

simplicity of use and the proof that MVA has a safety and efficacy profile similar to that of EVA, could increase the number of physicians who offered abortions to their patients. Another important aspect is that MVA is a simple, safe effective procedure. Its portability and low cost make it a technique best suited for the infra-structure in rural areas. MVA is a promising method compared to EVA which can be practiced widely in rural areas where the access to medical facilities are limited, high tech equipment's are not available, power supply erratic and maintenance of instruments not up to the mark. The judicious use of MVA comes with a promise to make early abortions safe and easily accessible to women of both rural and urban societies belonging to any socioeconomic strata. There was no difference in revisits because of endometritis or recurettage and these rates were in concordance with those found in other studies [10, 11]. Nor was there any difference in any of the studied parameters including the number of postoperative days with bloody discharge, which also was similar to that found in other studies [12].

The results of conventional VA were good, with high efficacy in spite of the fact that they were performed by about ten different doctors. One probable explanation for this is that the procedure is so common that all gynecologists get good experience of it.

Conclusion

MVA has a safety and efficacy profile similar to that of EVA. Also, MVA is a simple, safe, effective procedure, portable and low cost technique. Hence, MVA is a promising method compared to EVA which can be practiced widely in rural areas where the access to medical facilities are limited, high tech equipment's are not available, power supply erratic and maintenance of instruments not up to the mark. The judicious use of MVA comes with a promise to make early abortions safe and easily accessible to women of both rural and urban societies belonging to any socioeconomic strata. It is concluded from the study results that MVA is 97.5% effective method to terminate the missed abortion of less than 13 weeks gestation and it is highly effective (100%) in missed abortion of 8 to 10 weeks gestation. In view of the study results we concluded that MVA is an effective method avoiding the need of general anesthesia and need of Operation Theater. It is safe, easily performed and possibly most effective procedure. It has advantages for both the patient and the physician. It should be considered routinely as an alternative option for management of missed abortion because it is quick, safe and effective.

References

1. Freedman MA, Jillson DA, Coffin RR, Novick LF. Comparison of complication rates in first trimester abortions performed by physicians assistants and physicians. Am J Public Health. 1986;76(5):550-554.
2. Westfall JM, Sophocles A, Burggraf H, Ellis S. Manual vacuum aspiration for first-trimester abortion. Arch Fam. Med. 1998 Nov-Dec;7(6):559-562.
3. Webster K, Eadon H, Fishburn S, Kumar G. Guideline Committee. Ectopic pregnancy and miscarriage: diagnosis and initial management: summary of updated NICE guidance. BMJ 2019;367:16283.
4. Karman H, Potts M. Very early abortion using syringe as vacuum source. Lancet 1972;1:1051-2.
5. Sharma M. Manual vacuum aspiration: an outpatient alternative for surgical management of miscarriage. Obstet Gynaecol. 2015;17:157-61.
6. Westfall JM, Sophocles A, Buggraf H, *et al*. Manual vacuum aspiration for first trimester abortion. Arch Fam Med. 1998;7:559-62.
7. Hemlin J, Moller B. Manual vacuum aspiration, a safe and effective alternative in early pregnancy termination. ACTA Obstet. Gynecol. Scand. 2001;80:563-7.
8. Bird ST, Harvey SM, Nichols M, *et al*. Comparing the acceptability of manual vacuum aspiration & electrical vacuum aspiration as methods of early abortion. J Am Med Womens Assoc. 2001;56;124-6.
9. Goldberg AB, Dean G, Kang Mi-Suk, *et al*. Manual versus electric vacuum aspiration for early first trimester abortion: A controlled study of complication rates. Obstetrics and Gynecology. 2004;103:101-7.
10. Fried G, Östlund E, Ullberg C, Bygdeman M. Somatic complications and contraceptive techniques following legal abortion. Acta Obstet Gynecol Scand. 1989;68:515-521.
11. Heisterberg L & Kringelbach M. Early complications after induced first-trimester abortion. Acta Obstet Gynecol Scand. 1987;66:201-204.
12. Henshaw RC, Naji SA, Russell IT, Templeton AA. A comparison of medical abortion (using mifepristone and gemeprost) with surgical vacuum aspiration: efficacy and early medical sequelae. Hum Reprod. 1994;9(11):2167-2172.