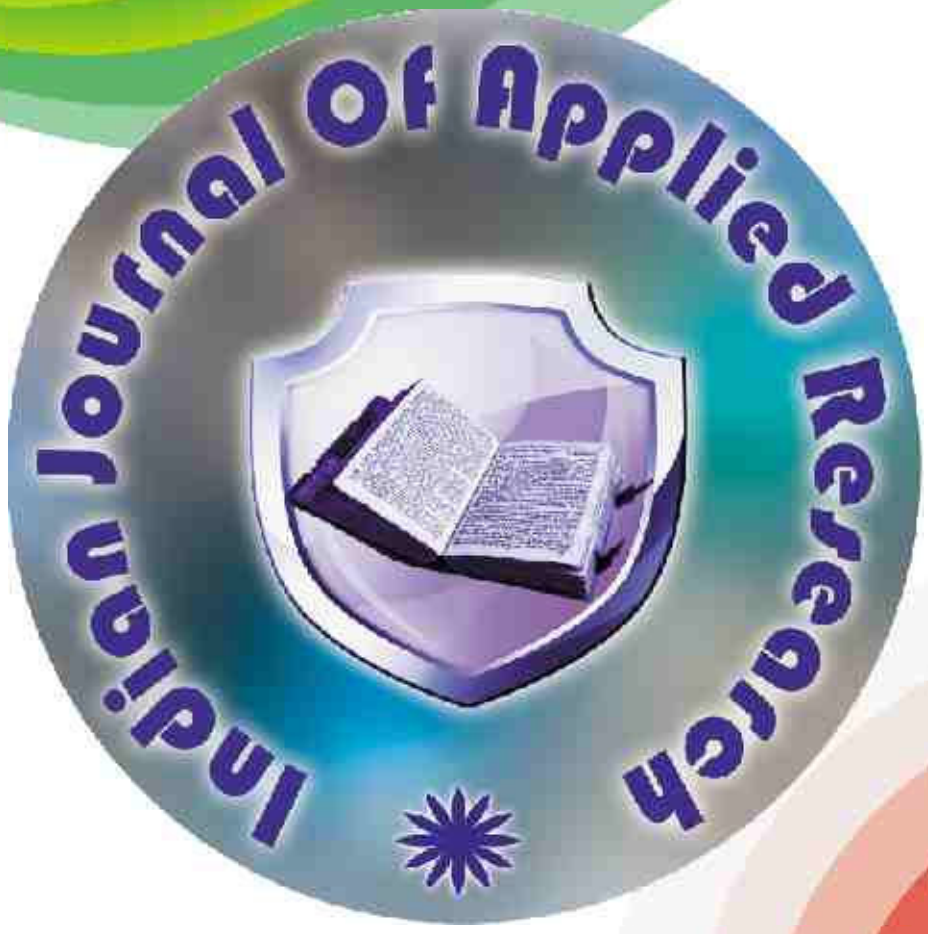
₹ 100 ISSN - 2249-555X

Volume : 1 Issue : 4 January 2012



Journal for All Subjects

www.ijar.in

Listed in International ISSN Directory, Paris.

ISSN - 2249-555X

Indian Journal of Applied Research

Journal for All Subjects

Editor,
Indian Journal Of Applied Research
8-A, Banans, Opp. SLU Girls College, New Congres Bhavan, Paldi,
Ahmedabad-380006**,** Gujarat, INDIA
Contact.: +91-9824097643 E-mail : editor@ijar.in

INDEX

Volume : 1 | Issue : 4 | January 2012 ISSN - 2249-555X

Research Paper Medical Science

MVA - A Simple & Safe Surgical Procedure For First Trimester Abortion / Medical Termination Of Pregnancy (MTP)

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ABSTRACT

Objective: To assess the efficacy and complications of manual vacuum aspiration (MVA) as compared to electric suction evacuation (EVA) as first trimester MTP procedure. Materials & Method: A prospective randomized study was carried out in 240 patients up to 12 weeks pregnant attending MTP OPD, for period of one year Manual Vacuum Aspiration as a procedure for first trimester abortion in 120 patients formed the study group & 120 patients were included as control group for electric vacuum evacuation. Results: The blood loss in MVA group was significantly less as compared to EVA group. The incidence of complete evacuation is 100% up to 10 weeks of gestation in both the groups with 97.5% and 98.33% in MVA and EVA group respectively when compared till twelve weeks. MVA is a safe procedure till 10 weeks of pregnancy with minimal risk of perforation; which is statistically significantas compared to EVA group and other complications are comparable in both the groups. Conclusions: MVA is a safe procedure. Efficacy& safety is comparableto EVA till 10 weeks of gestation especially in a under resourced setting.

Keywords : Manual vacuum aspiration, First trimester abortion.

Introduction

In developing countries where effective contraception is not widely used, women continue to seek abortion. It is estimated that about 15 % maternal deaths are due to unsafe abortions1. Liberalization of law in respect of legal abortions has led to a search of an appropriate technique, which is high quality, efficient, cost effective for termination of pregnancy. The preferred surgical technique for induced abortion upto 12 completed weeks is vacuum aspiration. Vacuum aspiration aims at evacuation of contents of the uterine cavity through a plastic or a metal cannula attached to a vacuum source either electric or manual (hand held, hand activated plastic 60 ml syringe.)

Materials & Methods

Composition of study Group.

Women seeking medical termination of pregnancy up to 12 completed weeks of pregnancy were offered surgical evacuation. 240 women were randomized into two groups; 120for electrical &120 for manual vacuum aspiration. The protocol included detail medical & obstetric history, clinical examination, diagnosis & treatment of genital tract infection if clinically suspected. Pre abortion care included counseling for contraception and local anesthesia testing.

Material:

Manual Vacuum Aspiration Kit: A double valve syringe of capacity 60cc with, plunger handle and collar stop, silicone for lubricating the syringe, flexible Karman cannula sizes 6mm to 10mm and 12mmA set of adopters to fit each cannula. The syringe serves as the source of vacuum to pull the contents of uterus through the cannula into the barrel of syringe. The syringe, cannula, adapters were sterilized by using 2% glutaraldehyde for a minimum period of 30 minutes.

Suction Evacuation Kit: A set of metal cannula sizes 6 mm to 12 mm, electrical suction machine. Metal cannulas were sterilized by autoclaving.

Observations for ease of dilatation, difficulties encountered, blood loss, completeness of the procedure and complications with either procedure were noted. No patients in either group received any drug for ripening of cervix. The suction procedure was carried out by pericervical block with local anesthesia, regional or general anesthesia in complicated cases as deemed fit by the anesthesiologist. The above observations were classified as per the experience of the doctor performing the procedure. Post abortion care included prophylactic antibiotics & analgesics. Patients were followed up at 1 week & after her period or at one month.

Observations And Results:

Age, parity religion and educational status matched in either group. The data was analyzed; unpaired t test, Z test & Fisher exact test were applied as tests of significance.

Second gravida patients 39.15% in MVA group and 44.17% in EVA group contributed majority of the study group. 35% of patients in MVA group and 31.67%of patients in EVA group were 8 weeks pregnant.27.5% patients in MVA group and 31.67% patients in EVA group were 10 weeks pregnant (Table 1).

88%of MVA procedures and 92.5%of EVA procedures were carried out under local anesthesia under pericervical block. However one patient with mental disorder MVA procedure was carried out under short general anesthesia. Patients with history of previous LSCS who opted for sterilization; MVA and EVA procedures were carried out under spinal anesthesia. Epidural anesthesia was used in-patients with heart disease.

46% of the procedures were done by residents who have 2 years of experience.26% of the procedures were done by residents who have one year of experience and 19% cases were done by residents who have 6 months of experience.

Mean blood loss in MVA group varied in the range of 28.6 ml to 130 ml. In EVA group it ranged from 37.3 ml to 145.5 ml. This difference was found to be statistically significant. None of the patients in MVA group had bleeding more than 150 ml. In EVA group the maximum blood loss recorded was280 ml. (Table 2) .MVA procedure was quicker procedure as compared to EVA till 8 weeks although not statistically significant for 10 & 12 weeks groups. (Table 3)

The procedure of evacuation was complete in all patients up to 10 weeks of gestation. However above 10 weeks it was 97.5% and 98.33% in MVA and EVA group respectively. Majorities of our patients were discharged after 4 to 5 hrs. Patients in whom perforation had occurred were observed for minimum period of 48 hrs. MVA procedure was safely used in 25% patients who had history of previous LSCS. 5% patients out of these had history of previous two LSCS. In EVA group 26 patients (21.66%) had history of previous LSCS out of whom one had perforation.

One patient had cervical laceration while passing the metal suction cannula that required suturing to achieve hemostasis. (Table 4)

In this study one MVA syringe is used for more than 60 procedures and the cannula was used for morethan 25 procedures.In our study no accident like breaking of cannula was observed. The cannula was discarded as soon as some damage like bending of cannula was observed.

50% patients came for first follow up after one week.25 % of the MVA group and 15 % EVA group patients came for follow up after 4 weeks. Of these patients who followed up;two patients in each MVA as well as EVA group came for persistent bleeding with abdominal pain and fever on and off. Clinical examination revealed tender fornices. They were managed with higher antibiotics on outdoor basis as cases of pelvic infection and were relieved. 2 patients in MVA group had severe dysmenorrhea and menorrhagia after 4 weeks. These are attributed to associated Cu-T and required removal of Cu-T in one patient due to persistent complaints.

45% of MVA group and 51.67% of EVA group patients have opted for Cu T as a spacing method.43% of MVA group and 38%of EVA group patients have opted for permanent method of sterilization either by laparoscopic or by abdominal route.

Discussion:

Manual vacuum aspiration is well tolerated, safe, and effective, and easily integrated into a busy primary care office without expensive investment of power-suction equipment.

The rate of complete abortion was found to be 97.5% in MVA group and 98.84%in EVA group though statistically not significant and required completion with ovum holding forceps in rest as shown is table 4. All the three patients were 12 weeks pregnant .The inadequate amount of negative pressure created and the tip of the cannula getting blocked were the most common causes of failure of the procedure on MVA group. Iyengar K and Iyengar S D report 96.67% as complete evacuation rate4. Westfall et al found rate of completeness of procedure 99.5 %5 Helmin and Moller who compared MVA an d EVA as MTP procedure for gestational age < than 56 days and they didn't find any difference in frequency of complete abortion6.

The amount of blood loss in MVA group as compared to EVA group at all-gestational age groups was less and is found to be statistically significant as shown in Table 2. This is very important in developing country where anemia is widely prevalent to decrease the post MTP procedure morbidity; however Kulier R. Fekin A. report no difference for blood loss, blood transfusion, febrile morbidity, incomplete evacuation, re-hospitalization, post-operative antibiotic use or abdominal pain in both the groups7.

Although time required was less and statistically significant when MVA was restricted to those less than 8 weeks ; time required increased above 10 weeks gestation due to limited capacity of syringe requiring frequent emptying of syringe.

Suneeta Mittal and Snehlata Mishra (1985) reported the incidence of uterine perforation of 0.4 %(n=9344)8. The higher incidence of uterine perforation, 3.33 % in our study can be due to trainee postgraduate students performing MTP in contrast to the trained physicians in the above-mentioned studies.

John Westfall, Aris Sophocles, Holly Burggaf performed MVA for uterine size till 12 weeks.1769 consecutive abortions were done with MVA.Main outcome measured were rate of complete abortion, estimated blood loss, and rate of complications. with 39 % follow up.6Greenslade et al in 1993 has summarized 13 studies carried out in different settings where more than 15,000 patients underwent MVA for first trimester abortions with 98 effectiveness9. (Table 5) Thus in our study the rate of incomplete evacuation is higher 2.5% as compared to other studies. Several factors may be associated with this Westfall et al's procedure's low complication rates. Limiting the procedure to 7 to 10 weeks' gestational age is one. Only 0.6% (n=10) of pregnancies were greater than 10 weeks' gestation. The procedure requires only small cervical dilators, decreasing the chance for cervical injury or uterine injury.

In our study 20 % patients are 12 weeks pregnant and all the 3 patients in whom MVA was incomplete belong to this group .In our study the procedure was carried out by trainee postgraduate students.

According to Child J J and Thomson; the rates of complete abortion were 88.4%, 94.7%, 92.8%, 97.8% with senior house officer, registrar, senior registrar or consultant respectively .9In our study the rate of complete abortion is found to be 100%, 98.75%, 99.16%, 100% when performed by resident with 6 months of experience, with one year of experience, with two years of experience and lecturer with M.D. degree respectively. This difference can be due to selection of patients for junior residents. In our study simpler cases up to 10 weeks without any risk factors are performed by JR I. The 5 cases (3 in MVA group and 2 in EVA group) where the procedure is incomplete are performed by JR II (3 cases) and JR III (2cases).

Conclusions:

MVA procedure is effective for first trimester abortions till 12 weeks of gestation with 100% incidence of complete evacuation up to 10 weeks of gestation .MVA procedure can be safely performed by junior residents with 6 months of experience, in scarred uterus and in unmarried patients under local anesthesia with 2% lignocaine .MVA requires less time till 8 weeks of gestation, has less blood loss & requires 4-6 hrs. of hospital stay after the procedure. MVA is a safe procedure with minimal risk of perforation as compared to EVA group and without any major complication.

At a time when interest in medical abortion techniques is on the rise, in developing country where electricity is interrupted MVA one time procedure can be introduced as first trimester MTP .It is noteworthy that follow up after abortions is especially low.

Table 1: Distribution According To Gestational Period

Gestational period	MVA		EVA	
	NO	%	NO	%
6 weeks	21	17.5%	19	15.83%
8 weeks	42	35%	38	31.67%
10 weeks	33	27.5%	38	31.67%
12 weeks	24	20%	25	20.83%
TOTAL	120	100%	120	100%

Table 2: The Blood Loss During Procedure

Gestational Age	MVA	EVA	t value	df	P Value	Significance
	Blood loss in ml					
6 weeks	28.6+3.86	37.3+5.1	9.69	38	<0.05	s
8 weeks	48.5+6.2	64.8+8.89	12.18	78	<0.05	s
10 weeks	74.6+6.7	89.5+6.35	9.55	69	<0.05	s
12 weeks	130+12.1	145.5+15.	14	47	<0.05	s

Table 3: Time Required For The Procedure

Gestational Age	MVA	EVA	t value	Df	P Value	Significance
	Time in min.					
6 weeks	6.85+1.7	8.1+2.1	2.08	38	<0.05	s
8 weeks	12.43+2.3	14.4+2.9	3.4	78	<0.05	s
10 weeks	18.24+3.0	19.03+2.5	1.21	69	>0.05	ns
12weeks	23.5+2.6	24.32+4.8	1.21	47	>0.05	ns

Table 4: Complicatons

Complication	MVA		EVA		T value	P value	Significance
	NO	%	NO	%			
Perforation	Nil	Nil	4	3.33%	2.06	<0.05	S
Incomplete evacuation	3	2.5%	2	1.66%	0.49	>0.05	NS
Bleeding	2	1.66%	2	1.66%	-	-	NA
Cx injury	Nil	Nil	1	0.83%	1	>0.05	NS
Air embolism	Nil	Nil	Nil	Nil	-	-	NA
Infection	2	1.66%	3	2.5%	0.49	>0.05	NS
Continuation of pregnancy	Nil	Nil	1	0.83%	1	>0.05	NS
Total	7	5.83%	13	0.83%			

Table 5: Comparative Studies.

Complication	Westfall et al (n=1769)	Greenslade et al (n=95,136)	Present study (MVA) (n=120)
EARLY			
Perforation	0.05%	0 – 0.05%	Nil
Cx injury	Nil	0. – 3.1%	Nil
Air embolism	Nil	Nil	Nil
Incomplete evacuation	0.5%	2%	2.5%
Anesthesia related	Nil	Nil	Nil
Excess bleeding	Nil	0 – 15.7%	1.66%
LATE			
Infection	0.7%	0.2 – 5.4%	1.66%
Re-evacuation	0.5%	Nil	Nil
Continued pregnancy	Nil	NIL	NIL

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Contact.: +91-9824097643 E-mail : editor@ijar.in

Printed at Unique Offset, Novatsing Rupam Estate, Opp. Abhay Estate, Tavdipura, Shahibaug, Ahmedabad