COMPARISON OF MANUAL VACUUM ASPIRATION AND SHARP CURETTAGE IN THE TREATMENT OF FIRST TRIMESTER ABORTIONS

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ABSTRACT

Objective: To compare the safety and efficacy of manual vacuum aspiration and sharp curettage in the treatment of first trimester abortions.

Study Design: Randomized controlled trial.

Place and Duration of Study: Department of Gynecology, Social Security Hospital Shahdra Lahore in collaboration with Family Health Hospital Johar Town Lahore, from May 2007 to May 2012.

Patients and Methods: Six hundred women admitted with the diagnosis of first trimester less than or equal to 12 weeks abortions were randomly assigned, 300 to manual vacuum aspiration (MVA) and 300 to traditional sharp curettage. Diagnosis of abortion was confirmed by last menstrual period, physical examination and ultrasonography.

Results: In total of 600 patients, 300 randomly assigned to MVA and another 300 patients assigned to sharp curettage management were having mean age of 31.8 and 33 yrs respectively. Mean parity was in both groups, mean gestational age 8.9 and 8.2 weeks, mean duration of procedure was 6.4 and 5.8 minutes, duration of hospital stay was 4 and 40 hrs, missed abortion in 47% and 43% patients, incomplete abortion in 53% and 57% patients, cervical dilatation was needed in 1% against 53%, 10% against 8 % experienced mild pain in both groups, no patient of incomplete evacuation against 0.6%, uterine perforation in none against 0.3 %, excessive bleeding was experienced by 0.3% against 0.6% patients in both groups, and patient satisfaction rate was 99% against 99.4 % in the two groups respectively.

Conclusion: In the management of first trimester pregnancy loss, MVA offers a quick solution to the problem with reduced hospital stay and lower rate of complications.

Keywords: Abortion, Manual vacuum aspiration, Sharp curettage.

INTRODUCTION

The incidence of first trimester pregnancy loss is around 14-19% of all pregnancies[1]. Five lac women die in pregnancy and child birth all over the world each year[2]. Unsafe abortion is responsible for 25% of all maternal deaths[2]. For over 50 years surgical evacuation has been the preferred management option[1]. Though a minor procedure, the risks of surgical evacuations include infection, hemorrhage, and uterine perforation in addition to the morbidity of general anesthesia (GA)[1]. In order to avoid these complications alternatives to traditional surgical evacuation has been developed. These options are medical management, using a combination of antiprogesterone and prostaglandin analogue (success rate 95%), expectant management (success rate 79%) and manual vacuum aspiration (success rate 98-99%)[1]. Of all available options, manual vacuum aspiration (MVA) is the least commonly used technique despite its well proven success and safety record[1]. Development of an outpatient procedure is therefore the need of the hour. Among many factors that influence abortion related morbidity and mortality, the method used to evacuate the uterus plays a critical role[2].

Vacuuming as a means of removing uterine contents rather than the use of a hard metallic curette was pioneered in 1958 by Drs Wu Yuantai and Wu Xianzhen in China[3]. Their paper was translated into English after five years that ultimately led to the technique being world's commonest and safest obstetrical procedure[4]. Dorothea Kerslake introduce the method in

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Received: 15 May 2013; Accepted: 20 Sep 2013

United Kingdom in 1967, published a study in the United States and further spread the technique[4,5]. Harvey Karmen in United States of America refined the technique in the early 1970s with the development of Karmen Cannula, a soft flexible Cannula that avoided the need for cervical dilatation reducing the risk of puncturing the uterus[4].

This study was carried out to determine whether MVA was a safe and as effective as sharp curettage for the treatment of first trimester abortions.

PATIENTS AND METHODS

These randomized control trials were conducted at Department of Gynecology, Social Security Hospital Shahdra Lahore in collaboration with Family Health Hospital Johar Town Lahore, from May 2007 to May 2012 after approval of the institutional review committee. Six hundred Women admitted with the diagnosis of first trimester less than or equal to 12 weeks abortions were randomly assigned using random numbers table, 300 to manual vacuum aspiration and 300 to traditional Sharp curettage after informed consent. All those patients with more than twelve weeks gestation were excluded.

Diagnosis of abortion was confirmed by history, physical examination and ultrasonography[1]. Gestational age was determined by last menstrual period, pelvic examination and ultrasonography[1].

MVA is a variable of electrical vacuum aspiration using a hand held syringe (to create vacuum)[6] and a flexible plastic cannula to evacuate the contents of the uterus. There are nine brands of manual uterine aspirators available worldwide. Preference for brand is often determined by the need of a particular setting[7]. In the United States the IPAS TM double-valve manual aspiration syringe is the most commonly used product. The product is now designed to allow for steam autoclaving sterilization. Several US manufacturers produce cannule that fit the IPAS syringe[8] as shown in figure-1(a,b).

Procedure of MVA: Patients were counseled regarding the procedure and its pros & corns. All women were given injection Sosegon / Phenergon, Nelbin / Marzine or 75 mg Diclofinac sodium for pain relief just before the evacuation. Patients with closed cervical Os were given 200-800 micrograms Misoprostol for cervical ripening 3-9 hrs prior to evacuation[1]. MVA was carried out in OPD[9], Labour rooms or Minor OT2 depending upon facilities available. Vital signs of the patients were checked. Patients were instructed to evacuate the bladder. Women were asked to lie in a flex position[1]. Following routine cleaning and draping cervix was visualized using a Cusco's speculum[1], anterior lip of the cervix was held with sponge holding forceps, MVA curette of 4-10 mm was introduced through the cervix and negative pressure was obtained using 50 ml locking syringe. Products of conception were removed using a technique similar to surgical evacuation1. Rest of the management was the same as with traditional suction curettage. On completion of procedure women were transferred to ward where they were observed for 2-3 hrs and assessment of symptoms related to operative procedure was made[1,10].

As most of the time traditional sharp curettage is done under GA. Where cervical dilatation is not a problem, so cervical ripening was not done for sharp curettage. For MVA to be done without GA, cervix has to be very soft to allow easier introduction of MVA curette. So cervical ripening with only one dose in minimum strength of prostaglandins was done for MVA. Duration of hospital stay included preparation of GA for sharp curettage, as patient has to be none per oral (NPO) for 6 hours. Also at times patients that were not found fit for GA, in order to make them stabilized and fit for GA time was needed. Post operatively they have to be NPO for another 6 hours. Patients for traditional sharp curettage were discharged most of the time the next day of the procedure, all these factors contribute to their hospital stay.

Post Evacuation: Patients were simply asked, were they satisfied with the procedure or not.

Also they were to rate the amount of pain experienced by them as mild, moderate and sever. On discharge all women were offered a hospital follow-up after one week[1,2]. They were also advised to inform the unit, if there be any complication especially abdominal pain, excessive vaginal bleeding, pyrexia or vaginal discharge[10]. Those women not attending the hospital follow up were contacted by telephone to identify any post operative complication.

Statistical analysis of all the data was done through statistical package for social sciences version 17 (SPSS Inc, Chicago, IL, USA). Mean, standard deviation (SD) and ranges were calculated for quantitative variables like age, parity, gestational age, duration of procedure and duration of hospital stay. Frequencies and percentages were calculated for qualitative variables like diagnosis of missed and incomplete abortions, need for cervical dilatation, levels of pain, incomplete evacuation, uterine perforation, excessive bleeding, pyrexia and patient satisfaction. Comparison of all the quantitative variables in both groups of MVA and sharp curettage was done using independent samples t test. While qualitative variables in both groups were compared using Chi-Square test. *p*-value of < 0.05 was considered significant.

RESULTS

Out of 600 patients, 300 were randomly assigned to MVA and another 300 were assigned to sharp curettage. Mean age was 31.8 years, ranged from 19 to 40 years in MVA group while 33 yrs, ranged from 20 to 40 years in sharp curettage group. Mean parity was 4 in both groups. Mean gestational age was 8.9 weeks in MVA while 8.2 weeks in sharp curettage group. Mean duration of procedure was 6.4 min in MVA while 5.8 min in sharp curettage group. Duration of hospital stay was 4 hrs in MVA group as against 40 hrs in sharp curettage group as shown in table-1.

Among MVA group 47% patients were having missed abortion while in sharp curettage 43% patients were with the diagnosis of missed abortion. Fifty three percent patients were of incomplete abortion in MVA while 57% were in sharp curettage group. All women undergoing MVA had an apparently successful evacuation following cervical ripening with Prostaglandin, no further cervical dilatation was needed except in 1% cases, in 0.66% it was carried out in OPD, the other 0.33 % were shifted to operation theatre for cervical dilatation under general anesthesia while in sharp curettage group 53% cases needed cervical dilatation under general anesthesia. In MVA group 10% experienced mild pain while 1 % experienced moderate pain, in sharp curettage group 8% experienced mild pain. Excessive bleeding was experienced by 0.3% in MVA group as compared to 0.6% in sharp curettage group. Patient satisfaction rate was 99% in MVA group as compared to 99.4% in sharp curettage group as shown in table-2.

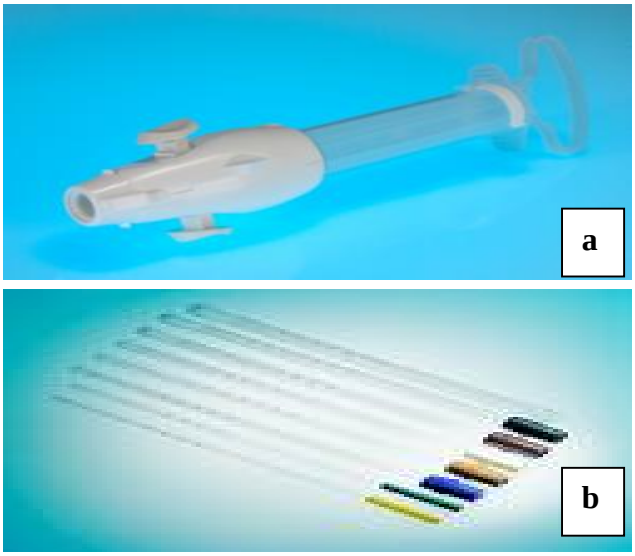

Figure-1 (a&b): Manual vaccum aspiration using a hand held syringe (to create a vaccum) and a flexible plastic cannula to evacuate the content of the uterus.

Significant difference was found in need for cervical dilatation, duration of procedure and duration of hospital stay in both groups, as shown in table-1 and 2.

DISCUSSION

It is evident that MVA provided the benefit of an immediate solution to the problem while

avoiding prolonged hospital stay[1,9], anesthesia complications[1,9] and delays associated with availability of theater space1 at a reduced cost of health care system[3] with significant improvement in patient care. World Health Organization (WHO) has listed MVA as an effective and safe method of uterine evacuation[1] and included it as essential services at first referral level of care[2,11] and hence the technique is being employed increasingly in the developing world under sedation or minimal anesthesia[1].

Table-1: Comparison of the quantitative characteristics of patients treated with MVA Vs sharp curettage after first trimester abortions, (n=600).

Parameters	MVA (n=300) Mean ± SD	Sharp Curettage (n=300) Mean ± SD	*p*-value
Baseline			
Age (Years)	31.8 ± 6.74	33 ± 5.72	*< 0.001*
Parity (Patients)	4 ± 1.25	4 ± 1.32	*0.432*
Gestational Age (weeks)	8.9 ± 1.78	8.2 ± 1.27	*< 0.001*
Comparative			
Duration of Procedure (minutes)	6.4 ± 0.89	5.8 ± 0.53	*< 0.001*
Duration of Hospital Stay (hours)	4 ± 1.28	40 ± 5.77	*< 0.001*

Table-2: Comparison of the characteristics of patients treated with MVA and sharp curettage after first trimester abortions (n= 600).

Parameters	MVA (n=300) f (%)	Sharp Curettage (n=300) f (%)	*p*-value
Diagnosis of abortion			
Missed abortion	140 (47)	130 (43)	*0.412*
Incomplete abortion	160 (53)	170 (57)	*0.412*
Need for cervical dilatation	3 (1)	159 (53)	*< 0.001*
Level of Pain			
Mild	30 (10)	24 (8)	*0.392*
Moderate	3 (1)	0 (0)	*0.082*
Sever	0 (0)	0 (0)	-
Incomplete Evacuation	0 (0)	2 (0.6)	*0.157*
Uterine Perforation	0 (0)	1 (0.3)	*0.317*
Excessive Bleeding	1 (0.3)	2 (0.6)	*0.563*
Pyrexia	0 (0)	0 (0)	-
Patient Satisfaction	297 (99)	298 (99.4)	*0.653*

MVA for early abortions has been undertaken successfully as an outpatient procedure in USA since early 1970s. It is highly recommended for developing and third world countries where electric supplies are intermittent[9,12]. Furthermore manual vacuum aspirator is without noise as compared to electric suction pump[9,12]. Plastic cannula is safer than metallic cannula and with proper training even paramedical staff can use it[12]. In cases of first trimester abortions, MVA was suggested to be associated with a low incidence of minor

complications comparable to inpatient procedures with high rates of acceptability and success which is comparable to surgical evacuation under general anesthesia[1,2,9,13]. It is associated with reduced hospital stay and is cost effective[3].

By comparing our study regarding MVA and sharp curettage with the available study at Abbotabad in 2011[14], it was found that duration of procedure was 6.4 for MVA in our study against 5.8 min and for sharp curettage 5.8 against 8.9 min, duration of hospital stay was 4 against 3.5 hrs for MVA and 40 against 7.4 hrs for sharp curettage, no patient of incomplete evacuation against 4% for MVA and 0.6 against 2% for sharp curettage, uterine perforation was none in both studies for MVA and 0.3 against 2% for sharp curettage, respectively in both studies. While distribution of age, parity and gestational age were similar in two groups of both studies.

Our study showed that MVA is better than sharp curettage in case of lesser need for cervical dilatation and duration of hospital stay. MVA is as safe and effective as sharp curettage in case of parity, missed abortion, incomplete abortion, levels of pain, incomplete evacuation, excessive bleeding, pyrexia and patient satisfaction.

Limitation of the study included, cervical ripening that was not done for sharp curettage although it was done for MVA. Slight differences of age (31.8 against 33 years) and gestational age (8.9 against 8.2 weeks) between two groups were found. Also the use and comparison of MVA with other procedures of uterine evacuation and in patients with 2nd trimester abortions.

CONCLUSION

In the management of first trimester pregnancy loss, MVA offers a quick solution to the problem with reduced hospital stay, reduced waiting time and significantly improved patient care with lower rate of complications.

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