ORIGINAL ARTICLE

COMPARISON OF ENDOMETRIAL TISSUE SAMPLE BY MANUAL VACUUM ASPIRATION VERSUS DILATION & CURETTAGE IN FEMALES PRESENTING WITH ABNORMAL UTERINE BLEEDING

ZAHWA WASEEM[1], FARZANA LATIF[2], NAILA YASMIN[3], RAI MUHAMMAD HAMMAD ARIF[4], SHABNUM TAHIR[5], NOREEN LATIEF[6]

[1]Postgraduate Resident, [2-3,5]Associate professor, [4]Senior Medical Officer, [6]Assistant Professor

[1]Department of Obs & Gynae, Lahore General Hospital, Lahore. [2-3]Department of Obs & Gynae, Fatima Jinnah Medical University/ Sir Ganga Ram Hospital, Lahore, [4]Department of Pediatric Medicine, Lahore General Hospital, Lahore.

[5]Department of Obs & Gynae, Shalamar Hospital, Lahore. [6] Centre of Excellence in Molecular Biology, Punjab University, Lahore

ABSTRACT

Background: Abnormal uterine bleeding (AUB) is bleeding from uterine corpus, abnormal in volume, regularity, or timing. Tests like D & C (dilatation and curettage), pipelle biopsy, brush biopsy and MVA (manual vacuum aspiration) that assess the endometrium may be performed to rule out endometrial cancer and structural abnormalities.

Objectives: To compare the endometrial tissue in terms of adequate sample received by pathologist of manual vacuum aspiration versus dilation & curettage in females presenting with abnormal uterine bleeding.

Methods: It was a Randomized Controlled Trial performed in Department of Obstetrics & Gynecology, Lahore General Hospital, Lahore for one year (April 3, 2020 till April 2, 2021). 390 females were randomly divided in two groups by lottery method. In group A, females had endometrial sampling with MVA. In group B, it was by dilatation and curettage by single surgical team. Sample was sent to histopathologist for identification of endometrial epithelium, gland, and stroma, and make particular diagnosis of sample.

Results: The mean age of females in MVA group was 55.07 ± 6.10 years and 55.5 ± 6.07 years in the D & C group. The mean duration of AUB in MVA group was 17.26 ± 4.12 months and in D &C group, it was 17.44 ± 2.51 months. In MVA group, 170(87.2%) cases had adequate endometrial sample and in D & C group, it was in 181(92.8%) cases, the frequency of adequate endometrial sample in both groups was statistically insignificant i.e., p-value > 0.05.

Conclusion: Although the percentage of collection of adequate endometrial tissue in D & C group was high than MVA but it was not statistically significant. So MVA being simple and quick procedure, can be used as an outdoor procedure, with less blood loss, without general anesthesia.

Keywords: Manual vacuum aspiration (MVA), dilatation & Curettage, Adequate Endometrial tissue.

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Correspondence to: *Farzanaa Latif,*
Associate Professor,
Department of Obstetrics & Gynaecology, Unit-V,
Fatima Jinnah Medical University, Lahore, Pakistan.

Email: *farzanahammad1@gmail.com*

INTRODUCTION

Abnormal uterine bleeding (AUB) is uterine blood loss abnormal in volume, regularity, and/or timing. AUB can be caused by many different conditions[1, 2] e.g., fibroid uterus, endometrial and cervical polyps, adenomyosis, pelvic inflammatory disease, premalignant and malignant disease of lower genital tract. Tests used to assess the endometrium may be performed to rule out organic pathology and endometrial cancer[3, 4]. Different types of

endometrial sampling techniques are D & C (dilatation and curettage), pipelle biopsy, brush biopsy and MVA. Dilatation and curettage (D&C) are as effective as 98% in diagnosing endometrial pathology[3,4]. It is commonly used in situation where more extensive sampling of endometrium is required to exclude any significant pathology or remove functional layer of endometrium to treat severe abnormal bleeding. It is also performed for fractional curettage for endometrial and endocervical pathology in suspected spread of endometrial carcinoma to endocervix. But it has certain complications like uterine perforation 2%, infection 6%, cervical trauma 4% and hemorrhage in 22% patients[5]. There is also need of anesthesia and hospital stay in this procedure. Alternative to diagnostic dilatation and curettage are office-based procedures that includes pipelle biopsy, brush biopsy and manual vacuum aspiration. These procedures cause less pain, require local or no anesthesia, are cost effective, can be done on opd basis, require short hospital stay, and cause less blood loss[6].

In the past, various Studies have proved that pipelle samples do not represent the entire endometrial surface than other biopsy methods, which may give under diagnosis of significant pathologies. Out of all these office-based procedures MVA is most effective way of obtaining endometrial sample. It is a uterine evacuation technique that is safe, simple, effective, portable and less costly. It is as effective as curettage[5,6]. It causes less pain, reduce blood loss, less time consuming and with short hospital stay making it cost effective. It can be performed safely in a clinic or OPD using local anesthetic and a NSAID, s, such as ibuprofen.[6] One study found that the endometrial sample sent to histopathologists were adequate 58 (87.88%, n=66) in MVA group, and 60 (90.91%, n=66) in D&C group. The difference was not statistically significant (p-value = 0.57)[6,7]. Efficiency of MVA is 81.1%[8] and D&C is 90%. [9] The rationale of our study was the comparison of the effectiveness of MVA versus D&C in females presenting with AUB. So, the purpose of my study was to get evidence regarding the MVA. If there is no difference found between two methods than in future, we can implement MVA for prediction of cause of AUB instead of going for D&C because MVA is less invasive and can be conducted in OPD without use of anesthesia as compared to D&C. This can help to improve our practice and to update local guidelines.

METHODS

It was a comparative randomized control Trial conducted in, Department of Obstetrics & Gynecology, Lahore General Hospital, Lahore for the period of one year after synopsis approval from hospital ethical committee [April 3, 2020 till April 2, 2021]. Sample size of 390 cases; (195 patients in either group) was calculated according to 80% power of test with 5% level of significance margin of error and expected percentage of effectiveness i.e., 81. %8 with MVA and 90%9 with D&C with AUB. It was non-probability, consecutive sampling. Women of 45-65 years age, any parity, coming with AUB (as according to operational definition) were involved in study. Females who are diabetic (BSR>186mg/dl), hypertensive (BP≥140/90mmHg), having renal disease (creatinine >1.2mg/dl) or liver disease (ALT>40IU, AST>40IU), anemic (Hb<10) are not included. Females with malignancy (ovarian or cervical) or taking chemotherapy or radiotherapy (on medical record) were also excluded from study.

After approval from ethical committee of hospital, 390 patients according to the selection criteria were participated in the study from OPD of Lahore General Hospital, Lahore. consent was taken. Demographic information (name, age, parity, BMI) were checked. Patients were divided in two groups by lottery technique. In group A,195 females underwent sampling with MVA. In group B,195 females have endometrial sampling with D&C. All procedures were done by one surgical team with involvement of researcher. Then samples were collected in formalin solution and then sent to the pathology laboratory of the hospital. If the pathologist, who is unaware of sampling method, could identify the endometrial tissue having proper epithelium, its glands, and stroma, and make proper diagnosis, that sample would be labelled as adequate biopsy tissue and adequate endometrial sampling method was labeled (as according to operational definition). All information was entered in a proforma.

The collected data was analyzed by SPSS version 21 statistically. Quantitative variables like age, BMI and duration of AUB was calculated as mean ± S.D. Qualitative variables like adequate endometrial sampling was calculated as frequency and percentage. Parity was also be calculated as frequency. Comparison of two groups were done by chi-square test with p-value ≤ 0.05 as significant. stratification of data for age, duration of AUB, parity and BMI was done.

RESULTS

The mean age of females in MVA group was 55.07 ± 6.10 years and in D & C group was 55.51 ± 6.07 years with minimum and maximum age as 45 and 65 years in both groups respectively. The mean BMI in MVA group was 29.31 ± 3.01 and in D & C group was 28.94 ± 2.72. The mean duration of AUB in MVA group was 17.26 ± 4.12 months and in D &C group the mean duration of AUB was 17.44 ± 2.51 months.

In MVA group, 102(52.31%) females had parity 1-3 and 93(47.69%) females had parity as 4-7 while in D & C group there were 91(46.67%) females who had parity 1-3 and 104(53.33%) females had parity as 4-7. Table 2-1

In MAV group, 170(87.2%) cases had adequate endometrial sampling and in D & C group it was seen in 181(92.8%) of females, the frequency of adequate endometrial sample in both groups was statistically same i.e. p-value > 0.05. •Stratification of data was done for age, among 45-54 years old cases the frequency of adequate endometrial sampling was statistically insignificant in MVA group (92%) and D & C group (93%), p-value > 0.05. while among 55-65 old cases,it was statistically higher in D &C group (92.7%) when compared with MVA group (83.2%), p-value < 0.05. • When data was stratified for BMI, among obese cases the frequency of adequate endometrial sampling was statistically same in MVA group (80.6%) and D & C group (87%) while among non-obese cases,it was statistically same in D &C group (95%) when compared with MVA group (91.1%), p-value > 0.05. • When data was stratified for duration of AUB, among females who had duration since 13-18 months,adequate endometrial sampling was statistically higher in D & C group (94.6%) when compared with MVA group (86.2%) p-value < 0.05, while among females who had duration of disease as 18-21 months,it was statistically same in D &C group (89.4%) when compared with MVA group (89.2%), p value > 0.05. • When data was stratified for parity, among females who had parity 1-3, it was statistically same in D & C group (0.373%) when compared with MVA group (91.2%) p-value > 0.05, while among females who had parity as 4-7, this was statistically same in D &C group (91.3%) when compared with MVA group (82.8%), p-value > 0.05.

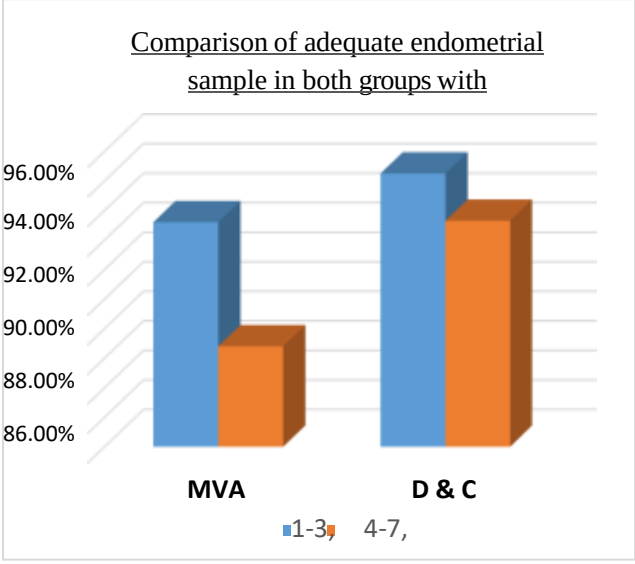

Table-1: Descriptive statistics of Duration of AUB in both studygroups
Total number (n)=390 with 195 in each group

Study Groups	Duration of AUB			
	Min	Max	Mean	S. D
MVA	13.00	61.00	17.26	4.12
D & C	13.00	21.00	17.44	2.51
Total	13.00	61.00	17.35	3.41

Table-2: Comparison of adequate endometrial tissue sample in both study groups
Total number (n)=390 with 195 in each group

		Study Groups		Total
		MVA	D & C	
Adequate endometral tissue	*Yes*	170 (87.2%)	181 (92.8%)	351 (90%)
	No	25 (12.8%)	14 (7.2%)	39 (10%)
Total		195 (100%)	195 (100%)	390 (100%)

Chi-square = 3.447

DISCUSSION

Abnormal uterine bleeding is one of the commonest gynecological presentations. Main prevalence is between the age of 25-49 years with highest 22.2% at 40-44 years of age followed by 19.3% at 30-34 years,18.7% at 35-39 years and2.9% at 50-55 years. Different causes of AUB are fibroid, endometrial hyperplasia, polyp and endometrial carcinoma. Different methods have been used to assess the endometrial pathology. The hysteroscopic endometrial biopsy is the gold standard for endometrial pathology. However, this is an invasive procedure that require operation theatre, anesthesia and experienced operator. There are a number of methods available for endometrial biopsy for abnormal uterine bleeding like sharp metal curettage, pipelle, vibra aspirator and Manual vacuum aspiration (MVA) are acceptable methods. Generally, MVA has been used for early pregnancy termination and for endometrial sampling too. Past studies results shows that MVA had comparative sensitivity and specificity with other techniques [19]. It can be utilized as outpatient procedure using local anesthesia. Moreover, it has better than sharp metal curettage because of its safety, minimal complications, and cost effectiveness [20]. That is the reason, less invasive, but quite effective screening tool were required to address this condition [15].

our study was performed in the obstetrics and gynecology, unit III, LGH on 390 patients with 195 patients in each group. In our study, the mean age of females in MVA group was 55.07 ± 6.10 years and in D & C group was 55.51 ± 6.07 years with minimum and maximum age as 45 and 65 years in both groups. One study found that the endometrial biopsies received by histopathologists were adequate[18] (87.88%, n=66) in MVA group, and 60 (90.91%, n=66) in D&C group. No significant difference was between two groups statistically (p-value = 0.57)[7]. Efficiency of MVA was 81.1%8 and D&C is 90%[9]. In my study, in MVA group, it was in170(87.2%) cases and in D & C group it was seen in 181(92.8%) of females, the frequency of effectiveness in the groups was not statistically significant i.e., p-value > 0.05. Recently, a study was performed to correlate the endometrial tissue disease, which were diagnosed from MVA and sharp metal curettage. Women above 35 years who reported with heavy vaginal bleeding were incorporated in the study. Endometrial tissue was taken using MVA and sharp metal curettage with paracervical nerve block. Mean age was 49.3+8.5 years. Pathological correlation between tissue obtained from MVA and sharp metal curette was 64.2% and the Kappa agreement was 0.56 (K0 = 0.56, value< 0.05). Pathological correlation between endometrium taken from MVA and the most severe pathology was 92.7% and the Kappa agreement was 0.86 (K0 = 0.86, p-value< 0.05). MVA diagnosed almost all cases of endometrial cancers and hyperplasia. So, Manual vacuum aspiration (MVA) can be utilized as an alternative diagnostic technique in patients with abnormal uterine bleeding [22].

Likewise, another randomized controlled trial was done for comparison between the adequate endometrial tissue and the pain after procedure between MVA and metal curettage technique. The result has demonstrated that tissue adequacy percentage were 87.88 and 90.91 for control and study groups, respectively. There was statistically no difference found in these two techniques (p-value = 0.572). The women having severe pain in the MVA group were less than control group. The relative risk was 0.47 (95% CI = 0.30-0.72). So, the study concluded that MVA causes minimal pain than the metal curette technique, while both techniques obtain almost equal rate of adequate endometrial tissue for pathological diagnostic purpose[9].

One study found that the endometrial sample sent to histopathologists were adequate 58(87.88%, n=66) in MVA group, and 60 (90.91%, n=66) in D & C group. The difference was not statistically significant (p-value = 0.57). 6, 7 Efficiency of MVA is 81.1% [8] and D&C is 90%[9].

In 2011, a Randomized controlled trial study was conducted to compare the pain score between MVA and sharp curettage in females with heavy uterine bleeding after paracervical block. The category of pain score with MVA during and after procedure was lower significantly than curettage group (p = 0.03). During procedure, No pain to mild vs. moderate to severe pain, (p = 0.01. So, pain intensity in MVA was less as compared to sharp curettage. However, large sample size research should be conducted to determine its significant[23]. Similarly, one more research was conducted which compared the histological report of dilatation and curettage (D&C) with subsequent hysterectomy in women with abnormal uterine bleeding. The statistical analysis was performed to calculate sensitivity, specificity, positive, negative predictive value and accuracy of D&C. The result has showed that mean age of women was 46.6 years. In 164 patients (52.7%), D&C failed to detect endometrial pathology that was detected on hysterectomy specimen subsequently. Its sensitivity was 30.2%, specificity, 72.3%, the positive predictive value, 77.1%, and the negative predictive value was 25.1%. The overall accuracy was 40.5%. Hence it can be concluded that for uterine focal lesions, D&C is a poor diagnostic technique for focal uterine pathology[11].

CONCLUSION

In our study, the adequate endometrial tissue sample in D & C group was high but was not statistically significantly difference than MVA, so MVA being simple and quick procedure can be used as screening tool in OPD with has less blood loss and requiring no general anesthesia.

ETHICAL APPROVAL

The study was approved by the Institutional Review Board of Postgraduate Medical Institute, Ameer ud Din Medical College & Lahore General Hospital, Lahore, vide AMC/PGMI/LGH/Synopsis No. 0076-19 Dated 20.03.2019.

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AUTHOR'S CONTRIBUTIONS

ZW: Manuscript writing, data collection,
FL: Data collection, data analysis
NY: Supervision, critical analysis
RMHA: Result interpretation, discussion
ST: Interpretation of data
NL: Critical review