



Original Article

Comparative Study Between Pipelle Aspiration and Diagnostic Curettage Among Sea Coast Perimenopausal Woman with Abnormal Uterine Bleeding

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ABSTRACT

Introduction: About 9%–30% of the reproductive age group women have menstrual irregularities requiring medical evaluation. (Yasmin F, Farrukh R 2007)³. Because of its broad range of differential diagnosis, the diagnosis of AUB can be quite challenging. Despite a detailed history, various blood tests, and a thorough pelvic examination often involving transvaginal ultrasonography, the cause of the bleeding is established in only 50 to 60% of the cases (Kotdawala 2013)⁴.

Materials And Methods: This is a prospective study done on patients presenting with AUB for a period of 1 year from June 2022 to June 2023 in the Department of Obstetrics and Gynecology in collaboration with the Department of Pathology in Narayana medical college and hospital. This study has been approved by the Ethics Committee of our institute.

Results: The present study was done to assess sea coast perimenopausal woman with abnormal uterine bleeding by comparison of histopathological findings of Pipelle endometrial biopsy and D&C. In our study, (Table -1) patients between 41-50 years constituted the maximum 56(56%) 2 (2.0%) patients were ≤30 years of age, 17 (17.0%) patients were 31-40 years of age, 21 (21.0%) patients were 51-60 years of age and 4 (4.0%) patients were 61-70 years of age and 75 % (n=75) were premenopausal patients whereas 25% (n=25) were postmenopausal patients

Conclusion: By using Pipelle device Endometrial sampling is easy & convenient method of getting tissue diagnosis. It can be done as OP procedure without any anesthesia, when comparable to D&C which is done under the anesthesia.

Keywords: Abnormal Uterine Bleeding (AUB), Perimenopausal Women, Pipelle Endometrial Biopsy, Dilatation and Curettage (D&C), Histopathological Examination.

INTRODUCTION

Abnormal uterine bleeding (AUB) includes any disturbance in the regularity, frequency, duration or volume of menstrual flow, and non menstrual disturbance of any cause (Munro MG-2011)¹. AUB is the commonest presenting symptom in the gynecology outpatient department accounting for 70% of all gynecological cases in peri- and postmenopausal years (Shams G -2012)²

About 9%–30% of the reproductive age group women have menstrual irregularities requiring medical evaluation. (Yasmin F, Farrukh R 2007)³. Because of its broad range of differential diagnosis, the diagnosis of AUB can be quite challenging. Despite a detailed history, various blood tests, and a thorough pelvic examination often involving transvaginal ultrasonography, the cause of the bleeding is established in only 50 to 60% of the cases (Kotdawala 2013)⁴.

Between 3% and 30% of reproductive-aged women worldwide are thought to experience abnormal uterine bleeding, with incidences peaking around menarche and perimenopause. Heavy menstrual bleeding (HMB) is the subject of several research, but when irregular and intermenstrual bleeding are taken into consideration, the prevalence increases to 35 percent or more. It is challenging to determine the precise prevalence since many women do not seek medical attention for their symptoms and because some components of diagnosis are objective while others are subjective. (Liu Z, Doan QV, Blumenthal P, Dubois RW 2007)⁵.

Endometrial assessment in AUB includes the various diagnostic modalities mainly ultrasonography, endometrial curettage and office based methods including biopsy by hysteroscopy or endometrial samplers such as Pipelle [Fouzia Yasmin, Robina Farrukh 2007⁶, Sanam M, Majid MM-2015⁷]. Endometrial assessment is indicated at the age of 40 years to exclude endometrial hyperplasia or carcinoma as less than 1% endometrial carcinoma occur under 35 years of age and 6% in those 45 years or less (Abera Choudary, Mamoon Javaid 2005)⁸. When a woman is found to have high risk factors for endometrial pathology, such as perimenopausal abnormal uterine bleeding, postmenopausal uterine bleeding or history of chronic anovulation sampling of endometrium becomes mandatory [Seltzer V, Benjamin F, Deutsch S 1990]⁹.

A detailed history and physical examination are fundamental for workup of AUB. Women presenting with perimenopausal abnormal uterine bleeding, postmenopausal bleeding or history of chronic anovulation are at higher risk of developing endometrial pathology. Hence among these women endometrial sampling for histopathological evaluation becomes mandatory.

Dilatation and curettage is the most commonly used diagnostic technique for AUB. This method has been found to be inconvenient as it involves high costs of hospitalization and use of operation theater, bed shortages, complications and risk of anesthesia. Recently, office procedures which are quick, safe, and inexpensive such as pipelle biopsy device, Vabra and Z sampler have superseded this technique with good patient acceptability. [Tanriverdi HA, Barut A, Gün BD-2004]¹⁰. Pipelle is a flexible polypropylene device which works using a suction mechanism. It can be inserted into the cervical canal without dilatation making it an ideal outpatient endometrial biopsy procedure. [Shams G -2012]¹¹ There are very few studies that have analyzed the efficacy of pipelle biopsy or validated this method of endometrial sampling against the gold standard histopathological diagnosis from hysterectomy specimens. It is ideal for obtaining endometrial biopsy in outpatient settings.

It is useful in the workup of AUB, cancer screening, detection, and follow-up of precancerous hyperplasia and atypia, endometrial dating, and infertility (Zuber TJ. Endometrial biopsy. Am Fam Physician 2001)¹² Recently, endometrial aspiration biopsy has been found to be successful for diagnosing extrauterine malignancies as well as low-grade endometrial sarcomas. The efficacy of the Pipelle has been studied and conflicting results have been obtained with different studies. It is generally felt that a positive biopsy can save time and cost, and avoid inconvenience to a patient, but a nonspecific finding should be interpreted with caution (Ferry J, Farnsworth A, Webster M, Wren B 1993)¹³

The gold standard technique for endometrial evaluation is hysteroscopic biopsy, but it is not commonly available in developing nations. Conventional dilatation and curettage with sonography is the most commonly used method for endometrial evaluation in primary care settings (D&C). Office endometrial biopsy can hasten appropriate evaluation and treatment because it is less invasive than dilatation and curettage and doesn't require anaesthesia.

Thus, further studies are needed to determine the efficacy of Pipelle as a tool for endometrial biopsy and establish the reliability of Pipelle biopsy, so that the number of traditional D&Cs done under general anesthesia could be reduced to a minimum. The present study is done to evaluate the efficacy of endometrial aspiration in comparison with D&C in the diagnosis of AUB, taking D&C histopathology findings as standard.

The present study is carried with an aim to assess sea coast woman by comparison of histopathological findings of Pipelle endometrial biopsy and D&C.

MATERIALS AND METHODS

This is a prospective study done on patients presenting with AUB for a period of 1 year from June 2022 to June 2023 in the Department of Obstetrics and Gynecology in collaboration with the Department of Pathology in Narayana medical college and hospital. This study has been approved by the Ethics Committee of our institute.

INCLUSION CRITERIA

1. Age 30 years and above.
2. Patients with AUB.
3. Associated medical complication like HT and DM.
4. Any endometrial thickness in premenopausal women and more than 4mm thickness in postmenopausal women.

EXCLUSION CRITERIA

1. Cervical stenosis.
2. Lower genital tract infection.
3. Extra uterine causes of AUB.
4. Cervical causes of AUB.
5. Endometrial thickness of $\leq 4\text{mm}$ in postmenopausal women.

A detailed history was taken and the patients were examined thoroughly and the findings were documented. The following investigations were done as per described protocols:

- Hemoglobin
- Urine analysis
- Blood sugar and urea
- VDRL and HIV
- USG - Abdomen & Pelvis

METHOD OF COLLECTION OF DATA:

Patient was put in dorsal position. First, we performed the procedure of endometrial aspiration. The cervix was held with tenaculum/vulsellum forceps during insertion of the aspirator (pipelle curette) into the cervical canal. After reaching the fundus of the uterus, the piston was pulled back to provide negative pressure. Endometrial tissue was aspirated. The biopsy specimen was placed in a bottle labeled 1, containing 10% formaldehyde for tissue processing. The D&C procedure was performed after endometrial aspiration biopsy, by dilatation of the cervix and using a sharp curette to sample the endometrial tissue. This biopsy specimen was placed in a bottle labeled 2, containing 10% formaldehyde for HPE. Both samples were evaluated in the pathology department of our institution. The adequacy of the sample and the histopathological report were interpreted by the same pathologist. Pipelle endometrial aspiration biopsy and D&C samples were collected from 100 patients with AUB in the Department of the Obstetrics and Gynecology and sent to the Department of Pathology for histopathological analysis.

RESULTS:

The present study was done to assess sea coast perimenopausal woman with abnormal uterine bleeding by comparison of histopathological findings of Pipelle endometrial biopsy and D&C. In our study, (Table -1) patients between 41-50 years constituted the maximum 56(56%) 2 (2.0%) patients were ≤ 30 years of age, 17 (17.0%) patients were 31-40 years of age, 21 (21.0%) patients were 51-60 years of age and 4 (4.0%) patients were 61-70 years of age and 75 % (n=75) were premenopausal patients whereas 25% (n=25) were postmenopausal patients. Menorrhagia is the main complaint of premenopausal study subjects included in this study 47(47%) ,menometrorrhagia 19(19%)is the second ,most common complaint in this group. Most of the postmenopausal patients had postmenopausal bleeding 25(25%)as their main complaint. This study consists of , 8 (8.0%) nulliparous patients and 92 (92%) multiparous patients. Out the 100 patients 10 (10.0%) patients had C-Section and 82 (89.1%) patients had NVD. Of them 87 (87.0%) patients were Sterilized.

Of the study group 40% had endometrial thickness between 5-10mm, 51% had ET between 11-15 mm, 9% had ET between 16-20mm.

In this study ,(Table 2)Histopathological report (HPR) was available in 85 out of 100 patients in pipelle. HPR was available in all the cases of D&C.

In this study , sufficient sample with pipelle was obtained in 76 patients (76%) and 24 patients had insufficient samples (24%), out of 24 insufficient samples with pipelle, HPR was available in 9 cases. In the remaining 15 patients, sample is inadequate for the histopathologist to give a comment. Out of 100 cases , HPR was obtained from 85 cases using pipelles sampling, in 15 cases sample was insufficient to give the report.

In our study ,(Table 3)D&C was successful in collecting . Of those 15 cases in pipelle , where HPR was not available , D&C showed the following reports , 4 them showed secretory endometrium , 2 atrophic endometrium ,remaining showed proliferative endometrium.

(Table-4)In diagnosing endometrial carcinoma and hyperplasia ,pipelle showed 100% sensitivity and specificity.

Table 1: Analysis of variables

Age groups	Frequency	Percentage
< 30 years	2	2.0%
31-40 years	17	17%
41-50 years	56	56%

51-60 years	21	21%
61-70 years	4	4%
Total	100	100.0
Menopausal status		
Pre- menopausal	75	75%
Post – menopausal	25	25%
COMPLAINTS		
Endometritis	1	1%
Menometrorrhagia	19	19%
Menorrhagia	47	47%
Menorrhagia following amenorrhea	6	6%
Metrorrhagia	2	2%
Postmenopausal bleeding	25	25%
Distribution of Parity		
Nulliparous	8	8%
Multiparous	92	92%
Delivery		
C-SECTION	10	10.9%
NVD	82	89.1%
Contraception		
Not-sterilized	13	13%
Sterilized	87	87%
Endometrial thickness		
5-10mm	40	40%
11-15mm	51	51%
16-20mm	9	9%

TABLE -2 COMPARISON BETWEEN D&C AND PIPELLE SAMPLING

	D &C	Pipelle
HPR Obtained	100(100%)	85(85%)
HPR not Obtained	0	15(15%)
Sample adequacy		
in sufficient	0	24(24%)
Sufficient	100(100%)	76(76%)

TABLE -3 Distribution of HPE-Report- Pipelle and D&C

Endometrial pattern	HPE-Report- pipelle (%)	HPE – Report – D&C (%)
Adenocarcinoma	1	1
Atrophic	2	4
Blood clot	2	0
Disordered proliferative	23	28
hyperplasia (atypia)	7	7
No report	15	0
Proliferative	32	37
Secretory	18	23
Total	100	100

TABLE -4 Validity of Pipelle endometrium sampling for each endometrial condition

Validity of Pipelle's	Sensitivity (%)	Specificity (%)	Positive predictive Value (%)	Negative predictive Value (%)
Adenocarcinoma	100	100	100	100
Hyperplasia	100	100	100	100
Proliferative	100	92.6	82.1	100

Disordered proliferative	100	93.5	82.1	100
Secretory	100	96.3	85.7	100
Atrophic	100	97.9	80	100

DISCUSSION:

The present study was a prospective study comparing D&C and Pipelle type of endometrial sampling in subjects with AUB. This Study was conducted from June 2022- June 2023 at Dept. of Obstetrics and Gynaecology. Total 100 patients were included in this study.

Mude V, et al 68 (2022) showed that Pipelle endometrial sampling Vs D&C in collecting a sufficient endometrial sample for histo-pathological diagnosis was the subject of this observational clinical correlation diagnostic study. The most common age group presented with AUB is between 41 and 45 years. Most of the subjects (45%) had < 6months duration of AUB. Pre and perimenopausal women made up 94% of the study population, whereas postmenopausal women made up 6%. Among the study group, 4% were nulliparous, and the remaining 96% were parous women. The most frequent endometrial pattern observed was Hyperplasia without atypia (21%) , followed by proliferative phase of the endometrium (20%), no evidence of malignancy (14%), Secretory phase (11%), disordered proliferative phase (11%), atrophic endometrium (4%), nonsecretory phase in (4%), endometrial polyp (2%), Hyperplasia with atypia (2%), early secretory phase (1%), endometrial carcinoma (1%), late secretory phase (1%), Endometrial glandular hypertrophy (1%). . When comparing Pipelle to D&C, the chi square test shows that Pipelle has a sensitivity of 98.9% for retrieving sufficient tissue and a specificity of 100%. The positive predictive value is 100 percent, while the negative predictive value is 85.7%. The p-value estimated is < 0 .001, which is statistically significant. In our study, most commonly age groups presented with AUB is between 41- 50 yrs ,most patient has menorrhagia as chief complaints , pre and peri menopausal women constitute 75 %and post menopausal constitute 25%. In our study, most frequent endometrial pattern observed was proliferative endometrium 37.0% and it was statistically significant ($p < .00001$), ($z=10.545$) When comparing Pipelle to D&C, the chi-square test shows that Pipelle has a sensitivity of 92.6% for retrieving sufficient tissue and a specificity of 100%. The PPV is 100 percent, while the negative predictive value is 82.1% , which is statistically significant.

Sarfraz T, et al 65 (2021) Results: showed that to assess diagnostic adequacy and histological outcome in pipelle endometrial biopsies of the patients presenting with abnormal uterine bleeding. Descriptive cross-sectional study .Out of 220 pipelle biopsies, 65 (29.54%) were inadequate for assessment while 155 (70.45%) were adequate to form a definitive diagnosis on histological examination. Among the diagnostic samples, chronic endometritis was the commonest pattern observed, seen in 70 cases (45.16%). Other histological patterns included proliferative endometrium (29.03%), secretory endometrium (9.03%), exogenous hormone effect (7.10%), endometrial hyperplasia (3.87%), atrophic endometrium (4.51%) & endometrial carcinoma (1.29%). In present study , out of 100 pipelle biopsies , 15 (15%) were inadequate for the assessment while 85 (85%) were adequate to make definitive diagnosis on histological examination. Among the samples proliferative endometrium (32%) was most common pattern observed.

Solanki K, et al 67 (2021) examined that AUB is a common and devastating condition affecting women of all ages. With regard to proliferative endometrium, sensitivity, specificity, PPV, NPV, and accuracy were 92%,96%, 98.6%, 80%, and 93%, respectively. With regard to atrophic endometrium, specificity, NPV, and accuracy were 100%, 99%, and 99%, respectively. Both Pipelle curette and Karman cannula endometrial aspiration biopsy are easy to perform, efficient, and safe OP endometrial sampling procedure in recognizing the endometrial lesions including malignancy and endometrial hyperplasia. In present study , pipelles howed 100% sensitivity, specificity with reagard to diagnosis of endometrial carcinoma & endometrial hyperplasia , with reagard to secretory endometrium the correspondence value were 96.3% and. 100%. Wheareas PPV, NPV, were 100% and 85.7% respectively. Similarly for proliferative endometrium sensitivity, specificity, PPV & NPV were 92.6% ,100% ,100% ,82.1% respectively. Results were comparable to the observation made by Solanki .k. The goal of present study, according to Chandrashekar N, et al 44 (2011), was to assess the adequacy of the sample aspirated in order to make a definite diagnosis of endometrial disease in abnormal uterine bleeding (AUB) and to compare the histopathological findings of Pipelle endometrial aspiration biopsy and dilatation and curettage (D&C). Pipelle endometrial biopsy and D&C samples were collected from 100 patients with AUB in the Obstetrics and Gynecology department and sent to a tertiary care hospital's Department of Pathology for sample adequacy and histopathological assessment. In comparison to D&C, which showed 85% and 15%, the Pipelle sample was adequate in 73% of cases and inadequate in 27%. About 53% of the cases were comparable between D&C and Pipelle, while 37% were not. The sensitivity was 58.8%, the specificity was 91.6%, the PPV was 58.8%, the NPV was 91.6%, and the concordance was 86% for endometrial hyperplasia using the Pipelle aspirator. Pipelle had a sensitivity of 50%, a NPV of 99%, and a concordance rate of 98% for detecting endometrial carcinoma. Pipelle biopsy, rather than D&C, is more convenient and cost-effective for patients to confirm normalcy and rule out endometrial hyperplasia.

Zahoor SA, et al 56 (2019) examined that to compare the adequacy and safety of pipelle device and D&C for taking endometrial biopsy in patients of abnormal uterine bleeding (AUB). In Group B (n=100) patients were admitted from outpatient department and D&C done on very next day in operation theatre after complete work up and pre anaesthesia

evaluation under general anaesthesia. Mean post-procedural pain was higher in D&C group, severe pain occurred in 65% patients in D&C group and in 5% patients in pipelle group, moderate pain occurred in 17% patients in pipelle group and in 30% patients in D&C group. In our study, no major adverse effects were reported. Few patients, mentioned mild pain but the procedure was well tolerated.

Gelini Moghaddam T, et al 51 (2018) found that AUB is common and serious problem in the women of late reproductive age, and an indication for biopsy. The mean age of subjects was 47.5 years old. The highest number of patients (28%) was in the 40-45 group. AUB is a most common clinical problem among females in their perimenopausal and postmenopausal years, according to Chandrakumari AS et al 52 (2018). Endometrium can be assessed using a variety of methods.

Rubasowndary C et al 46 (2013) suggested that any type of bleeding with an increased duration, frequency or amount is defined as AUB. AUB affect 10-30 % of the reproductive age women and upto 50% of perimenopausal women. Age and reproductive status affect the incidence.

CONCLUSION:

- By using Pipelle device Endometrial sampling is easy & convenient method of getting tissue diagnosis.
- It can be done as OP procedure without any anesthesia, when comparable to D&C which is done under the anesthesia.
- The sensitivity & specificity of this procedure in detecting endometrial hyperplasia & carcinoma were comparable with that of the standard procedure-D&C
- Pipelle's sampling failed to detect endometrial polyp.
- Considering all factors together, Pipelle sampling can be used as an effective screening procedure in the outpatient department, though Pipelle sampling failed to get sufficient sample in 15% of cases, comparing the high specificity in detecting endometrial hyperplasia and carcinoma, the cost effectiveness and anesthetic morbidity, intra and postoperative complications.

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