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Diagnostic Validity of Pipelle Endometrial sampling compared to Dilatation and Curettage in Abnormal Uterine Bleeding

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ABSTRCT

Background

Histological assessment of the endometrium is recommended in cases of Abnormal Uterine Bleeding to rule out premalignant conditions and malignancy. Endometrial sampling can be done by outpatient procedure like pipelle aspiration or by dilatation and curettage in an operation theatre set up. Our study aims to compare the histopathological findings of endometrial aspiration by pipelle with endometrial samples obtained by dilatation and curettage.

Materials and Methods

80 women attending the Gynecology outpatient department with abnormal uterine bleeding were selected for the study on the basis of inclusion and exclusion criteria. After detailed history taking and baseline investigations and ultrasonogram first pipelle aspiration was done followed by dilatation and curettage. Histopathology report of pipelle sample was compared with dilatation & curettage.

Results

Adequate sample was obtained in 91% of samples of pipelle and 100% of samples of dilatation& curettage. Pipelle had 100% sensitivity, specificity, positive predictive value and negative predictive value for diagnosing endometrial malignancy and disordered proliferative endometrium. Pipelle had a sensitivity of 84.6%,specificity and positive predictive value of 100% and negative predictive value of 97.1% in diagnosing endometrial hyperplasia. For proliferative endometrium and secretary endometrium pipelle had a sensitivity of 93.1% and 87.5% respectively. There was near perfect agreement between methods (kappa statistics=0.884).

Conclusion

Pipelle aspiration technique could obtain adequate endometrial sample for histopathological examination with high sensitivity and specificity for detection of premalignant conditions and endometrial malignancy.

Key Words: Abnormal uterine bleeding, Dilatation and curettage, endometrial biopsy, Pipelle.

I. INTRODUCTION

Abnormal uterine bleeding is one of the most frequent menstrual problems in patients presenting in gynecology OPD . It is a symptom and not a disease.AUB may be due to abnormalities of reproductive tract which may be polyp, fibroid, endometriosis or malignant or it may be due to infections, pregnancy related complications or iatrogenic or due to systemic diseases.

The **FIGO** Classification system for AUB is referred by the acronym .**PALM-COEIN.**
PALM consists of structural abnormalities & **COEIN.**

Include non structural abnormalities.

P-POLYP **A-ADENOMYOSIS** **L-LEIOMYOMA** **M-MALIGNANCY**	**C-COAGULOPATHY** **O-OVULATORY DYSFUCTION** **E-ENDOMETRIAL** **I-IATROGENIC** **N-NOT OTHERWISE CLASSIFIED**

Abnormal uterine bleeding needs thorough evaluation in order to rule out serious pathology like endometrial cancer or its precursor lesions. Abnormal uterine bleeding can be evaluated by ultrasound ,saline infusion sonography, endometrial biopsy, hysteroscopy etc Histological examination of endometrial tissue remain the standard diagnostic procedure for abnormal uterine bleeding. Hysteroscopic guided biopsy is being used for evaluation of endometrium, but not feasible in all health care facilities. Dilatation and Curettage remain the

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gold standard in all settings. Dilatation and curettage has been used for histological examination for years. Because of pain associated with procedure there is need for operative anesthesia has led to the advent of new and simple sampling techniques. Various devices are on the market now a days including pipelle device which are cost effective and easy to handle and more over they
can be used on a outpatient basis. Small flexible suction cannulas are available with less discomfort compared with old biopsy techniques. However there are still concerns regarding adequacy of sample, non sampling of focal lesions etc. Endometrial curettage has been considered as the gold standard. this study was designed to estimate the diagnostic validity of pipelle endometrial sampling with conventional D&C in patients with AUB.

II. METHODS

This study was conducted at Government medical college, Kozhikode for a period of one year, from January 2018- December 2018. 80 premenopausal women with complaints of abnormal uterine bleeding were selected on the basis of exclusion and inclusion criteria.

INCLUSION CRITERIA

Women of premenopausal age group with symptoms suggestive of abnormal uterine bleeding were included in the study.

EXCLUSION CRITERIA

Women on hormonal treatment
Women with focal endometrial or cervical lesion
Post menopausal women
Those with haematological disorders
Suspected pelvic infections
Women on anticoagulants
Those with thyroid, renal diseases

Detailed history was taken regarding onset and duration of complaint, menstrual history, associated symptoms were taken. Detailed history regarding medical illness like liver, renal, thyroid and haematological problems were taken .After proper clinical examination necessary investigations (complete blood count liver, kidney function test, random blood sugar, thyroid function test)were done. All underwent Transvaginal usg. After getting consent , as a daycare procedure from minor operation theatre patient in lithotomy position first a pipelle sampler was inserted and piston of sheath drown and negative pressure was created and sufficient sample was taken and followed by a sharp curettage was taken using Sims currete. For the purpose of maintaining synchronicity both samples were taken at the same time. Pipelle sample was taken from patients who were already planned for dilatation and curettage. Both samples were sent for histopathology. Histopathological reports were compared by the same person. Pipelle aspiration results were compared with that of D&C .Data was analysed using appropriate statistical test.

III. RESULTS

The study was conducted in 80 patients presented with abnormal uterine bleeding who were selected on the basis of inclusion and exclusion criteria. After a detailed history taking and proper examination all underwent pipelle sampling followed by dilatation and curettage.
Among the 80 patients, the maximum number of patients(57.5%) were noted in the age group of 45-49 years.

Age

	Frequency	Percent
40-44	27	33.8
45-49	46	57.5
50 and above	7	8.8
Total	80	100.0

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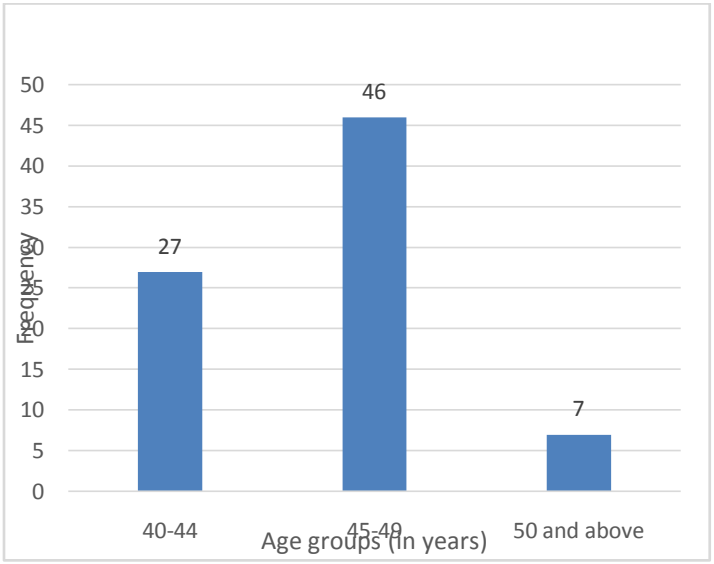
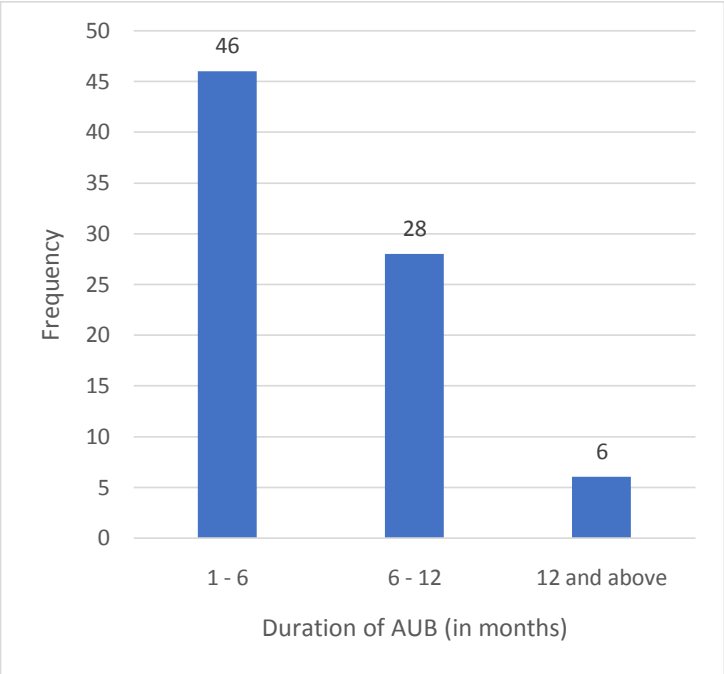
Volume 3, Issue 5, Sep-Oct 2021 pp 1206-1213 www.ijdmsrjournal.com ISSN: 2582-6018



Duration of AUB

	Frequency	Percent
1-6 m	46	57.5
6-12 m	28	35.0
> 12 m	6	7.5
Total	80	100.0

Majority of the women presented (57.5%) presented within 6 months of onset of symptoms.



Parity

	Frequency	Percent
Nullipara	3	3.8
1	13	16.3
2	49	61.3
3 and above	15	18.8

International Journal Dental and Medical Sciences Research
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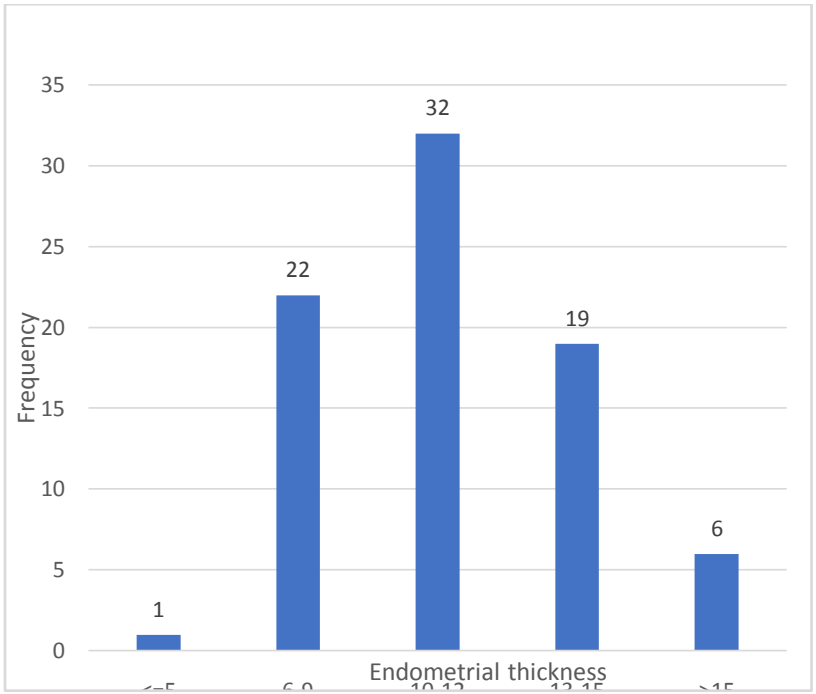
Total	80	100.0

Of the study group 3 patients were nulliparous 73 were parous women .Of the parous women 16.3%were para1,61.3% were para 2,and 18.8% were para 3 and above.

Endometrial thickness

	Frequency	**Percent**
≤5	1	1.3
6-9	22	27.5
10-12	32	40.0
13-15	19	23.8
>15	6	7.5
Total	80	100.0

40% of the patients had an endometrial thickness between 10-12mm,27.5% had an endometrial thickness of 6-9mm and only 1.3% had an endometrial thickness less than or equal to 5mm.



Tissue Sample with pipelle

	Frequency	Percent
Scanty	7	8.8
Adequate	73	91.3
Total	80	100.0

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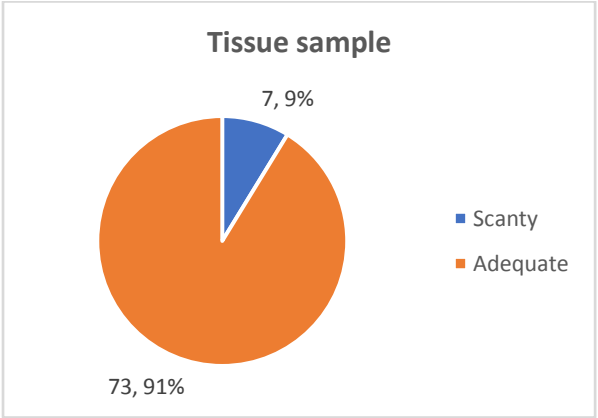
Out of the 80 samples 7 samples (8.8%) were reported as scanty with blood clots only. All the 80 samples were adequate by dilatation and curettage.



Z test for paired proportion
100 % (80/80) adequate sample for D&C and 91.25%(73/80) adequate for pipelle Z=2.75
P =0.006 p is <0.01 which is statistically very significant. Thus it is inferred that pipelle is as good as D&C in obtaining an adequate endometrial sample.

HPR - Pipelle * HPR - D&C

		HPR - D&C					Total
		Proliferative endometrium	Secretory endometrim	Disordered proliferative endometrium	Endometrial hyperplasia	Malignany	
HPR Pipelle	Blood clots only	**2**	**3**	0	**2**	0	**7**
	Proliferative endometrium	**27**	0	0	0	0	**27**
	Secretory endometrium	0	**21**	0	0	0	**21**
	Disordered proliferative endometrium	0	0	**12**	0	0	**12**
	Endometrial hyperplasia	0	0	0	**11**	0	**11**
	Malignancy	0	0	0	0	**2**	**2**
Total		**29**	**24**	**12**	**13**	**2**	**80**

In our study population equal number 12(15%) and 2 (2.5%) women were reported as disordered proliferative endometrium and malignancy respectively on histopathological examination of both pipelle and curettage.27(33.8%) women were reported as proliferative endometrium by pipelle compared to 29 (36.3%) cases in curettage group.21(26.3%) cases were reported as secretory endometrium by pipelle and 24 (30%) cases by curretage.11(13.8%) and 13(16.3%) cases were reported as Endometrial hyperplasia by pipelle and D&C respectively. That is pipelle could not correctly diagnose 2 cases of proliferative endometrium,3 cases of secretory endometrium and 2 cases of endometrial hyperplasia. But correctly diagnosed all cases of malignancy and disordered proliferative endometrium.

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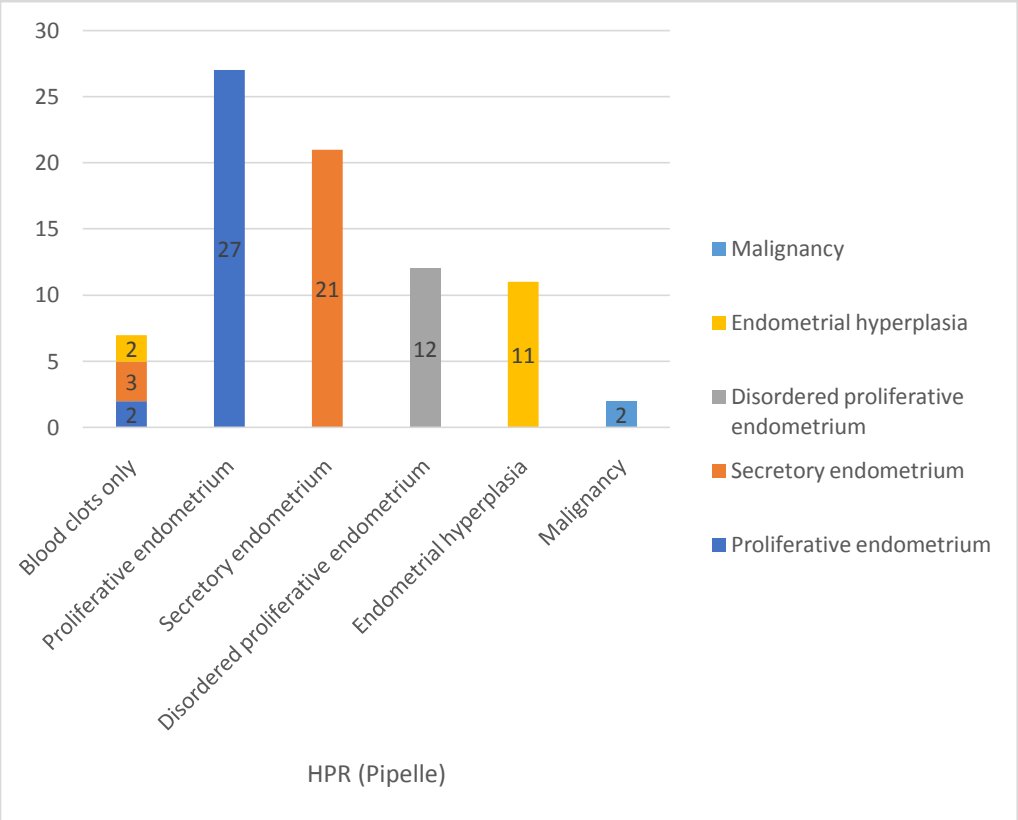
Measure of Agreement: Kappa = 0.884 (p<0.001),
which shows that there is near perfect agreement between D&C and Pipelle.



With consideration of dilatation and curettage as the gold standard the sensitivity, specificity, positive predictive value, negative predictive value and accuracy were calculated

SENSITIVITY ,SPECIFICITY,PPV ,NPV & ACCURACY OF PIPELLE

	Sensitivity	**Specificity**	**PPV**	**NPV**	**Accuracy**
Proliferative endometrium	93.1	100	100	96.2	97.5
Secretory endometrium	87.5	100	100	94.9	96.3
Disordered proliferative endometrium	100	100	100	100	100

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Endometrial hyperplasia	84.6	100	100	97.1	97.5
Malignancy	100	100	100	100	100

IV. DISCUSSION

Abnormal uterine bleeding is one of the most a common problem encountered in gynaecology clinics. Histological diagnosis of endometrial tissue is important especially in perimenopausal women with AUB to confirm the benign nature of the problem and to rule out endometrial carcinoma so that medical treatment or conservative surgery can be offered.

Out of the 80 patients included in the study,the analysis showed 45-49 (57.5%)as the most common age group which is comparable to the study by Abdelazim [(1)]etal were the mean age of patients were 46.3.Based on age ACOG recommends endometrial assessment should be done to rule out malignancy in any women older than 35 years especially those who are suspected of having anovulatory bleeding.

60% of the patients in our study population had a parity of two. In a study by Rachamallu etal[(2)](2017) a similar observation was made. Among 80 patients studied 3 (3.8%) were nulliparous,80% patients had a parity two or more. Singh etal[(3)] (2018) observed 92% of the patients studied were multiparous. In our study there was no correlation between adequate sample and parity. The study population did not have sufficient number of nulliparous women to detect whether a difference exist.

Pipelle endometrial sampling could obtain adequate sample in 91% cases which is very much correlating with the findings of 91.6% adequate sample by Naderi etal(2006)[(4)] On analysing the inadequate samples it was observed that increased endometrial thickness was not always associated with adequate tissue diagnosis. There was no pathognomonic characteristics that correlate completely with histology, so comprehensive tissue diagnosis remains the gold standard .Measurement of endometrial thickness have been shown to be highly reproducible to both intra and interobserver measurement. Nevertheless ,endometrial thickness measurement in premenopausal women have not been shown to predict the presence of endometrial hyperplasia or malignancy reliably as they have in postmenopausal women .Among the 7 samples reported as inadequate 3 samples had endometrial thickness in the range 6-9 mm,3 samples in the range 10-12mm and in one sample the endometrial thickness was 14mm. There is no particular pattern of histopathological finding in relation to endometrial thickness that could be formulated from this study.

Endometrial thickness can vary considerably among premenopausal women during menstrual cycle .Studies suggested evidence based abnormal threshold range from >4mm to >16mm.[(5)(6)(7)]In women younger than 40 years presenting with AUB ,endometrial thickness >12mm can be taken as a cut off for endometrial sampling. Ideally the TVS should be done in the premenstrual phase. In this study TVS was not done in premenstrual period nor any particular pattern was followed between TVS and endometrial sampling, as the study was conducted in a tertiary centre were patients are being consulted and followed up by many gynaecologist in different OPD, there were difficulties in appropriate timing of TVS which can be considered as a shortcoming of the observation.

In this study pipelle aspiration biopsy group could not diagnose 2 cases of endometrial hyperplasia .Pipelle has a sensitivity of 84.6%,specificity and positive predictive value of 100%,negative predictive value of 97.1% which is correlating to the study by Rachamallu etal[(2)](2015) were pipelle had 89.7% sensitivity 100% specificity and positive predictive value and 91.4% negative predictive value. Pipelle had 100% sensitivity, specificity, positive predictive value and negative predictive value in this study , similar results were reported by Abdelazim etal [(1)]and Nadia Khurshid etal([(8)]2012).

It is clear from our study that pipelle has high negative predictive value hence can be relied upon to make accurate diagnosis of endometrial pathology. Thus pipelle aspiration can be considered a suitable cost effective method for diagnosing endometrial pathology when combined with proper histology and ultrasound examination.

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