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Diagnostic value of Suction Pipelle among cases with Abnormal Uterine Bleeding

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Abstract

Background: *Histopathological examination of endometrial tissue remains the mainstay in the evaluation of Abnormal Uterine Bleeding (AUB. In the recent scenario, endometrial sampling is being obtained by various invasive and non-invasive techniques such as Pipelle technique, D and C and hysteroscopic guided biopsy. The study aimed to determine the efficacy of suction Pipelle in diagnosis of endometrial lesions in patients with abnormal uterine bleeding so present a suitable substitute for endometrial sampling techniques which is simpler, cheaper, non-invasive, free of complications and offers good diagnostic accuracy.* ***Methods:****This cross sectional study was conducted at Al-Ahrar teaching hospital on woman with AUB. 2 samples were taken from women, the first by D&C and the second by pipelle device and the results of histopathological examination of both were compared regarding that D&C was the confirmatory standard.****Results:****A high statistically significant excellent agreement between both results of pipelle device and the gold standard D & C, kappa agreement test >0.8 (P-value<0.001)****Conclusion:*** *Pipelle had high sensitivity and specificity for diagnosis of proliferative endometrial, secretory endometrium, hormone dependent endometrium, simple endometrial hyperplasia, atypical hyperplasia and EEC grade 1.However, it would have low sensitivity for diagnosis of endometrial polyp and disordered proliferative hyperplasia.*

Key words: *Diagnosis- Suction Pipelle- endometrial lesions- AUB.*

I. Introduction:

The abnormal uterine bleeding (AUB) is a major clinical problem among women in the reproductive, perimenopausal and postmenopausal age groups. The AUB in women aged 40 and older, especially in peri and post-menopausal age group requires exclusive assessment, to exclude atypical endometrial hyperplasia and carcinoma**(1).**

Histopathological examination of endometrial tissue remains the mainstay in the evaluation of AUB. In the recent scenario, endometrial sampling is being obtained by various invasive and non-invasive techniques such as Pipelle technique, D and C and hysteroscopic guided biopsy **(2).**

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The D & C is the most conventional method of endometrial sampling which is in vogue since many decades. Though, it offers a high degree of sensitivity in diagnosis of endometrial lesions, the associated surgical risks, postoperative pain, higher costs due to hospitalization and anesthesia have necessitated the search for a suitable substitute which is simpler, cheaper, non-invasive, free of complications and offers good diagnostic accuracy[(3)].

The advent of non-invasive office procedures like Pipelle endometrial sampling has posed a challenge to the whole range of conventional invasive techniques. It is now widely accepted by the clinicians and patients, since they are safe and economical. Pipelle endometrial sampling has been gaining popularity as the most convenient method of sampling endometrial lining in the recent times. It can sample about 5-15% of the total endometrial surface area. It is especially useful in global lesions involving in large surface area of the endometrium than in focal lesions [(4)].

Previous studies have raised concern inregard to adequacy of endometrial sample procured and accuracy rate in diagnosing endometrial hyperplasia by Pipelle method [(5)].

Hence, our study was proposed to evaluate the efficacy of Pipelle sampling in diagnosing endometrial pathologies in comparison with gold standard D and C method.

The study aimed todetermine the efficacy of suction Pipelle in diagnosis of endometrial lesions in patients with abnormal uterine bleeding so present a suitable substitute for endometrial sampling techniques which is simpler, cheaper, non-invasive, free of complications and offers good diagnostic accuracy

II. Patients and Methods

A-Technical Design:

A. Setting:

The study was carried out in Zagziag University Hospitals, AlAhrar teaching hospital and Department of Pathology Zagazig University, Sharkia, Egypt, during the period from April 2018 to April 2019.

B. Sample size:

Assuming that, total No. of patients admitted to Zagzaig University hospitals and Al-Ahrar teaching hospital with abnormal uterine bleeding is about 120 in 6 months, of them, Prevalence of patients who need D&C biopsy is 50%, confidence level 95% so total sample size was 92 patients. Calculated by open EPI.

Inclusion Criteria

- Abnormal vaginal bleeding despite medical therapy.
- Endometrial thickness more than 12 mm in reproductive & premenopausal age group.
- Endometrial thickness more than 5 mm in postmenopausal age group.

Exclusion criteria

- Pregnant women.
- Pregnancy-related problems like abortion and molar pregnancy.
- Patients with IUCD.
- Endometrial thickness <4mm.
- Lower genital tract infection.

- Local gynecological cause.
- Patients with bleeding disorders (Coagulopathy, thrombo-cytopenia (less than 100/000 platelet per mm^3).
- Use of anti-coagulants.
- Bleeding due to endocrinological disorders (thyroid diseases and diabetes) or due to liver or renal impairment.

C. Data Collection

Via the computerized database, clinical examination and histopathological assessment.

(2) Operational Design

Type of the study: Cross Sectional Study

Steps of performance:

All cases who met inclusion criteria were subjected to the following:

1. **History**:

- Full history was taking including: personal, present, past, family, obstetric, history of drug intake, contraceptive and menstrual history.
- Detailed History about duration, amount and pattern of bleeding

2. Examination

General Examination

Including Blood pressure, pulse, temperature and respiratory rate.

Abdominal Examination

- Evaluation of fundal level
- Presence of any scars of previous operations

Laboratory Investigation

complete blood cell count analysis, fasting blood glucose, pregnancy (BHCG), coagulative, hormonal assay consist of thyroid function test, serum prolactin, liver and kidney function tests will be performed.

Transvaginal ultrasonography

Evaluation of myometrium, endometrial thickness and uterine cavity.

Sample collection technique

The patients were transferred to operation room on the scheduled day of operation and after vaginal washing and speculum insertion in lithotomy position, the sampling was performed prior to anesthesia, dilatation and using of tenaculum by suction Pipelle.

After the Pipelle was inserted in the uterine cavity, the piston of the sheath was drowned back to make negative gradient and then the Pipelle was removed slowly. If the sample was insufficient, the procedure was repeated once or twice more. The samples were collected in container A. Then under general anesthesia

dilatation and curettage was performed by using the Sims curette number 3 or 4 and the samples were collected in container B (**Fig. XX**).

The samples were sent for histopathological evaluation by the same pathologist. The patients and pathologist were blinded about the sequence of sampling and the method of sample that was used for every sample.

(3) Administrative Design

Patients are counseled for different diagnostic options and a written informed consent will be signed. The study will be approved from ethical committee of the hospital.

(4) Ethical Considerations

- Approval to conduct the study was obtained from the research committee of faculty of medicine Zagzaig University.
- An informed verbal consent was obtained from every subject, they were reassured about the strict confidentiality of any obtained information, and that the study results would be used only for the purpose of research. The study procedures were free from any harmful effects on the participants as well as the service provided.

Figure (XX): Sample collection by Pipelle (black arrow) in container A (white arrow) and D & C in container B (yellow arrow).

STATISTICAL ANALYSIS

The collected data were tabulated and analyzed using SPSS version 23 software (SpssInc, Chicago, ILL Company) Categorical data were presented as number and percentages while quantitative data were expressed as mean ± standard deviation, and range. Quantitative data were tested for normality using Kolomogrov Smirnove test, assuming normality at $P>0.05$. The accepted level of significance in this work was stated at 0.05 ($P<0.05$ was considered significant).

The following tests were done:

- Kappa test was used to agreement between used diagnostic tools, criteria to qualify for kappa results were as follows:

0.80 – 1 = excellent,

0.60-0.70 = good,

0.40-0.50 = fair;

<0.4 poor;

- Sensitivity: Specificity: PPV and NPV were done

III. Results:

– **Table (1)** shows that that the ages of the studied group ranged from 27 years up to 66 years with mean of 44.8 years, parity of the studied group ranged from 0 to 5 times, and 48.9% of them were obese and 31.5% were overweight. **Figure (1)** showed 48.9% of them were obese and 31.5% were overweight.**Figure (2)** shows that the most common presented symptoms among the studied group was menorrhagia among 42.4% of them, then 30.4% presented with poly-menorrhagia and 16.3% with metrorrhagia.

– **Table (2) and figure (3)** show the results of D & C and pipelle device, they were matched in detection of secretory endometrium, hormone dependent endometrium, atypical hyperplasia and EEC grade 1, while there was over estimation of positive proliferative endometrial cases and simple hyperplasia by pipelle device (18.5% and 17.4% versus 16.3% and 13% respectively by D & C), also it miss cases of endometrial polyp and disordered endometrial hyperplasia (8.7% and 17.4% versus 16.3% and 19.6% respectively by D& C).

– This table shows a high statistically significant excellent agreement between both results of pipelle device and the gold standard D & C, kappa agreement test >0.8 (P-value<0.001) **(Table 3).**

– This table shows that the sensitivity of pipelle sampling was 100% in detecting proliferative, secretory, hormonal dependent endometrium, simple and atypical hyperplasia and EEC grade 1, while it was 89% for the detection of disordered endometrium and 53.3% only for detection of polyp. So the pipelle sample being a simple technique can be used as a screening procedure for obtaining endometrial sample in the patients with abnormal uterine bleeding **(Table 4).**

Table (1): General characteristics of the studied group.

Variables	Cases N=92
Age \years	
Mean ±SD	44.8 ± 10.2
Range	27 – 66

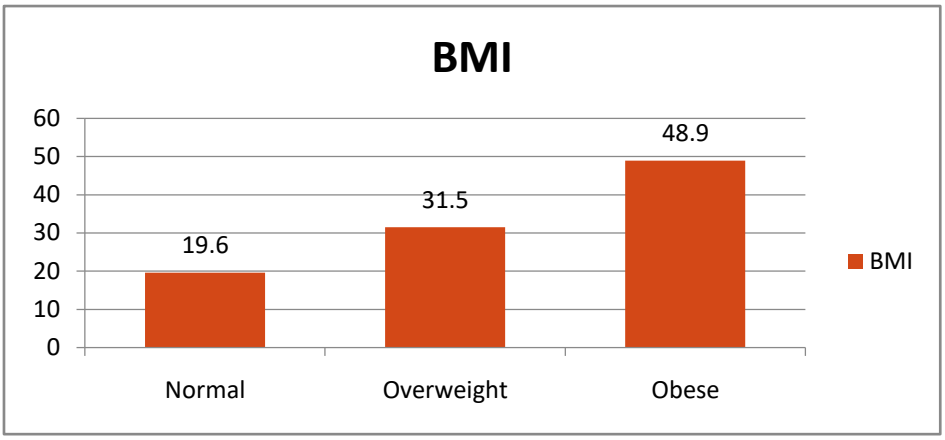


Figure (1): Body mass index presented among studied group.

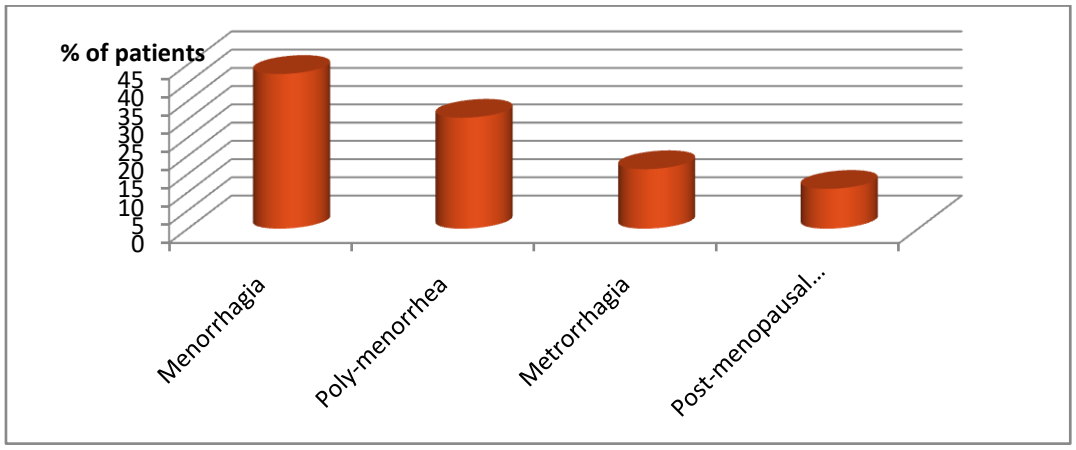


Figure (2): Symptoms presented among the studied group.

Table (2): Comparison of results obtained by D & C and pipelle device.

Symptoms	Cases N=92	
	D & C N (%)	Pipelle N (%)
Proliferative endometrium	15 (16.3)	17 (18.5)
Secretory endometrium	14 (15.2)	14 (15.2)
Endometrial polyp	15 (16.3)	8 (8.7)
Disordered proliferative endometrium	18 (19.6)	16 (17.4)

Hormone dependent endometrium	9 (9.8)	9 (9.8)
Simple endometrial hyperplasia	12 (13)	16 (17.4)
Atypical endometrial hyperplasia	4 (4.3)	4 (4.3)
EEC grade 1	3 (3.3)	3 (3.3)
Insufficient sample	2 (2.2)	5 (5.4)

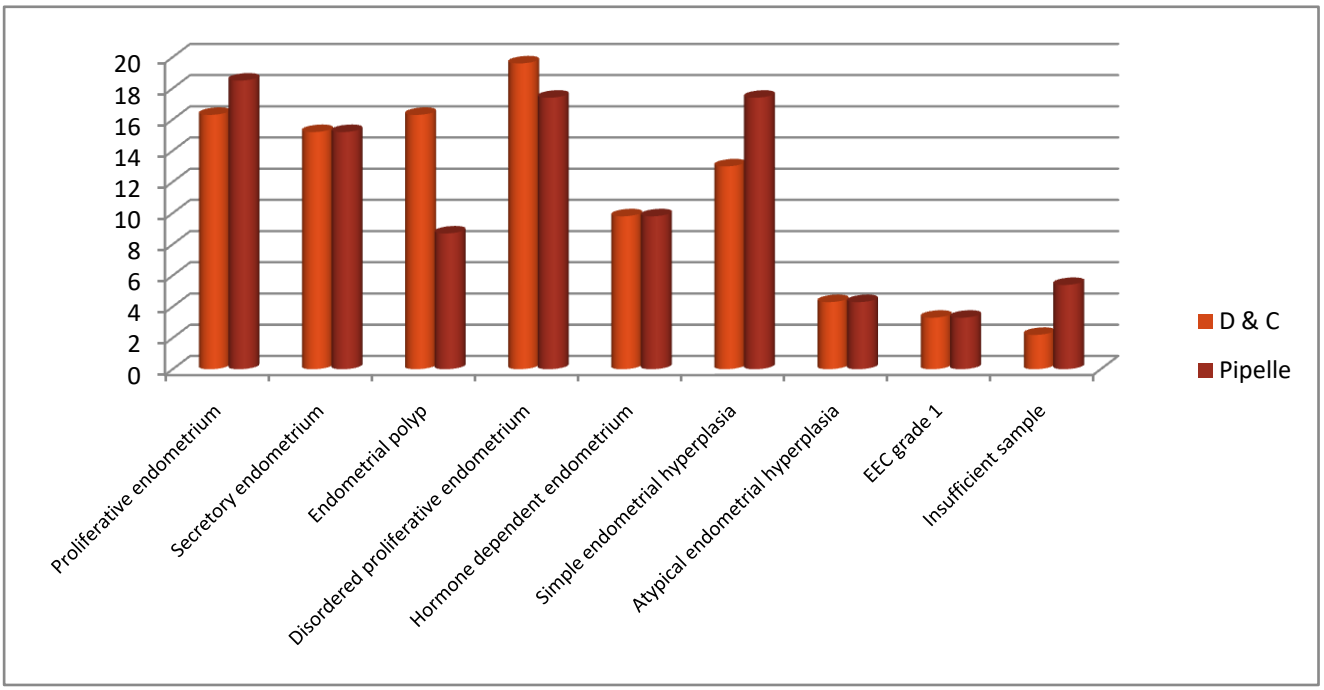


Figure (3): Difference in results of pipelle sampling device with D & C among studied group.

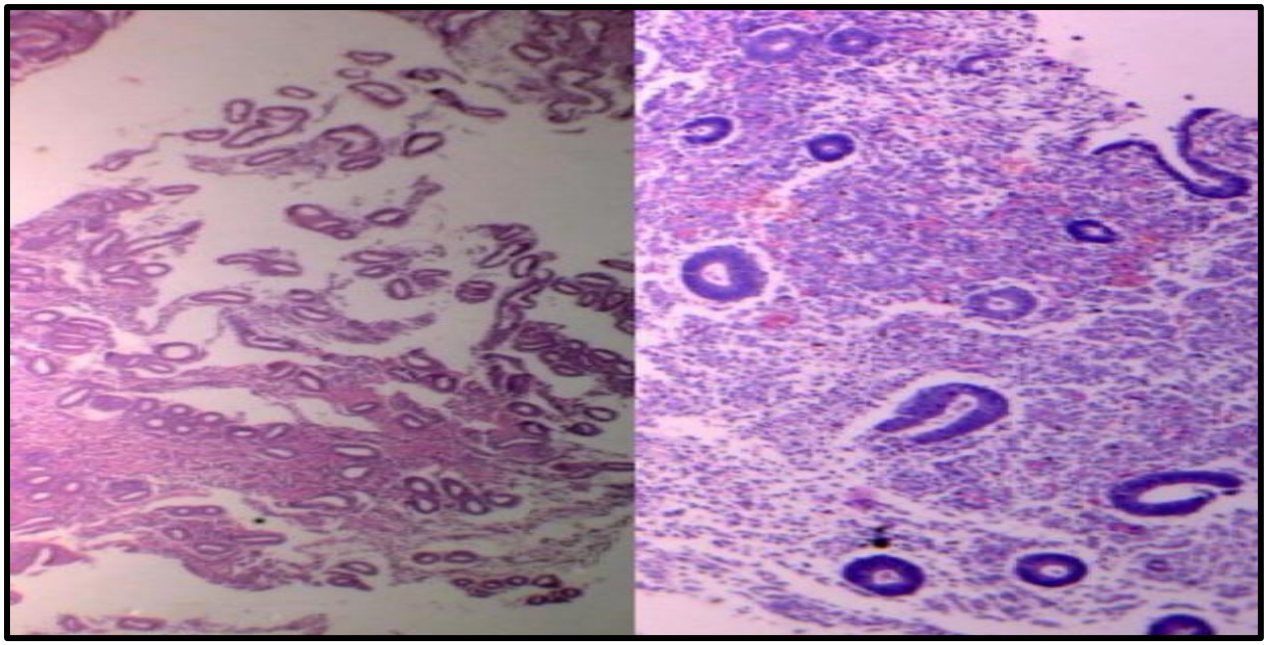
Table (3): Agreement between results of D & C and that of pipelle device.

	Symptoms	D & C N=92								
		Proliferative endometrium	Secretory endomet.	polyp	DPE	HDE	Simple hyperplasia	Atypical hyperplasia	EEC 1	Insufficient sample	Total
pipelle	Proliferative endometrium	15	0	0	0	0	0	0	0	2	17
	Secretory endometrium	0	14	0	0	0	0	0	0	0	14
	Endometrial polyp	0	0	8	0	0	0	0	0	0	8
	Disordered proliferative endometrium	0	0	0	16	0	0	0	0	0	16
	Hormone dependent endometrium	0	0	0	0	9	0	0	0	0	9

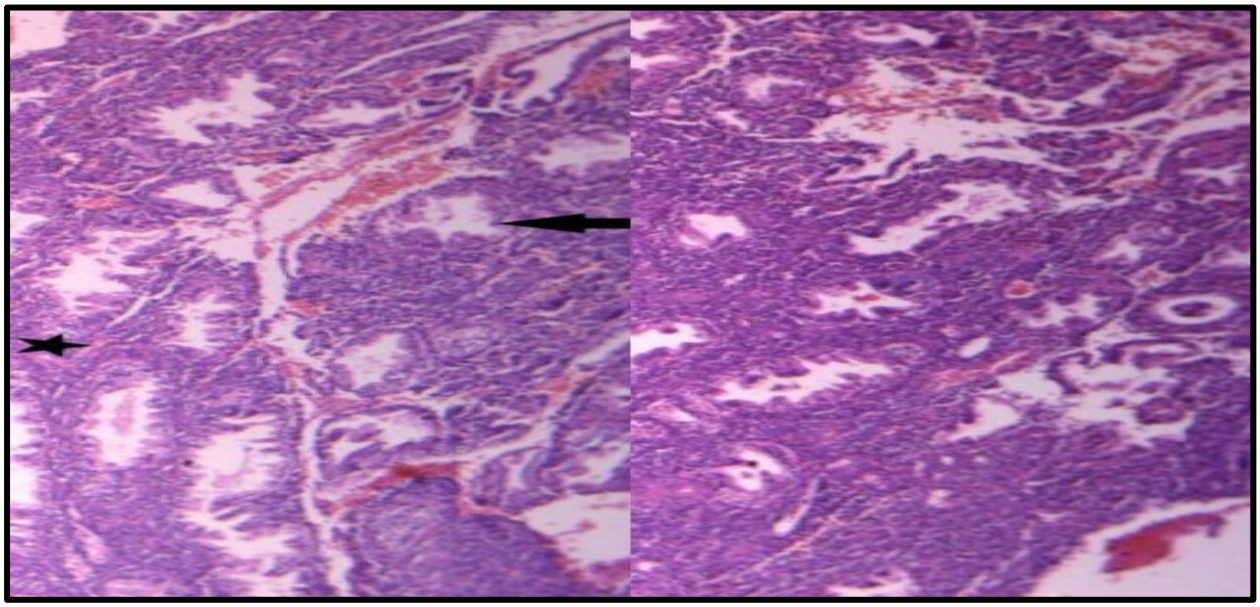
	Simple endometrial hyperplasia	**0**	**0**	**4**	**0**	**0**	**12**	**0**	**0**	**0**	**16**
	Atypical endometrial hyperplasia	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**4**
	EEC grade 1	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**3**
	Insufficient sample	**0**	**0**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**5**
	Total	**15**	**14**	**15**	**18**	**9**	**12**	**4**	**3**	**2**	**92**
Kappa test						**P –value**					
0.861						**<0.001 (HS)**					

Table (4): Reliability data of pipelle device results in comparison to D & C results.

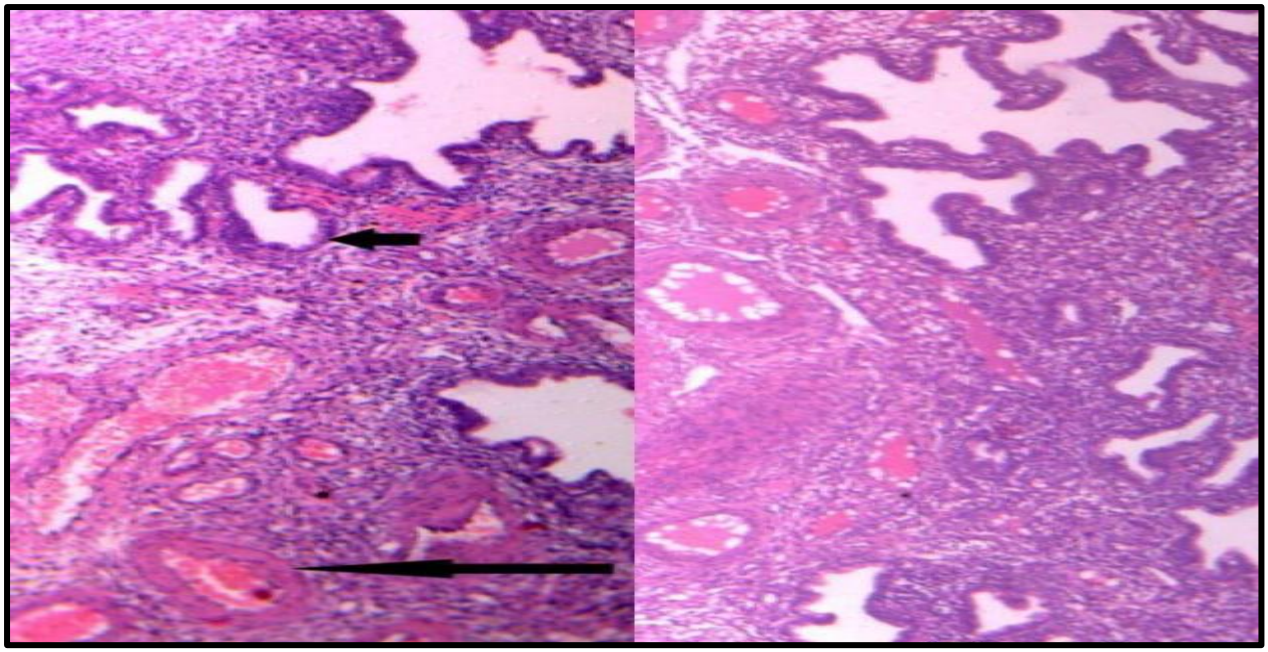
Type of disease	**Pipelle device results N=92**			
	Sensitivity	**Specificity**	**PVP**	**PVN**
Proliferative endometrium	100%	97%	88%	100%
Secretory endometrium	100%	100%	100%	100%
Endometrial polyp	53.3%	100%	100%	91.7%
Disordered proliferative endometrium	89%	100%	100%	97.4%
Hormone dependent endometrium	100%	100%	100%	100%
Simple endometrial hyperplasia	100%	95%	75%	95%
Atypical endometrial hyperplasia	100%	100%	100%	100%
EEC grade 1	100%	100%	100%	100%



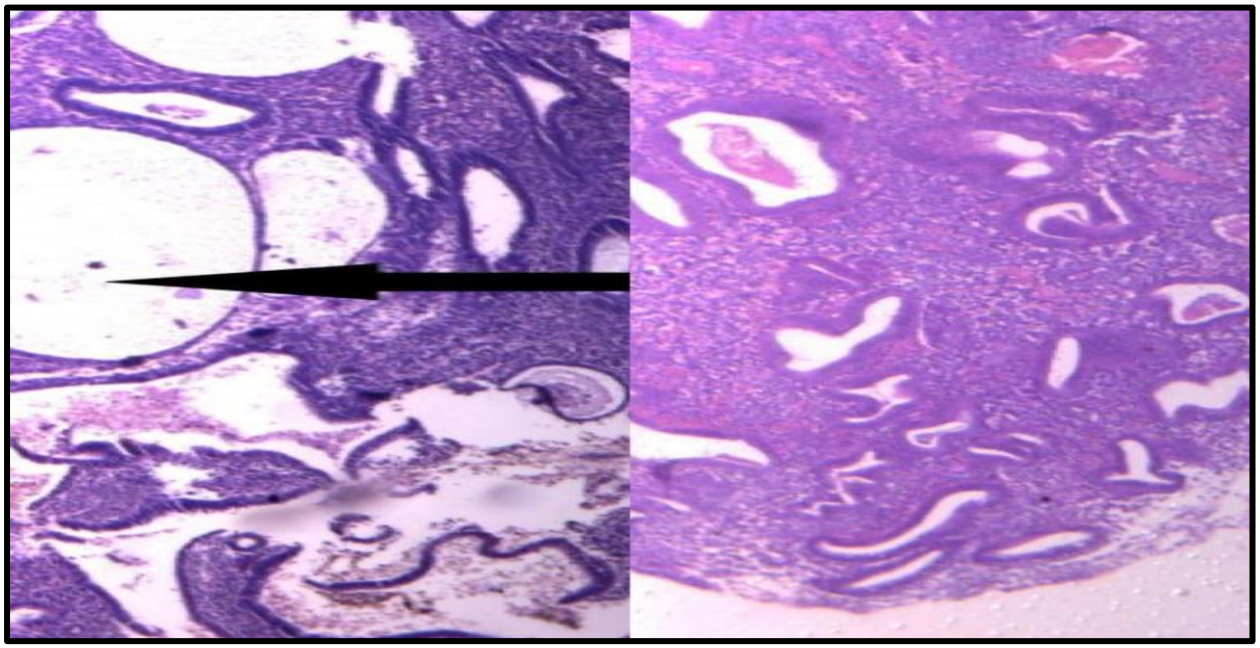
Histopathological image (1): Proliferative endometrium, samples was taken by Pipelle device(right)and D&C biopsy(left)for the same case (H&E x200).



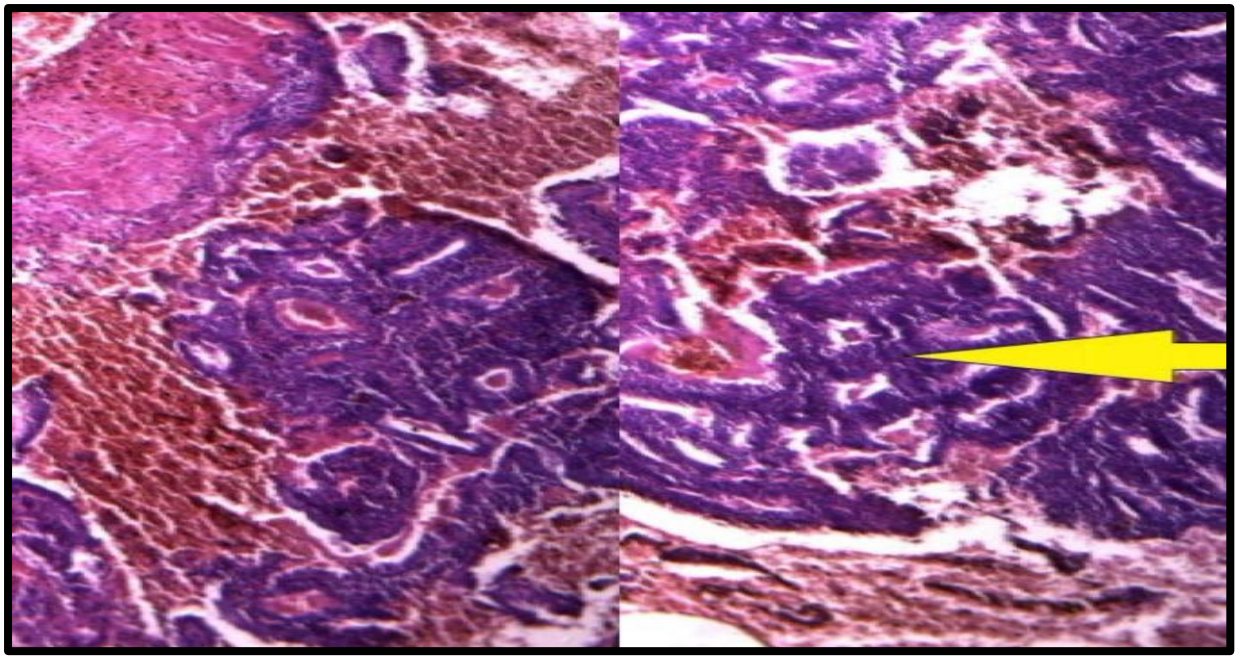
Histopathological image (2): Secretory endometrium, showing Sawtooth glands (arrow)with secretory activity in spindle shaped stroma (astrix) Pipelle biopsy (right)and D&C biopsy (left)for the same case; (H&E x200).



Histopathological image (3): Endometrial polyp, showing hyperplastic glands (short arrow) in a fibrous stroma and thick-walled blood vessels (long arrow) Pipelle biopsy (right)and D&C biopsy (left)for the same case; (H&E x200).



Histopathological image (4): Benign (non-atypical) hyperplasia showing cystic dilatation (arrow) Pipelle biopsy (right)and D&C biopsy (left)for the same case; (H&E x200).



Histopathological image (5): Atypical endometrial hyperplasia, showing crowded endometrial glands (arrow) lined by cells with enlarged nuclei, slight pleomorphism, Pipelle biopsy (right)and D&C biopsy (left)for the same case; (H&E x200).

IV. Discussion

This study was performed in Obstetrics and Gynecology Department of Zagazig University Maternity Hospitals and El-Ahrar Teaching Hospital from April 2018 to july 2019 and comprised 92 women with peri-menopausal bleeding.

The aim of this study was to compare between the histopathological findings of Pipelle endometrial biopsy and D&C biopsy (the gold standard).

In our study we work on 92 cases who presented with abnormal uterine bleeding from each case we took two samples the first was by Pipelle and the second was by standard Dilation and Curettage then the two samples are labelled A&B respectively then referred to a pathologist who was not aware of the method of sampling then the results of two samples were compared.

Regarding the clinical features of the study population; we work on 92 cases their age is ranged from 27 years up to 66 years with mean of 44.8 years, their parity is ranged from 1 to 5 with mean of 1.8, and according to BMI 18 cases (19.6%) were Normal (BMI; 18-25), 29 cases (31.5%) are overweight (BMI; 25-30) and rest of cases (45 case , 48.9%) are obese (BMI: more than 30) from that it seems that most of patients were obese.

This was agreed with **Chandrakumari et al., [(6)]** who found that the mean age was 44.6 years**.**

Regarding to menopausal state of our studied group, most of cases were pre-menopause with percentage of 76.1%, the rest of cases were post-menopause. It was to somehow consistent with that in Chandrakumari et al study as the percentage of pre- menopause was 62.3% **[(6)].**

The most common presenting symptoms among our studied group was menorrhagia 39 cases (42.4%), 28 cases (30.4%) presented with poly-menorrhagia, 15 cases (16.3%) presented with metrorrhagia and finally 10 cases (10.9%) presented with Post-menopausal bleeding.

There were slight differences in the percentage of the common presentation among patients included in Chandrakumari et al study as Menorrhagia was the most common presenting complaint seen in 116 cases (55.24%), but against to our findings it was followed by metrorrhagia in 48 (22.86%) cases, then Polymenorrhagia in 28 (13.33%) cases and postmenopausal bleeding in 18 (8.57%) cases **[(6)].**

In comparison with the study by Abdelazim et al there was no statistically significant difference, the presenting symptoms were menorrhagia 37%, poly-menorrhagia 25.8%, metrorrhagia 18.1% and Post-menopausal bleeding 16.7% **[(7)].**

In our study tissues obtained for histopathology were mostly sufficient in both methods, Sample sufficiency was 97.9% for D & C as there were only 2 insufficient samples while in Pipelle sampling it was 94.6%, 5 samples are in insufficient. It was nearly agreed to Chandrakumari et al study as Pipelle sample was found inadequate for evaluation in 10 cases, so sufficiency rate was 95.2% while all the 210 D & C samples were adequate for histopathological examination, 100% sufficiency rate **[(6)].**

In comparison with the study by Alliratnam AS et al, Sample sufficiency was 96% for D & C versus 93% for Pipelle **[(8)].**

While in Moradan et al study 84.6% of the samples obtained by Pipelle and 90% of those obtained by D& C were sufficient **[(9)].** Similar results have been observed in Abdelazim et al study, Sample sufficiency was 100% for D & C versus 97.9% for Pipelle **[(7)].** Also, similar results were reported in a study by **Naderi et al. [(10)]**the sufficiency rates were 91.6% and 98.3% by Pipelle and D & C respectively.

Regarding pathology of endometrial tissue obtained by D&C and Pipelle; the current study showed that the pathological findings of patient examined obtained by D&C revealed Proliferative endometrium in 15 cases (16.3%), Secretory endometrium in 14 cases (15.2%), Endometrial polyp in 15 cases (16.3%), Disordered proliferative endometrium in 18 cases (19.6%), Hormone dependent endometrium in 9 cases (9.8%), Simple endometrial hyperplasia in 12 cases (13%), Atypical endometrial hyperplasia in 4 cases (4.3%), EEC grade 1 in 3 cases (3.3%). While Pipelle revealed Proliferative endometrium in 17 cases (18.5%), Secretory endometrium in 14 cases (15.2%), Endometrial polyp in 8 cases (8.7%), Disordered proliferative endometrium in 16 cases (17.4%), Hormone dependent endometrium in 9 cases (9.8%), Simple endometrial hyperplasia in 16 cases (17.4%), Atypical endometrial hyperplasia in 4 cases (4.3%), EEC grade 1 in 3 cases (3.3%).

This was in accordance with **Chandrakumari et al., [(6)]** who studied endometrial samples collected from 210 patients with AUB initially by Pipelle method followed by D&C. Histopathological examination of endometrial samplings by D & C revealed Proliferative endometrium in 37 cases (17.6%), Secretory endometrium in 25 cases (11.9%), Disordered proliferative endometrium in 37 cases (17.6%), Hormone dependent endometrium in 8 cases (3.8%), Simple endometrial hyperplasia in 77 cases (36.7%), Atypical endometrial hyperplasia in 6 cases (2.9%), Endometrial adenocarcinoma in 9 cases (4.3%).Pipelle method revealed; Proliferative endometrium in 34 cases (16.2%), Secretory endometrium in 25 cases (11.9%), Disordered proliferative endometrium in 30 cases (14.3%), Hormone dependent endometrium in 5 cases (2.3%), Simple endometrial hyperplasia in 85 cases (40.5%),

Atypical endometrial hyperplasia in 7 cases (3.3%), Endometrial adenocarcinoma in 7 cases (3.3%), This gives impression that simple endometrial hyperplasia is the commonest cause of peri-menopausal bleeding.

The results of endometrial sampling were also similar to **Alliratnam et al.** [8] as they studied 100 cases. Endometrial sampling with Pipelle device was performed in 100 patients followed by formal D and C. Histopathological examination of D&C biopsy showed Proliferative endometrium in 49 cases (49%) ,Secretory endometrium in 29 cases (29%), Disordered endometrium in10 cases (10%) Adenocarcinoma in 2 cases (2%), Polyp in 6 cases (6%) and No report (sample was not obtained) 4 cases (4%). While Pipelle method showed; Proliferative endometrium in 53 cases (53%), Secretory endometrium in 29 cases (29%) , Disordered endometrium in 9 cases (9%) , Adenocarcinoma in 2 cases (2%), Polyp (0%) and No report (sample was not obtained) 7 cases (7%), thus polyp is rarely to be detected by Pipelle in this study and Proliferative endometrium is the commonest cause of peri-menopausal bleeding in this study.

In the study by **Moradan et al.,**[9] on 130 patients there were some differences in the results of histopathological examination of the samples as following; samples obtained by conventional D&C revealed; proliferative endometrium in 51 samples (39.2%), secretory endometrium in 37 samples (28.5%), endometrial hyperplasia without atypia in 24 specimens (18.5%), Atrophic endometrium in 2 samples (1.5%), malignant endometrium in 1 specimens (8%) and undetermined samples in 15 cases (11.5%). While Pipelle revealed; proliferative endometrium in 48 samples (36.9%), secretory endometrium in 36 samples (27.7%), endometrial hyperplasia without atypia in 22 specimens (16.9%), malignant endometrium in 1 specimen (8%) and undetermined samples in 23 cases (17.7 %).

The results were similar to **Abdelazim et al.,** [7]study who found that The histopathological examination of 143 samples obtained by conventional D&C revealed; proliferative endometrium in 37 specimens (25.8%), secretory endometrium in 33 specimens (23%), endometrial hyperplasia without atypia in 49 specimens (31.4%), endometrial hyperplasia with atypia in 4 specimens (2.8%) , endometrial polyps in 3 specimens (2.1%) and malignant endometrium in 10 specimens (7%) .While Pipelle revealed; proliferative endometrium in 37 specimens (25.8%), secretory endometrium in 33 specimens (23%), endometrial hyperplasia without atypia in 45 specimens (31.4%), endometrial hyperplasia with atypia in 4 specimens (2.8%), endometrial polyps in 1 specimens (0.7%) and malignant endometrium in 10 specimens (7%), It also showed that simple endometrial hyperplasia is most common cause of perimenopausal bleeding.

Our study disagrees with **Demirkiran et al.,** [11] whose study on 478 patients. Histopathological examination of D & C biopsy showed normal endometrium in 330 cases(69%) , hyperplasia in 21 cases(4.4%), hyperplasia with atypia in 20 cases (4.2%), focal lesions in 89 cases (18.6%) , atrophy in 9 cases (1.9%) and insufficient in 9 cases(1.9%).
while Pipelle method showed; normal endometrium in 356 cases(74.5%) , hyperplasia in 22 cases (4.6%) , hyperplasia with atypia in 18 cases (3.8%), focal lesions in 59 cases (12.3%), atrophy in 7 cases (1.5%) and insufficient in 16 cases(3.3%)**.**

Regarding validity; our study showed good agreement between Pipelle and D&C in detection of endometrial abnormality. Pipelle had 100% Sensitivity and 97% Specificity in diagnosis of Proliferative endometrium, 100% Sensitivity and 100% Specificity in diagnosis of secretory endometrium, 53.3% Sensitivity and 97% Specificity in diagnosis of Endometrial Polyps, 89% Sensitivity and 100% Specificity in diagnosis of

Disordered proliferative endometrium, 100% Sensitivity and 100% Specificity in diagnosis of Hormone dependent endometrium, 100% Sensitivity and 95% Specificity in diagnosis of Simple endometrial hyperplasia, 100% Sensitivity and 100% Specificity in diagnosis of Atypical endometrial hyperplasia and 100% Sensitivity and 100% Specificity in diagnosis of EEC grade 1.

The results of this study were in accordance with **Chandrakumari et al., [6]** Pipelle sampling method had sensitivity and specificity in Proliferative endometrium (91.9% and 100% respectively), Secretory endometrium (96% and 99.46% respectively), disordered proliferative endometrium (81.1% and 100% respectively), endometrial hyperplasia (100% and 93.98% respectively),), atypical endometrial hyperplasia (100% and 99.5% respectively) and endometrial carcinoma (80% and 100% respectively) and There was significant positive correlation ($p<0.01$) between the two techniques so according to this stude endometrial sampling by Pipelle method had a high sensitivity and negative predictive value in diagnosing abnormal endometrium**.**

In support of our finding's validity of Pipelle in **Alliratnam et al., [8]** studywas as following; Pipelle has sensitivity and specificity in Proliferative endometrium (100% and 92% respectively), Secretory endometrium (100% and 100% respectively), disordered proliferative endometrium (90% and 100% respectively), Adenocarcinoma (100% and 100% respectively), Endometrial polyp (16% and 100% respectively)**.**

Similar results have been observed in **Moradan et al.,[9]** study as following; Pipelle has sensitivity and specificity in Proliferative endometrium (94.4% and 100% respectively), Secretory endometrium (97.4% and 100% respectively), Simple endometrial hyperplasia without atypia (92.3% and 100% respectively), Endometrial cancer (100% and 100% respectively), Atrophic Endometrium (50% and 100% respectively)**.**

Our results are also consistent to somehow with**Abdelazim et al., [7]** study results as Pipelle showed sensitivity and specificity in Proliferative endometrium (100% and 100% respectively), Secretory endometrium (100% and 100% respectively), Endometrial hyperplasia (100% and 100% respectively), Endometrial carcinoma (100% and 100% respectively), Endometrial polyp (60% and 100% respectively)**.**

On the other hand, the current study disagrees with **Demirkiran et al., [11]**as theyreported 67% sensitivity rate for Pipelle biopsy in detection of endometrial hyperplasia which was lower than our study**.** Consideration of different age groups as inclusion criteria in this and others study is the cause of differences. The other probable cause is difference in curette and Pipelle that is used by different studies.

Goel and Mittal, [12]who conducted a study on 200 patients suffering with abnormal uterine bleeding. They found Histological findings of the endometrial obtained by pipellle method showed endometrial hyperplasia (44%) was most common followed by proliferative phase (16%), secretary phase (12%) and proliferative endometrial phase (12%). While, endometrial carcinoma and choriocarcinoma were recorded in 2.5% and 1% cases. On the other hand, proliferative phase, secretary phase, endometrial phase and proliferative endometrial phase were observed in 17.5%, 13%, 39.5% and 15% correspondingly. Endometrial carcinoma and choriocarcinoma detected in 4% and 1.5% patients. Results of the present study showed that pipelle method of endometrial sampling is equally effective to its contemporary method D & C. Moreover, this technique is more convenient as it can be performed outdoor during routine examination. In addition there is no need of anaesthesia for pipelle method like D & C.

These findings of our study is well supported by previous medicine of **Rachamallu et al.** [13] as they observed pipelle technique for endometrial sampling in carcinoma and atypical hyperplasia was an effective

V. Conclusion:

Pipelle is an outpatient procedure, avoiding general anesthesia along with its associated complications, does not require operation theatre space or staff, less painful, more cost effective and obtains an adequate sample with reliable histopathology results when compared with D&C.

- Pipelle had high sensitivity and specificity for diagnosis of proliferative endometrial, secretory endometrium, hormone dependent endometrium, simple endometrial hyperplasia, atypical hyperplasia and EEC grade 1.
- However, it would have low sensitivity for diagnosis of endometrial polyp and disordered proliferative hyperplasia.

VI. Recommendation

- Regarding ability to perform the biopsy sampling by pipelle device as an ambulatory procedure and without need to anesthesia and with less duration and costs, use of this device instead of D&C is recommended
- Pipelle can miss focal lesions like polyps. Therefore, negative biopsy in a symptomatic patient must necessarily be followed by other diagnostic methods such as D&C or hysteroscopy directed biopsy.

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