

Analyse the Efficacy of Pipelle Biopsy in Diagnosing the Causes of Abnormal Uterine Bleeding – Endometrial DiseaseSonal Kulshreshtha¹, Niharika Pandey², Megha Bandil³, Vaishali Singh⁴¹Professor, Department of Obstetrics & Gynecology, G.R. Medical College & J.A. Group of Hospitals, Gwalior, M.P.²M.S., Senior Resident, Department of Obstetrics & Gynecology, G.R. Medical College & J.A. Group of Hospitals, Gwalior, M.P.³Assistant Professor, Department of Obstetrics & Gynecology, G.R. Medical College & J.A. Group of Hospitals, Gwalior, M.P.⁴M.S., Senior Resident, Department of Obstetrics & Gynecology, SRVS Medical College, Shivpuri, M.P.

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Corresponding author: Dr. Vaishali Singh

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Abstract:**Introduction:** Abnormal uterine bleeding (AUB) is a common condition affecting a significant number of women. It is crucial to identify the underlying causes of AUB, particularly endometrial disorders, as they can lead to serious complications. Endometrial sampling, such as the Pipelle biopsy, is a widely used and effective diagnostic tool for evaluating AUB.**Objective:** The objective of this study was to analyze the efficacy of Pipelle biopsy in diagnosing the causes of abnormal uterine bleeding, specifically endometrial disease.**Materials and Methods:** A prospective interventional study was conducted at the Department of Obstetrics and Gynecology, Kamla Raja Hospital, Gwalior (M.P.). The study included 100 women aged over 30 years or presenting with postmenopausal bleeding. The Pipelle biopsy procedure was performed, and clinical features, ultrasound findings, and histopathology results were analyzed.**Results:** The study participants were divided into age groups, with the highest number of individuals experiencing abnormal uterine bleeding in the 40-49 years age group. Obesity was found to be associated with a higher risk of abnormal uterine bleeding. Pipelle biopsy findings revealed that proliferative endometrium was prevalent in obese participants, while secretory endometrium was more common among overweight participants. Obesity was identified as a risk factor for various endometrial pathologies.**Conclusion:** This study highlights the importance of age and body mass index (BMI) in the evaluation of abnormal uterine bleeding. Pipelle biopsy was effective in diagnosing endometrial diseases associated with AUB. The findings emphasize the need for considering age and BMI when assessing the causes of abnormal uterine bleeding and highlight the role of Pipelle biopsy as a valuable diagnostic tool in gynecological practice.This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

Abnormal uterine bleeding includes any disturbance in regularity, frequency, duration or volume of menstrual flow and non-menstrual disturbances of any cause[1]. About 9-30% of reproductive age group women have menstrual irregularities requiring medical evaluation[2]. This proportion can rise up to 70% in peri and postmenopausal women. It also accounts 2/3rd cases of hysterectomy.[2]

AUB that occurs in context of a structurally normal uterus with regular menstrual cycles without the evidence of coagulopathy is likely to have an underlying endometrial cause. Endometrial disorders are primarily due to dysfunction of local endometrial hemostasis. It is extremely important to rule

out endometrial hyperplasia, especially in the perimenopausal women. Endometrial lesions might present with inter-menstrual spotting and/or prolonged spotting[3].

Endometrial sample is a frequent and easy, cost-effective tool to evaluate the abnormal uterine bleeding. Endometrial biopsy is safe and well accepted valuable office based diagnostic tool. The Pipelle endometrial sampler can be used without cervical dilatation in the outpatient department, and it causes minimum discomfort.

It should be reserved for those patients with only a minimal risk for endometrial carcinoma, hyperplasia, and polyps.[4-6]

Thus aim of the study is to analyse the efficacy of pipelle biopsy in diagnosing the causes of abnormal uterine bleeding.

Objective

To analyze the efficacy of pipelle biopsy in diagnosing the causes of abnormal uterine bleeding – endometrial disease.

Material and Methods

Study Place: Department of Obstetrics and Gynaecology, Kamla Raja Hospital, Gwalior (M.P.) Study Type: Prospective Interventional Study

Sample Size: 100

Study Duration: 2 years (Analysis of biopsy outcome – sensitivity and specificity from Oct.2019 to Sep. 2021)

Inclusion Criteria

- Women aged >30 years.
- Women presenting with postmenopausal bleeding.

Exclusion Criteria

- Women aged <30 years.
- Women unwilling to undergo the procedure.
- Patients with active pelvic inflammatory diseases
- Expenditure:
- No financial burden on the patient.
- Investigator bears the cost of the curette.

Procedure

Tools Used

- Proforma for collecting clinical information, history, and examination data.
- Well-informed written consent.
- Ultrasound for measuring endometrial thick-

ness.

- Procedure settings: Outpatient department (OPD) and inpatient department examination room.

Technique

The procedure takes 1-2 minutes. After obtaining informed consent and ensuring aseptic conditions, the patient is positioned dorsally, and the posterior vaginal wall is retracted with a Sims speculum to visualize the cervix. Xylocaine 10% is sprayed locally over the cervix. The anterior lip of the cervix is held with a tenaculum at the 12 o'clock position, and traction is applied. The Pipelle suction curette is introduced into the uterine cavity until resistance is felt, with the tip reaching the uterine fundus. Graduation 4 indicates entry into the uterine cavity. Graduation 7 is usually reached, except in cases of cervical obstruction. Negative pressure is generated by pulling out the piston. The curette is slowly swept back and forth along with rotations to perform a comprehensive uterine cavity curettage, collecting the sample via suction. The collected sample is sent for histopathology reporting to the Department of Pathology using formaldehyde.

Statistical Analysis

Data were compiled in an Excel sheet and analyzed using SPSS software version 2.0. Categorical data were described using frequency and percentage, while continuous data were presented as mean and standard deviation. Clinical features, ultrasound findings, endometrial histopathology obtained by pipelle biopsy, and hysterectomy/D&C results were analyzed in terms of frequency and percentage.

Results

Table 1: Age wise distribution of study participants

Age Group	Frequency	(%)
30-39 Years	29	29%
40-49 Years	39	39%
50-59 Years	24	24%
≥60 Years	8	8%
Total	100	100 %
Mean±SD	44.63±9.52	

Out of the 100 participants included in the study, the highest number of individuals (39 participants) experiencing abnormal uterine bleeding belonged to the age group of 40-49 years. The age group of 30-39 years had the second-highest number of participants (29 individuals), while the age group of over 60 years had the fewest participants (8 individuals).

Table 2: Distribution of study participants according to BMI

Parity	Frequency	(%)
<18.5 (underweight)	0	0%
18.5-22.9 (Normal)	33	33%
23-24.9 (overweight)	23	23%
≥25 (obese)	44	44%
Total	100	100%
Mean±SD	24.64±2.83	

A higher percentage of patients (44%) with a body mass index (BMI) greater than 25 were observed to be at a higher risk for abnormal uterine bleeding (AUB) compared to patients within the normal BMI range (33%). Among the study participants, 23% were classified as overweight. None of the participants were found to be underweight.

Table 3: Association between BMI and Pipelle Biopsy findings

Pipelle Biopsy	Normal	Overweight	Obese	Grand Total
Secretory Endometrium	10	5	7	22
Proliferative Endometrium	3	4	10	17
Scanty Tissue	6	1	8	15
SHE without Atypia	2	7	3	12
Deficient secretory phase	1	1	3	5
CNSI	3	0	1	4
Endometritis	0	3	1	4
SCC	1	0	3	4
NKSCC	1	0	2	3
Squamous Metaplasia	1	1	1	3
Cystic Glandular Hyperplasia	1	0	1	2
Endometritis+Proliferative Endo.	0	1	1	2
SCC+Squamous Metaplasia	2	0	1	3
Adenocarcinoma+SEH with atypia	0	0	1	1
CNSI+Proliferative Endo.	0	0	1	1
Cystic Glandular Hyperplasia + Proliferative Endo	1	0	0	1
Senile endometrium	1	0	0	1
Grand Total	33	23	44	100

Out of 100 participants, 44 were obese, 23 were overweight, and 33 had a normal BMI. Among the obese participants, chronic non-specific endometritis had the highest incidence (18%), followed by simple endometrial hyperplasia without atypia (13.6%), proliferative endometrium (13.6%), and endometritis (13.6%). Adenocarcinoma was found in 2.2% of obese patients and SCC in 9.1%. Secretory endometrium was diagnosed in 30.4% of

overweight patients. In the normal BMI group, the most common finding was chronic non-specific endometritis (30.3%), followed by secretory endometrium (27.2%). Among patients with chronic non-specific endometritis, 38% were obese. The majority of participants with simple endometrial hyperplasia without atypia, proliferative endometrium, and endometritis were in the obese group (50%, 60%, and 66.6% respectively).

Table 4: Distribution of study participants according to Pipelle Biopsy report Finding

Pipelle Biopsy Report Finding	N	%
Secretory Endometrium	22	22%
Proliferative Endometrium	21	21%
Scanty Tissue	15	15%
SEH without Atypia	12	12%
SCC	7	7%
Squamous Metaplasia	6	6%
Endometritis	6	6%
Deficient secretory phase	5	5%
Cystic Glandular Hyperplasia	4	4%
CNSI	4	4%
NKSCC	3	3%
SEH with atypia	1	1%
Adenocarcinoma	1	1%
Senile endometrium	1	1%
Grand Total	100	100%

Out of 100 participants, 44 were obese, 23 were overweight, and 33 had a normal BMI. In pipelle biopsy findings, the highest prevalence among the obese group was proliferative endometrium

(22.7%), followed by scanty tissue (18.2%) and secretory endometrium (15.9%). No cases of senile endometrium or cystic glandular hyperplasia + proliferative endometrium were observed. Adenocarci-

noma was found in 2.2% of obese patients, and SCC in 13.6% (SCC>NKSCC>SCC + squamous metaplasia). Among overweight patients, 21.7% had a diagnosis of secretory endometrium. In the normal BMI group, the most common finding was secretory endometrium (30.3%), followed by scanty tissue (18.2%). Obesity was identified as a high-risk factor for endometritis, SCC, NKSCC, cystic glandular hyperplasia, SEH with atypia, and adenocarcinoma.

Discussion

In our study, among 100 study participants who presented with abnormal uterine bleeding, mean age was 44.63 ± 9.52 years with a range of 30-75 years. The age group of 40-49 years had maximum no. of participants (39%) followed by 30-39 years age group (29%), and least participants were in the age group of >60 years (08%).

This was comparable with study by Sanam M. et al.,[7] the mean age of the study group was 46.19 ± 6.45 years ranging from 37 to 57. In the study by Hwang et al.,[8] the mean age of the study group was 49.0 ± 6.5 . In the study by Behnamfar F. et al.,[9] the mean age of the study group was significantly higher 60.22 ± 9.86 years.

In our study, among 100 study participants who presented with abnormal uterine bleeding, mean BMI was 24.64 ± 2.83 within a range of 20.7-30.9. Patients with body mass index of ≥ 25 obese (44%) were found to be more prone for AUB as compared to patients with normal BMI range 18.5-22.9 (33%). Patients underlying in the overweight age group BMI 23- 24.9 were 23%. None of the study participants were underweight. The p value is 0.292 which is statistically insignificant in our study.

This was comparable with study by Hwang et al.,[8] mean BMI of the study group was 24.8 ± 4.6 . In the study by Sanam M. et al.,[7] eighteen cases (13.8%) were normal weight (BMI;18-25), 108 subjects (83.1%) were overweight (BMI; more than 25-30), and 4 subjects (3.1%) were obese (BMI; more than 30).

Among normal BMI, most common finding was CNSI (30.3%) followed by secretory endometrium (27.2%). Among the patients with CNSI (n=21), 38% were found to be obese. Among the patients with SEH without atypia, proliferative endometrium and endometritis, most participants lied in obese group (50%, 60%,66.6% respectively).

On the otherhand, when we consider the findings of pipelle biopsy, among the obese, the highest prevalence was of Proliferative endometrium (22.7%) followed by scanty tissue (18.2%), secretory endometrium (15.9%). None of the cases of senile endometrium and Cystic Glandular Hyperplasia+Proliferative Endometrium (0%each). Adeno-

carcinoma was found in only 2.2% patients with obesity and SCC in 13.6% (SCC > NKSCC > SCC + squamous metaplasia). Among the overweight patients, 21.7% were diagnosed with secretory endometrium. Among normal BMI, most common finding was secretory endometrium (30.3%) followed by scanty tissue (18.2%).

Conclusion

In conclusion, the study included 100 participants, with the highest number of individuals experiencing abnormal uterine bleeding found in the age group of 40-49 years. Among the BMI categories, obesity was associated with a higher risk of abnormal uterine bleeding. Pipelle biopsy findings revealed that proliferative endometrium was prevalent in the obese group, while secretory endometrium was more common among overweight participants. Obesity was identified as a risk factor for various pathologies, including endometritis, SCC, NKSCC, cystic glandular hyperplasia, SEH with atypia, and adenocarcinoma. These findings emphasize the importance of considering age and BMI in the evaluation of abnormal uterine bleeding.

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