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ORIGINAL ARTICLE

Pipelle Endometrial Sampling and Morphological Findings in Women with Abnormal Uterine Bleeding

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ABSTRACT

Background: The abnormal uterine bleeding has many causes and consequences in women. The exact causes are described by histology of sample through D&C. Pipple biopsy samples is considered one of the least invasive, OPD setting technique, comparable to D&C.

Objective: To see the adequacy of Pipelle endometrial sampling and morphological findings among women with abnormal uterine bleeding.

Study Design: Cross-sectional descriptive study

Place and Duration of Study: Department of Gynaecology & Histopathology, Shaikh Zayed Hospital Lahore from 1st May to 31st December 2021.

Methodology: Two hundred and thirty seven adult women with AUB recommended for D&C were included. Those with endometrial thickness less than 4mm, having fibroids, with pelvic inflammatory disease, or clotting factor disorders were excluded. Pipelle endometrial sample was taken in Gyne OPD and were examined at Histopathology Department.

Results: 80.0% were sampled adequately through Pipelle. Secondary endometrium was most common in 39.9% followed by proliferative endometrium in 36.2% and chronic endometritis 12.2%. There were 6 cases with carcinoma, 4 (2.1%) with adenocarcinoma and 2(1.1%) squamous cell carcinoma.

Conclusion: Pipelle Endometrial sampling can be considered an effective methods for endometrial sampling.

Keywords: Abnormal uterine bleeding, Pipelle endometrial biopsy, Sample adequacy, Endometrial pathology

INTRODUCTION

Abnormal uterine bleeding (AUB) is described as an abnormality in the parameters of menstrual flow, i.e., frequency, regularity, duration, and volume. 1Itcan occur in women at any age, irrespective of their menstrual status. It is the most frequently observed symptom of endometrial hyperplasia or endometrial carcinoma, therefore women with AUB, especially post-menopausal women, should be screened for these endometrial pathologies.It is categorised into two types, i.e., acute and chronic AUB. Acute is excessive bleeding that requires prompt intervention to avoid further blood loss and can lead to severe anemia, low blood pressure, shock, and even death without immediate treatment and supportive care. 3 Chronic AUB is defined as a disruption in menstrual flow that has lasted at least six months.Its complications include anemia, infertility, and endometrial cancer. 3 Heavy menstrual bleeding (HMB) is another type of AUB, defined as excessive menstrual loss that interferes with the mental, physical, and social quality of life (QoL). 4

AUB causes significant morbidity in 20.0% women at some point during the lifespan.AUB is responsible for significant morbidity in 20.0% of women at some point in their lives.menstrual irregularities are included, the figure rises to 35%.In the United Kingdom (UK), about 1 million women with AUB seek medical advice every year, mostly in general practice. [7] A high prevalence rate of about 11% is seen in a recent study of AUB in Pakistan as per the PALM-COIN classification. [8]

The proliferation of epithelium arising from the endometrial stroma and gland is defined as polyp. It usually remains asymptomatic[5] and due to varied operational definitions, diagnostic tools and populations, its prevalence varies between 7.8% and 34.9.[9,10] The presence of ectopic endometrial stroma and gland in the myometrium is defined as Adenomyosis, termination of pregnancy, increasing parity, caesarian births and uterine curettage are its risk factors[11], and it can cause HMB, dysmenorrhea and infertility.[12]Based on hysterectomy specimen its prevalence ranges between 5.0% and 70.0%.[13] Leiomyoma or fibroids are the most frequent benign tumors among women of reproductive age. It is found in almost 80.0% of all women of peri-menopausal age group.[14] It causes AUB through increasing the surface of endometrium or vascularization in uterine, alteration in contractility pattern of myometrium, and degeneration of myomaetc.[15] Coagulation disorders affect 13% of women with HMB[16]; and the systemic disorders of hemostasis are reported in 90% of women.[17] Ovulation disorders are associated with endocrine disorders such as POCs, hypothyroidism, hyperprolactinemia. Anovulation is also associated with stress, obesity, excess exercise and drugs. AUB has an association with exogenous steroid use. Generally, continuous hormone therapy results in unscheduled bleeding.[18] Normally, a menstrual flow with loss of blood 5-80 mL may occur every 24-38 days and last for 7-9 days.[19] Any structural or non-structural problem of the uterus can affect menstrual cycle and leads to AUB.[20]

AUB can be evaluated by using a number of laboratory investigations but the histological examination of endometrial tissue has a significant role to evaluating the cause of AUB. The endometrial tissue sampling is a recommended first-line screening test among women of age45 years or above and presenting with AUB.[21] Use of Pipelle suction curate has emerged as the commonest method for endometrial sampling[22], with comparable diagnostic accuracy to dilatation and curettage (D&C).[23,24] The Pipelle biopsy for endometriosis (PBEM) is inexpensive, less invasive and can be conducted in outdoor settings, and beyond these benefits it also has a risk of failing to obtain adequate sample.[22] Many procedures of sampling cause anxiety and stress among women[25], but PBEM is being tolerated well by most of the women in comparison to other similar setting techniques.[26]

This study is conducted to see the efficacy of PBEM for acquiring adequate sample in outdoor settings for pathology and to report the morphology of sample taken.

MATERIALS AND METHODS

This cross-sectional study was conducted at the Department of Histopathology in collaboration with Department of Gynecology of Shaikh Zayed Hospital Lahore Pakistan from 1st May 2019 to 8th December 2019.A sample of size 235 was calculated with expected adequacy of PBEM83% to detect the true pathologies [27] with 95% confidence level and 5% margin of error 9% expected iteration rate.All patient of age 18 and above with abnormal uterine bleeding and referred for D&C were taken. Those with endometrial thickness less than 4mm, having fibroids, with pelvic inflammatory disease, clotting factor disorders (confirmed by clinical history and ultrasonography) were excluded. The Pipelle endometrial sampling was carried out in the gynecological outpatient clinic of the SZH. The endometrial tissues obtained were fixed in 10% buffered formalin and transported to the pathology laboratory for histopathologicalanalysis.Biopsy failure was defined as the inability

to access the uterine cavity or the inability to obtain a sufficient amount of tissue for histological examination. Data were managed through Statistical Package for Social Sciences (SPSS) version 20.

RESULTS

The average age of patients was 33.1±10.8 years. Only 12(5.1%) were nulliparous, the mean uterus thickness was 6.8±1.2 mm and 77.9% had bulky uterus (Table 1).

The women mostly (47.2%) presented with indication of menorrhagia, followed by poly-menorrhagia, metrorrhagia, post-menopausal bleeding and irregular bleeding and few had common symptoms as well (Fig. 1). The sample taken through Pipelle was found adequate in 188 (80.0%) of the cases and for remaining it was found inadequate(Fig. 2).

Table 1: The basic characteristics of cases included in study

Variable	No.	%
Age (years)		
≤ 30	142	60.4
31 - 40	49	20.9
41 - 50	23	9.8
51 - 60	13	5.5
61+	8	3.4
Parity		
Zero	12	5.1
1	25	10.6
2	58	24.7
3	58	24.7
4	47	20.0
5	20	8.5
6	9	3.8
7	2	0.9
8	4	1.7
Uterus thickness (mm)		
≤ 5.50	46	19.6
5.51 - 7.25	115	48.9
> 7.25	74	31.5
Bulky uterus		
Yes	183	77.9
No	52	22.1

Table 2: Morphological Findings on the sample taken through the Pipelle ES (n=188)

Morphological findings	No.	%
Secondary Endometrium	75	39.9
Proliferative Endometrium	68	36.2
Chronic Endometritis	23	12.2
Atrophic Endometrium	7	3.7
Endometrial Hyperplasia Without Atypia	5	2.7
Endometrial Hyperplasia With Atypia	6	3.2
Adenocarcinoma	4	2.1
Squamous Cell Carcinoma	2	1.1
Other findings	2	1.1

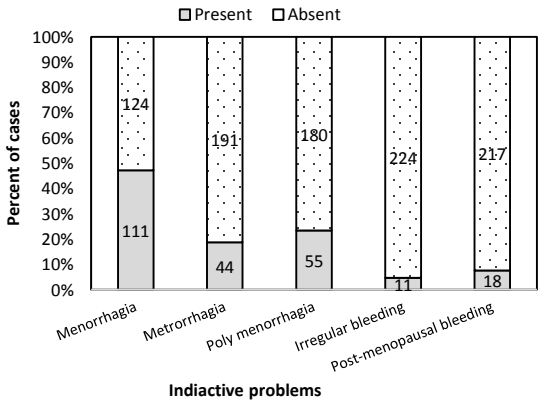

Fig. 1: Indicative problems of women included in study

From these adequate samples from the Pipelle ES the finding of secondary endometrium was most common in 39.9% followed by proliferative endometrium in 36.2% and chronic endometritis 12.2%. There were 2.7% cases with endometrial hyperplasia without atypia and 3.2% with atypia. There were 6 cases with carcinoma, 4 (2.1%) with adenocarcinoma and 2(1.1%) squamous cell carcinoma. Among others, one each with chronic cervicitis with focal squamous metaplasia and infarcted decidual tissue with chorionic villi were also diagnosed through sample of the Pipelle ES. Few of them also had multiple morphologies, one having secondary endometrium along proliferative and three had Chronic and proliferative endometrium (Table 2).

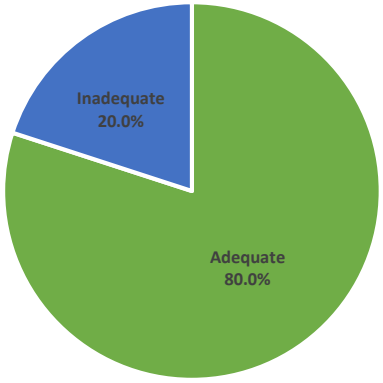

Figure 2: Distribution of cases with adequacy of Pipelle sample

DISCUSSION

AUB is the most common symptom of endometrial hyperplasia or carcinoma, therefore it has been recommended that women with AUB should be screened for these endometrial pathologies.[2]Though, the D&C method is the gold standard to obtain endometrial sample for the diagnosis of endometrial pathology. But, the requirements of hospital admission and general anesthesia, risk of complications and relatively higher cost has made this ES method less favorable.[28] On the other hand, the Pipelle ES method with performance similar to the D&C[29] is getting more popular as it is performed in outpatient department without any anesthesia, has comparatively lower cost and good patient acceptability.[30]

In the present study, the distribution of study population into different age-groups revealed that 81.3% women were of age 40 years or below, 9.8% of 41-50 years, and 8.9% of age above 50 years. When compared with age distribution reported by Rizvi et al., the present study had comparatively higher proportions for pre-menopausal group (81.3% vs 64.8%), lower for peri-menopausal group (9.8% vs 25.1%), and comparable for post-menopausal group (8.9% vs 10.0%).[31]Differently a 5-times higher proportion for peri-menopausal group was reported by Mathew et al[30] and others[32]; and for post-menopausal group by Masood et al.[33] Another study by Ashfaq et al[34] had a large proportion of women (72.7%) of age-group 46-55 years.

In the present study, overall mean endometrial thickness was 6.8±1.2 mm, 80.4% women were found to have thickness of endometrium >5.5 mm and 77.9% women with bulky uterus. Whereas, the thickness of endometrium >4 mm among menopausal women emphasizes on the need of ES to exclude malignancy.[35] In the present study, the underlying causes of AUB included menorrhagia in 47.2% women, followed by poly-menorrhagia in 23.4% women, metrorrhagia in 18.7% women, post-menopausal bleeding in 7.6% women and irregular bleeding in 4.7% women. Surprisingly, Ashfaqetal[34] had 16-times higher rate of women with irregular vaginal bleeding than of present study (78.0% vs. 4.7%).

In the present study, the rate of sample adequacy for the Pipelle ES was 80.0%. It was slightly higher but consistent with adequacy rate 77.9% by Ilavarasietal[36] and 77.2% by Tanriverdiet al.[37] However, other studies reported sample adequacy rate for the Pipelle ES was markedly higher than of present study. The Pipelle ES adequacy rate was 96.0% by Mathew etal[30], 96.8% by Masood et al[33], 97.0% by Ashfaq et al[34], 97.9% by Abdelazim et al[38], and 98.0% by Polena et al.[39]

In the present study, the secondary endometrium was the most common endometrial pathology diagnosed in 39.9% women, followed by proliferative endometrium in 36.2%, and chronic endometritis in 12.2%. Similarly, Masood et al. reported that the secretory endometrium 38.9% was the most frequent histopathological finding [33]. Oppositely, proliferative endometrium was the most common histopathological pattern in 46.0% women followed by secretory endometrium in 34.0% women.[40] Other studies were also in concordance with the finding that proliferative endometrium was the most frequent endometrial pathology.[30,36]

In the present study, the frequencies of overall, endometrial hyperplasia and atypical hyperplasia were 5.9%, 3.2% and 2.7%, respectively. Similar overall incidence of endometrial hyperplasia 6.0% was reported by Ashfaqetal.[34]

In the present study, the frequencies of overall endometrial carcinoma, adenocarcinoma and squamous cell carcinoma were 3.2%, 2.1% and 1.1% respectively. Similar rates of endometrial carcinoma were reported by Mathew et al[30] (3.0%) and Singh et al[41] (2.6%). However, a little higher rate 5.6% was reported by Masood etal.[33] Surprisingly, a 4-times higher incidence 12.0% was reported by Ashfaq et al.[34]

CONCLUSION

Keeping in view all the above it can be concluded that the Pipelle is an effective tool for adequate sampling in at least 80.0% of the cases. It is recommended that it should be used for endometrial sampling in OPD setting to save time and reduce economic burden of patient for diagnosis.

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