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Original Research Article

Comparison of pipelle endometrial sampling with Dilatation and Curettage among patients with abnormal uterine bleeding at a tertiary care hospital

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ABSTRACT

Background: Abnormal uterine bleeding is a common debilitating condition and may be due to benign as well as malignant causes. Management relies on histological evaluation of endometrial sample obtained via biopsy. The aim of this study was to compare pipelle endometrial sampling with traditional dilatation and curettage.
Methods: This was a cross-sectional study involving 45 patients over the age of 40 years. Endometrial sampling was performed by the Pipelle device followed by D&C and samples were sent to a pathologist, who was blinded to the methods of sampling for histopathology assessment. The histopathology reports of the Pipelle sample were compared with that of the D&C sample and the D&C report was considered as the gold standard.
Results: 97.8% of the samples obtained by conventional D&C, while 95.6% of the samples obtained by the Pipelle device were adequate for histopathological examination. The most common finding in both Pipelle sampling and D&C was proliferative endometrium followed by secretory and disordered endometrium. Polyp was only picked up by D&C, whereas the Pipelle sampling failed to do so. Failure of obtaining a sample was reported in 4.4% of the patients in Pipelle sampling whereas it was 2.2% in D&C. Adenocarcinoma was seen in two patients and it was picked by both D&C and Pipelle sampling.
Conclusions: Endometrial sampling using Pipelle is an accessible and safe method for outpatient tissue diagnosis, providing a cost-effective alternative to D&C.

Keywords: Abnormal uterine bleeding, Endometrial sampling, D and C, Pipelle

INTRODUCTION

Abnormal uterine bleeding represents more than 70% of all outpatient gynecological consultations.[1] It may be due to infection as well as due to benign or malignant conditions. It occurs when a woman experiences a change in her menstrual blood loss, or if the degree of blood loss or vaginal bleeding pattern differs from that experienced by the age-matched general female population. The definition of normal menstruation and menstrual cycle is based on the regularity, frequency, amount, and duration of menstrual flow. Both structural and non-structural causes can lead to abnormal uterine bleeding.[2,3] Structural causes include endometrial polyps, adenomyosis, fibroids and malignancies (PALM) while non-structural causes include coagulopathy, ovulatory dysfunction, endometrial and iatrogenic causes (COEIN). Histopathological assessment through endometrial sampling is thus essential for the evaluation of abnormal uterine bleeding.

Dilatation and curettage (D&C) has conventionally been considered the gold standard for endometrial sampling. However, it has few limitations like incomplete curettage, increased risk of infection and perforation and has to be performed under anaesthesia.[4,5] The introduction of alternative methods, such as the Pipelle device, addresses

these concerns. The Pipelle is a cost-effective outpatient option and has gained popularity for its simplicity compared to D&C. Nevertheless, concerns persist regarding sample adequacy and the potential oversight of focal intrauterine lesions.[6]

The current study was aimed to assess and compare the diagnostic accuracy of Pipelle endometrial sampling with conventional D&C in patients experiencing abnormal uterine bleeding.

METHODS

This was a cross-sectional study conducted in LD Hospital, GMC Srinagar from 20 November 2023 to 24 April 2024 involving 45 patients aged over 40 years with abnormal uterine bleeding after proper informed consent. Detailed clinical assessment of the patients was followed by transvaginal sonography and laboratory investigations (CBC, coagulation profile, prolactin, thyroid and liver function tests). Patients with local gynaecological cause or possibility of pregnancy or history of contraception or endometrial thickness <4 mm were excluded from the study. Patients included in this study were euthyroid with normal liver function tests, normal activated partial thromboplastin time (APTT) and normal platelet count. The endometrial sampling was performed by the Pipelle device. The patient was transferred to operative table and Pipelle was introduced without performing cervical dilatation and withdrawn outside the uterus with a rotatory movement to get the sample which was labelled as sample A. Then D&C was done under regional anaesthesia and the obtained sample after D&C was labelled as sample B. Both samples were sent to a pathologist, who was blinded to the methods of sampling and patients' medical history for histopathology assessment. The histopathology reports of the Pipelle sample were compared with that of the D&C sample and the D&C report was considered as the gold standard.

RESULTS

The mean age of the study population was 43.7 years and among them heavy menstrual bleed and polymenorrhoea (frequent menstrual bleeding) was the chief complaints and the mean duration of flow in them was 9.8 days. The average parity among the women with AUB was 2.9 and their mean endometrial thickness was 7.2 mm (Table 1).

The comparison of the HPE results obtained by pipelle sampling and D&C is shown in table 2. The most common finding in both pipelle sampling and D&C was proliferative endometrium followed by secretory and disordered endometrium. Polyp was only picked up by D&C, whereas the Pipelle sampling failed to do so. Failure of obtaining a sample was reported in 4.4% of the patients in Pipelle sampling whereas it was 2.2% in D&C. Adenocarcinoma was seen in two patients and it was picked by both D&C and Pipelle. Hyperplasia with atypia was seen in 3 patients by D&C while only in 2 patients by Pipelle.

Table 1: Characteristics of study patients.

	Mean	Standard deviation
Age (in years)	43.7	5.1
Duration of flow (in days)	9.8	2.5
Age of menarche (in years)	13.9	0.6
Age at marriage (in years)	26.6	1.5
Parity	2.9	0.67
Endometrial thickness (in mm)	7.2	1.1

Table 2: Comparison of HPE results obtained by conventional D & C and pipelle device.

HPE report	Pipelle	D and C
Proliferative endometrium	19	16
Secretory endometrium	13	12
Disordered endometrium	7	8
Adenocarcinoma	2	2
Hyperplasia with atypia	2	3
Polyp	0	3
No report (sample was not obtained	2	1

DISCUSSION

Previous research supports the accuracy and acceptability of Pipelle as an outpatient sampling technique compared to D&C.[7-9] Our study aligns with these findings, demonstrating high sensitivity and specificity for Pipelle, making it a reliable screening procedure for obtaining endometrial samples in patients with abnormal uterine bleeding.

Mechado and colleagues reviewed 1535 reports of endometrial biopsies taken from outpatients using the Cornier Pipelle, in pre- and postmenopausal patients with abnormal vaginal bleeding, to establish the accuracy of endometrial biopsy with the Cornier Pipelle in the diagnosis of endometrial cancer and atypical endometrial hyperplasia. The Cornier Pipelle was 84.2% sensitive, 99.1% specific, 96.9% accurate, with 94.1% PPV and 93.7% NPV for detection of endometrial carcinoma and atypical hyperplasia and they concluded that endometrial biopsy taken with the Cornier Pipelle is an accurate method for diagnosis of endometrial cancer and its precursor atypical hyperplasia.[10]

A meta-analysis to assess the accuracy of endometrial sampling devices in detection of endometrial carcinoma and atypical hyperplasia was done by Dijkhuijen et al.[11] They concluded that the endometrial biopsy with the Pipelle is superior to other endometrial techniques in detection of endometrial carcinoma and atypical hyperplasia in pre- and postmenopausal women.

In the study by Abdelazim et al, the pipelle and D&C were compared and the authors reported 100% sufficient sample in conventional D&C and 97.7% for pipelle that is higher by both methods in comparison to our study.[12] It may be due to different techniques and instruments and also pathologist's experience. In a study by Naderi and colleagues [the] sufficiency rates were 91.6% and 98.3% by pipelle and D&C respectively.[13] These are higher sufficient rates than our study. The study by Mousavifar et al reported 94% sufficiency rate for pipelle samples that is more than results of this study.[14] The other studies (Behnamfar et al, Fakhar et al, Bano et al) were also reported better rates for both pipelle and D&C in comparison with our study.[15]

A significant number of cases showed disordered proliferative pattern in this study. Disordered proliferative pattern lies at one end of the spectrum of proliferative lesions of the endometrium that includes carcinoma at the other end with intervening stages of hyperplasias. The term ''disordered proliferative endometrium'' has been used in a number of ways and is somewhat difficult to define. It denotes an endometrial appearance that is hyperplastic but without an increase in endometrial volume. [16] It also refers to a proliferative phase endometrium that does not seem appropriate for any one time in the menstrual cycle, but is not abnormal enough to be considered hyperplastic. Disordered proliferative pattern resembles a simple hyperplasia, but the process is focal rather than diffuse. A higher incidence of disordered proliferative pattern was found in our study as compared to Cho Nam-Hoon et al.[17]

In the present study incidence of carcinoma endometrium was more common in the 51-60 years age group. The result of this study was almost similar to data mentioned by Yusuf et al and Escoffery et al in their study.[18] A study done by Dangal et al in Nepal documented a lower incidence of endometrial cancer in Nepalese woman attributing it to the practice of early childbearing and multiparty.[19] Possibly, the same factors contributed to a lower incidence of carcinoma in our patients.

Several studies emphasize Pipelle's accuracy in detecting endometrial carcinoma and atypical hyperplasia, contributing to its role as an effective diagnostic method.[10,11] Variability in sufficiency rates between studies may be attributed to differences in techniques, instruments, and pathologist experience.[12,14] The incidence of disordered proliferative patterns in our study suggests its significance in the spectrum of proliferative lesions, potentially representing an intermediary stage between hyperplasia and carcinoma.

CONCLUSION

Endometrial sampling using Pipelle is an accessible and safe method for outpatient tissue diagnosis, providing a cost-effective alternative to D&C. With high sensitivity and specificity, particularly for detecting hyperplasia and malignancy, Pipelle can be considered a first-line investigation for obtaining adequate endometrial samples in patients experiencing abnormal uterine bleeding. Its ease of use, better patient compliance, and absence of complications associated with D&C further support its utility in clinical practice.

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