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Research Article

Diagnostic value of pipelle endometrial sampling in comparison with dilatation and curettage among patients with abnormal uterine bleeding

Alliratnam A.S.¹, Senthil Priya S.¹, Shankar R.^{2*}

¹Department of Obstetrics & Gynaecology, VMKVMC, Salem, Tamil nadu, India

²Department of Community Medicine, VMKVMC, Salem, Tamil nadu, India

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*Correspondence:

Dr. Shankar R.,

E-mail: shnkr_radhakrishnan@yahoo.com

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ABSTRACT

Background: Dilatation and curettage (D&C) is the gold standard for endometrial sampling, but 60% of cases less than half of the uterine cavity is curetted, with the added risk of general anesthesia, infection and perforation, whereas pipelle does not require a syringe or pump nor require general anesthesia or cervical dilatation and permits almost painless endometrial sampling. The aim and objectives of the study was to determine the reliability of pipelle device in acquiring an adequate & representative endometrial sample comparing to D&C and to comparing the result of histopathological diagnosis of pipelle sampling with D&C.

Methods: A cross-sectional study was done at Vinayaka Missions Medical College Salem between September 2014-August 2015. 100 cases of AUB attending the outpatient clinic in the department of obstetrics & gynecology were included in the study. Endometrial sampling with pipelle device was performed in 100 patients followed by formal D&C.

Results: For obtaining the endometrial sample the sensitivity of pipelle sampling was 97% and the specificity was 100% when compared with D&C sampling. The diagnosis made by the HPE report by the sample obtained from pipelle sample had shown a very high sensitivity, specificity, positive predictive value and negative predictive value, except for the diagnosis of endometrial polyp which the pipelle sample was not able to detect.

Conclusions: The pipelle is a safe technique of endometrial biopsy for getting an adequate endometrial sample for histopathology, with high sensitivity and specificity for endometrial pathologies and endometrial carcinoma.

Keywords: Pipelle endometrial sampling, D&C, AUB, Biopsy

INTRODUCTION

Abnormal uterine bleeding accounts for more than 70% of all gynaecological consultations in the peri and postmenopausal years.¹ The bleeding could be a sign of an underlying localized condition including infection, benign and malignancy. Abnormal uterine bleeding is a common reason for gynaecological consultation. 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. Normal menstruation and normal menstrual cycle are defined according to the regularity, frequency, amount, and

duration of menstrual flow. Abnormal uterine bleeding can occur due to non-structural and structural causes.^{2, 3} It is an important presenting symptom of uterine cancer. Endometrial sampling for histopathology is important in the assessment of abnormal uterine bleeding.

Dilatation & curettage (D&C) is the gold standard for endometrial sampling, but in 60% of cases, less than half of the uterine cavity is curetted, with the added risk of general anaesthesia, infection and perforation.^{4,5} This has led to the advent of new and simple methods for endometrial sampling. Various devices are on the market nowadays, including the Pipelle device.^{6,7} The Pipelle can be used on an outpatient basis and is cost effective

compared with D&C.⁸ However, there are still concerns regarding the adequacy of the sample obtained, non-sampling of focal intrauterine lesions.⁶

In this context the present study was conducted to assess and compare the diagnostic accuracy of Pipelle endometrial sampling with conventional D&C in patients with abnormal uterine bleeding.

METHODS

A cross sectional study was conducted on 100 patients with abnormal uterine bleeding over 40 years of age after getting clearance from the institutional ethics committee. 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 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. The patients were then transferred to the operative theatre for D&C 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 was compared with that of the D&C sample and the D&C report was considered as the gold standard.

RESULTS

Table 1: Characteristics of the study population.

Variables	Mean	SD
Age (in years)	42.22	6.65
Duration of bleeding PV (in months)	8.23	2.36
Duration of flow (in days)	8.5	3.25
Age of menarche (in years)	12.65	0.91
Age at marriage (in years)	20.63	2.8
Parity	2.7	1.2
Endometrial thickness (in mm)	6.86	2.04

The basic study characteristics mean and standard deviation of the study population was reflected in table 1. The mean age of the study population was 42.2 years and among them menorrhagia and polymenorrhoea was the chief complaints, the mean duration of bleeding per vagina was 8.23 months and the mean duration of flow in them was 8.5 days. The average parity among the women with DUB was 2.7 and their mean endometrial thickness was 6.86 mm.

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

HPE report	Pipelle sampling (n=100)	D & C (n=100)
Proliferative endometrium	53	49
Secretory endometrium	29	29
Disordered endometrium	9	10
Adenocarcinoma	2	2
Polyp	0	6
No report (sample was not obtained)	7	4

Table 3: Sensitivity, specificity, PPV and NPV of The HPE report of pipelle sampling in comparison with D & C.

Proliferative endometrium	Sensitivity	100%
	Specificity	92%
	Positive predictive value	93%
	Negative predictive value	100%
Secretory endometrium	Sensitivity	100%
	Specificity	100%
	Positive predictive value	100%
	Negative predictive value	100%
Disordered endometrium	Sensitivity	90%
	Specificity	100%
	Positive predictive value	100%
	Negative predictive value	99%
Adenocarcinoma	Sensitivity	100%
	Specificity	100%
	Positive predictive value	100%
	Negative predictive value	100%
Polyp	Sensitivity	16%
	Specificity	100%
	Positive predictive value	100%
	Negative predictive value	94%

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 7% of the patients in pipelle sampling whereas it was 4% in D&C. The viability of pipelle sampling in comparison with

D&C is shown in table 3 by calculating sensitivity, specificity, positive predictive and negative predictive value. The sensitivity was 100% for pipelle sampling in detecting proliferative and secretory endometrium and it was 90% for the detection of disordered endometrium, whereas the sensitivity was only 16% in the 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.

DISCUSSION

Many authors concluded that the Pipelle is an accurate and acceptable outpatient sampling technique when compared with D&C.⁹⁻¹¹ In this study; the Pipelle device had 97% sensitivity, 100% specificity and 100% predictive values in obtaining the endometrial sample, also it was 100% accurate for diagnosing proliferative and secretory endometrium and also endometrial carcinoma.

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.¹²

A meta-analysis to assess the accuracy of endometrial sampling devices in detection of endometrial carcinoma and atypical hyperplasia was done by Dijkhuijen et al¹³. 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,¹⁴ 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. It may be due to different techniques and instruments and also pathologist's experience. In a study by Naderi and colleagues¹⁵ the sufficiency rates were 91.6% and 98.3% by pipelle and D & C respectively. These are higher sufficient rates than our study. The study by Mousavifar et al¹⁶ reported 94% sufficiency rate for pipelle samples that is more than results of this study. 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.¹⁷⁻¹⁹

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.²⁰ 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.²¹

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.²² 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 multiparity.²³ Possibly, the same factors contributed to a lower incidence of carcinoma in our patients.

CONCLUSIONS

Endometrial sampling using Pipelle type device is an easy and safe method of getting tissue diagnosis, which can be done as an out-patient procedure. Pipelle is cost-effective and has better patient compliance in addition to the added advantage of no anaesthesia or other procedure complications like perforation compared to D & C.

Thus it can be considered as a first line investigation for getting an adequate endometrial sample for histology in patients with abnormal uterine bleeding with high sensitivity and specificity even for the detection of hyperplasia and malignancy.

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