DOI: https://doi.org/10.53350/pjmhs2023172387

ORIGINAL ARTICLE

Validity of Pipelle Endometrial Sampling in Patients with Abnormal Uterine Bleeding: an Analytical Cross-Sectional Study

SHEHLA CHANNA[1], NAZIA HAIDER[2], ABIDA PERVEEN[3], MEHVISH SUMBLE[4], SHAHNEELA[5], NADIA MEHREEN[6]
[1]*Associate Professor Department of Gynaecology, Liaquat University of Medical and Health Sciences Jamshoro Pakistan*
[2]*Consultant Obstetrician and Gynaecologist, Sandemen Provincial Hospital Quetta Pakistan*
[3]*Consultant Gynecologist & Head of Department Gynecology & Obstetrics Department, Sayed Abdullah Shah Institute of Medical Sciences Sehwan Sharif Pakistan*
[4]*Consultant Obstetrician and Gynaecologist, Dr Ruth KM PFAU Civil Hospital Karachi Pakistan*
[5]*Senior Registrar Department of Gynaecology, Ghulam Muhammad Mahar Medical College Sukkur Pakistan*
[6]*Consultant Obstetrician and Gynaecologist, Sandemen Provincial Hospital Quetta Pakistan*
Corresponding author: Shehla Channa, Email: shehlaraza600@gmail.com

ABSTRACT

Objective: The study's objectives were to evaluate the validity of the pipelle device in obtaining a suitable & representative endometrial sample by contrasting the histopathological outcomes of pipelle sampling with those from dilatation and curettage (D&C).

Study design: An analytical cross-sectional study

Place and Duration: This study was conducted at Liaquat University of Medical and Health Sciences Jamshoro from June 2021 to June 2022

Methodology: The study comprised 100 patients withabnormal uterine bleeding (AUB) who visited the obstetrics and gynecology department's outpatient clinic. Before a formal D&C, endometrial samples were taken from 100 patients using a pipelle device. The sample marked as sample A was obtained by inserting the Pipelle without conducting cervical dilatation and rotating it inside the uterus. The patients were then brought into the operating room for D&C, and the sample that was taken following D&C was designated as sample B

Results: Pipelle sampling exhibited a 97% sensitivity,and a 100% specificity when compared to D&C sampling for obtaining an endometrial sample. With the exception of an endometrial polyp, which could not be detected by the pipelle sample, the Histopathology report's diagnosis using the sample acquired from the pipelle showed very high sensitivity, specificity, positive predictive value, and negative predictive value.

Conclusion: Pipelle endometrial biopsy is a risk-free method of obtaining an appropriate endometrial sample for histopathology. In terms of detecting endometrial abnormalities and endometrial cancer, it has high sensitivity and excellent specificity. An accurate diagnosis of endometrial cancer can be made using a Pipelle endometrial biopsy.

Keywords: sampling, endometrial, abnormal uterine bleeding

INTRODUCTION

In the peri and postmenopausal years, abnormal uterine bleeding accounts for more than 70 percent of all gynecological consultations. (1)The bleeding might be a symptom of localized conditions, such as an infection, a benign disease, or a malignancy. One of the most frequent causes of gynecological consultation is abnormal uterine bleeding. It occurs when a woman's vaginal bleeding pattern or amount is different from the normal for women of the same age group in the female population as a whole. The regularity, frequency, volume, and length of menstrual flow are used to describe normal menstruation and a normal menstrual cycle. There are two possible categories of causes for abnormal uterine bleeding: structural and non-structural. (2) It is a crucial uterine cancer presenting symptom. When evaluating atypical uterine bleeding, endometrial sampling for histopathology is essential. (3)The method of endometrial sampling known as dilatation and curettage is widely regarded as the most reliable and accurate option available. However, in sixty percent of cases, less than half of the uterine cavity is truly curetted, which raises the risk of general anesthesia, infection, and perforation. (4, 5) As a result, new, efficient techniques for sampling endometrium have emerged. The Pipelle device is one of many that are available today. (6)In comparison to D&C, the Pipelle can be used as an outpatient procedure. However, there are still questions about the sample's suitability and the lack of sampling of focal intrauterine lesions. (7)The study's objectives were to evaluate the validity of the pipelle device in obtaining a suitable & representative endometrial sample by contrasting the histopathological outcomes of pipelle sampling with those from D&C.

METHODOLOGY

An analytical cross-sectional study was conducted with 100 patients who were above the age of 40 years and had abnormal uterine bleeding after receiving approval from the institutional ethical committee. After doing a comprehensive clinical evaluation on the patients, transvaginal sonography and laboratory testing were carried out. Patients having a history of contraception, a local gynecological cause, a probability of pregnancy, or endometrial thickness less than 4 mm were excluded from the study. Besides being euthyroid, the individuals in this study also had normal levels of liver function markers, APTT, and platelets. The Pipelle device was used to sample the endometrium.

The sample marked as sample A was obtained by inserting the Pipelle without conducting cervical dilatation and rotating it inside the uterus. The patients were then brought into the operating room for D&C, and the sample that was taken following D&C was designated as sample B. A pathologist who had no knowledge of the patients' medical histories or how the samples were collected analyzed both of them using histopathology. Histopathology reports from both the Pipelle and D&C samples were compared.

RESULTS

Comparison of pipelle and D&C histopathological results are shown in Table 1. Table 2 compares pipelle and D&C histopathological results. In pipelle samples and D&C, proliferative endometrium predominated, followed by disordered and secretory endometrium. Pipelle sampling could not find the polyp. Pipelle sampling failed in 7% of patients, compared to 4% with D&C. Table 2 compares the validity of pipelle sampling to D&C by calculating the specificity, sensitivity, PPV, NPV. Pipelle sampling shows a 100% sensitivity for proliferative and secretory endometrial detection and a 90% sensitivity for disordered endometrium detection, but only 16% sensitivity for polyp detection. Due to its ease of use, the pipelle sample can be used as a screening method to collect endometrial samples from patients who have atypical uterine bleeding.

Table 1: A Comparison of Pipelle and D&C Histopathological Results

Histopathology report	D&C sampling	Pipelle sampling
Proliferative	50	53
Disordered endometrium	9	10
Secretory endometrium	29	29
Polyp	6	0
adocarcinoma	2	1
Inadequate	4	7

Table 2: Specificity, Sensitivity, PPV, and NPV of the Pipelle Histopathology Report Against D&C Sampling

Proliferative endometrium	Sensitivity	100%
	Specificity	92 %
	PPV	93 %
	NPV	100 %
Disordered endometrium	Specificity	100%
	Sensitivity	90%
	PPV	100%
	NPV	99%
Secretory endometrium	Specificity	100%
	Sensitivity	100%
	NPV	100%
	PPV	100%
Adenocarcinoma	Sensitivity	100%
	Specificity	100%
	PPV	100%
	NPV	100%

DISCUSSION

When comparing the Pipelle to D&C, many researchers have found that it is an acceptable and accurate outpatient sampling procedure. (8, 9) For acquiring an endometrial sample in this investigation, the Pipelle device exhibited sensitivity 97%, specificity100percentage, and predictive values 100%. It was also 100 percent accurate in detecting proliferative and secretory endometrium, as well as endometrial cancer.In order to assess the validity of the Cornier Pipelle for the identification of endometrial cancer &atypical endometrial hyperplasia.A total of 1535 reports of outpatient endometrial biopsies carried out on pre- and postmenopausal women with atypical vaginal bleeding were investigated by Mechado and colleagues.Endometrial biopsy with the Cornier Pipelle is a reliable way to diagnose endometrial cancer and atypical hyperplasia, with a sensitivity of 84.2%, specificity of 99.1%, accuracy of 96.9%, PPV of 94.1%, and NPV of 93.7%. (10) The detection rates of endometrial cancer and atypical hyperplasia were compared across several endometrial sampling techniques in a meta-analysis conducted by Dijkhuijen et al. The Pipelle endometrial biopsy method detected endometrial cancer & atypical hyperplasia in premenopausal & postmenopausal women better than conventional methods.(11)Abdelazim et al. compared the pipelle and D&C procedures and found that both obtained higher percentages of an adequate sample in conventional D&C (100%) and the pipelle process (97.7%), respectively, than our study. Several factors, including the pathologist's training and equipment, could be accountable.(12) The sufficiency rates by pipelle and D & C were 91.6% and 98.3%, respectively, by Naderi and colleagues in a study.(13)These adequate rates are greater than those in our study. More than the findings of this investigation, the study by Mousavifar et al. (14) found asufficiency rate 94% for pipelle samples. In comparison to our study, the other investigations likewise revealed superior rates for pipelle than D & C. (15, 16)

In the current investigation, a significant percentage of the patients displayed an abnormal proliferative pattern. Disordered proliferative pattern represents one end of the range of endometrial proliferative lesions, with carcinoma representing the other end and various stages of hyperplasia. Carcinoma is at the opposite end of the spectrum. The phrase "disordered proliferative endometrium" has been utilized in a variety of contexts, making it rather challenging to explain exactly what is meant by the term. It is characterized by a hyperplastic look of the endometrium but does not involve an increase in the volume of the endometrium. (17) It also represents an endometrium in proliferative phase that doesn't complement any certain time in the menstrual cycle but isn't hyperplastic. A simple hyperplasia is similar to a disordered proliferative pattern, but the process is focused rather than diffuse. In contrast to Cho Nam-Hoon et al., more disordered proliferative patterns were seen in our study. (18)

CONCLUSION

A quick and safe way to obtain tissue diagnosis is through endometrial sampling utilizing a Pipelle device, which can be completed as an outpatient surgery. In comparison to D & C, Pipelle is more affordable, has higher patient compliance, and offers the added benefit of avoiding anesthesia and other treatment problems including perforation. Due to its great sensitivity and specificity, obtaining an endometrial sample for histopathology in women with abnormal uterine bleeding may be considered a first-line examination.

Conflict of interest: None
Funding: No funding source
Permission: It was taken from the ethical review committee

REFERENCES

1. Spencer C, Whitehead M. Endometrial assessment re-visited. BJOG: An International Journal of Obstetrics & Gynaecology. 1999;106(7):623-32.
2. Fraser IS, Critchley HO, Broder M, Munro MG, editors. The FIGO recommendations on terminologies and definitions for normal and abnormal uterine bleeding. Seminars in reproductive medicine; 2011: © Thieme Medical Publishers.
3. Munro MG, Critchley HO, Broder MS, Fraser IS, Disorders FWGoM. FIGO classification system (PALM-COEIN) for causes of abnormal uterine bleeding in nongravid women of reproductive age. International Journal of Gynecology & Obstetrics. 2011;113(1):3-13.
4. Telner DE, Jakubovicz D. Approach to diagnosis and management of abnormal uterine bleeding. Canadian Family Physician. 2007;53(1):58-64.
5. Clark TJ, Gupta JK. Endometrial sampling of gynaecological pathology. The Obstetrician & Gynaecologist. 2002;4(3):169-74.
6. Brand A, Dubuc-Lissoir J, Ehlen T, Plante M. Diagnosis of endometrial cancer in women with abnormal vaginal bleeding. J Soc Obstet Gynaecol Can. 2000;22(2):102-4.
7. Vigod SN, Stewart DE. Management of abnormal uterine bleeding by northern, rural and isolated primary care physicians: PART I–How are we doing? BMC women's health. 2002;2(1):1-6.
8. Chaudry A, Javaid M. Clinical usefulness of pipelle endometrial sampling. pak Armed Forces. Med J. 2005;55:122-5.
9. Behnamfar F, KHAMEHCHIAN T, Mazouchi T, Fahiminezhad T. Diagnostic value of endometrial sampling with pipelle suction curettage for identifying endometrial lesions in patients with abnormal uterine bleeding. 2004.
10. Machado F, Moreno J, Carazo M, Leon J, Fiol G, Serna R. Accuracy of endometrial biopsy with the Cornier pipelle for diagnosis of endometrial cancer and atypical hyperplasia. European journal of gynaecological oncology. 2003;24(3-4):279-81.
11. Dijkhuizen FPH, Mol BW, Brölmann HA, Heintz APM. The accuracy of endometrial sampling in the diagnosis of patients with endometrial carcinoma and hyperplasia: a meta-analysis. Cancer. 2000;89(8):1765-72.
12. Abdelazim IA, Aboelezz A, AbdulKareem AF. Pipelle endometrial sampling versus conventional dilatation & curettage in patients with abnormal uterine bleeding. Journal of the Turkish German Gynecological Association. 2013;14(1):1.
13. Naderi T, ASHARAF GT, Bahrampoor A, MEHRI MI. Comparison of the diagnostic accuracy of pipelle biopsy, dilatation and curettage and hysrectomy in detection of endometrial lesions. 2006.
14. Mousavifar N, Delavari M, Talaei-Khoei M. Accuracy of pipelle sampler for endometrial assessment. J Babol Univ Med Sci. 2005;8:53-8.
15. Bano I, Anwar A, Tahir N, Shaheen T. ESTABLISHING RELIABILITY OF PIPELLE ENDOMETRIAL BIOPSY IN COMPARISON TO TRADITIONAL CURRETTAGE AND FUTURE OUTPATIENT HYSTEROSCOPY. Medical channel. 2011;17(3).
16. Fakhar S, Saeed G, Khan AH, Alam AY. Validity of pipelle endometrial sampling in patients with abnormal uterine bleeding. Annals of Saudi medicine. 2008;28(3):188-91.
17. Silverberg SG. Problems in the differential diagnosis of endometrial hyperplasia and carcinoma. Modern Pathology. 2000;13(3):309-27.
18. Cho NH, Park CI, Choi IJ. Clinicopathologic Study of the Endometrium of Dysfunctional Uterine Bleeding. The Korean Journal of Pathology. 1989;23(1):65-74.