ORIGINAL RESEARCH

Study of validity of pipelle endometrial sampling for identifying endometrial lesions in patients with abnormal uterine bleeding

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ABSTRACT

Objectives: The present study was undertaken to study the validity of pipelle endometrial sampling for identifying endometrial lesions in patients with abnormal uterine bleeding. This study seeks to place D&C in its historical perspective and considers D&C as gold standard and to chart the efficacy of Pipelle for sampling the endometrial lining of the uterus. **Patients and Methods:** A cross-sectional study was done at Shri B M Patil Medical College, Hospital &RC Vijayapura.100 cases of abnormal uterine bleeding attending the OPD in the department of obstetrics and gynaecology were included in the study. The endometrial sample was obtained with Pipelle sampler in Out Patient Department followed by formal D&C and sent for histopathology assessment. Samples were labelled as A and B and sent to a histopathologist who was blinded as to the method of sampling. The histopathology reports of both samples were compared. **Results:** Pipelle had a sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy of 100% in diagnosing proliferative phase and endometrial carcinoma. Pipelle also had a high predictive value and accuracy for diagnosing Secretory phase, Hyperplasia and Hyperplasia with atypia. The Histopathology results obtained by D&C and pipelle sampling were comparable. No opinion could be inferred in 5 cases in pipelle group and 4 cases in D&C group due to inadequate sample. **Conclusion:** Endometrial tissue obtained by pipelle has shown high sensitivity and specificity in patients with abnormal uterine bleeding even for hyperplasia and malignancy. Thus pipelle can be considered as a first line investigation for getting adequate endometrial sample in patients with abnormal uterine bleeding.

Keywords: Abnormal Uterine Bleeding, D&C, Pipelle, Histopathology

INTRODUCTION

Abnormal uterine bleeding (AUB) is defined as bleeding from the uterine corpus that is abnormal in regularity, volume, frequency, or duration and occurs in the absence of pregnancy 1,2 . The spectrum of abnormal uterine bleeding affects upto one third of women of child bearing age and is therefore one of the commonest complaints seen by family doctors and gynaecologists. There is considerable social and physical morbidity due to this and may also indicate an underlying pathology. Women generally present for care because the amount, timing, or other characteristics of the bleeding have changed from their individual norm. Also evaluation of AUB in women > 40 years and in postmenopausal women is very important to confirm the benign or malignant nature of the disease and initiate appropriate treatment.

The new gold standard for evaluation of AUB is Hysteroscopy combined with histopathological diagnosis. Dilatation and curettage (D&C) remains a preferred sampling procedure for endometrial sampling, but in 60% of cases less than half of the uterine cavity is curetted, with the added risk of general anesthesia, infection and 2 perforation 3 .

Several office endometrial samplers like the Pipelle device(Figure 1) are available which are cost effective, less painful, have better patient compliance and which gives comparable histological findings from tissue obtained by D&C or hysterectomy. We studied the validity of pipelle endometrial sampling in terms of sensitivity, specificity, positive predictive value,

negative predictive value and diagnostic accuracy compared to the conventional dilation and curettage in patients with abnormal uterine bleeding and the various histopathology results obtained by pipelle and Dilatation & Curettage.

MATERIALS AND METHODS

Patients with Abnormal Uterine Bleeding attending the Department of Obstetrics and Gynaecology, Shri B.M.Patil Medical College, Hospital&RC, Vijayapura over a period of one year.

TYPE OF STUDY

Cross sectional study

INCLUSION CRITERIA

1. Patients with abnormal uterine bleeding.
2. Peri menopausal and post menopausal patients (35-60 years)
3. Endometrial thickness >5mm.

EXCLUSION CRITERIA

1. Patients with lower genital tract infections
2. Known cervical stenosis
3. Endometrial thickness <5mm
4. Possibility of Pregnancy
5. History of contraception

METHODOLOGY

With informed written consent, A detailed clinical assessment of patients was performed in the outpatient department including history, examination, and baseline investigations including pelvic ultrasound. The diagnostic intervention was endometrial sampling by the pipelle device and diagnostic reference standard was endometrial sampling by D & C. Both procedures were performed simultaneously. First, the pipelle was introduced without performing cervical dilatation and then withdrawn outside with a rotatory movement to get the sample(Figure 2), which was labelled as Sample A .The pipelle procedure was then followed by the standard D&C procedure and that sample was labelled as Sample B. Both samples were sent to the pathologist who was blinded as to the method of sample collection,for histopathology assessment. The histopathology report of the pipelle sample was compared with that of the D&C sample, and the D&C report was considered the gold standard.

Figure1 Pipelle Device

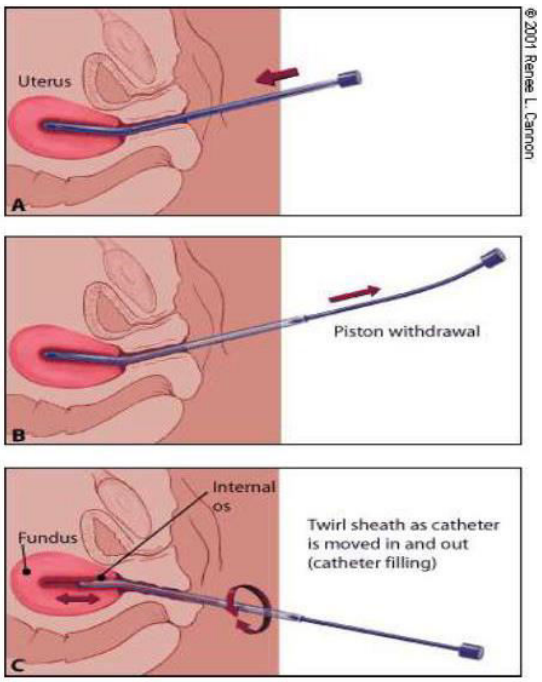

Figure 2 Insertion of Pipelle

A) Pipelle is inserted into the uterus, B) A smaller tube (internal piston) inside the pipelle will be withdrawn to create suction C) The pipelle is rotated and moved in and out to collect small pieces of endometrial tissue.

RESULTS

In the present study, majority of cases -47 (47%) belonged to 41-45 years of age,25 (25%) belonged to 46-50 years,16(16%) cases belonged to 35-40 years,7(7%) cases belonged to 56-60 years and 5(5%) cases were in the age group of 51-55 years.

The presenting complaint of 81(81%) cases was heavy menstrual bleeding, 7(7%) cases had intermenstrual bleeding and 12(12%) cases came with the chief complaint of postmenopausal bleeding. In the present study, pap smear was Negative for Intraepithelial lesion or malignancy in 62(62%) cases and found to be abnormal in 38(38%) cases.

Endometrial thickness on Ultrasonography was 5-8mm in 36(36%) cases, 9-12 mm in 26(26%) cases, 13-16mm in 28(28%) cases, 17-20mm in 5(5%) cases and more than 20 mm in 5(5%) cases(Figure 3).

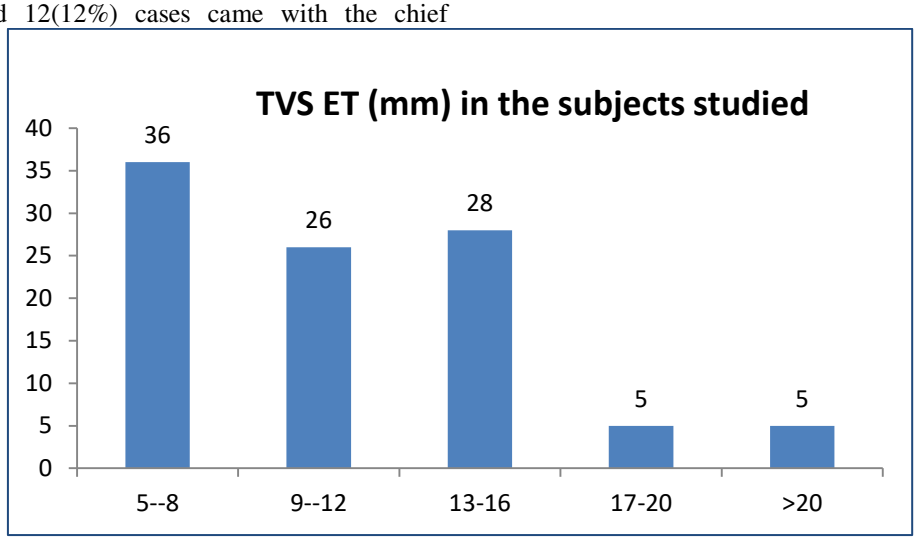

Figure 3-TVS ET(mm) in the subjects studied

In the present study, On histopathological examination of samples obtained by pipelle sampling (Figure 4)the most common endometrial pattern identified was proliferative phase endometrium (43%) ,secretory phase in 23(23%) cases, Hyperplasia in 23(23%) cases, Hyperplasia with atypia in 4(4%) cases, Endometrial adenocarcinoma in 2(2%) cases. No opinion could be inferred in 5(5%) cases due to inadequate sample.

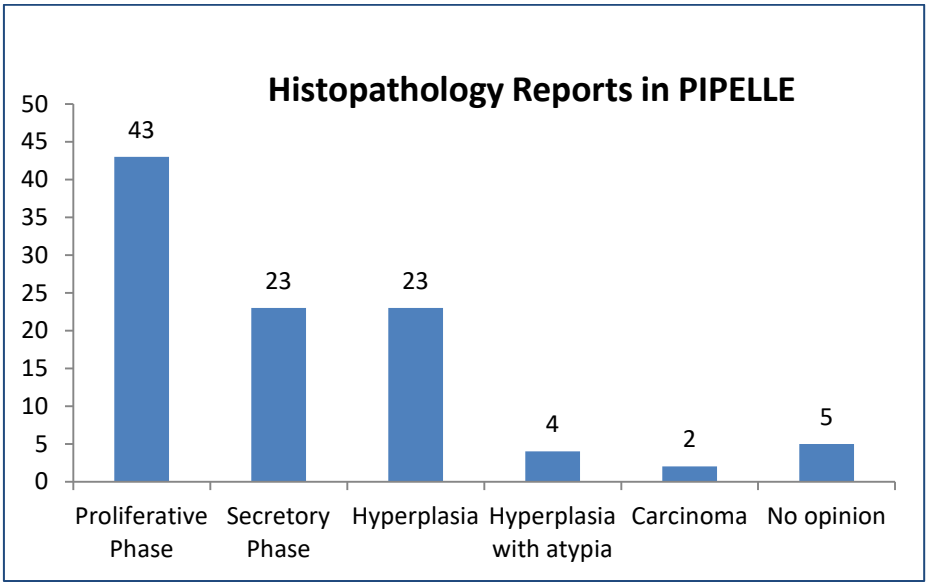

Figure 4-Histopathology reports in Pipelle

In the present study, the validity of pipelle sampling was studied in comparison with D & C as gold standard in terms of Sensitivity, Specificity, Positive Predictive Value, Negative Predictive Value and Diagnostic Accuracy(Table 1).

For proliferative phase, the sensitivity was 100%, specificity was 100%, positive predictive value was 100%, negative predictive value was 100% and diagnostic accuracy was 100%.
For secretory phase, the sensitivity was 95.7%, specificity was 98.7%, positive predictive value was 95.7%, negative predictive value was 98.7% and diagnostic accuracy was 98%.
For hyperplasia, the sensitivity was 95.7%, specificity was 98.7%, positive predictive value was 95.7%, negative predictive value was 98.7% and diagnostic accuracy was 98%.
For hyperplasia with atypia, the sensitivity was 80%, specificity was 100%, positive predictive value was 100%, negative predictive value was 98.9% and diagnostic accuracy was 99%.
For endometrial carcinoma, the sensitivity was 100%, specificity was 100%, positive predictive value was 100%, negative predictive value was 100% and diagnostic accuracy was 100%.

Table1-Validity of pipelle sampling

Variables	Proliferative phase	Secretory phase	Hyperplasia	Hyperplasia with atypia	Endometrial carcinoma
Sensitivity	100	95.7	95.7	80	100
Specificity	100	98.7	98.7	100	100
PPV	100	95.7	95.7	100	100
NPV	100	98.7	98.7	98.9	100
Diagnostic Accuracy	100	98	98	99	100

*PPV-Positive Predictive Value **NPV-Negative Predictive Value

DISCUSSION

The mean age of the patients was 44.9 years. In the study by Alliratnam AS et al4 the mean age of the study group was 42.22 years. In other studies by Abdelazim I et al5and Fakhar S et al 6the mean age of the patients was 44.5 years and 45.4 years respectively. Mean duration of bleeding was 7.16 months. Mean duration of bleeding in the study by Alliratnam et al was 8.23 months
The mean endometrial thickness was 10.94 mm. In the study by Khurshid et al the mean central endometrial thickness was 10.3 mm, by Shazia Fakhar et al it was 10.3 + 4.9mm and by Abdelazim et al it was 11mm.
In the present study, the validity of pipelle sampling in diagnosing proliferative phase was 100%, similar to Abdelazim et al.
In the present study, the sensitivity of pipelle sampling in diagnosing secretory phase was 95.7%, specificity was 98.7%,positive predictive value was 95.7%,negative predictive value was 98.7% and diagnostic accuracy was 98%. In the study by Abdelazim et al, the sensitivity of pipelle sampling in diagnosing secretory phase was 100%, specificity was 100%, positive predictive value was 100%,negative predictive value was 100% and diagnostic accuracy was 100%.
In the study by Alliratnam et al, the sensitivity of pipelle sampling in diagnosing secretory phase was 100%, specificity was 100%, positive predictive value was 100% and negative predictive value was 100%. In the study by ShaziaFakhar et al, the sensitivity of pipelle sampling in diagnosing secretory phase was 100%, specificity was 100%, positive predictive value was 100% and negative predictive value was 100%.
In the present study, the sensitivity of pipelle sampling in diagnosing endometrial hyperplasia was 95.7%, specificity was 98.7%, positive predictive value was 95.7%,negative predictive value was 98.7% and diagnostic accuracy was 98%.In the study by Abdelazim et al, the sensitivity of pipelle sampling in diagnosing endometrial hyperplasia was 100%, specificity was 100%, positive predictive value was 100%, negative predictive value was 100% and diagnostic accuracy was 100%. In the study by Shazia Fakhar et al, the sensitivity of pipelle sampling in diagnosing endometrial hyperplasia was 100%, specificity was 100%, positive predictive value was 100%, negative predictive value was 100% and diagnostic accuracy was 100%.
In the study by Moradan et al7, the sensitivity of pipelle sampling in diagnosing endometrial hyperplasia was 92.3%, specificity was 100%, positive predictive value was 100% and negative predictive value was 98.1%. In the present study, the sensitivity of pipelle sampling in diagnosing endometrial hyperplasia with atypia was 80%, specificity was 100%, positive predictive value was 100%, negative predictive value was 98.9% and diagnostic accuracy was 99%.
In the study by ShaziaFakhar et al, the sensitivity of pipelle sampling in diagnosing endometrial hyperplasia with atypia was 100%, specificity was 98%, positive predictive value was 80% and negative predictive value was 100%. In the study by Khurshid et al, the sensitivity of pipelle sampling in diagnosing endometrial hyperplasia with atypia was 100%, specificity was 98%, positive predictive value was 80% and negative predictive value was 100%.
In the present study, the sensitivity of pipelle sampling in diagnosing endometrial carcinoma was 100%, specificity was 100%, positive predictive value was 100%, negative predictive value was 100% and diagnostic accuracy was 100%. In the study by Abdelazim et al, the sensitivity in diagnosing endometrial carcinoma was 100%, specificity was 100%, positive predictive value was 100%, negative

predictive value was 100% and diagnostic accuracy was 100%.

CONCLUSION

Endometrial sampling using pipelle type device is an easy and safe method.Pipelle is cost-effective, no anaesthesia is required and other procedure complications like perforation compared to D & C. Pipelle obtains adequate sample with reliable histopathological results when compared to D&C. Endometrial tissue obtained by pipelle has shown high sensitivity and specificity in patients with abnormal uterine bleeding even for hyperplasia and malignancy.Thuspipelle can be considered as a first line investigation for getting adequate endometrial sample in patients with abnormal uterine bleeding.

CONFLICTS OF INTEREST

None

ETHICAL ISSUES

Ethical clearance taken from the institution

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