ORIGINAL ARTICLE Pipelle Endometrial Sampling Versus Conventional Dilatation & Curettage in Patients With Abnormal Uterine Bleeding

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ABSTRACT

Aim: To assess the efficacy of endometrial sampling using Pipelle compared with Conventional dilatation & curettage in women with bleeding from the uterus that is heavier/longer than usual or that occurs at an irregular time.

Place and duration of study: Department of Obs & Gynae, Aviceena Medical College/Hospital from June 2020 to June 2021.

Methodology: This comparative study was carried out in 57 women with abnormal uterine bleeding. Endometrial sampling was done by Pipelle without cervical dilatation followed by dilatation & curettage. Histopathology results were compared. Histopathological evaluation of the samples obtained by Dilatation & curettage was considered gold standard.

Results: All endometrial tissue samples (100%) collected by dilatation & curettage while 98% obtained by the Pipelle sampler were acceptable for histopathology. Histopathological investigation of 57 samples acquired through dilatation & curettage confirmed proliferative and Secretory changes, Endometrial Hyperplasia, Endometritis in 15,13, 19, and 4 subjects while Endometrial Polyps and Malignant change in 2 and 4 specimens respectively.

Conclusion: Pipelle endometrial sampling is an efficient outpatient procedure thus avoiding hazards of general anesthesia with a great precision for evaluating benign and malignant endometrial pathology.

Keywords: Abnormal Uterine Bleeding, Endometrial biopsy, Dilatation & curettage, Pipelle sampler

INTRODUCTION

Heavy menstrual and abnormal uterine bleeding is a common and serious concern in the women of late reproductive age group due to a possibility of premalignant and malignant conditions. It is definitely an indication for endometrial curettage/ biopsy. This symptom accounts for 70% referred patients in the perimenopausal and postmenopausal age as well as 35% of outpatient referrals¹.

Endometrial sampling is also vital for evaluation of bleeding due to non-ovulation especially in the following women: aged 35-48 years, women with high BMI and women with personal and family history of diabetes². Endometrial biopsy followed by histological evaluation can be useful and definitive in these cases. Dilatation & curettage is gold standard for endometrial sampling but it might lead to the complications related to general anesthesia, infection and perforation^{3,4}.

The outpatient endometrial sampling techniques have widely replaced dilatation & curettage. These are significantly effortless in use and have certainly lower risks in comparison to dilatation & curettage. Numerous devices are available nowadays in addition to the Pipelle sampler^{5.6}. Pipelle sampling is an outpatient technique and is cost effective in comparison to D&C⁷. On the other hand, still there are considerations with regard to the acceptability of the biopsy sample retrieved and missing any focal intrauterine lesions⁶.

Consequently this study was carried out to evaluate endometrial sampling with both these modalities.

MATERIAL AND METHODS

After permission from IRB. this comparative study was carried out in 57 patients having abnormal uterine bleeding with the age of forty years and above. Comprehensive clinical evaluation as well as the transvaginal sonography and laboratory investigations were done for the patients. The exclusion criterion was women with a pregnancy related complication, using contraception and endometrial thickness <5mm. Approval was taken for the study protocol by the institutional ethical review board.

The inclusion criteria were patients with normal thyroid function tests, normal liver function tests and no clotting abnormalities. The endometrial sampling was carried by the Pipelle instrument before the dilatation & curettage under general anaesthesia in operation theater.

Received on 27-08-2021 Accepted on 17-01-2022 The Pipelle was introduced into the uterine cavity without any prior cervical dilatation and taken outside with a rotatory movement to take the sample. Followed by D&C done under general anaesthesia in operation theater. Both samples were sent to a pathologist for histopathology assessment who was unaware to the sampling methods. The histopathological findings of both Pipelle and D&C were compared, the D&C histopathology report was taken as gold standard.

RESULTS

The median age of population under consideration was 45 years, age of menarche was 12.5 and median parity was taken to be 3. The endometrial thickness medial value was 10mm (Table 1).

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|----|-----|---|--|
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| Variables | Median | Range | |
|---------------------------|--------|-------|--|
| Age (years) | 45 | 40–55 | |
| Age of menarche (years) | 12.5 | 12–14 | |
| Parity | 3 | 1–6 | |
| Endometrial thickness(mm) | 10 | 9–12 | |

Table 2

| Histopathological Findings | Results of the specimens obtained by conventional D&C | Results of the specimens obtained by the Pipelle device |
|-------------------------------|--|--|
| Proliferative endometrium | 15 | 15 |
| Secretory endometrium | 13 | 13 |
| Endometrial hyperplasia | 19 | 19 |
| Endometritis | 4 | 2 |
| Endometrial polyp | 2 | 1 |
| Endometrial carcinoma | 4 | 4 |

The patients presented with heavy menstrual bleeding (n=36), irregular uterine bleeding (n=10) and postmenopausal bleeding (n=11). Histopathological inadequate samples were the ones in which no sample tissue was found. Sample taken with dilatation and curettage had 100% and with Pipelle had 98% histopathological adequacy. The histopathological investigation of 57 samples acquired by regular dilatation & curettage disclosed Proliferative Endometrium, Secretory Endometrium, Endometrial Hyperplasia, Endometritis, Endometrial Polyps and Malignant Endometrium in 15,13, 19, 4, 2 and 4 specimens respectively. The diagnostic accuracy of the samples collected by both modalities was significantly comparable (Table 2 & 3).

Table 3

| Variables | Proliferative endometrium | Secretory endometrium | Endometrial hyperplasia | Endometrial carcinoma | Endometritis | Endometrial polyps |
|-------------|------------------------------|--------------------------|----------------------------|--------------------------|---------------|--------------------|
| Sensitivity | 100% | 100% | 100% | 100% | 4/4+2=66.6% | 2/2+1=67% |
| Specificity | 100% | 100% | 100% | 100% | 53/53+0=100% | 55/55+0=100% |
| PPV | 100% | 100% | 100% | 100% | 4/4+0=100% | 2/2+0=100% |
| NPV | 100% | 100% | 100% | 100% | 53/53+2=96.3% | 55/55+1=98% |
| Accuracy | 100% | 100% | 100% | 100% | 57/57+2=96.6% | 57/58=98-3% |

DISCUSSION

In abnormal uterine bleeding, endometrial biopsy is a very important method of assessment. This biopsy helps in making decision between conservative or radical surgery. Different methods both invasive or non-invasive are used for endometrial sampling in outpatient or in inpatient^{8,9}. D&C is a procedure that is done under general anesthesia and it's an invasive technique. In comparison to D&C, Pipelle is a non-invasive diagnostic technique used in outpatient, without anesthesia and gives adequate endometrial sample size as observed in 98% cases^{12,13,14}. Samples can be collected in outpatients while performing routine pelvic examination. All those patients with endometrial thickness less than 5mm were excluded from these studies as central endometrial thickness of 5mm and more is important for adequate sampling $^{10,11}\!.$ In our study, 98% results received were acceptable for histopathology. For synchronization in sampling during this comparative study, Pipelle sample was taken in ward patients followed by D&C. For detection of atypia in women with postmenopausal bleeding and Pipelle use gives 100% sensitivity, 98% specificity and 100%NPV and its comparable with our study¹⁵

A systemic qualitative review by Clark et al¹⁶ on published medical literature concluded an uncertainty about accuracy of endometrium biopsy made in outpatients for diagnosis of endometrial hyperplasia. Therefore, further assessment of endometrium is required specially if there is doubt of intrauterine structural abnormalities or symptoms are not subsided. About 1535 clinical reports from pre- and post-menopausal women in outpatients were studied by Machedo17 and it was concluded that Pipelle method used in their study was having 84.2% sensitivity, 99.1 specificity ,99.6% accuracy 94.1% PPV and 93.7% NPV. Therefore, it was concluded that for diagnosis of endometrial tumor the use of Pipelle method was accurate enough. Huang et al¹⁸ reviewed 360 medical reports of post operative patients of endometrial tumor and accessed diagnostic efficacy of endometrial sampling in accurately diagnose high grade endometrial tumor. This study made the conclusion that Pipelle method of endometrial sampling was 99% accurate for high grade tumors and only 93.8% for low grade tumors. Dijkha19 made same conclusion about Pipelle method in being more accurate and sensitive in making diagnosis for high grade endometrial tumor in pre- and postmenopausal age groups.

In this study it was established that Pipelle sampling technique is having 100% sensitivity, specificity and accuracy in making diagnosis for many endometrial structural pathologies including endometrial carcinoma and hyperplasia. Although, for endometrial polyps this method is only 67% sensitive and has 98% NPV with 98.3% accuracy.

During this study no pre or post operative complications were recorded. Pipelle method for endometrial sampling in comparison with conventional D&C is established to be safer, scientifically accurate and cost-effective technique⁷.

CONCLUSION

Pipelle is safe, accurate and sensitive method for diagnosis of benign and malignant endometrial pathologies without anesthesia in both benign and malignant cases , with lower susceptibility to D&C.

Authors contribution: MS: Contribution to the Paper, MS: Study design, Data analysis and interpretation, FG: Data collection, Critical Analysis, SSL: Literature review Conflict of interest: Nil

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