Section: OBG

Original Research Article

OFFICE ENDOMETRIAL SAMPLING FOR ENDOMETRIAL HISTOPATHOLOGICAL EXAMINATION IN ABNORMAL UTERINE BLEEDING IN PERIMENOPAUSAL WOMEN: A PROSPECTIVE STUDY

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ABSTRACT

Background: Abnormal uterine bleeding (AUB) is a frequent gynaecological problem in perimenopausal women, necessitating accurate diagnosis to rule out endometrial malignancy and guide appropriate management. Endometrial sampling plays a pivotal role in evaluating AUB, with the Pipelle biopsy emerging as a simple, reliable, and minimally invasive outpatient procedure that provides high diagnostic accuracy without the need for anaesthesia or hospitalization. This study aimed to evaluate the validity and diagnostic accuracy of Pipelle endometrial sampling in comparison with histopathological examination (HPE) findings from hysterectomy specimens in perimenopausal women presenting with AUB.

Materials and Methods: A hospital-based prospective study was conducted in the Department of Obstetrics and Gynaecology, Father Muller Medical College and Hospital, Mangalore, including 38 perimenopausal women (aged 40–55 years) presenting with AUB. Endometrial samples were collected using the Pipelle device and assessed for adequacy and histopathological diagnosis. The results were compared with the corresponding hysterectomy HPE findings. Statistical analysis was performed using Chi-square and Fisher's Exact tests.

Results: Endometrial samples were adequate in 97.3% of cases. The most common histopathological pattern observed was non-secretory endometrium (39.5%), followed by proliferative (21.1%) and secretory endometrium (21.1%). Pipelle biopsy detected one case each of complex hyperplasia and endometrial carcinoma (2.6%), both confirmed on hysterectomy specimens. The sensitivity and specificity for diagnosing non-secretory, secretory, and proliferative endometrium were 91.6% & 84.6%, 88.8% & 100%, and 100% & 100%, respectively. The association between Pipelle and hysterectomy diagnoses was statistically significant ($p < 0.001$).

Conclusion: Pipelle endometrial biopsy is a simple, safe, cost-effective, and highly accurate method for evaluating endometrial pathology in perimenopausal women with AUB. Its high sensitivity and specificity make it a reliable first-line diagnostic tool, minimizing the need for invasive procedures like dilatation and curettage or hysterectomy.

Keywords: Abnormal uterine bleeding, Pipelle biopsy, Endometrial sampling, Perimenopausal women, Histopathology, Endometrial carcinoma.

INTRODUCTION

Abnormal uterine bleeding (AUB) is a common gynaecologic condition, and proper management is based on the histological evaluation of an adequate endometrial sample obtained via biopsy.[1] Evaluation of abnormal uterine bleeding in perimenopausal women is of critical importance to

confirm the benign nature of the problem and to exclude endometrial carcinoma, so that medical or conservative treatment can be offered and unnecessary radical surgery can be avoided.[2]

Pipelle biopsy is ideal for obtaining endometrial sample in outpatient department.[3] Pipelle sampling of endometrium preserves stromal architecture better and takes shorter time compared to dilatation and curettage. Pipelle biopsy is also characterized by high sensitivity in detecting endometrial neoplasms (93.8–99.2%). Lack of need for general anaesthesia, reduced duration of the diagnostic procedure, cost reduction and decrease in the number and incidence of complications constitute no doubt further significant advantages of this diagnostic method.[4] Pipelle had a sensitivity, specificity, positive predictive value and negative predictive value of 100% for diagnosing endometrial carcinoma, hyperplasia and secretory endometrium. Pipelle also had high diagnostic sensitivity, specificity and negative predictive value.[5] Pipelle is a silastic curette which does not require a tenaculum or straightening of the cervical fundus axis because of its flexibility and does not require general anaesthesia, whereas Dilatation and curettage (D&C) requires hospitalization and general anaesthesia along with the problem of postoperative pain.[6]

Our study aims to establish the validity of the Pipelle method as a modality for histopathological examination.

MATERIALS AND METHODS

Study Design: A hospital-based case- study was used to perform this research. This study was conducted in the Department of Obstetrics and Gynaecology, Father Muller Medical College and Hospital, Mangalore. A total of 38 perimenopausal women with abnormal uterine bleeding were considered for this study.

Inclusion Criteria

Women who present with abnormal uterine bleeding and are within the peri menopausal age (40- 55 years) after giving informed consent are included in the study. These women subsequently underwent hysterectomy.

Exclusion Criteria

1. Women lesser than 40 years of age
2. Comorbid conditions like cervical cancers, pregnancy or clotting disorders
3. Post menopausal women
4. Already established evaluation by any method
5. Women who are on hormonal therapy

After obtaining institutional ethical clearance, 38 patients who fulfilled the inclusion criteria were included in the study. All patients were subjected to Pipelle endometrial sampling as part of initial work up before definitive management. The Pipelle was introduced into the uterine cavity of the patient and then withdrawn outside by rotatory movements to get a sample which was then collected in two bottles containing saline and formalin and was sent for histopathological examination. The adequacy of the tissue was evaluated by the pathologist prior to reporting and only adequate samples were included for evaluation. The histopathological reports of the patients who underwent hysterectomy subsequently, after collection of sample from Pipelle method were then collected and assessed.

Analysis: We analysed the frequency, percentage, mean, standard deviations'' test and chi square test.

RESULTS

A total of 38 patients were included in the study.

Table 1: Summary of the Pipelle biopsy procedure.

	N
Successful entry into the endometrial cavity	38
Material adequate for histological analysis	37
Material inadequate for histological analysis	1
Total number of patients under the study	38

Table 2: Histopathological Report on Pipelle Biopsy

	Frequency	Percent
Complex endometrial hyperplasia with cytological atypia	1	2.6%
Disordered proliferative Endometrium	2	5.3%
No opinion possible	1	2.6%
Non secretory endometrium	15	39.5%
Proliferative endometrium	8	21.1%
Secretory endometrium	8	21.1%
Secretory endometrium with Polyp	2	5.3%

The most common histopathological report following Pipelle sampling was non secretory endometrium (39.5%) followed by proliferative endometrium and secretory endometrium (21% respectively). We reported 1 case each of complex hyperplasia and endometrial carcinoma (2.6%). One out of the 38 samples could not be assessed due to inadequate tissue.

Table 3: Histopathological Report Post Hysterectomy

	Frequency	Percent
Hyperplastic polyp without Atypia	2	5.3
Non secretory endometrium	12	31.6
Non secretory endometrium with benign polyp	3	7.9
Proliferative endometrium	8	21.1
Secretory endometrium	9	23.7
Secretory endometrium with Polyp	2	5.3
Complex hyperplasia with Atypia	1	2.6
Well differentiated endometroid adenocarcinoma	1	2.6
Total	38	100.0

The most common histopathology type on hysterectomy sample was non-secretory endometrium (31.6%) followed by secretory (23.7%) and proliferative endometrium (21.1%).

Table 4: Comparison of histopathological report of Pipelle biopsy and hysterectomy

	Pipelle Biopsy (N= 38) N (%)	Hysterectomy (N= 38) N (%)
Complex endometrial hyperplasia with cytological atypia	1 (2.6)	1 (2.6%)
Disordered proliferative Endometrium	2 (5.3)	-
No opinion possible	1 (2.6)	-
Non secretory endometrium	15(39.5)	12(31.6)
Proliferative endometrium	8 (21.1)	8 (21.1)
Secretory endometrium	8 (21.1)	9 (23.7)
Secretory endometrium with Polyp	2(5.3)	2 (5.3)
Well differentiated endometroid adenocarcinoma	1 (2.6)	1 (2.6)
Hyperplastic polyp without Atypia	-	2 (5.3)
Non secretory endometrium with benign polyp	-	3 (7.9)
Total	38 (100)	38 (100)

Following a hysterectomy, the sample which was initially diagnosed as complex hyperplasia without atypia and that with endometrial carcinoma was confirmed.

Table 5: Statistical analysis of the HPE diagnosis made on Pipelle

	Sensitivity	Specificity
Non secretory endometrium	91.6%	84.6%
Secretory endometrium	88.8%	100%
Proliferative endometrium	100%	100%

Table 6: Validity of Pipelle sampling to detect endometrial hyperplasia and endometrial carcinoma

	Value	df	Asymptotic Significance (2-sided)	Exact Sig (2-sided)
Pearson Chi-Square	201.998a	49	<0.001*	<0.001*
Likelihood ratio	103.373	49	<0.001*	<0.001*
Fisher's Exact Test	108.613			<0.001*
No of Valid Cases	38			

DISCUSSION

Abnormal uterine bleeding is an extremely commonly encountered gynaecological problem in gynaecology clinics. The majority of women in our study were in the age group 40-45 years (50%, n=19) followed by 45-49 years (44.7%, n=17). 2(5.3%) were in the age group 50-55 years. The sample adequacy in our study was 97.3%.

Similar results were obtained in studies done by Sunitha Mary et al,[7] (96%) and Abdelazim IA et al,[2] (97.9%) There was 1 case of inadequate sampling. In that case, the sample was taken from a thin endometrium with only blood clots seen.

The most common histopathological report following Pipelle sampling was non secretory endometrium (39.5%) followed by proliferative endometrium and secretory endometrium (21% respectively). We reported 1 case each of complex hyperplasia and endometrial carcinoma (2.6%).

Illavarsi et al,[3] in their study noted 30.2% incidence of proliferative endometrium on histopathology. In a study done by Sunitha et al, they reported 15% incidence of disordered endometrium in their study as compared to 5.3% incidence in our study with an incidence of 3% endometrial carcinoma detection on pipelle biopsy.[7] Singh P et al also noted a similar incidence of carcinoma endometrium (2.6%).[8]

Following a hysterectomy, the sample which was initially diagnosed as complex hyperplasia without atypia and that with endometrial carcinoma was confirmed. The reports obtained on pipelle biopsy are as effective to those obtained on hysterectomy HPE, hence can be relied on.

The validity of Pipelle endometrial biopsy was compared to other studies. In our study, Non secretory endometrium had a sensitivity and specificity of 91.6% and 84.6%, Secretory endometrium had a sensitivity and specificity of 88.8% and 100% and Proliferative endometrium had a sensitivity and specificity of 100% respectively.

Pipelle had a 100% sensitivity and specificity for detecting complex endometrial hyperplasia and endometrial carcinoma. On analysing the validity by Fisher Exact test, the p value was found to be statistically significant.

In a study done in Kerala,[7] they reported an accuracy of 92.5% and 94% in detecting atypical hyperplasia and carcinoma endometrium. Also, in studies by Sanam M et al and Narice et al similar results were obtained.[9,10]

CONCLUSION

Endometrial sampling by Pipelle plays a valuable role in diagnosing endometrial pathology as it is cost effective, has better patient compliance along with an added advantage of lack of anaesthesia or other procedure complications. Thus, it can be considered as the first line investigation for getting an adequate endometrial sample for histology in patients with AUB.

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