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Original Article

ESTABLISHING RELIABILITY OF PIPELLE ENDOMETRIAL BIOPSY IN COMPARISON TO TRADITIONAL CURRETTAGE AND FUTURE OUTPATIENT HYSTEROSCOPY.

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ABSTRACT

Objectives: To determine the reliability of the pipelle device in recovering an adequate and representative endometrial sample using post hysterectomy histology as gold standard for patients with abnormal vaginal bleeding and to review literature in relation to endometrial biopsy.
Study Design: Quasi experimental study.
Place and Duration: Department of Obstetrics and Gynecology Combined Military Hospital Peshawar, from 15th April 2006 to 30th April 2008.
Materials and Methods: A total of 62 patients aged more than 40years already planned for hysterectomy for abnormal uterine bleeding pattern were included after informed consent. Sampling technique was non-probability convenience.
Results: The adequacy of pipelle specimen was calculated as 92%. Histopathological findings of pipelle endometrial biopsy significantly correlated with histopathological findings of hysterectomy. The sensitivity of pipelle device was 93.4% and specificity was 100% while positive predictive value was 100% and negative predictive value was 20% in this study.
Conclusion: Our study confirms the accuracy and reliability of pipelle sampler by comparing to 'the gold standard'. Literature review further recommends it as a safe, accurate and cost effective tool as compared to traditional D & C and newer modalities as outpatient hysteroscopy.

Key words: Pipelle, DUB, D&C, Abnormal uterine bleeding, Endometrial carcinoma, Hysteroscpic endometrial sampling.

INTRODUCTION

Endometrial tissue sampling is one of the most common diagnostic procedure in gynaecology and the primary indication, by far, are in the assessment of woman with abnormal uterine bleeding.[1,2] Accurate diagnosis facilitates the implementation of optimal treatment strategies. The safety, simplicity and acceptability of endometrial sampling methods influence the extent to which the techniques are employed.[3]

Previously, the gold standard method for sampling the endometrium was dilatation and curettage (D&C) under general anaesthesia. However, it is now recognized that D&C is really just another blind sampling technique, which often samples less than half of the endometrium. The method also requires laboratory investigations, hospitalization and carries the risk of general anaesthesia.[4] Currently, out patient endometrial biopsy has replaced D&C as the first line diagnostic test in the evaluation of abnormal uterine bleeding as both have been shown to have similar accuracy.[5, 6, 7]

As the safety and acceptability of outpatient endometrial sampling devices have been established, this method is now being commonly used in gynaecological patient care. Hysteroscopic directed endometrial biopsy is another modality which is being increasingly used in the West in postmenopausal and rapid access clinics.[8] Though yet sparingly but hysteroscopy is being used in our setup also. However this modality has the limitation of expertise, expense and availability. We decided to compare the adequacy and reliability of this instrument using

hysterectomy specimen as gold standard so as to revalidate its use as still the most convenient, cheap and acceptable option for both physicians and patients in comparison to the traditional curettage and modern day outpatient hysteroscopically directed biopsy. [9]

MATERIALS AND METHODS

We compared pipelle specimens of 62 patients who were already planned for hysterectomy with the post hysterectomy histology. The pathologist and gynaecologist both were blinded to the existing pathology.

This study was conducted in the Department of Obstetrics and Gynecology Combined Military Hospital (CMH) Peshawar. A total of 62 patients with abnormal uterine bleeding pattern requiring hysterectomy were included in the study. Study was conducted from 15th April 2006 to 30th April 2008. It was quasi experimental study. All women aged more than 40 years undergoing hysterectomy for menorrhagia/ metrorrhagia were included in the study after attaining informed consent.

Postmenopausal women, women having uterus greater than 16 weeks size, cervical stenosis and women who had D&C within 04 weeks were excluded.

Demographic features including age, gravidity and method of contraception were noted. Detailed history and complete physical examination was done and findings were recorded. Ultrasound examination was done to record endometrial thickness and to rule out any other pelvic pathology. After complete workup for hysterectomy, including aesthesia fitness, informed verbal consent for out patient endometrial sample was taken from the patient.

Sample was taken using pipelle suction curette. All the biopsy specimens were placed in 10% formaldehyde and were sent for tissue processing and staining. Sample adequacy was defined as sample of more than 2mm size.The interpretation of all samples was carried out at the Department of Histopathology CMH Peshawar.

The data was analyzed on SPSS program version 18. Frequencies and percentages of qualitative variables were analyzed.

TABLE-1 OF HISTOPATHOLOGY REPORTS

Histopathology report of hysterectomy

Histopathology		Positive	Negative	Total
repot of pipelle	Positive	57	0	57
	Negative	4	1	5
	Total	**61**	**1**	**62**

Sensitivity= 93.4%

Specificity= 100%

Positive predictive value= 100%

Negative predictive value= 20%

RESULTS

The age group of the patients ranged between 40-51 years. The maximum numbers of patients were between ages 40-45 years i.e. 66% (41) while 31% (19) patients belonged to age group 46-50 years. Only 3% (2) patients were 51 years of age.

Relationship to parity revealed most of the patients were multipara.

HISTOPATHOLOGY REPORT OF PIPELLE * HISTOPATHOLOGY REPORT OF HYSTERECTOMY SPECIMEN CROSS TABULATION COUNT

	Histopathology report of hysterectomy specimen						**Total**
Histopathology report of pipell		proliferative endometrium	secretory endometrium	cystic hyperplasia	adenomatous hyperplasia	haemorrhagic	
	proliferative endometrium	18	0	0	0	0	18
	cystic hyperplasia	0	22	0	0	0	22
	cystic hyperplasia	0	0	15	0	0	15
	atrophic endometrium	0	0	0	1	0	1
	haemorrhagic	0	0	0	0	1	1
	unfit for interpretation	4	1	0	0	0	5
	Total	**22**	**23**	**15**	**1**	**1**	**62**

58% (36) were grandmultipara while rest 42% (26) was having parity 4 or less. None of the patients was nulliparous.

80% (50) of patients practiced natural contraception and 18% (11) used barrier methods. Only one patient used intra uterine contraceptive device.

Bimanual examination followed by ultrasound examination showed adenexal cysts in 18% (11) of the patients. In 18% (11) of the patient, the size of the uterus was found to be normal while in 59% (37) it was up to 8 weeks and in 23% (14) it was more than 8 weeks in size.

Endometrial thickness (in follicular phase) was measured up to 10mm in 82% (51) of patients. It was 10-15mm in 17% (10) of patients while only one patient had endometrial thickness more than 15mm.

The adequacy of pipelle specimen was calculated as 92% (57). Only 8% (5) specimens were found inadequate for processesing and interpretation.

The sensitivity of pipelle device was calculated as 93.4% and specificity as 100% while positive predictive value was calculated as 100% and negative predictive value as 20% in this study. Histopathological findings of pipelle endometrial biopsy significantly correlated with histopathological findings of hysterectomy (P<.001). Only one specimen diagnosed as atrophic endometrium on pipelle sampling turned out as adenomatous hyperplasia on hysterectomy specimen.

DISCUSSION

Almost 70% of all gynaecological consultations in perimenopausal women are related to irregular vaginal bleeding. Methods for endometrial assessment therefore have continuously and extensively been evaluated. The spectrum ranges from traditional D&C to outdoor endometrial biopsy tools as pipelle and now the most recent modality as outpatient hysteroscopy. In the medical literature these modalities have been further compared to each other for acceptability, adequacy and reliability. This study primarily aimed at determining the efficiency and reliability of pipelle device in sampling endometrium. The second objective of our study was to evaluate standing of pipelle in the light of evidence so as to recommend or reject its use as first line instrument for endometrial assessment for our clinical set-up.

In developed countries Pipelle has already replaced D&C as first line investigation for irregular vaginal bleeding though in our part of the World curettage is still widely being practiced for endometrial assessment. In a study conducted at Kashan, Iranwhere 200 patients were included; the efficiency of pipelle was compared with D & C. Efficiency of pipelle in retrieving sample was 94% and D&C was 93% and in only two cases there was non-concordance with respect to histopathology.[1] In a study conducted at Shifa College of Medicine, Islamabad, pipelle endometrial biopsy of 100 patients was compared to D&C specimens. The adequacy of sample obtained was 100% with sensitivity, specificity, positive predictive value and negative predictive value of pipelle 100% for diagnosing secretory endometrium, hyperplasia and carcinoma.[2] In another study carried out at CMH Peshawar, pipelle sample adequacy was found 98%.[4]

Very few studies in the literature compare pipelle biopsy to the gold standard i.e. hysterectomy specimen. A similar study to us carried out in Sri Lanka where pipelle sample was compared to hysterectomy specimens as gold standard. At Universiy of Kelaniya, Ragama where both peri and postmenopausal ladies with abnormal uterine bleeding (AUB) were included, 89.4% of endometrial samples were adequate for diagnosis while 88%of the endometrial biopsy results were in agreement with hysterectomy results.[10] Our study very well compares with 92% adequacy of the specimen and 100% reliability. In postmenopausal women sample inadequacy with pipelle can occur in up to 22% of patients.[11] Higher reliability in our study may be because of case selection, as we just included pre-menopausal women and therefore by-passed the atrophic samples encountered in the postmenopausal women.

Paraskevaidis et alcompared histological assessment in perimenopausal women with irregular uterine bleeding to transvaginal ultrasound (TVS) and tested whether the TVS only was effective as a diagnostic tool for the detection of endometrial pathology in these women. They concluded that TVS can identify women with perimenopausal bleeding in which the likelihood of endometrial pathology is high and in which tissue sampling should be performed. Thus, TVS can be a primary method of selecting women with perimenopausal bleeding who must be further then be investigated with more invasive methods such as endometrial biopsy.[12]

Pipelle sampling with TVS should be the first line investigation of postmenopausal bleeding or irregular vaginal bleeding in women above the age of 35.[13] With the combination of TVS and Pipelle sampling, a number of endometrial polyps and a small number of fibroids may not be detected initially but it is unlikely that any serious pathology would be overlooked. If further unexplained bleeding presents itself or if TVS or Pipelle sampling is not possible, then hysteroscopy/D&C could be used as a second line investigation.[13]

Hysteroscopy is a significantly more superior and accurate diagnostic method with better specificity for the detection of endometrial pathology than TVS. Hysteroscopy shows greater efficiency in the diagnosis of focal abnormalities of the endometrium, which are unlikely recognized by ultrasonography and should be indicated in cases of AUB with an endometrial thickness less than 4 mm on ultrasonography, because of the possibility of missing infrequent (0.8%) but relevant endometrial pathologies. Among such women showing abnormal or suspicious lesions, it is necessary to perform hysteroscopy with eye-directed biopsy because some cases of endometrial carcinoma could be missed.[14]

At Royal infirmary Aberdeen the clinical benefit of additional outpatient hysteroscopy over traditional vaginal examination and endometrial biopsy was formally evaluated. Three hundred and seventy women were recruited to the study. Hysteroscopy did not influence the hysterectomy rate, which was similar in both groups. Outpatient hysteroscopy was found to be as acceptable as an outpatient endometrial biopsy and successfully completed in 85% compared with 91% of women who underwent endometrial biopsy alone. No cases of endometrial malignancy were identified.[15]

Hysteroscopy directed endometrial biopsy has been further compared for the quantity and quality of endometrial tissue sampled by saline contrast sonohysterography (SCSH). One hundred and twenty-eight patients with diffusely thickened (> 4 mm) and inhomogeneous endometrium at SCSH were prospectively recruited. Endometrial sampling was performed at the end of SCSH using the same 4.7-mm intrauterine catheter that had been used for saline instillation. These samples were compared to directed endometrial biopsies obtained with the guidance of an office 5-mm hysteroscope. After hysteroscopy, an extended guided curettage was performed under general anesthesia, providing specimens that were considered the gold standard for histological diagnosis. Endometrial specimen area, histological concordance and procedure related pain were compared for the two techniques. SCSH with sampling proved to be as good as and as tolerable as hysteroscopic biopsy in cases with diffusely thickened and inhomogeneous endometrium. It was concluded that both the imaging and biopsy techniques should be considered a reliable outpatient procedure in the management of patients with abnormal uterine

bleeding. [16]

Recent non-touch hysteroscopy has combined the advantage of pipelle and hysteroscopy, termed as H pipelle which is long enough to be passed through the diagnostic sheath of the hysteroscope and yielded accuracy comparable to pipelle. The ability to obtain an endometrial biopsy without needing to instrument the vagina increases patient comfort. Owing to its length, a high suction pressure is produced and a greater volume of material is aspirated ensuring that sufficient endometrium is collected at the first attempt even after hysteroscopy using a liquid distension medium. When standard pipelle was compared with H pipelle, the adequacy of specimen for histological diagnosis was 93% in H pipelle and 87% in pipelle specimen.[17] However, obtaining sample with H Pipelle was significantly quicker and less painful. The patient acceptability of the both procedures was the same and success rate of out patient hysteroscopy and endometrial biopsy was 85% as compared to endometrial biopsy alone which was 91%.[15]

In-patient curettage under general anaesthesia is no longer recommended as an acceptable first line strategy for AUB.[19, 20] Outpatient diagnostic hysteroscopy is a superior diagnostic procedure and may give more reassurance but it does not influence clinical management, especially with respect to hysterectomy rate. Outpatient hysteroscopy may be useful in selected cases, but when performed in a non-selective manner, it has little influence on clinical management with much higher costs.[15] Cost does become an important consideration in resource limited area like us.

Our study results and available evidence supports that pipelle endometrial sampler has stood fast the comparison to both D&C and out patient hysteroscopy, and will remain the instrument of choice for near future in our country. We therefore recommend the use of pipelle sampler as first line tool for endometrial assessment for our clinics instead of D&C and hysteroscopy. These may be reserved as second line investigation where endometrial sampler is unsuccessful.

CONCLUSION

Respecting patient perspective, clinician preferences and intelligent use of available resources without compromising the available evidence is the art of practicing evidence based medicine. Pipelle is an important diagnostic tool in the investigation of abnormal uterine bleeding with diagnostic yield comparable to other endometrial assessment techniques, yet has the advantages of being safer and quicker. There is no need for general anesthesia and there are markedly reduced risks of hemorrhage, infection and perforation. It is cheap (Rs 560)), requires minimal expertise and is convenient for both physicians and patients being an outdoor procedure. It is recommended that D&C be replaced by pipelle as first line investigation for abnormal uterine bleeding for our clinics and only where indicated by persistent symptoms or TVS, be combined with in or out-patient hysteroscopy.

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