ORIGINAL ARTICLE

DIAGNOSTIC ACCURACY OF ENDOMETRIAL CURETTAGE IN ENDOMETRIAL PATHOLOGY

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Background: Abnormal uterine bleeding is one of the most frequent problems in life of an adult female. Uterine curettage or biopsy remains a preferred sampling procedure for diagnosis of the endometrial pathology. The objective of this study was to compare the sensitivity, specificity, positive and negative predictive value of endometrial curettage. **Patients and Methods:** This validation study was carried out at the Department of Histopathology, Army Medical College Rawalpindi in collaboration with Military Hospital, Rawalpindi from January to December 2010. The study included 50 curettage and subsequent hysterectomy specimen of the same patients. Non-probability sampling technique was used to divide patients into two groups with 50 patients in each group. One group was of endometrial curettage having endometrial pathology (group A). Second group was of subsequent hysterectomy specimen of the same patients (group B). **Results:** Endometrial curettage was found most accurate in diagnosing endometrial carcinoma. Sensitivity of endometrial curettage was found to be 33% whereas specificity and positive predictive value was found to be 100% each. Negative predictive value was found to be 93.1%. **Conclusion:** Endometrial biopsy is a sensitive and a specific test in and is accurate in diagnosing endometrial pathology. It is found most accurate in diagnosing endometrial carcinoma.

Keywords: Dilation and curettage, Hysterectomy, Hormone imbalance, endometrium, dysfunctional uterine bleeding, DUB

INTRODUCTION

Abnormal uterine bleeding is one of the most frequent problems in life of an adult female.[1] Common causes of abnormal uterine bleeding include chronic endometritis, endometrial polyp, endometrial hyperplasia or carcinoma. Abnormal uterine bleeding may be the common presenting complaint in patients with malignant or pre-malignant endometrial lesion.[2]

To diagnose the true pathology, endometrial sampling is important. Endometrial tissue can be obtained through several tecniques[3] like Pipelle and Vebra. Among these methods, uterine curettage or biopsy remains a preferred sampling procedure. It is a comparatively economical office procedure, and modifications in sampling instrument design since the technique's inception have reduced the distress of procedure without compromising sample efficiency.[4] This technique is now considered as first line diagnostic tool because of its diagnostic accuracy, safety, quickness and convenience.[5]

Hysterectomy is considered a gold standard for diagnosing endometrial pathologies. It has been found that afterwards, hysterectomy may change the diagnosis made on endometrial biopsy. Moreover if there is little pathology that can be missed on endometrial biopsy. Thus the significance of comparing the morphological features of an endometrial biopsy with clinical findings and afterwards on hysterectomy specimen cannot be overemphasised. Based on these grounds, agreement or correlation between pre and post operative diagnosis of endometrial pathology is of significance. The literature review shows the diversity of agreement.[6]

In our set up studies have been done who evaluated the sensitivity and specificity of endometrial biopsy with hysterectomy in various endometrial pathology.[7,8] This study was designed to assess the diagnostic accuracy of curettage sampling technique and to correlate the findings with hysterectomy sample for different endometrial pathologies.

PATIENTS AND METHODS

This validation study was carried out in Histopathology Department of Army Medical College, Rawalpindi, National University of Sciences and Technology (NUST), Islamabad in collaboration with Department of Obstetrics and Gynaecology, Military Hospital, Rawalpindi from January to December 2010.

Endometrial biopsy and subsequent hysterectomy specimen of the same patient having chronic endometritis, endometrial polyp, hormone imbalance effect, disordered proliferative endometrium, endometrial hyperplasia and endometrial carcinoma were included in the study.

Fifty patients fulfilling the inclusion criteria were conveniently selected for the study. Endometrial curetting and hysterectomy specimens were taken from each patient. Endometrial curettings were included in group A and hysterectomy specimens were included in group B. Endometrial curettage samples preserved in 10% formal saline were received in the Department of Histopathology, Pathology Laboratory, Army Medical College Rawalpindi from Military Hospital Rawalpindi. Subsequent hysterectomy specimens of the same patient were also received in laboratory in 10% formal saline.

Endometrial biopsy and hysterectomy samples were taken, processed and stained.

All data was recorded in a carefully structured proforma. Demographic data was recorded. Frequency was calculated for histopathological diagnosis including chronic endometritis, endometrial polyp, hormone imbalance effect, disordered proliferative endometrium, endometrial hyperplasia and endometrial carcinoma. Diagnostic accuracy, sensitivity, specificity along with positive and negative predictive value was calculated with the help of 2×2 table and formulas.

RESULTS

Fifty female patients were included in the study with median age of 42.5 years (range 20–65 years). Endometrial hyperplasia was detected in 40% of endometrial biopsies and 32% of hysterectomy specimens. Endometrial polyps were found in 16% of endometrial biopsies as well as hysterectomy specimens. Endometrial carcinoma was detected in 12% of endometrial biopsies and 18% of hysterectomy specimens. Ten percent of biopsies and 2% of hysterectomy specimens showed disordered proliferative endometrium. Chronic endometritis and hormone imbalance effect were both detected in 2% of endometrial biopsies and 6% of hysterectomy specimens.

Among all pathologies included in the study, diagnostic accuracy of endometrial biopsy in diagnosing endometrial carcinoma was found to be the most accurate. Out of total 9 cases of endometrial carcinoma 6 cases were diagnosed on endometrial biopsy and were later confirmed on hysterectomy; rest 3 cases were misdiagnosed on biopsy and were later proved to be endometrial carcinoma on hysterectomy. Sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracies of all the pathologies assessed in present study are shown in Table-1.

Table-1: Parameters of endometrial pathology detected on endometrial biopsy

Pathology	Sensitivity	Specificity	Positive predictive value	Negative predictive value	Diagnostic accuracy
Chronic endometritis	33%	100%	100%	95%	0.96
Endometrial polyp	66%	92.1%	72%	89%	0.86
Disordered proliferative phase	100%	91.8%	20%	100%	0.92
Hormone imbalance effect	33%	100%	100%	95.91%	0.96
Endometrial hyperplasia	87.5%	82.3%	70%	93.3%	0.85
Endometrial carcinoma	33%	100%	100%	93.1%	0.94

DISCUSSION

A validation study of 50 female patients who presented with abnormal uterine bleeding was conducted. This was not prejudiced by biopsy report. The histopathological diagnosis established on endometrial biopsy was evaluated and correlated with that found on hysterectomy.

In the present study, 2% cases of chronic endometritis were diagnosed. Endometrial biopsy showed 33% sensitivity in selecting this endometrial pathology. In a study performed at Ohio State University, 26 of 157 (16.6%) female patients had chronic endometritis.[9] In a study carried out by Lee *et al*[10] in 1995, 1.2% cases of chronic endometritis were detected on endometrial biopsy. The credible logic regarding the low sensitivity of endometrial biopsy in case of chronic endometritis could be that only 3 cases were included in the present study.

Endometrial polyp is composed of irregular spaced glands in which scattered glands may differ from native endometrium due to their tendency to have reduced hormonal responsiveness.[11] Endometrial polyps are often problematic to be diagnosed on endometrial biopsy as depicted by present study in which 16% cases were detected. Sensitivity of endometrial biopsy in diagnosing benign endometrial polyp was 66%. A study conducted by Moghal *et al*[12] in 1997 revealed presence of 8.95% cases of endometrial polyp on endometrial biopsy. The reason for these observations may be lying in the fact that the true incidence of endometrial polyp is difficult to determine as most of them are detached piecemeal during curettage and are not recognised both on gross examination and on microscopy.[13]

Hormone imbalance presents usually in premenopausal and postmenopausal age group and such patients are usually receiving hormone replacement therapy for different menopause related complaints or in ER positive breast carcinoma. Endometrial samples of women taking tamoxifen tend to be scanty because tamoxifen may result in fibrosis of the endometrial stroma making evaluation by biopsy difficult.[14] In a study comparing endometrial biopsy with hysteroscopy, the sensitivity of hysteroscopy in diagnosing hormone imbalance effect was 12% and specificity was 94%.[15] In contrast, present study showed sensitivity of endometrial biopsy in detecting hormone imbalance effect as 33%. Hormone imbalance accounts for 2% cases in present study whereas in a study conducted in Singapore, 1.8% cases were found.[10]

Disordered proliferative endometrium is an amplification of the normal proliferative phase without noteworthy increase in the overall gland to stroma ratio. Considering disordered proliferative endometrium present study revealed 100% sensitivity of endometrial biopsy in picking up the disease. These results were due to the fact that only a few cases of disordered

proliferative endometrium were included in the study and these patients were not given any hormone treatment during biopsy and hysterectomy interval.

Regarding endometrial hyperplasia, we diagnosed 40% cases of endometrial hyperplasia with help of endometrial biopsy. This was found to be a sensitive procedure to detect this pathology (sensitivity: 87.5%). These results are in accordance with the study conducted by Clark and associates[16] who detected 57% cases of endometrial hyperplasia.

In studies comparing endometrial biopsies to hysterectomy specimens, endometrial biopsy had sensitivity ranging 83–96% for recognition of endometrial carcinoma.[17,18] Among diagnostic methods used in patients with endometrial carcinoma, endometrial biopsy or fractional curettage is considered as a gold standard procedure in preoperative management.[19] In present study, endometrial carcinoma was found in 66% of endometrial biopsy which was afterwards confirmed on hysterectomy. In a study comparing hysteroscopy with other histopathological techniques, the sensitivity and specificity of hysteroscopy was found to be 94.4% and 97% respectively.[20] In another study, endometrial biopsy (Pipelle) was found to be 97.5% sensitive for detection of endometrial carcinoma.[21] In the present study specificity and positive predictive value was 100% whereas negative predictive value was 93.1%. In a study conducted by Clark and associates positive predictive value of endometrial biopsy in diagnosing endometrial carcinoma was 95%.[22] The slight discrepancy might lie in the fact that in our setup patients present with advanced stage of the disease. On the contrary, in developed countries, patients usually present at an earlier stage because of better screening and diagnostic facilities. Consequently, biopsy is taken at an earlier stage which is relatively difficult to detect.

CONCLUSION

Endometrial biopsy has the same diagnostic accuracy as that of endometrium obtained from hysterectomy. Endometrial biopsy was more accurate in picking up endometrial hyperplasia and endometrial carcinoma mainly because patients with these diseases present in later stages in our setup. Other pathologies like chronic endometritis, endometrial polyp, hormone imbalance effect and disordered proliferative endometrium were also diagnosed with accuracy as these patients present with complaints of menorrhagia which compels clinicians to investigate the cause of disease promptly.

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