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Original Research Article

Correlation of ultrasound, hysteroscopic and endometrial histopathology findings in patients with post-menopausal bleeding

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ABSTRACT

Background: To study endometrial changes by hysteroscopy and ultrasonography in women presenting with postmenopausal bleeding and correlate it with histopathological endometrial findings.
Methods: This was prospective observational study carried out in the Department of Obstetrics and Gynaecology at Lokmanya Tilak Municipal Medical College and General Hospital. The materials for the present study included patients diagnosed with postmenopausal bleeding visited to a Municipal Tertiary care centre and teaching institute in between January 2019 to June 2020. Total 51 eligible patients were evaluated.
Results: In this study, on TVS examination, maximum patients 45.10% were having endometrial thickness in between 6-12mm. On hysteroscopy, 35.29% of the patients were having atrophic endometrium which was the most common finding followed by Endometrial Hyperplasia in 29.41% patients. The most common histopathological finding was atrophic endometrium in 41.18% patients followed by endometrial hyperplasia in 23.53% patients. In TVS, lowest sensitivity and lowest specificity was in case of Atrophic Endometrium and highest sensitivity and highest specificity was in case of fibroid. In Hysteroscopy, lowest sensitivity was in case of carcinoma and lowest specificity was in case of Endometrial Hyperplasia and highest sensitivity was in case of fibroid and highest specificity was in case of fibroid and carcinoma.
Conclusions: Hence from this study, hysteroscopy is found to be an easy, safe, alternative and effective means to investigate postmenopausal women with a thickened endometrium found on TVS. Hysteroscopy guided biopsy in postmenopausal women with uterine bleeding decreases the risk of false negative histopathological report which is more commonly found in blind dilatation and curettage. This is also a useful method of visualizing the uterine cavity pathologies.

Keywords: Postmenopausal bleeding, Hysteroscopy, Endometrial carcinoma, Ultrasound, Histopathology

INTRODUCTION

World Health Organization (WHO) defines menopause as permanent cessation of menstruation due to loss of ovarian follicular activity.[1] According to The International Menopause Society, Menopause is defined as a period after 12 consecutive months of amenorrhea where there is no obvious pathological/ physiological cause.[2] The International Menopause Society also defines menopause as a period known in certainty only after one year from the Final menstrual period (FMP).[3] WHO defines post menopause as dating from the FMP, regardless of whether the menopause was induced or spontaneous.[2] Postmenopausal bleeding is defined as bleeding from the genital tract that occurs 12 months after the final menstrual period (FMP).[2] Gynaecological malignancies are of major concern in women in their menopausal phase of life. Among them, the most common malignancy is

endometrial cancer.[4] Cervical cancer is the second most common malignancy worldwide.[4] In comparison with developed countries, there is disproportionate increase in the incidence of cervical cancer in developing countries. The third most common malignancy is ovarian malignancy; its prevalence is the same in developing and developed world.[4] Vaginal and vulval cancers contribute to less than 5% of gynaecological malignancies. Choriocarcinoma accounts for less than 1% in the group of gynaecological malignancies.[4]

Thus, screening of the population at risk should be adopted such that the procedure. is acceptable to the women, simple as well as reliable. It should provide tangible benefits by reduction of morbidity and mortality. This study was an attempt to measure endometrial thickness and compare TVS and Hysteroscopy and correlate with the histopathological findings, which is considered "gold standard diagnostic testing".

Aims and objectives

To study endometrium changes by hysteroscopy and ultrasonography in women presenting with postmenopausal bleeding. To correlate the findings of hysteroscopy and ultrasonography study of endometrium with histopathological endometrial findings.

METHODS

This was prospective observational study carried out in the Department of Obstetrics and Gynaecology in a Municipal tertiary care centre. The materials for the present study included patients diagnosed with postmenopausal bleeding visited to a Municipal Tertiary care centre and teaching institute in between January 2019 to June 2020. A total of 51 eligible patients were evaluated using a standard proforma/ Case record form and underwent the following investigative procedures systematically as and when needed.

Inclusion criteria

All Gynaecology patients with PV bleeding of age group 45-75 years, and patients after 1 year of cessation of menstrual bleeding were included in the study.

Exclusion criteria

Patients who were either. Not willing to participate in the study or not given such written informed consent. Patients with whom HPE reporting is not possible. Patients with Bleeding disorders.

Written, informed consent for the participation in the study and counselling was done. Detailed history was taken, and clinical examination was conducted. Necessary investigations were carried out and these finding were noted in case record form. After approval by ethics committee and written informed consent, as per the inclusion criteria the out-patients at the antenatal clinic and women getting admitted in ward and fulfilling the inclusion/exclusion criteria were enrolled in the study. Patients with post-menopausal bleeding were undertaken for ultrasound followed by hysteroscopy. Dilatation and curettage was done as a diagnostic procedure. Sample collected was sent for histopathology. Findings from USG and hysteroscopy were compared with histopathology. The study was carried over a period of 18 months at a tertiary care centre. All the parameters for diagnosis of postmenopausal PV bleeding were evaluated and the data was statistically analysed.

Statistical analysis

Findings were entered in Microsoft Excel 2013. Statistical analysis was carried out with the help of Statistical package for social sciences (SPSS) (version 20) for Windows package (SPSS Science, Chicago, IL, USA). The results were compiled by using suitable tables and graphs wherever necessary. The variations were analysed as a percentage of the total and reported.

Data analysis is done with the help of appropriate SPSS Software version 20. Quantitative data is presented with the help of mean, standard deviation. Qualitative data is presented with frequency and percentage tables. Charts and diagrams were drawn wherever necessary.

RESULTS

In this study, the greatest number of the patients involved were in between 46-55 years of age 54.9% followed by patients with age >55 years 35.29%. There were only 5 (9.80%) ≤45 years of age. Highest number of patients in the study 58.82%, attained menopause in between 1-5 years back. There were 31.37% whose menopause duration was >10 years and 9.8% had menopause in between 6-10 years back.

Table 1: Distribution of cases according to the age.

Age group in years	No. of patients	Percentage
<45 years	5	9.80
46-55 years	28	54.90
>55 years	18	35.29
Total	51	100

Most number of the study subjects attained menopause at 46-50 years 45.10% followed by 37.25% study subjects who attained at ≤45 years. There were 13.73% subjects had menopause in between 51-55 years and the least 2 (3.92%) patients attained menopause at the age >55 years. Mean age at which menopause was attained in the study subjects was 46.56±4.68 years.

Most of the patients 92.16% in the study were multipara while only few 7.84% patients were nullipara/unmarried.

33(64.71%) of the study patients were not having any medical conditions or any comorbidity. Among rest, Hypertension was the most common which was found in 25.49% of the patients followed by diabetes in 15.69% patients. There were each 2 (3.92%) patients of COPD and hypothyroidism.

Table 2: Distribution of cases according to the time since menopause.

Duration (in years)	No. of patients	Percentage
1-5	30	58.82
6-10	5	9.80
>10	16	31.37
Total	51	100.00

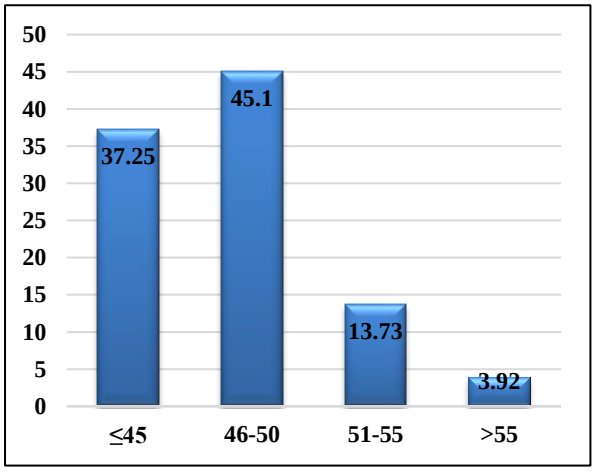

Figure 1: Distribution of cases according to the age at menopause.

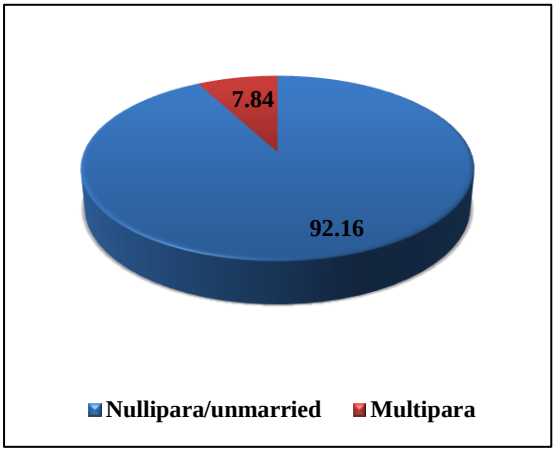

Figure 2: Distribution as per parity of the postmenopausal women.

On TVS examination, maximum patients 45.10% were having endometrial thickness in between 6-12 mm followed by 31.37% of patients with EMT up to 5 mm. There were 23.53% of patients with EMT >12 mm. The mean endometrial thickness was 8.54±3.71 mm. 6 (11.76%) showing carcinoma like feature on histopathological section and fibroid was found in 3 (5.88%) cases. Also 9 (17.65%) cases of polyps were found in the study as per Histopathology of the patient sample. These findings are compared with the previous available studies.

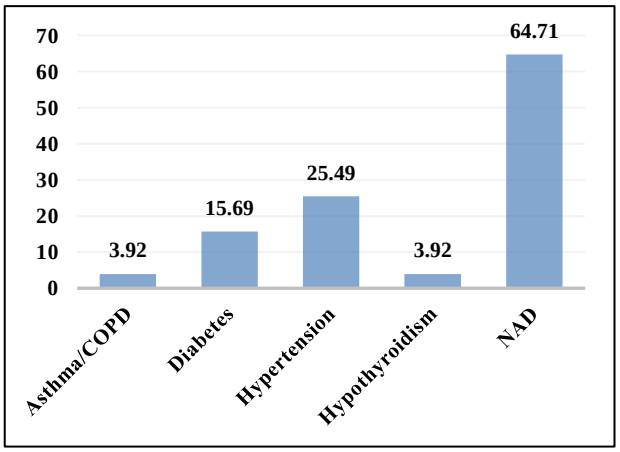

Figure 3: Distribution as per medical conditions in the patients.

Table 3: Endometrial thickness on TVS.

Thickness (in mm)	No. of patients	Percentage
Up to 5 mm	16	31.37
6-12	23	45.10
>12	12	23.53
Total	51	100.00

Table 4: Hysteroscopy findings of the study patients.

Finding	No. of patients	Percentage
Atrophic endometrium	18	35.29
Fluffy endometrium (hyperplasia)	15	29.41
Fibroid	3	5.88
Polyp	10	19.61
Carcinoma	5	9.80
Total	51	100.00

Considering histopathology as gold standard, the sensitivity and specificity of TVS and hysteroscopy for different findings were compared. For atrophic endometrium, sensitivity of TVS and hysteroscopy were 80.95% and 85.71% respectively while specificity was 83.33% and 90% respectively. For endometrial hyperplasia, sensitivity of TVS and hysteroscopy were 83.33% and 91.67% respectively while specificity was 86.84% and 87.18% respectively. For fibroid, sensitivity, and specificity of TVS and hysteroscopy were 100% and 100% for both. For polyp, sensitivity of TVS and hysteroscopy were 88.89% and 88.89% respectively while specificity was 92.5% and 95% respectively. For

carcinoma, sensitivity of TVS and hysteroscopy were 83.33% and 83.33% respectively while specificity was 100% and 100% respectively. In our study, the sensitivity of hysteroscopy in diagnosing endometrial hyperplasia was 91.67 % in accordance with a value of 94.4% obtained in a study by Ribero et al in November 2007. Fibroid was diagnosed with 100% sensitivity and specificity in both TVS and hysteroscopy.

In TVS, lowest sensitivity and lowest specificity was in case of atrophic endometrium and highest sensitivity and specificity was in case of fibroid. In hysteroscopy, lowest sensitivity was in case of carcinoma and lowest specificity was in case of endometrial hyperplasia.

In Hysteroscopy, highest sensitivity was in case of fibroid and highest specificity was in case of fibroid and carcinoma. Hysteroscopy was better in sensitivity in atrophic endometrium and endometrial hyperplasia and was similar in fibroid, polyp, carcinoma compared to TVS. Specificity was better hysteroscopy in diagnosing atrophic endometrium, endometrial hyperplasia and polyp while it was same in TVS and hysteroscopy in diagnosing fibroid and carcinoma.[32] Hysteroscopy is a significantly more accurate diagnostic method for the detection of endometrial pathology than TVS, has better specificity, and should be considered for all patients with an endometrial thickness of >4 mm with PMB.

Table 5: Histopathology of study patients.

Finding	No. of patients	Percentage
Atrophic endometrium	21	41.18
Endometrial hyperplasia	12	23.53
Fibroid	3	5.88
Polyp	9	17.65
Carcinoma	6	11.76
Total	51	100.00

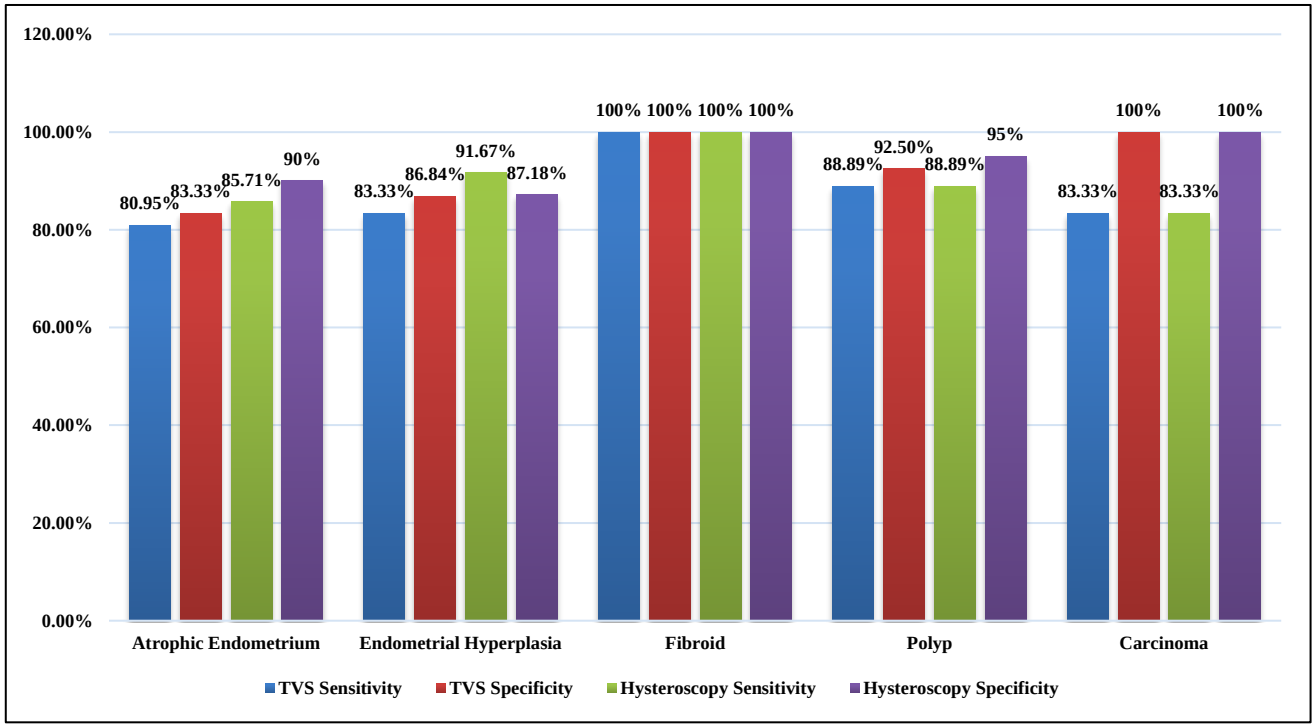

Figure 4: Comparison of sensitivity and specificity of TVS and Hysteroscopy.

DISCUSSION

Women in perimenopausal age group with abnormal uterine bleeding constitute the high-risk group for endometrial carcinoma. They should be screened for best possible results. Throughout India, so far very few studies have been done on postmenopausal women. The occurrence of any type of bleeding in postmenopausal age is unusual, it may be continuous bleeding or intermittent, heavy, or scanty, spotting or bleeding after coitus, douching or micturition. Abnormal bleeding in any patient at menopausal age may be taken as warning of malignancy.

From the study, it is thus noticeable that hysteroscopy is much more sensitive and specific than TVS in the recognition of focal endometrial pathologies such as endometrial polyp (97 and 76.7%, respectively). Rather, the technical enhancements have made hysteroscopy most suitable for office use such as " The Bettocchi Model".

Also, the specificity of hysteroscopy is more than TVS in diagnosing various endometrial conditions, reported two such cases of endometrial cancer with ET of 3-4 mm. Patients with repeated episodes of heavy menstrual bleeding might have cast off her endometrium and hence might be showing a thin endometrium and such cases are picked up on hysteroscopy. This analysis illustrates that endometrial cancers might occasionally be missed if TVS measurement of ET is used as a sole mode of investigation of post-menopausal bleeding.

Limitations

Multicentre retrospective analysis with larger population size is required in order for this to be statistically significant.

CONCLUSION

Hence, from this study, hysteroscopy is found to be an easy, safe, alternative and effective means to investigate postmenopausal women with a thickened endometrium found on TVS. In elderly patients who are at high risk for any invasive procedure, hysteroscopy is effective in reducing the number of hospital visits, admissions, and total costs. "See and Treat" approach in same sitting can be done in cases of office hysteroscopy. Though a larger study with a bigger sample size is recommended, from our study it can be concluded that hysteroscopy should be considered as a first line modality in the management of the patient with post menopausal bleeding.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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