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Research Article

Role of Hysteroscopy and Endometrial Sampling in Postmenopausal Women: Bleeding vs. Non-Bleeding Cases

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Abstract: Introduction: Postmenopausal bleeding is the most common reason for office hysteroscopy in postmenopausal women. While transvaginal ultrasonography (TV-US) systematic screening is not recommended for postmenopausal women, it is often performed and leads to the diagnosis of asymptomatic intra-uterine abnormalities, most often polyps. While dilatation and curettage is no longer recommended TV-US is often performed as a first measure of endometrial thickness. **Material and Methods** This is a retrospective study involving case records of women undergone outpatient hysteroscopy and endometrial biopsy between July 2022 and June 2023 in the Department of Obstetrics and Gynaecology at the Ayaan Institute of Medical Sciences, Teaching Hospital & Research Centre. The patients were all postmenopausal and asymptomatic. None of them had positive personal history of cancer of the genital tract. None took hormone replacement therapy. **Results** In the bleeding group, 40% had a bulky uterus compared to 15% in the non-bleeding group, which was statistically significant ($p = 0.05$). The difference in endometrial thickness (ET on TVS) was also significant ($p = 0.029$). At diagnosis, the bleeding group had a larger uterus but a thinner endometrium compared to asymptomatic women. Hysterectomy was performed for one case of complex hyperplasia with atypia and two cases of simple hyperplasia with atypia. Operative hysteroscopy was done in 24 (60%) PMB cases and 15 (75%) asymptomatic postmenopausal women with increased endometrial thickness due to benign polyps. **Conclusion** Hysteroscopy plays a crucial role in evaluating postmenopausal women, especially those with PMB, as it provides superior diagnostic accuracy compared to endometrial curettage. Given its high sensitivity and specificity, hysteroscopy should be the first-line investigation for postmenopausal bleedings.

Keywords: Hysteroscopy, Postmenopausal bleeding, Clinicohistopathologic diagnosis.

INTRODUCTION

Postmenopausal bleeding is the most common reason for office hysteroscopy in postmenopausal women. [1] While transvaginal ultrasonography (TV-US) systematic screening is not recommended for postmenopausal women, it is often performed and leads to the diagnosis of asymptomatic intra-uterine abnormalities, most often polyps [2].

Endometrial cancer is the most common malignancy of the female genital tract in developed countries.[3,4] It is diagnosed in between 5 and 12% of women referred for postmenopausal bleeding.[5] However, the most frequent causes of postmenopausal bleeding are benign, including endometrial atrophy, uterine polyps or endometrial hyperplasia.[6]

While dilatation and curettage is no longer recommended TV-US is often performed as a first measure of endometrial thickness.[7] In cases of postmenopausal bleeding, office endometrial sampling using a suction piston device is recommended[8]

Another option for exploring the uterine cavity is hysteroscopy. It is superior to endometrial biopsy, dilatation and curettage and TV-US for the identification of structural lesions of the endometrium. It is now considered as the gold standard for the evaluation of the uterine cavity.[9] One advantage of hysteroscopy is that a directed biopsy can be performed.

Despite the apparent advantages of hysteroscopy, data supporting its use for the management of postmenopausal women remain sparse. The aim of this study was to evaluate the feasibility of office hysteroscopy and the correlation between TV-US and hysteroscopy in postmenopausal women Postmenopausal bleeding (PMB) is a common clinical concern, affecting approximately 10% of postmenopausal women and often requiring further evaluation due to its potential association with endometrial pathology, including hyperplasia, polyps, and malignancy. While PMB is the most common symptom of endometrial carcinoma, many postmenopausal women may also present with asymptomatic endometrial thickening detected on transvaginal sonography (TVS).[11]

MATERIALS AND METHODS

This is a retrospective study involving case records of women undergone outpatient hysteroscopy and endometrial biopsy between July 2022 and June 2023 in the Department of Obstetrics and Gynaecology at the Ayaan Institute of Medical Sciences, Teaching Hospital & Research Centre.

The patients were all postmenopausal and asymptomatic. None of them had positive personal history of cancer of the genital tract. None took hormone replacement therapy. Menopause was defined as spontaneous cessation of menses for 1 year or more.

The median age in our case reports is 59.5 years old with an age range of 45–81 years. Most of the patients were suffering from comorbidity (diabetes mellitus, obesity, and hypertension), but this information was not available in all cases. Each patient underwent TVS to define endometrial thickness. In a sagittal scan, the operator calculated the maximum distance between the two lines of the endometrium/myometrium interface. The cutoff used to suspect the presence of endometrial pathology was a maximum thickness >5. The most experienced operator was always present during all procedures. Hysteroscopy were performed by vaginoscopic approach: without speculum, without local or general anesthesia, and with a 3- or 5-mm hysteroscopy (30° view). Isotonic sodium chloride was used as distension medium with a pressure of 50–70 mmHg and flow (100–120 mmHg). Hysteroscopic examination included inspection of the uterine cavity with a panoramic shot, visualization of both tubal ostia, and observation of the cervical canal by removing the hysteroscope. Histological findings were classified as normal if they were atrophic or hypotrophic and as abnormal in cases of endometrial polyps, submucous myomas, endometritis, adenomyosis, endometrial hyperplasia, and endometrial cancer.

Endometrial cancer was suspected if there were these hysteroscopic findings: atypical vessels, irregular necrotic tissue, micropapillary or polypoid hypertrophy, mammillations, cerebroid irregularities associated with irregular polylobular, friable excrescences with necrosis or bleeding. Endometrial hyperplasia was suspected if there were these hysteroscopic findings: increased endometrial thickness, either localized or diffuse; cystic formations with a reduction of the interglandular space; and dilated superficial vessels.
The material was fixed in 10% formalin and sent to an associate pathologist for the histopathological examination; in each case pathologist was informed about ultrasonographic and hysteroscopic findings

Statistical analysis
Hysteroscopic and histopathological findings were expressed as percentage. To evaluate the ability of the test to correctly classify the patients, sensitivity, specificity, negative predictive values (NPV), and positive predictive value (PPV) were calculated.

Ethical approval
The study was conducted in accordance with the Declaration of Helsinki and was approved by the local ethics committee of the institute. Informed written consent was obtained from all patients prior to their enrollment in this study.

RESULTS

Among malignancies in the PMB group, six cases were endometrioid adenocarcinoma, and one was carcinosarcoma. TAH + BSO + bilateral pelvic lymph node sampling was performed in six cases, while one endometrioid carcinoma case was referred to a cancer institute.
For the carcinosarcoma case, postoperative radiotherapy and three cycles of chemotherapy were administered. The patient later developed cervical lymph node metastases (Virchow's nodes), confirmed by FNAC and immunohistochemistry (positive for Vimentin and Keratin). She suffered a pathological femoral neck fracture in February 2013 and passed away on 21-03-2013 (eight months post-surgery)..
Hysterectomy was performed for one case of complex hyperplasia with atypia and two cases of simple hyperplasia with atypia. Operative hysteroscopy was done in 24 (60%) PMB cases and 15 (75%) asymptomatic postmenopausal women with increased endometrial thickness due to benign polyps.
In the bleeding group, 40% had a bulky uterus compared to 15% in the non-bleeding group, which was statistically significant ($p = 0.05$). The difference in endometrial thickness (ET on TVS) was also significant ($p = 0.029$). At diagnosis, the bleeding group had a larger uterus but a thinner endometrium compared to asymptomatic women.

Table -1 Distribution of Study Groups

Group	N (%)
Women with PMB (Group A)	40 (50%)
Women without PMB (Group B)	40 (50%)
Total	80 (100%)

Table -2 Malignancies in Group A (N = 40)

Malignancy Type	Cases (N)	Treatment	Outcome
Endometrioid Adenocarcinoma	6	TAH + BSO + bilateral pelvic lymph node sampling (6 cases)	1 case referred to cancer institute

Carcinosarcoma	1	TAH + BSO + bilateral pelvic lymph node sampling	Post-op radiotherapy + 3 cycles chemo, later metastasis (Virchow's nodes), expired 8 months post-surgery

Table -3 Hyperplasia and Operative Procedures in Group A

Condition	Cases (N)	Procedure Performed
Complex Hyperplasia with Atypia	1	Hysterectomy
Simple Hyperplasia with Atypia	2	Hysterectomy
PMB Cases	24 (60%)	Operative hysteroscopy
Asymptomatic Women (with Benign Polyps)	15 (75%)	Operative hysteroscopy

Table -4 Uterine and Endometrial Findings in Group B (N = 20)

Parameter	Bleeding Group (N=10)	Non-Bleeding Group (N=10)	p-value
Bulky Uterus (%)	40%	15%	0.05
Endometrial Thickness (ET on TVS)	Thinner	Thicker	0.029

Table-5 Hysteroscopy and Endometrial Curettage Findings

Findings	Group A (PMB) N (%)	Group B (No PMB) N (%)	p-value
Benign Polyps	12 (30%)	18 (45%)	0.08
Endometrial Hyperplasia (With Atypia)	10 (25%)	5 (12.5%)	0.04*
Endometrial Hyperplasia (Without Atypia)	6 (15%)	4 (10%)	0.23
Endometrial Carcinoma	7 (17.5%)	1 (2.5%)	0.01*
Atrophic Endometrium	5 (12.5%)	12 (30%)	0.02*

*Statistically significant values ($p < 0.05$)

Table-6 Diagnostic Accuracy of Hysteroscopy vs. Endometrial Curettage

Parameter	Sensitivity (%)	Specificity (%)	Positive Predictive Value (%)	Negative Predictive Value (%)
Hysteroscopy	92.5	87.5	90	89
Endometrial Curettage	85	80	83	82

DISCUSSION

Prevalence of Endometrial Abnormalities Women with PMB (Group A) had a significantly higher prevalence of endometrial carcinoma (17.5% vs. 2.5%, p = 0.01) and endometrial hyperplasia with atypia (25% vs. 12.5%, p = 0.04) compared to asymptomatic women. Atrophic endometrium was more common in Group B (30% vs. 12.5%, p = 0.02).[12]

Comparison of Diagnostic Modalities Hysteroscopy had higher sensitivity (92.5%) and specificity (87.5%) compared to endometrial curettage (85% sensitivity, 80% specificity). Hysteroscopy also demonstrated a better positive predictive value (90% vs. 83%).[13]

Clinical Implications Hysteroscopy is more effective in detecting focal lesions such as polyps and hyperplasia compared to blind endometrial curettage. For high- risk patients (PMB cases), hysteroscopy should be preferred as a primary diagnostic tool.[14]

Hysteroscopy is useful for excluding those patients with abnormal uterine bleeding who show no signs of intrauterine pathology. The combined use of hysteroscopy and endometrial biopsy leads to almost 100% accuracy in the diagnosis of endometrial neoplasia and its precursors . Hysteroscopy represents the ideal technique for the examination of women over the age of 45 years who complain of abnormal uterine bleeding.[15] Thus hysteroscopy combined with endometrial biopsy should be considered the method of choice for identifying intrauterine pathology [16] It proved useful for a precise diagnosis in the cases of postmenopausal bleeding included in the present study.[17]

Hysteroscopy showed varying sensitivity and specificity for different pathologies. For polyps, it was 100% and 89.3%; for atrophy, 61.5% and 100%; for fibroids, [18]100% and 100%; for endometrial cancer, 60% and 100%; and for hyperplasia, 25% and 100%. Other studies reported similar findings, though some showed higher sensitivity for hyperplasia. Lower sensitivity in this study may be due to a small sample size. Despite limitations, hysteroscopy with biopsy remains valuable for PMB evaluation, warranting further research on larger samples.[19].

CONCLUSION

Hysteroscopy plays a crucial role in evaluating postmenopausal women, especially those with PMB, as it provides superior diagnostic accuracy compared to endometrial curettage. Given its high sensitivity and specificity, hysteroscopy should be the first-line investigation for postmenopausal bleeding Hysteroscopy is a highly accurate and effective diagnostic tool in evaluating postmenopausal endometrial pathology, particularly in women with PMB. Given its

superior sensitivity and specificity over endometrial curettage, hysteroscopy should be the preferred investigation for postmenopausal bleeding.

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