

# Efficacy of hysteroscopy and endometrial biopsy in postmenopausal bleeding cases with endometrial thickness

Ishrath Fatima<sup>1</sup>, Bhagyashri Sudhir Ranjawan<sup>2\*</sup>, Roohi Mushtaque Shaikh<sup>3</sup>

<sup>1</sup>Assistant Professor, <sup>2</sup>Senior Resident, <sup>3</sup>Associate Professor, Department of Obstetrics and Gynecology, JIUS Indian Institute of Medical Science and Research Warudi, Tq Badnapur Dist. Jalna Maharashtra, INDIA.

Email: [drishrathbemat@gmail.com](mailto:drishrathbemat@gmail.com), [drbhagyashri9@gmail.com](mailto:drbhagyashri9@gmail.com), [dr.roohi.shaikh@gmail.com](mailto:dr.roohi.shaikh@gmail.com)

## Abstract

**Background:** Early evaluation of PMB cases is very essential as an endometrial carcinoma when fortunately detected at an early stage can be cured with less morbidity and mortality. Women with postmenopausal bleeding and a thick endometrium must undergo hysteroscopy and endometrial biopsy because of the high risk of endometrial cancer. **Aim:** To study the efficacy of hysteroscopy and endometrial biopsy in postmenopausal bleeding cases with endometrial thickness. **Material and Methods:** Transvaginal sonography was done in 73 postmenopausal women. A total of 50 cases with endometrial thickness of equal or more than 4mm on TVS were subjected to diagnostic Hysteroscopy followed by D and C. **Results:** Mean endometrial thickness was  $8.45 \pm 4.38$ mm. The association between endometrial thickness on TVS and endometrial biopsy outcome were highly statistically significant ( $p=0.000$ ). Sensitivity and specificity of hysteroscopy for the cases of endometrial hyperplasia, endometrial polyp and submucous fibroid were 100% except in case of atrophic endometrium which was slightly less. **Conclusion:** Hysteroscopy is a gold standard especially in high risk patients and represents an easy, safe and effective means to investigate postmenopausal women with a thickened endometrium found on TVS.

**Key Word:** Postmenopausal bleeding, endometrial thickness, biopsy, hysteroscopy

## \*Address for Correspondence:

Dr. Bhagyashri Sudhir Ranjawan, Senior Resident, Department of Obstetrics and Gynecology, JIUS Indian Institute of Medical Science and Research Warudi, Tq Badnapur Dist. Jalna, Maharashtra, INDIA.

Email: [drbhagyashri9@gmail.com](mailto:drbhagyashri9@gmail.com)

Received Date: 02/07/2018 Revised Date: 28/07/2018 Accepted Date: 10/08/2018

DOI: <https://doi.org/10.26611/10128214>

## Access this article online

Quick Response Code:



Website:

[www.medpulse.in](http://www.medpulse.in)

Accessed Date:  
06 October 2018

## INTRODUCTION

Postmenstrual bleeding (PMB) is the bleeding per vagina after an established menopause. Bleeding from genital track occurring after menopause is much more sinister than premenopausal bleeding. Any amount of PMB should not be underestimated, as there is a high incidence of endometrial malignancy during this period. The causes

of postmenopausal bleeding can be benign and malignant.<sup>1</sup> The normal postmenopausal endometrium is thin, uniform and consists of the basalis layer, which is less than 1mm thick anatomically. Endometrial atrophy is the most common cause of abnormal postmenopausal bleeding. Endometrial hyperplasia is also associated with postmenopausal bleeding. Endometrial polyps often have hyperplastic changes and the risk of premalignant to malignant increases with age, menopausal status and comorbid conditions.<sup>2</sup> Early evaluation of PMB cases is very essential as an endometrial carcinoma when fortunately detected at an early stage can be cured with less morbidity and mortality. It has much higher cure rate if diagnosed early. Women with postmenopausal bleeding and a thick endometrium must undergo hysteroscopy and endometrial biopsy because of the high risk of endometrial cancer. Hysteroscopy is an endoscopic technique allowing visualization of the endometrial cavity. Recent advances in instrumentation have allowed

**How to cite this article:** Ishrath Fatima, Bhagyashri Sudhir Ranjawan, Roohi Mushtaque Shaikh. Efficacy of hysteroscopy and endometrial biopsy in postmenopausal bleeding cases with endometrial thickness. *MedPulse – International Journal of Gynaecology*. November 2018; 8(2): 97-101. <http://medpulse.in/Gynaecology/index.php>

hysteroscopy to be performed in an outpatient setting, further increasing its use in gynecological practice. Hysteroscopy is likely to become the new gold standard in the future because of its ability to visualize directly the endometrium and perform directed biopsies as indicated.<sup>3</sup> Thus, the present study was conducted to study the efficacy of hysteroscopy and endometrial biopsy in postmenopausal bleeding cases with endometrial thickness.

## MATERIAL AND METHODS

In this descriptive study, all postmenopausal women with bleeding per vaginum attending Gynaecology OPD in the Department of Obstetrics and Gynaecology of Guwahati Medical College and Hospital, Guwahati were studied over a period of two years. A total of 73 postmenopausal women were selected by purposive sampling.

### Inclusion Criteria

- Women who reported with postmenopausal bleeding per vaginum (period of at least 12 months of amenorrhoea) after the age of 40 years
- The amenorrhoea was not explained by medication or disease with the complaint of bleeding per vagina.
- Women attending Gynaecology OPD in the Department of Obstetrics and Gynaecology.

### Exclusion criteria

- Women with bleeding diathesis and cardiac diseases.
- Women with grossly abnormal cervix.
- Women with diagnosed genital tract malignancy.
- Women with endometrial thickness of <4mm (for hysteroscopy and DandC)

A detailed history with systemic and local examination done. Informed and written consent of all cases were taken. Transvaginal sonography followed by hysteroscopy and DandC done in cases where endometrial thickness  $\geq 4$ mm.

**Transvaginal Sonography (TVS):** TVS was done in all the 73 cases of postmenopausal bleeding and patients were divided as low risk if ET <4mm and high risk if ET >4mm. The patient was asked to empty the bladder and privacy to the patient was provided. Patient was put in supine position with thighs abducted, knees flexed and buttocks elevated on a pillow. A transvaginal probe with 7.5MHZ frequency was covered with a condom. A small amount of jelly was applied to the tip of the probe over the condom. The probe was gently inserted into the vagina. Cervix, uterus, ovaries and bladder were evaluated. Endometrial thickness was measured from the highly reflective interface of the junction of the endometrium and myometrium. The measurement did not include the surrounding low amplitude echo layer, as this

represents the inner layer of compact and vascular myometrium.

**Hysteroscopy:** Diagnostic hysteroscopy was done in 50 cases of postmenopausal bleeding women in whom ET  $\geq 4$ mm. Diagnostic hysteroscope used was manufactured by Wolf Richard Company with halogen light source (150-250watts).

**Procedure:** After positioning the patient in dorsal lithotomy position, sedation given with 1cc fortwinand 1cc phenargen. The basic diagnostic set up included a speculum, swab holder, single toothed tenaculum, hysteroscope and outer sheath, illumination system, distension medium and video equipment. A set of cervical dilator was available. Rigid Hysteroscope was inserted into the sheath and the lock ring closed. The distention system was connected to the inflow stopcock and the sheath flushed through to demonstrate easy passage of the medium. Normal saline was used as a distension media. Once the scope was inserted through the external os, it was advanced and with drawn slightly to allow direct visualization of the internal os which appeared as a dark circle. The area that represented the internal os was at 12 o'clock position at the edge of the field of vision when the scope was upright and at 6 o'clock position when the scope was inverted. All surfaces of endometrium anterior, posterior, lateral wall including fundus and tubal ostia visualized. Careful techniques lessen disturbance of the endocervical canal and endometrium and allowed better and more precise visualization.

**Endometrial biopsy:** In the same setting D and C was done after removing the hysteroscope. A sharp curette is then introduced into the cavity up to the fundus, and the endometrium was then scrapped down in a clockwise or anticlockwise manner. The curetting material was then saved on a piece of gauze. Material was sent for HPE in 5% Formalin. Subsequently all HPE reports were collected during follow up and analysis done. Patient was allowed to go home on the same day

**Statistical Analysis:** The data collected in the study, analyzed statistically using descriptive statistics, Chi-square test, percentage, mean and standard deviation.

## RESULTS

A total 73 cases of postmenopausal bleeding attending Gynaecology OPD of Gauhati Medical College and Hospital during the above mentioned period were taken for the study. Initially TVS was done in all the 73 cases. The cases with endometrial thickness of equal or more than 4mm on TVS were subjected to diagnostic Hysteroscopy followed by DandC. In our study, we had found 50 cases with  $\geq 4$ mm of endometrial thickness. In 5 cases, biopsy could not be done as endometrial sample was inadequate. In our study, majority of cases 16 (32%)

were in the age group of 50-55 years followed by 15 (30%) in <50 years, 8 (16%) patients in 56-60 years age group and 6 (12%) in 61-65 years age group. Only 5 (10%) cases were in the age group of 66-70 years. It was seen that as the age increases the number of patient decreases. Mean age of the patient in our study was 54.3

years. In our study, 26 (52%) of the women had an endometrial thickness between 4-8mm and in 17 (34%) of the cases thickness was 9-13mm, in 5 (10%) cases thickness was 14-18mm whereas in 2 (4%) cases, it was found to be 19-22mm. Mean endometrial thickness in our study was  $8.45 \pm 4.38$ .

Table 1: Association between endometrial thickness and Endometrial Biopsy Outcome

Biopsy		TVS- Endometrial Thickness ( mm)				Total
		04-08	09-13	14-18	19-22	
Atrophic/resting endometrium	No. of patients	19	2	0	0	21
	%	90.6%	9.4%	0%	0%	100%
Secretory endometrium	No. of patients	0	2	0	0	2
	%	0%	100%	0%	0%	100%
Proliferative endometrium	No. of patients	1	4	1	0	6
	%	16.7%	66.7%	16.7%	0%	100%
Simple hyperplasia	No. of patients	0	8	2	0	10
	%	0%	80%	20%	0%	100%
Complex hyperplasia	No. of patients	0	1	1	0	2
	%	0%	50%	50%	0%	100%
Polyp	No. of patients	0	0	1	0	1
	%	0%	0%	100%	0%	100%
Adenocarcinoma	No. of patients	0	0	0	2	2
	%	0%	0%	0%	100%	100%
Endometritis	No. of patients	0	0	1	0	1
	%	0%	0%	100%	0%	100%
Total	No. of patients	21	17	5	2	45
	%	42%	34%	10%	4%	90%
Chi-square value		107.54				
p-value		p=0.0000 Significant				

In our study, 90.3% cases of atrophic endometrium we observed that the endometrial thickness was between 4-8mm, only 9.7% cases of atrophic endometrium had endometrial thickness of 9-13 mm and 75% cases of hyperplasia had endometrial thickness of 9-13 mm whereas in all cases of adenocarcinoma, endometrial thickness was 19-22mm. The association between endometrial thickness on TVS and endometrial biopsy outcome were highly statistically significant (p=0.000).

Table 2: Hysteroscopic findings in PMB cases

Hysteroscopic finding	Number
Normal endometrium	13(26%)
Atrophic endometrium	20(40%)
Thickened endometrium	11(22%)
Polyp	2(4%)
Irregular endometrium	2(4%)
Myoma	2(4%)

On hysteroscopic examination, normal endometrium was seen in 26% of cases and atrophic endometrium was seen in 40% cases. Polyp was seen 4% cases whereas myoma was seen in 4% case. Hyperplasia of the endometrium was seen in 22% of the cases whereas irregular growth was seen in 4% of the cases.

Table 3: Sensitivity and Specificity of endometrial biopsy and hysteroscopy

Diagnosis	Endometrial biopsy		Hysteroscopy	
	Sensitivity (%)	Specificity (%)	Sensitivity (%)	Specificity (%)
Atrophic endometrium	100	100	97.5	95.23
Endometrial hyperplasia	100	100	100	100
Endometrial polyp	50	98.4	100	100
Submucous fibroid	0.00	0.00	100	100
Carcinoma of endometrium	100	100		100

The above result showed that the sensitivity and specificity of endometrial biopsy was 100% in cases of atrophic endometrium, endometrial hyperplasia and endometrial carcinoma, whereas in cases of endometrial polyp, submucous fibroid sensitivity and specificity were less. On the other hand, sensitivity and specificity of hysteroscopy for the cases of endometrial hyperplasia, endometrial polyp and submucous fibroid were 100% except in case of atrophic endometrium which was slightly less. So, cases of polyp and submucous fibroid were better seen by hysteroscopy.

## DISCUSSION

Abnormal uterine bleeding at any stage in a woman life is disruptive and worrisome. But postmenopausal bleeding is of special concern because it may be a clinical indication of presence of endometrial Carcinoma. The postmenopausal bleeding is associated with different types of endometrial pathology. Each postmenopausal bleeding case requires to be investigated. Although the incidence of carcinoma among these women is high but other benign causes such as normal proliferative, endometrial hyperplasia or atrophic endometrium are also common. In cases of postmenopausal bleeding, most widely used technique for obtaining an endometrial sample for histological evaluation was dilatation and curettage. However, majority of women with irregular uterine bleeding actually have no endometrial pathology and thus undergo the risk of an unnecessary surgical procedure. Diagnostic curettage is an invasive and uncomfortable procedure and not without danger, especially in the elderly PMB women. The diagnostic accuracy is also not optimal, as false negative rates of 2-6% has been reported. Such figures also hold true for other methods of obtaining endometrial sample such as pipelle biopsy as a single curettage will not remove all the surface of endometrium completely from the uterine cavity.<sup>4</sup> It seems clearly that the use of DandC as the gold standard technique for the assessment of endometrial pathology has serious limitations. Hence, a noninvasive diagnostic modality has to be used as a screening method. The sensitivity and specificity of DandC by Madan SM was 33% and 94% respectively, sensitivity and specificity by ACOG 2012 was 73% and 100% respectively.<sup>5,6</sup> In our study sensitivity was 98.45% which was much more higher compared to both the above mentioned studies but specificity was 100% which was similar to the above mentioned studies. Wikland *et al* has shown that an endometrial thickness of <4mm indicates low risk for endometrial carcinoma as well as other major endometrial pathology in women with PMB. Based on their studies they have concluded that a reduction of 50% of curettages could have been achieved. They suggested that TVS should be the primary method for excluding any endometrial abnormality in women with PMB.<sup>7</sup> Granberg *et al* transvaginally scanned 205 patients and had chosen a thickness of 5mm as a cutoff point.<sup>8</sup> Karlsson *et al* had found from the results of their multicentric study on 1186 women with postmenopausal bleeding that the risk of finding pathological endometrium at curettage when the endometrium is 4 mm or less as measured by transvaginal ultrasonography is 5.5%. Thus, they concluded that in women with postmenopausal bleeding and an endometrium <4 mm, it would seem justified to refrain from curettage.<sup>4</sup> Based on the data described by Karlsson *et al* it seems reasonable to conclude that an endometrial thickness of 5-4 mm as measured by transvaginal ultrasonography in woman with postmenopausal bleeding carries a very low risk of being abnormal. The sensitivity of hysteroscopy according to Tandulwalkar *et al* was 97% which is comparable to our study of sensitivity 97.5%.<sup>9</sup> Specificity of hysteroscopy by Giusa Cheifri *et al* was 96% which is comparable to our study 95.2%.<sup>10</sup> Sensitivity of endometrial biopsy in Tandulwalkar study was 92% whereas in Giusa Cheifri *et al* only 84% but in present study it is 98.3%. Similarly, specificity of endometrial biopsy in Tandulwalkar and Giusa Cheifri *et al* was 88% and 89% respectively but in our study specificity was much higher.<sup>9,10</sup>

## CONCLUSION

Hysteroscopy is a gold standard especially in high risk patients and represents an easy, safe and effective means to investigate postmenopausal women with a thickened endometrium found on TVS. Hysteroscopy can differentiate focal lesion such as polyp and myomas better than endometrial biopsy.

## REFERENCES

1. Munot S, Lane G. Modern management of postmenopausal bleeding. *Trends Urol Gynaecol Sex Health* 2008; 13:20-24.
2. Costa-Paiva L, Godoy CE Jr, Antunes A Jr, Caseiro JD, Arthuso M, Pinto-Neto AM. Risk of malignancy in endometrial polyps in premenopausal and postmenopausal women according to clinicopathologic characteristics. *Menopause*. 2011 Dec; 18(12):1278-82.
3. Goncharenko VM, Beniuk VA, Kalenska OV, Demchenko OM, Spivak MY, Bubnov RV. Predictive diagnosis of endometrial hyperplasia and personalized therapeutic strategy in women of fertile age. *EPMA J*. 2013; 4(1):24.
4. Karlsson B, Granberg S, Wikland M, Ylöstalo P, Torvid K, Marsal K, Valentin L. Transvaginal ultrasonography of the endometrium in women with postmenopausal bleeding—a Nordic multicenter study. *Am J Obstet Gynecol*. 1995; 172(5):1488–1494.

5. Madan SM, Al-Jufairi ZA. Abnormal uterine bleeding. Diagnostic value of hysteroscopy. Saudi Medical Journal 2001; 22(2):153-156.
6. ACOG committee opinion no. 426 The role of transvaginal ultrasonography in the evaluation of postmenopausal bleeding. American College of Obstetricians and Gynecologists. Obstet Gynecol. 2009; 113(2 Pt 1):462–464.
7. Wikland M, Granberg S, Karlsson B. Replacing diagnostic curettage by vaginal ultrasound. Eur J Obstet Gynecol Reprod Biol 1993; 49: 35.
8. Granberg S, Wikland M, Karisson B, Norstrom A, Friberg L. Endometrial thickness as measured by endovaginal ultrasonography for identifying endometrial abnormality. Am J Obstet Gynecol 1991; 164: 47.
9. Tandulwadkar S, Deshmukh P, Lodha P, Agarwal B. Hysteroscopy in postmenopausal bleeding. J Gynecol Endosc Surg. 2009; 1(2):89-93.
10. Giusa-Chiferi MG, Gonçalves WJ, Baracat EC, de Albuquerque Neto LC, Bortoletto CC, de Lima GR. Transvaginal ultrasound, uterine biopsy and hysteroscopy for postmenopausal bleeding. Int J Gynaecol Obstet. 1996 Oct;55(1):39-44.

Source of Support: None Declared  
Conflict of Interest: None Declared

