



## POSTMENOPAUSAL UTERINE BLEEDING; CORRELATION OF THE FINDINGS OF TRANSVAGINAL ULTRASONOGRAPHY & ENDOMETRIAL SAMPLING IN PATIENT

dr\_fj5@hotmail.com

1. Assistant Professor  
Department of Gynecology &  
Obstetrics;  
Indus Medical Collage Hospital  
Tando Muhammad Khan, Sindh,  
Pakistan
2. Mazzah Terrace, Flat No. F1,G1  
Wadhu Wah Road, Qasimabad,  
Hyderabad.
3. Mazzah Terrace, Flat No. F1,G1  
Wadhu Wah Road, Qasimabad,  
Hyderabad.
4. Registrar  
Indus Medical Collage Hospital  
Tando Muhammad Khan, Sindh,  
Pakistan
5. Registrar  
Indus Medical Collage Hospital  
Tando Muhammad Khan, Sindh,  
Pakistan
6. Professor & Head  
Department of Gynae & Obst.  
LUMHS, Jamshoro

### Correspondence Address:

Dr. Fareen Memon  
Assistant Professor  
Department of Gynecology &  
Obstetrics;  
Indus Medical Collage Hospital  
Tando Muhammad Khan Sindh  
Pakistan  
dr\_fj5@hotmail.com

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**Dr. Fareen Memon<sup>1</sup>, Dr. Rahila Munwar<sup>2</sup>, Dr. Bilquees<sup>3</sup>, Dr. Sajida Rajpar<sup>4</sup>, Dr. Razia Shoukat<sup>5</sup>,  
Dr. Raheel Sikandar<sup>6</sup>**

**ABSTRACT... Objectives:** To find out the significance of the transvaginal sonography (TVS) in postmenopausal women (PMW) with postmenopausal bleeding (PMB) and compare it with the histopathological diagnosis at curettage, so that unnecessary operations could be avoided. **Study Design:** Descriptive study. **Setting:** Radiological Department for TVS and H/P at the Department of Gynecology & Obstetrics (Gynae: Unit IV) at Liaquat University Medical, Health Sciences Hospital Jamshoro and Hyderabad. **Period:** September 2010 to September 2011. **Material and Methods:** The present study was conducted on patients with postmenopausal bleeding. **Results:** The mean age  $\pm$  SD of the women was  $51 \pm 3.1$  years, ranging from a minimum of 49 to 55 years. The mean endometrial thickness was from 1.8-15mm. Transvaginal Sonography and Histopathological Findings: Histopathological findings revealed endometrial atrophy in 64 (57.14%) patients, Endometrial hyperplasia in 24(21.4%), endometrial polyp in 7(6.25%), Endometrial carcinoma in 8 (7.14%), Pyometra in 5(4.46%) and Fibroid uterus in 4(3.57%). With a cut off value of 4mm endometrial thickness, TVS showed a sensitivity of 100%, specificity of 73.33%, a positive predictive value of 76.47%, a negative predictive value 100% and an accuracy of 85.71%. At a cut off limit of 5mm endometrial thickness (endometrium >5mm indicating pathology), the sensitivity of the present study was 92.3% and the specificity was 86.6 %. The positive predictive value was 85.71%, the negative predictive value was 92.86 % and the accuracy was 89 %. **Conclusion:** TVS is a useful tool to triage post menopausal women with bleeding and avoid un convenient invasive procedure.

**Key words:** Transvaginal Ultrasonography, utrine bleebling, post menopause

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## INTRODUCTION

Post menopausal bleeding is defined as bleeding from the genital tract one or more years after a woman's last period. Life expectations of women has increased during this period, hence, many will have knowledge about postmenopausal period. The dictum is "Postmenopausal bleeding indicates malignancy until proved otherwise". It is a frequent problem, on behalf of 5% of all gynecology outpatient attendances<sup>16,25</sup>, and it is an alarming indication in this age group. It is not always possible to allocate pathological cause with certainty in postmenopausal bleeding (PMB).

### Etiology of post-menopausal bleeding comprise

Women on hormone replacement therapy,

other than gynecological causes like accident or hematological disorders, endometrial origin bleeding, vaginal atrophy, usually presents as post menopausal bleeding but 25% happen in pre menopausal women. Other causes include: polyps, uterine sarcoma, cervical carcinoma, estrogen-secreting ovarian carcinomas, vaginal carcinomas which is very un usual & carcinoma of vulva may lose blood, but the lesion should be palpable.<sup>14,31</sup>

### The risk factors for endometrial cancer comprise

Tamoxifen therapy, exogenous estrogens, familial causes non-polyposis colorectal carcinoma, polycystic ovary syndrome, obesity associated with diabetes mellitus. However, the use of oral

contraceptives reduces the risk.<sup>21,15,11</sup> The mean endometrial thickness in post-menopausal women should not exceed 4mm and 10mm in pre menopausal women.

Where sufficient facilities and skills are exist, transvaginal ultrasound is an appropriate non invasive, diagnostic procedure to identify that woman with post-menopausal bleeding who are prone to develop endometrial carcinoma. Thickening of the endometrium may indicate the presence of pathology. The threshold of the endometrial thickness in the UK is 5mm; a thickness of >5mm than the risk of endometrial cancer is 7.3%<sup>27</sup>, and the value of <5mm than the risk of 98%<sup>9</sup>. Recently a meta-analysis determined that a TVUS result of 5 mm or less reduces the risk of endometrial cancer by 84%.<sup>6,10</sup> In Some cases, it is recommended that hysteroscopy and endometrial sampling should be done if clinical suspicion is higher.<sup>1,11</sup> In the women with diabetes mellitus and obesity has been difficult to the assessing endometrial thickness, but models has been planned to take personal characteristics into account when predicting the risk of malignancies.<sup>26</sup>

Hysteroscopy and endometrial sampling (fractional curettage/pipelle) is the diagnostic technique to excluding other benign disorders. Diagnostic hysteroscopy is a day care procedure can be done under local anesthesia, but in therapeutic procedures women will need general anesthetic. A major growth may be need direct referral to 'one stop' specialist clinics.<sup>10,11,6,30</sup> In advance clinical practices, various investigating tools are available to provide clinical evaluation, including ultrasound, hysteroscopy and endometrial sampling techniques like pippelle.

## MATERIAL AND METHODS

- This study was done on one hundred twelve women who were visited through the outpatient department, and from ER department of Liaquat University Medical Health Sciences Hospital Jamshoro and Hyderabad. The sample calculation using the raosoft software for "Sample size calculation"

by using the proportion of (25% Endometrial carcinoma occur in premenopausal women.) With 95 % confidential interval and 8% of margin of error, the sample size stands to be n=112.

- Menopause was defined as the one year of amenorrhea in age of 45-55 yrs. Patients with Postmenopausal bleeding, at least 6 months after cessation of menstruation, were considered in the study.
- The patient's other complaints, clinical examination and relevant investigations were recorded.
- All patients were underwent for the base line and specific investigations especially transvaginal ultrasonography was done to measure the endometrial thickness and Endometrial sampling for the assessment of postmenopausal bleeding.
- Patients were referred to the radio diagnostic department for endo vaginal sonography to evaluating endometrial thickness.

Transvaginal sonography was performed on the Nemio (Toshiba, Tokyo, Japan) machine. Probe was a micro-convex device for conducting transvaginal sonography. A permanent record was also obtained. Before starting transvaginal sonography, the patient was asked to empty the urinary bladder. The transducer was introduced into the posterior fornix of vagina and uterus was scanned transversely and longitudinally. This examination represented the two layers of endometrium. In the presence of fluid in the endometrial canal, the two half thickness endometrial measurements were added together.

- The correlation between transvaginal sonographical findings of the endometrium was done with histopathological findings.
- The inclusion criteria was that all patients with post menopausal bleeding.
- A written and informed consent was obtained from the patient.
- The exclusion criteria was history of medical disorders and Post-menopausal women on hormone replacement therapy.
- Results were calculated with the help of graphs and tables. The data was analyzed

through

- The data was analyzed through the SPSS software 20.0.

**RESULTS**

This study was conducted on 112 patients in Liaquat University Medical Health Science Hospital Jamshoro/ Hyderabad.

There was wide variation in the age ranging from a minimum of 45 years to 55 years. The mean age was 47+ 3.1 years. (Table-I, Figure-1).

The transvaginal ultrasonography of the patients were showed that Postmenopausal Atrophic uterus in 64 (57.14%) patients, endometrial polyp in 5(4.46%) patients, Endometrial hyperplasia in 27(24.10%) patients, Endometrial carcinoma in 8(7.14%) patients, Pyometra in 4(3.57%) patients and Fibroid uterus in 4(3.57%) patients. (Table-II, Figure-2).

**Histopathology Findings**

The histopathological findings were revealed that Atrophic uterus in 64(57.14%) patients, endometrial polyp in 7(6.25%) patients, Endometrial hyperplasia in 24(21.4%) patients, Endometrial carcinoma in 8(7.14%), Pyometra in 5(4.46%) patients and Fibroid uterus in 4(3.57%) patients. (Table-III, Figure-3)

Age of patients Years	Frequency	Percentage
45-50 years	64	57.14%
51-55 years	48	42.86%

Means Age 47+ 3.1years

Table-I. Age distribution n=112

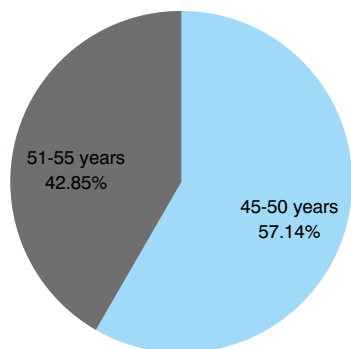


Figure-1. Age distribution n=112

Transvaginal sonography diagnosis	Endometrial thickness	Frequency	Percentage
Postmenopausal Atrophic uterus	1.8-4 mm	64	57.14%
Endometrial polyp	10-14 mm	05	4.46%
Endometrial hyperplasia	5.6-20 mm	27	24.10%
Endometrial carcinoma	8.1-27 mm	08	7.14%
Pyometra	6 mm	04	3.57%
Fibroid uterus	5 mm	04	3.57%

Table-II. Transvaginal sonography of patients n=112

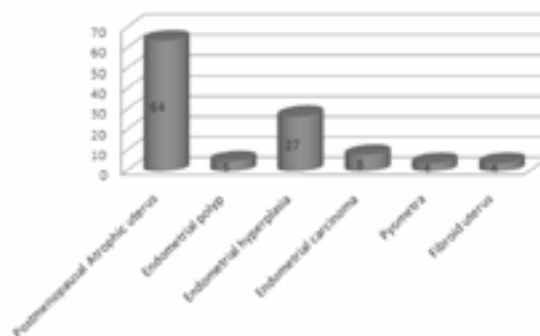


Figure-2. Transvaginal sonography of patients n=112

Histopathology Findings	Frequency	Percentage
Postmenopausal Atrophic uterus	64	57.14%
Endometrial polyp	07	6.25%
Endometrial hyperplasia	24	21.4%
Endometrial carcinoma	08	7.14%
Pyometra	05	4.46%
Fibroid uterus	04	3.57%

Table-III. Histopathology Results n=112

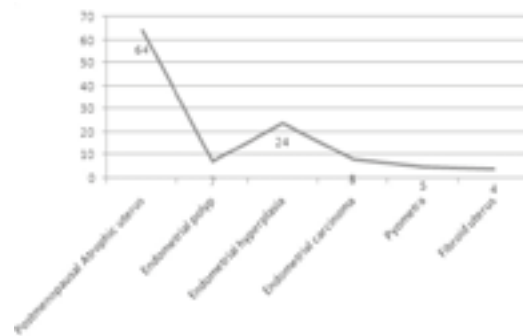


Figure-3. Histopathology results n=112

Diagnosis	Transvaginal Sonography		Histopathology	
	No: of Patients	Percentage	No: of Patients	Percentage
Postmenopausal Atrophic uterus	64	57.14%	64	57.14%
Endometrial polyp	05	4.46%	07	6.25%
Endometrial hyperplasia	27	24.10%	24	21.4%
Endometrial carcinoma	08	7.14%	08	7.14%
Pyometra	04	3.57%	05	4.46%
Fibroid uterus	04	3.57%	04	3.5%
<b>Total</b>	<b>112</b>	<b>100%</b>	<b>112</b>	<b>100%</b>
<b>p Value</b>	0.004			

**Table-IV. Correlation of transvaginal sonography with histopathology results**

**DISCUSSION**

Post-menopausal bleeding should be considered as an important symptom and the principal aim of the investigation of post-menopausal bleeding is to rule out or exclude any endometrial pathology. Osman and Amer found that endometrial thickness is the most valuable parameter to differentiate both any endometrial pathology and endometrial cancer.<sup>22</sup> Transvaginal sonography has been proposed to be the investigation of first priority in postmenopausal bleeding because of its most perfect accuracy<sup>28</sup>, although in another report, this accuracy is said to be lower.<sup>23</sup> In our study, there were good results of the transvaginal sonography for the diagnosis of any endometrial pathology.

The endo vaginal ultrasound has gives new anatomical and pathophysiological information regarding the female genital organs, due to the close proximity to the organs and because of the higher insonating frequency, the resolution is dramatically improved.<sup>12</sup>

In our study age was ranging from a minimum of 45 years to 55 years. The mean age was 47± 3.1 years. However the study of Dawood NS reported the mean age at presentation was 63.6±9.3 years<sup>19</sup> and some others reported similar<sup>1,9</sup>

Transvaginal Sonography (TVS) is an efficient and acceptable as a non-invasive procedure for the early detection of endometrial pathology in postmenopausal females. The thickness of endometrium after menopause is the most significant ultra sonographical criterion implicating

its pathology.<sup>2</sup>

Transvaginal sonography is an important diagnostic non-invasive technique for the detection of early gynecological disorders.<sup>18</sup>

The role of TVS is well established in the search for endometrial hyperplasia and carcinoma.<sup>16</sup>

In our study transvaginal ultrasonography of patients were showed postmenopausal Atrophic uterus in 64 (57.14%) patients, endometrial polyp in 5 (4.16%) patients, endometrial hyperplasia in 27 (24.10%) patients, endometrial carcinoma in 8 (7.14%) patients, pyometra in 4 (3.57%) and fibroid uterus in 4 (3.57%) patients. While in the study of<sup>17</sup>, reported results on transvaginal sonography were atrophy in 30 (50%), Hyperplasia in 13 (21.66%), Endometrial polyp 16 (26.66%) and Carcinoma 1 (1.6%). An other study conducted by<sup>24</sup>, on 142 patients was reported that the incidence of endometrial pathology was found to be of 23.9% and only 5% for endometrial carcinoma. Benign endometrial pathology is the most common cause of postmenopausal bleeding suggested by.<sup>24</sup>

Transvaginal ultrasonography (TVS) is a first line investigating tool, but some authors have a different theories for the accuracy of TVS to excluding endometrial malignancy.<sup>21</sup> Diagnostic procedures: (e.g., dilatation and curettage, hysteroscopy, and endometrial biopsy) are invasive but can be more accurate diagnosis. The most diagnostic strategy to excluding endometrial carcinoma in postmenopausal woman with

bleeding, still remains controversial. In future the research should be focused to achieving a higher accuracy of different diagnostic strategies.<sup>5,4</sup> In our study transvaginal sonography showed same results as in Histopathology findings revealed was Atrophic uterus in 64 (57.14%) patients, endometrial polyp in 7 (6.25%), Endometrial hyperplasia in 24 (21.4%), Endometrial carcinoma in 8 (7.14%), Pyometra in 5 (4.46%) and Fibroid uterus in 4 (3.5%) patients. Compare the study of<sup>4</sup> reported the histopathological results in postmenopausal bleeding patients were atrophic endometrium in 72 (58.5%), endometrial polyp in 37 (30%) cases, Endometrial hyperplasia in 9 (7.3%) cases and adenocarcinoma in 1 (0.8%) cases.

## CONCLUSION

The transvaginal ultrasound investigation for postmenopausal bleeding provides important information for the patients under high risk of endometrial abnormalities. We conclude from this study that transvaginal ultrasound has triage role in the case of endometrial cancer and provide important information to start necessary treatment.

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**AUTHORSHIP AND CONTRIBUTION DECLARATION**

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Dr. Fareen Memon	Conceived the idea of the paper, performed the latest literature review in the field,	
2	Dr. Rahila Munwar	performed part of the analysis, checked the interpretation of the results, drafted the abstract and acting as corresponding author	
3	Dr. Bilquees	Performed the analysis, interpret the result and approved the final version of the paper	
4	Dr. Sajida Rajpar	Helped in designing the study, refined the idea of the paper	
5	Dr. Razia Shoukat	Co-ordinated co-authors and helped in data collection	
6	Dr. Raheel Sikandar	Helped in data collection She is the duide and was helped through out the process from the idea generation to final draft of the paper (SUPERVISOR)	