

# Correlation of Endometrial Thickness and Endometrial Histology in Post-Menopausal patients

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## ABSTRACT

**Background:** Endometrial carcinoma is one of the commonest gynecological tumors occurring more commonly in post-menopausal women presenting with post-menopausal bleeding. TVUS is a screening tool to stratify patients as high or low risk on the basis of endometrial thickness.

**Aim:** To know whether the finding of TVUS needs to be correlated with the histopathology of endometrial biopsy sample before making any definitive diagnosis or not.

**Method:** We conducted a systematic search by using Google Scholar as search engines to retrieve all the relevant data published from 2019 to 2021 while following PRISMA Statement.

**Results:** Out of 1039 articles retrieved, only 6 articles were found that met the preset inclusion and exclusion criteria and of which there were 4 were prospective studies and 2 were retrospective in nature.

**Conclusion:** TVUS is an excellent screening tool for endometrial cancer but the findings of TVUS needs to be correlated with histopathological findings of endometrial biopsy samples to make a confirm diagnosis.

**Keywords:** Correlation, Endometrial thickness, Transvaginal Ultrasonography, Histo-pathology

## INTRODUCTION

Post-Menopausal women are those women who have been amenorrheic for at least 12 months or who have not had their menses for 1 year and is no longer fertile<sup>1</sup>. These women usually presents in gynecological departments globally with the most common presenting complaint of post-menopausal bleeding<sup>2,3</sup>. Symptom of Post-menopausal bleeding has always been a great concern for the gynecologist because of its close association with endometrial carcinoma which is fourth leading cause of death in females<sup>4</sup>. The incidence of endometrial carcinoma is increasing rapidly and is expected to be 50% by 2040<sup>5</sup>. This rapidly rising threat of endometrial malignancy necessitates its early diagnosis and management<sup>4,5</sup>.

Normal post-menopausal endometrium is homogenous, echogenic and regular<sup>1</sup>. The evidence on thickness of post-menopausal endometrium is contradictory with some studies favoring atrophy of endometrium with age leading to thin endometrium as compared to pre-menopausal or peri-menopausal women<sup>6,7</sup>. Endometrial thickness is increased in endometrial carcinoma due to hyperplasia of endometrial glands<sup>8,9,10</sup>. Various diagnostic modalities are available to diagnose Endometrial carcinoma in females including both non-invasive and invasive techniques<sup>11</sup>. Transvaginal ultrasonography (TVUS) is a non-invasive imaging technique to look for endometrial thickness, a marker of endometrial carcinoma and a screening tool before referring patients to invasive techniques like Endometrial biopsy by Dilatation and Curettage (D&C)<sup>12</sup>. TVUS is considered a first line investigation to stratify women as low or high risk on the basis of endometrial thickness but should endometrial thickness alone be taken a reliable marker of endometrial malignancy or not is a query. Our review aims to resolve this query by identifying the relevant literature. Further, Histopathological correlation of biopsy findings with the endometrial thickness might help us to sort out a cut-off value of endometrium that should be considered serious due to high risk of malignancy after that value and identifying whether the symptomatic females having endometrial thickness

below that cutoff should be followed or investigated further or be left unattended for appearing negative on screening test.

## METHODS

**Search Strategy:** We searched the literature from 23<sup>rd</sup> Dec, 2021 to 29<sup>th</sup> Dec, 2021 by using Google Scholar following PRISMA guidelines. Correlation, Endometrial thickness, Transvaginal Ultrasonography, Histo-pathology and Postmenopausal women. Only articles published in English language were recruited. Duplicates were removed manually. Studies discussing endometrial thickness and histopathological features of postmenopausal women were included. The studies dealing with both perimenopausal and postmenopausal women were included only if the authors have discussed the endometrial thickness of postmenopausal women separately. Permission was granted by IRB. Studies were excluded on the basis of following criteria:

- No free access
- Deals with Peri-menopausal women or Pre-menopausal women
- Patients suffering from comorbidities like PCOS, Breast Cancer or taking any Estrogen containing medications
- Reviews, commentaries, editorials

## RESULTS

Out of 1388 articles identified by database after removal of duplicates, 1071 articles were excluded on title screening whereas 311 studies were excluded after full-text screening according to preset inclusion and exclusion criteria. Only 6 articles were found eligible. Of these 6 articles, there were 4 Prospective and 2 Retrospective studies discussing the endometrial thickness by Transvaginal ultrasonography and Histopathological picture of endometrial biopsy in post-menopausal women. Most common clinical presentations of women in included studies were Post-menopausal bleeding and abdominal pain. Less common presentations were Abnormal Vaginal Discharge, Vulval Itching and Uterovaginal Prolapse (Table 1).

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Table 1:

Study	Study type	N	Mean Age (Y)	Clinical features	Entometrial thickness	Histopathology (Hyperplasia/ Ca)	Recommended ET cut off on TVUS (mm)
[11]	Prospective	359	55	Pervaginal Bleeding, Pervaginal Discharge, Abdominal pain ,Backache, Vulval Itching, UV prolapse	<5(15.9) >5 (84.1)	<5mm (0) >5mm (10.3)	5
[13]	Retrospective	57	56.6	Post-Menopausal Bleeding	<2 (5), 2-4(94.7)	<2 (0), 2-4(25.9)	2
[14]	Retrospective	266	58.8	Asymptomatic	6-10 (57.1) 11-15(26.3) 16-20(28) >20(16)	6-10 (2), 11-15(2) 16-20(7), >20(25)	10
[15]	Prospective	90	NA	Post-Menopausal Bleeding	<5(40). ≥5 (60)	<5(0), ≥5 (18)	5
[16]	Prospective	100	NA	Abdominal pain, vaginal discharge, feeling of abdominal lump, Abnormal uterine bleeding	≤4 (77) >4 (22)	≤4 (0) >4 (100)	4
[17]	Prospective	203	NA	Post-Menopausal Bleeding	≤4 (43.3) >4 (56)	≤4 (4) >4 (89.5)	NA

## DISCUSSION

Post-Menopausal Bleeding is a most common presentation of endometrial carcinoma globally<sup>[18]</sup>. Every 1 in 10 women presents to gynecologist with this complaint<sup>[19]</sup>. It should be investigated as early as possible to identify the underlying malignancy and treat it timely increasing the 5-year survival of patient<sup>20</sup>. Practically, every women presenting with Post-menopausal bleeding in hospitals is investigated very firstly by TVUS<sup>21</sup>. TVUS is a convenient, easily available non-invasive screening tool for endometrial carcinoma due to its ability to measure endometrial thickness and stratify patients as low or high risk on the basis of cut-off value<sup>22</sup>. The findings of our review describes variation in cut-off recommendations by various authors. Though most of the authors suggest a cut-off Endometrial thickness of 4 mm<sup>23,24</sup>, endometrial carcinoma was diagnosed on histopathology in 25.9% of patients presenting with post-menopausal bleeding with an endometrial thickness as low as 2mm<sup>13</sup>. On the contrary, two studies showed not a single case of endometrial carcinoma in women having endometrial thickness below 5mm<sup>11,15</sup>. Further, in one of the studies summarized, only 4% cases of endometrial hyperplasia and malignancy were identified below 15mm which is usually considered very thick as compared to the recommended normal post-menopausal endometrial thickness<sup>14</sup>. This shows that endometrial thickness alone should not be relied upon for making a diagnosis of endometrial carcinoma or for labelling the patients presenting with post-menopausal bleeding or any relevant gynecological symptom as “zero risk” without correlating the findings with histopathological findings.

Our review has certain limitations. The studies included in review carry a small sample size and lacks the influence of confounding factors like BMI, duration from menopause on endometrial thickness but it still highlights the area that needs further attention for researchers. Further, quantitative analysis of extracted data in the form of metaanalysis will benefit the gynecologists in modifying their clinical decisions.

## CONCLUSION

Women suffering from post-menopausal bleeding and increased endometrial thickness should be encouraged to have an endometrial biopsy to identify underlying malignancy but the females with thin endometrium but suffering from post-menopausal bleeding should not be left unattended. Serial monitoring or surveillance will help identify high risk pathology at an early stage.

**Conflict of interest:** Nil

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