

# A Cross-Sectional Study Examined the use of Transvaginal Ultrasound in Assessing Endometrial Cancer in Postmenopausal Women

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## ABSTRACT

**Aim:** to determine how successfully transvaginal ultrasonography can be used to identify endometrial cancer in postmenopausal bleeding patients..

**Methods:** The Khyber Teaching Hospital Peshawar Radiology department performed this cross-sectional study from January 2015 to January 2016. TV-tested endometrial-thickness women were included. The endometrial cavity was examined colonially and sagittal from the internal Os to the fundus. D&C transmitted biopsy samples to the hospital pathology lab for histopathology and TVS comparison. A preform had all this info. Spss 26 analyzed data.

**Results:** The patients' average age was 64.82 + 07.84 years. On average, menopause lasted 10.45 07.73 years. When endometrial thickness was assessed with tvs, the average thickness was 05.564.26 mm; 45 (32.8%) of the ladies did not have an endometrial thickness of 04 mm. Histopathological examination of endometrial cancer revealed ninety four (66.5%) females with the disease and forty six (32.8%) without. The sensitivity, specificity, npv, ppv, and diagnostic accuracy of tvs were determined to be [93.1%], [86.5%], [91.4%], [94.6%], and [93.6%], respectively.

**Conclusion:** According to the study's results, tvs is an effective diagnostic tool for ruling out postmenopausal hemorrhage and sparing patients from intrusive treatments.

**Keywords:** Transvaginal ultrasonography, endometrial carcinoma, diagnosis, accuracy, positive-predictive-value, negative predictive value

## INTRODUCTION

Postmenopausal bleeding (PMB) is any urinary tract bleeding that occurs more than a year after the last menstrual cycle or beyond the age of [55.1]. It is the most common indicator of endometrial cancer<sup>1</sup>. Since pmb patients have a 10–15% likelihood of endometrial cancer, malignancy may be checked out at diagnosis.38% of PMB patients had endometrial cancer. Transvaginal ultrasound (tvs) may identify women at risk for endometrial cancer and help doctors diagnose them<sup>2,3</sup>. Some studies reported that TVs have sensitivity and specificity of 96–100%<sup>4,5</sup>. Another research found that tvs had 55.6% specificity and 49.7% sensitivity with a >4mm threshold<sup>6</sup>. This research uses histopathology as the gold standard to evaluate transvaginal ultrasonography for endometrial cancer detection in postmenopausal bleeding women<sup>7</sup>. Due to resource constraints, these patients often have dilatation and curettage (d&c) operations instead of hysteroscopy-based endometrial biopsy, the gold standard<sup>8</sup>. TVs may detect endometrial cancer, according to studies. However, outcomes are disputed. This initiative seeks clarity. This study will avoid unnecessary treatments and enable a cautious approach<sup>9</sup>. Women get genital cancer more than males. According to predictions, corpus tumours, the fourth most prevalent malignancy in this demographic, would kill 7,200 US women in 2008<sup>10,11</sup>. PMB is uterine bleeding in postmenopausal women. All postmenopausal women with unexplained uterine bleeding should be examined for endometrial sarcoma, which causes bleeding in 11% of cases (varying from 1% to 24%, depending on risk factors and accounts for 6% of gynaecological clinic visits<sup>12,13</sup>. Bleeding after menopause is usually caused by endometrial or vaginal mucosal atrophy<sup>14</sup>. Endometrial sarcomas are the most common. Elevated oestrogen levels may explain the endometrial tumour's cause. The uterine lining expands. Early endometrial sarcoma and cancer have been linked to animal oestrogen levels<sup>15</sup>. Endometrial sarcoma seldom occurs before. This study examines how tvs endometrial thickness may detect malignancy in pmb patients<sup>16</sup>.

## METHODOLOGY

The radiology department at Khyber Teaching Hospital in Peshawar performed this cross-sectional research of all

postmenopausal bleeding patients who had hysterectomy and endometrial biopsy for histopathology between January 2015 and January 2016. The sample included 104 patients aged 54–81. The research excluded patients who received radiation, surgery, chemotherapy, or artificial menopause. Each patient gave informed consent after ethical approval. Gathered demographics. A radiologist with at least five years of expertise measured endometrial thickness on every woman's TV. The endometrial cavity from the internal os to the fundus was assessed using coronal and sagittal planes. The hospital's pathology department performed histopathology on each woman's d&c samples. A custom proforma included this data. Spss 24 analysed all data. Age and endometrial thickness had standard deviation and mean calculations, whereas parity, endometrial cancer seen on television, and histology had frequencies and percentages. 02x02 tables were used to assess endometrial cancer diagnosis accuracy using histology.

## RESULTS

For this research, one hundred forty women were investigated; their mean age was 64.08,106.81 years. 05.6% of females had no children, 46% had 01-04 children, and 48.4% had 05-08 children. Menopause lasted an average of 10.56 07.75 years in (figure 1). The typical endometrial thickness in tvs was 05.57x03x26mm. (Table 1) Of the participants in the research, 67.3% of the females had endometrial thickness less than 04 mm on examination, and the rest 33.2% had the same condition.

Table 1: Age, parity, and endometrial thickness are included in Table 01's patient demographics.

[Variable]	[Means]	[Minimum]	[Maximum]
[Age],(Years)	[64.08,106.81]	[51]	[81]
[menopause Duration] (Years)	[10.56 07.75]	[01]	[24]
[Endometrial thickness](mm)	[05.564.26]	[01]	[13]



Figure 1: In the event of endometrial cancer with myometrial invasion, transvaginal ultrasonography in grey scale and colour Doppler imaging (CDI) reveals a complicated endometrial mass with enhanced vascularity.



Figure 2: Transvaginal ultrasonography in a postmenopausal lady revealed an endometrial polyp, which histology revealed to be endometrial cancer.

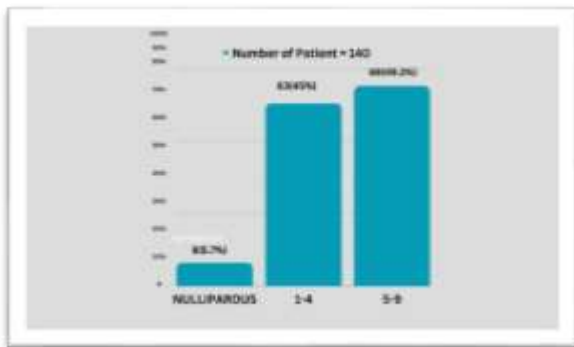


Figure 3: females distributed according to percentage

Table 2: Finding of Positive and Negative Histopathology Results

		[Histopathology]		[Total]
		Positive	Negative	
[TVS]	[>4mm]	[87] [93.6%]	6 (6.4%)	94 (67.1%)
	[<4mm]	[03].(6.4%)	44(93.5%)	45(33.2%)
[Total]		[91] [100%]	[49] [100%]	[140] [100%]

Endometrial cancer was found to be present in [67.1%] of females according to histopathology, although it was missing in [33.2%] of other females.

Table 3: Diagnostic accuracy, PPV, NPV, and specificity of TVS

[Sensitivity]	[93.2%]
[Specificity]	[86.7%]
[NPV]	[91.4%]
[PPV]	[94.6%]
[Diagnostic accuracy]	[93.6%]

### DISCUSSION

Endometrial cancer begins as a non-specific thickness that resembles a polyp or hyperplasia. Curette or biopsy during hysteroscopy typically finds endometrial cancer<sup>16</sup>. TVS aims to accurately measure endometrial thickness in PMB patients. Ultrasonography can evaluate postmenopausal women in low- and high-risk categories without ionizing radiation. Ultrasound has limited specificity for endometrial abnormalities since benign illnesses may generate thickness<sup>17</sup>. TVS may diagnose endometrial disease in abnormal uterine bleeding (AUB)<sup>18</sup>. Ultrasonography detects pathological malignancy in polyps, fibroids, and foreign substances. AUB women may not benefit from the D&C operation, which needs hospitalization and general anesthesia. Our study comprised 140 PMB-afflicted women aged 45–816.71. Eight (5.6%) females were nulliparous, 64 (46%) had a parity of 01-04, and 68 (48.4%) had a parity of 05-09<sup>18</sup>. Menopause averaged 10.56.07.75 years. The average endometrial thickness was 05.55x03x27mm in all TVS-treated women. Ninety-four females (67.2%) had TVS-positive endometrial carcinoma with a thickness of 04mm. In our study, all female subjects underwent D&C to confirm TVS results with histology, and 94% (67.2%) had endometrial cancer<sup>19</sup>. In contrast, forty-six (33.2%) had poor endometrial cancer histology. TVS is cheap and reproducible for deep myometrium intrusions<sup>20</sup>. MRI may be advised for low-quality TVS due to its greater cost and longer procedure. Myometrium evaluation requires an intraoperative frozen slice<sup>21</sup>. Diagnostic precision for specificity, sensitivity, NPV, PPV, and TVS was 93.1%, 86.7%, 91.4%, 94.6%, and 93.7%. Olaya et al. discovered that the TVS for endometrial thickness has 89.0% accuracy, 86.7% sensitivity, and 93.3% specificity. TVS has 96-100% sensitivity and 61-67% specificity, according to many studies. These findings match TVS accuracy literature. Akbayir et al. found that TVS diagnosis accuracy for myometrium infiltration depth ranged from 82.5% to 76.6%<sup>22,23</sup>. TVS is cost-effective, easy, and reliable for cervical involvement prediction. Taskin et al. reported that TVS had 96.3% sensitivity and 60.1% specificity at a cut-off level of 06 mm for endometrial thickness. Assessing myometrium invasion with this method is questionable<sup>24</sup>.

### CONCLUSION

The results of the current investigation demonstrated that tvs is an accurate approach for anticipating endometrial cancer caused by pmb. The debate has been resolved. It might help end the postmenopausal bleeding problem and save patients from intrusive procedures. In the future, we will suggest that the cause of pmb be assessed on tvs rather than employing an interventional procedure like d & c.

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