# Endometrial Thickness - Is there an Optimum Cut-Off Value in Postmenopausal Women with Bleeding?

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## INTRODUCTION

Endometrial cancer (EC) is the most common gynaecological malignancy in the western world [7]. In 2015,8,984 cases were registered in the UK [2]. Vaginal bleeding (VB) is an early symptom and a presenting sign in more than 90% of postmenopausal women (PMW) with EC [7]. Throughout the female cycle, the endometrium demonstrates changes in thickness and reflectivity (Fig.1). In the normal PMW, the endometrium is identified as a low reflective, atrophic area between the endometrium and the myometrium [1] (Fig. 2). Transvaginal ultrasound (TVUS) examination plays a pivotal role in triaging women with postmenopausal bleeding (PMB). A thickened endometrium (Fig. 3) in a PMW is associated with endometrial disease whereas, a thin endometrium on ultrasound makes endometrial pathology less likely [3,4,5]. Various professional groups have suggested a range of cut-off values for the endometrial thickness (ET). The Royal College of Obstetricians and Gynaecologists (RCOG) recommend a cut-off value as low as 3mm, to rule out EC in PMW [5]. Studies on ET conducted in the early 1990's suggest an endometrial threshold of ≤ 4-5mm can confidently exclude EC.

## RELEVANCE TO PRACTICE

This topic review only analysed three journal articles which is a major limitation. More research needs to be undertaken in this field to identify the optimum endometrial cut-off value in PMW with VB. However, it is important to note that not all bleeding in this patient group is associated with EC. Non-malignant uterine pathologies such as hyperplasia, endometritis, and atrophy can also cause spotting and VB. The study with the strongest and largest sample size by Jacob et al. recommends an endometrial cut-off value of 5mm in PMW. Based on this evidence, the authors current departmental cut-off threshold of 5mm should be maintained for the classification of a normal endometrial thickness.

## METHODS

A literature search of published articles using the University of Derby digital database was performed to identify articles reporting on EC and ET measurements in women with PMB. Two retrospective studies and a prospective case-control study were reviewed with consideration given to their sample sizes, methodology and their use of statistical analysis.

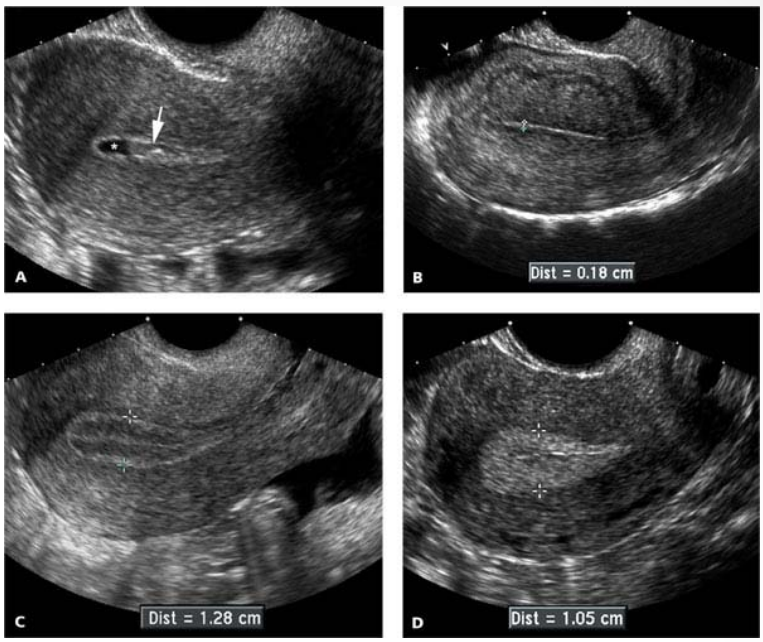


Figure 1: Normal endometrial appearances during the menstrual cycle

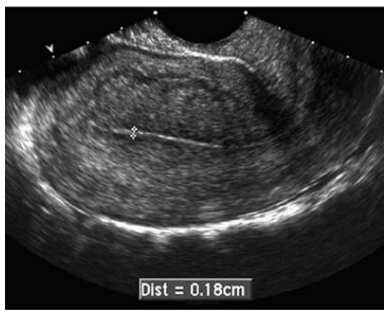


Figure 2: Normal postmenopausal endometrium


Figure 3: Thickened endometrium in a patient with PMB

## RESULTS

Wong et al. [8] suggest that a cut-off point of 3mm provides high sensitivity for detecting EC and can identify women with PMB who are unlikely to have EC and potentially avoid the need for endometrial sampling in nearly half of women presenting with PMB. On the other hand, a cut-off value as low as 3mm could raise the false positive results and can also increase anxiety levels of patients.

Schramm et al. [6] concluded that there is no cut-off value that can reliably exclude the presence of EC in women with PMB. Patients with an ET of ≤1mm were found to have endometrial malignancy. Histological evaluation of any PMB is therefore recommended to confirm or exclude EC.

This study had a small sample size, which is a major limitation. A sample size that is too small reduces the power of the study and affects the reliability of the results.

Jacob et al. [3] recommend an endometrial cut-off value of 5mm in symptomatic patients. In their research, 26 women who had an ET of 5mm developed EC within a year of their scan.

A single endometrial measurement was obtained in all three studies. This however is a major flaw, as multiple recordings should have been performed to obtain mean calculations which would ensure more reliable measurements. A single endometrial measurement can lead to potential inaccuracy, resulting in inconsistent findings.

## CONCLUSION

There is a correlation between thickened endometrium and endometrial cancer. However, malignant disease has been reported in endometrium as thin as ≤ 1mm. More research in this area is required to determine the optimal endometrial threshold.

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