The Importance of the Correlation between the Ultrasonographic Evaluation of Endometrium and Histopathological Findings in Patients with Endometrial Hyperplasia and Carcinoma

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ABSTRACT: Purpose. The aim of this study was to estimate how ultrasonographic evaluation of endometrium and histopathological findings are correlated in a group of premenopausal and postmenopausal women. Material and Methods. I have studied 106 premenopausal and postmenopausal women who underwent endometrial biopsy based on results of transvaginal ultrasonography. Results. Mean age of patients was 52.29±8.14 years. Postmenopausal status <10 years was common in 20 patients (18.86%), postmenopausal status >10 years was common in 21 patients (19.81%), and premenopausal status in 65 patients (61.32%). Transvaginal sonography reported EH in 97 cases (91.50%) and EH was confirmed by pathology in 88 cases (83.01%). Conclusion. Endometrial thickness was correlated with histopathological diagnosis much better in postmenopausal women.

KEYWORDS: ultrasonography, endometrial thickness, histopathological lesions

Introduction

Endometrial cancer is among the most common gynecological cancers in Europe with an increasing incidence in postmenopausal women [1]. Endometrial hyperplasia (EH) is clinically important because it can progress to endometrial cancer or coexist with it. In premenopausal and postmenopausal women with abnormal uterine bleeding (AUB), EH suspicion may be based on transvaginal ultrasound and the certitude diagnosis is established only by endometrial biopsy.

Ultrasound evaluation of endometrial thickness has been shown to be an important method in the evaluation of postmenopausal bleeding patients [5]. In premenopausal women with AUB, the predictive performance of ultrasonographic endometrial thickness measurement and the establishment of a cut-off levels showed different results. The accuracy of ultrasound diagnosis in premenopausal women is lower than in postmenopausal women [3,8].

In the literature, a 5mm cut-off of endometrial thickness was established by transvaginal ultrasonography to exclude endometrial malignant lesions in postmenopausal symptomatic women [6]. A 2010 study discussed the opportunity to establish a 3mm endometrium thickness as a cut-off [10]. A cut off for transvaginal sonography of 11mm was suggested for asymptomatic postmenopausal women [4]. In premenopausal women, a cut-off of the thickness of the endometrium remains controversial, but most studies reported that the thickness of the endometrium ≥8mm requires a more careful investigation. [7].

Material and Methods

In the study we enrolled 93 premenopausal and postmenopausal women with AUB and 13 (12.26%) asymptomatic (without bleeding) postmenopausal women, all with EH. They were included subjects with endometrial causes of AUB and were excluded those with fibroids, cervical, vaginal and hemostatic disorders. The transvaginally ultrasound was performed, for evaluated the endometrial thickness. Endometrial biopsy was performed by dilatation and curettage. All participants gave written consent according to Helsinki declarations and The Ethics Committee of University of Medicine and Pharmacy of Craiova.
Results

Mean age of patients was 52.29±8.14 years. Postmenopausal status <10 years was common in 20 patients (18.86%), postmenopausal status >10 years was common in 21 patients (19.81%), and premenopausal status in 65 patients (61.32%) (Table 1).

Table 1. Correlation of histological lesions with menopausal status

| Menopausal status | Menopause <10 years | Menopause >10 years | Premenopause | Total |
|-------------------|---------------------|---------------------|--------------|-------|
| Total             | 20 (100.00%)        | 21 (100.00%)        | 65 (100.00%) | 106 (100.00%) |
| EH simple without atypia | 10 (50.00%) | 7 (33.33%) | 52 (80.00%) | 69 (65.09%) |
| EH simple with atypia | 10 (50.00%) | 4 (19.05%) | 12 (18.46%) | 26 (24.53%) |
| EH complex without atypia | 5 (25.00%) | 4 (19.05%) | 9 (13.85%) | 18 (16.98%) |
| EH complex with atypia | 0 (0.00%) | 6 (28.57%) | 12 (18.46%) | 18 (16.98%) |
| Polip without EH | 1 (5.00%) | 8 (38.10%) | 5 (7.69%) | 14 (13.21%) |
| Polip with EH | 1 (5.00%) | 4 (19.05%) | 0 (0.00%) | 5 (4.72%) |
| EC | 1 (5.00%) | 2 (9.52%) | 7 (10.77%) | 10 (9.43%) |

EC=endometrial cancer; EH=endometrial hyperplasia

A large proportion of cases, 57 cases (53.77%) had concomitant lesions: simple or complex EH without atypia associated with simple or complex EH with atypia, or simple or complex EH with atypia associated with EC (Table 2).

When considering the thickness and abnormalities of the endometrium, endometrial ultrasound has an increased susceptibility to suspected endometrial cancer in postmenopausal and premenopausal women (Table 3).

Table 2. Distribution by histopathological features of the endometrium

| Histopathological report | No | % |
|--------------------------|----|---|
| Simple EH without atypia | 69 | 65.09 |
| Simple EH with atypia | 27 | 24.52 |
| Complex EH without atypia | 18 | 16.98 |
| Complex EH with atypia | 18 | 16.98 |
| EC | 10 | 9.43 |
| Concomitent lesions (EH±EC) | 8 | 7.54 |

EC=endometrial cancer; EH=endometrial hyperplasia

Table 3. Endometrial thickness correlated with menopausal status

| Menopausal status | Premenopause | Menopause <10 years | Menopause >10 years | Total |
|-------------------|--------------|---------------------|---------------------|-------|
| Endometrial thickness 5-10mm | 20 (30.77%) | 14 (70.00%) | 9 (42.86%) | 43 (40.57%) |
| Endometrial thickness >10mm | 45 (69.23%) | 6 (30.00%) | 12 (57.14%) | 63 (59.43%) |
| Total | 65 (100.00%) | 20 (100.00%) | 21 (100.00%) | 106 (100.00%) |

EC=endometrial cancer; EH=endometrial hyperplasia

Fig. 1. Transvaginal ultrasound, asymptomatic postmenopause. Endometrial thickness 16mm

Fig. 2. Transvaginal ultrasound, symptomatic postmenopause. Endometrial thickness 7.7mm
Regarding premenopausal cases, in cases where the endometrial thickness was >10mm, the EC risk was 15.56%, unlike the rest of the cases with EH, where the endometrial thickness ranged between 5-10mm and the EC risk was not present. Analyzing the postmenopausal EC risk, we found that in cases with a postmenopausal endometrial thickness >5mm we have a 16.67% EC risk.
Discussion

A long time was believed that the use of transvaginal ultrasound may be a screening test for endometrial cancer screening. Jacobs et al. in a 2011 study conducted in 2000 women, noticed as an endometrial cut-off of 5mm, sensitivity and specificity was 80.5%-85.7% respectively, for EC or AEH [6]. The study confirms the relationship between endometrial thickness and subsequent diagnosis of endometrial cancer, by endometrial sampling.

Many more studies have studied the importance of transvaginal ultrasound to measure endometrial thickness in postmenopausal women than in the premenopausal women [2,5].

However, transvaginal ultrasound must be properly used so that the potential prediction of malignant lesions does not lead to unnecessary interventions given that endometrial cancer is usually present with uterine bleeding in an early and non-advanced stage.

In symptomatic postmenopausal women a cut-off of 5mm was set for endometrial malignancy [gupta] and a cut-off value of 11mm was suggested as the limit at which endometrial biopsy will be done in asymptomatic postmenopausal women [9], but a screening of endometrial thickness by transvaginal ultrasound, does not seem enough specificity for endometrial cancer, to these cases [11].

In our study, looking at the relationship between endometrial thickness and EC risk, we found higher percentages (15.56% in premenopausal women and 16.67% in postmenopausal women) compared to the EC incidence in the literature, in these situations.

We found a positive correlation between the thickness of the endometrium and the histopathological diagnosis of EH and EC, 88 cases (83.01%) with endometrial thickness over cut-off levels being histologically confirmed.

In most cases, clinical strategy should be restricted, but if we have risk factors for endometrial cancer (age, obesity, long-term treatment with estrogen alone) is justified an active strategy.

Conclusions

Endometrial thickness was correlated with histopathological diagnosis much better in postmenopausal women.

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