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DEBATES

# Sonographic Criteria for Uterine Curettage: Suspecting Endometrial Neoplasia

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**Abstract**
The aim of the work is to determine the Suspicious sonographic findings associated with endometrial hyperplasia or cancer in premenopausal and perimenopausal women requiring uterine curettage other than endometrial thickness. Transvaginal ultrasonography examinations of premenopausal and perimenopausal women were reported here. These women underwent endometrial biopsy based on abnormal uterine bleeding or discharge and sonographic endometrial abnormalities. Histologically, hyperplasia was found in PCOS patients, endometrial cancer on top of tamoxifen therapy was found in others. The highly related ultrasound criteria are thick irregular endometrium, ill-defined endometrial myometrial junction, myometrial invasion with pseudowidening of the endometrium, turbid intrauterine fluid collection, associated complex adnexal masses, and cystic areas in the endometrium. Endometrial stripe abnormality by transvaginal ultrasonography is considered to be important in the recommendation of endometrial biopsy to exclude cancer along with positive complains in addition to thickness abnormalities.

**Keywords** Curettage · Endometrial hyperplasia · Endometrial cancer · Transvaginal ultrasonography

## Introduction

Up to 30% of premenopausal and perimenopausal women experience abnormal uterine bleeding during their reproductive years [1], which is often a concern for endometrial hyperplasia or cancer. Although endometrial cancer is primarily a disease of postmenopausal women, up to 14% of those affected are premenopausal [2]. Endometrial evaluation with transvaginal ultrasonography (TVUS) may have relevance in premenopausal women for the selection of subjects in whom an early diagnosis of endometrial cancer can be made [3]. Many studies define an endometrial thickness of 4.0 or 5.0 mm as the normal cutoff value in postmenopausal women [4]. The United Kingdom Collaborative Trial of Ovarian Cancer Screening reported that when both endometrial abnormalities and endometrial thickness are considered, TVUS has an increased sensitivity for the detection of endometrial cancer in asymptomatic postmenopausal women [5]. However, this practice has neither been endorsed by professional groups, such as the National Cancer Institute, nor yet established in premenopausal and perimenopausal women [6]. Therefore, we reported our work in order to show the TVUS findings of the endometrium and clinical factors associated with cancer in premenopausal and perimenopausal women.

## Materials and Methods

Eight women were admitted in Shatby Maternity University Hospital with complaints shown in Table 1. Ultrasound was performed. During the TVUS, endometrial thickness was measured at its thickest point from the anterior to the posterior wall in the sagittal plane of the uterus. Calipers were placed perpendicularly to the outer edge of the endometrium. If there was fluid in the endometrial cavity, the endometrial thickness was measured as described above, but with the inclusion of the endometrial cavity fluid and double endometrial lining; then, the fluid diameter was subtracted. In addition, any other details of the endometrium were recorded, whether the endometrium was irregular, cystic, heterogeneous, or abnormally distended, with a polyp, a mass, or any other type of lesion [7]. A thickened endometrium was defined as follows: thickness was dependent on the menstrual cycle and varied between the

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**Table 1** patients' criteria

| Patient | Age (years) | Medical condition | Complain | Sonographic criteria | Histopathology |
|---|---|---|---|---|---|
| 1 | 52 | | Postmenopausal bleeding | • Vascular thick endometrium<br>• Thin myometrium<br>• Myometrial invasion more than half (Fig. 1) | Endometrial cancer |
| 2 | 85 | | Postmenopausal discharge | • Turbid fluid collection intrauterine (Fig. 2) | Endometrial cancer |
| 3 | 62 | Obese | Postmenopausal discharge | • Thick irregular endometrium<br>• Thin irregular myometrium<br>• Turbid fluid collection intrauterine (Fig. 3) | Endometrial Cancer |
| 4 | 56 | Breast cancer on tamoxifen | Postmenopausal vaginal discharge | • Thick smooth endometrium with cystic areas (Fig. 4) | Hyperplasia polyp |
| 5 | 65 | DM, HTN | Postmenopausal bleeding | • Thick irregular endometrium<br>• Ill-define endometrium myometrial junction<br>• Thin irregular myometrium<br>• Fluid intrauterine (Fig. 5) | Endometrial Cancer |
| 6 | 59 | | Postmenopausal bleeding | • Unilateral suspicious ovarian mass 10 cm complex solid with papillae and nodules<br>• Thick irregular ill define endometrium (Fig. 6) | Granulosa cell tumor with endometrial hyperplasia |
| 7 | 25 | PCOS | AUB | • Thick vascular endometrium with well-defined endometrial myometrial junction | Hyperplasia without atypia |
| 8 | 70 | | Postmenopausal bleeding | • Intrauterine turbid fluid collection in the uterus and the cervix<br>• Stenosis of external os with flushed vaginal part with the vagina | Endometrial Cancer |

proliferative phase (4 to 8 mm) and the secretory phase (8 to 14 mm) in premenopausal women [8]. Not all sonographic endometrial abnormalities were criteria for immediate intervention by endometrial biopsy, only women with sonographic endometrial abnormalities who experienced a recent episode of AUB, discharge or pain. For asymptomatic subjects with thick endometrium, follow-up TVUS was performed at the end of menstruation, or 3 months later in the case of perimenopausal women with prolonged amenorrhea. During follow-up, endometrial biopsy was recommended for subjects who demonstrated a thickened endometrium of 8 mm or more, who experienced AUB, or who demonstrated persistent or aggravated endometrial stripe abnormalities [9]. Dilatation and curettage was performed under regional anesthesia. Biopsy specimens were sent for histopathology assessment .

## Results

The patient's data were recorded as follows (Table 1, Figs. 2, 3, 4, 5, 6, 7 and 8).

## Discussion

AUB is the cardinal symptom of endometrial cancer [10]. TVUS still remains the mainstay of the gynecologic examination and has a clinical role in screening for endometrial cancer [11]. The thickened endometrium itself may not provide a perspective in the context of cancer, while endometrial stripe abnormalities, such as heterogeneity or cystic changes to the endometrium, may be crucial in the delineation of cancer even in asymptomatic premenopausal and perimenopausal women [12, 13].

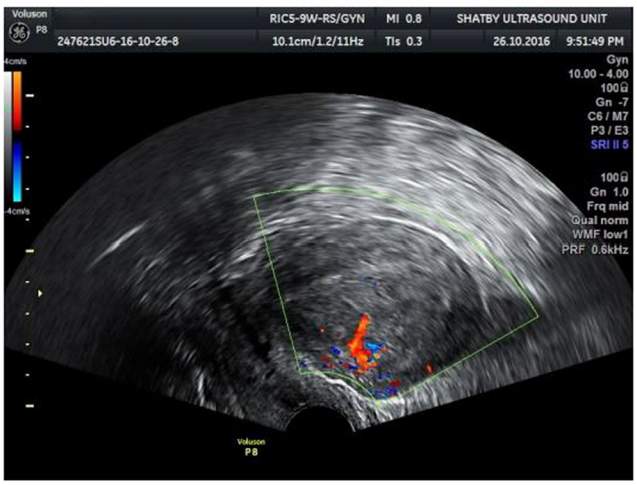


**Fig. 1** Ultrasound showing thickened smooth endometrium with feeding vessel suggestive of polyp with smooth myometrial endometrial junction that differentiate invasion from dissension and thinning


**Fig. 2** Ultrasound with turbid intrauterine fluid collection

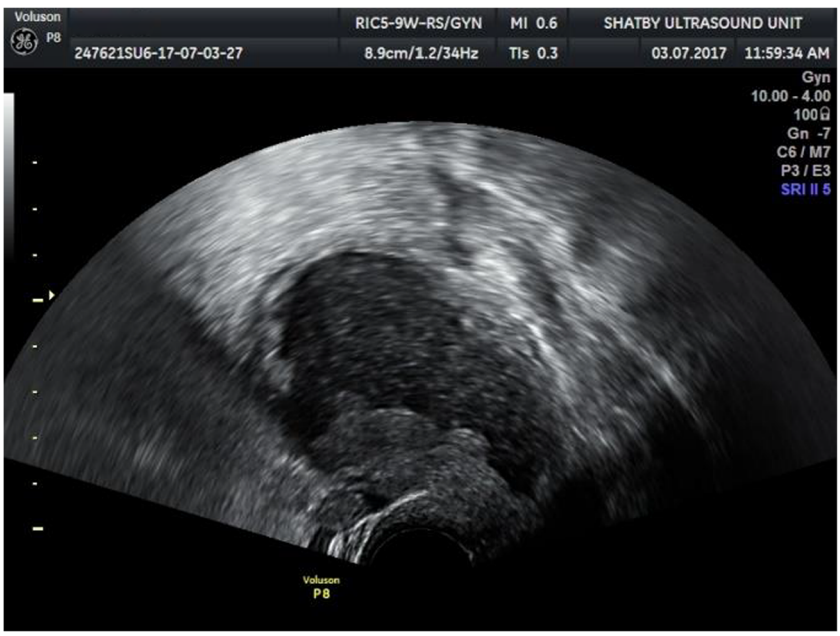


**Fig. 3** Ultrasound showing turbid fluid collection intrauterine, and thin irregular undifferentiated myometrium and endometrium (eroded uterine wall) (more than half of the myometrium affected)

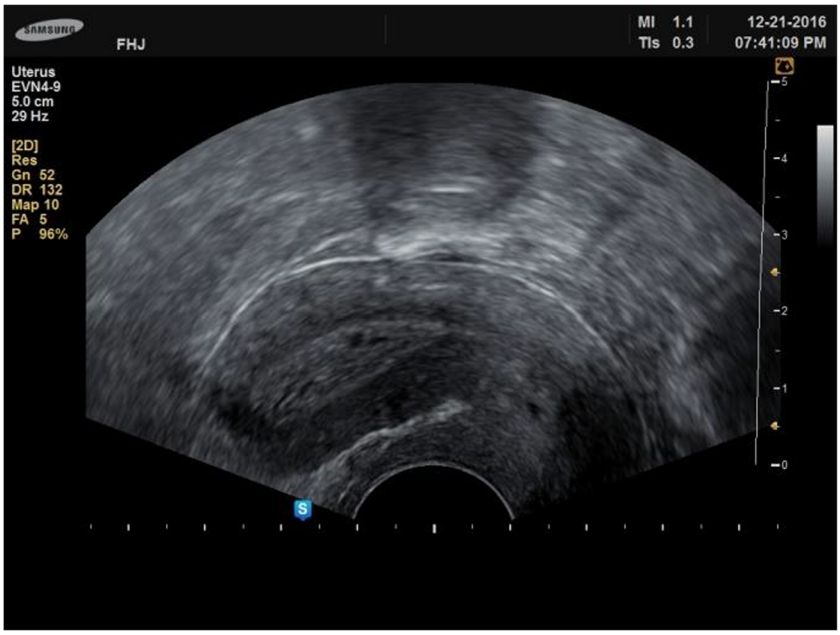


**Fig. 4** Ultrasound showing thickened smooth endometrium with cystic spaces with well defined junction and preserved myometrial thickness.myometrial invasion is suspected in cases of irregular poor defined junction in relation to one cm per wall thickness in non distended uterus


**Fig. 5** Ultrasound showing thickened irregular endometrium, ill-defined endometrial myometrial junction, and thin irregular healthy myometrium with the invasion of more than half reaching the serosa in some cases with loculi of fluid collection intrauterine

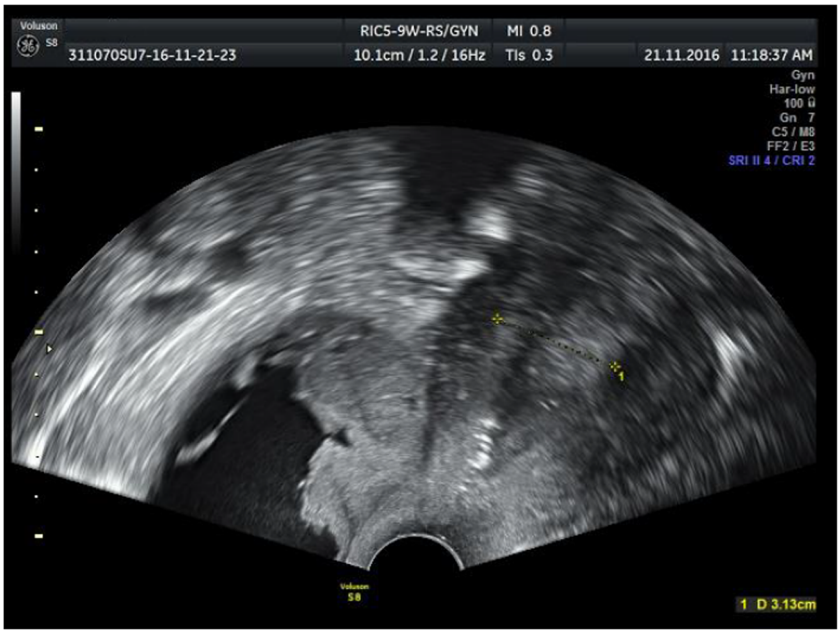


**Fig. 6** Ultrasound showing suspicious ovarian complex mass with solid areas solid with papillae with preserved myometrium, thickened endometrium

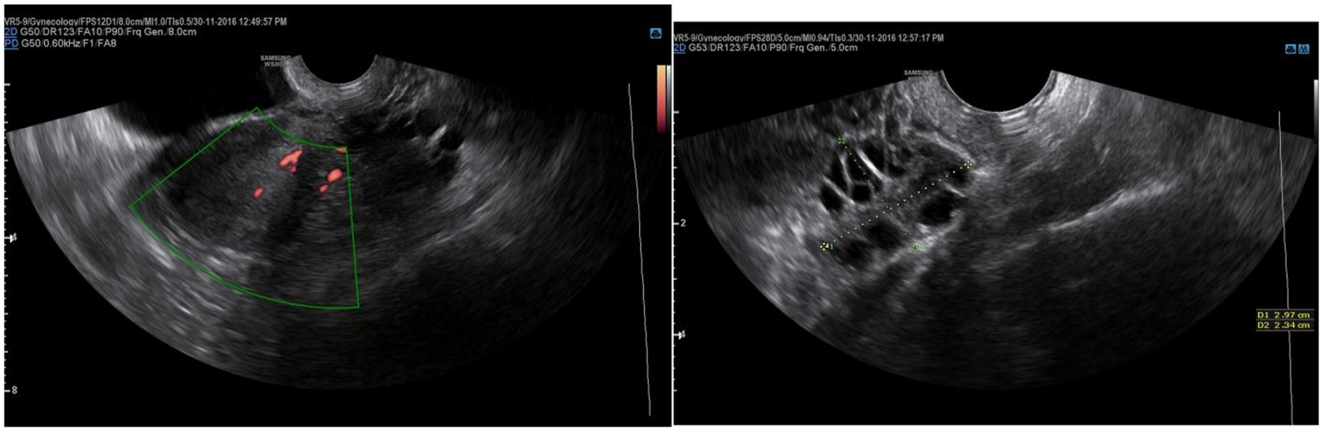

**Fig. 7** Ultrasound showing thickened smooth vascular endometrium with well-defined endometrial myometrial junction and polycystic ovary

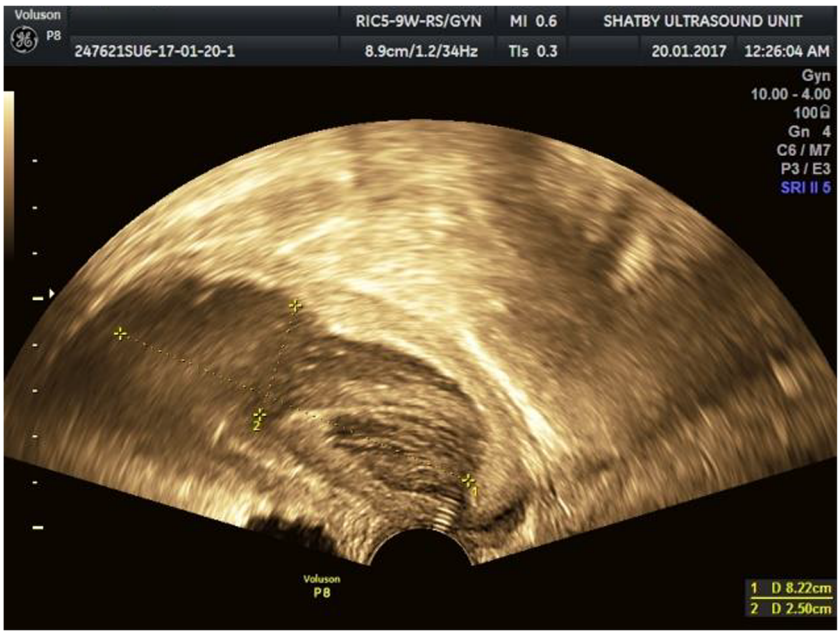


**Fig. 8** Ultrasound showing intrauterine and intracervical turbid fluid collection with stenosis of external os with preserved smooth cervical walls (no gross invasion or primary cancer)

## Conclusion

Endometrial stripe abnormality along with endometrial thickness measured by TVUS is important in the recommendation of endometrial biopsy to exclude cancer even in asymptomatic premenopausal and perimenopausal women. These data need to be extensively evaluated by further research.

**Author's Contributions** Elagwany had done the diagnoses and surgery along with writing the article.

### Compliance with Ethical Standards

**Conflict of Interest** The author declares that he has no conflict of interest.

**Ethical Approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed Consent** Informed consent was obtained from the patient included in the study.

## References

1. Brenner PF (1996) Differential diagnosis of abnormal uterine bleeding. Am J Obstet Gynecol 175(3 **Pt 2**):766–769
2. Ash SJ, Farrell SA, Flowerdew G (1996) Endometrial biopsy in DUB. J Reprod Med 41:892–896
3. Dreisler E, Sorensen SS, Ibsen PH, Lose G (2009) Value of endometrial thickness measurement for diagnosing focal intrauterine pathology in women without abnormal uterine bleeding. Ultrasound Obstet Gynecol 33:344–348
4. Dubinsky TJ (2004) Value of sonography in the diagnosis of abnormal vaginal bleeding. J Clin Ultrasound 32:348–353
5. Gupta JK, Chien PF, Voit D, Clark TJ, Khan KS (2002) Ultrasonographic endometrial thickness for diagnosing endometrial pathology in women with postmenopausal bleeding: a meta-analysis. Acta Obstet Gynecol Scand 81:799–816
6. Getpook C, Wattanakumtornkul S (2006) Endometrial thickness screening in premenopausal women with abnormal uterine bleeding. J Obstet Gynaecol Res 32:588–592
7. Karlsson B, Granberg S, Wikland M, Ylostalo P, Torvid K, Marsal K et al (1995) Transvaginal ultrasonography of the endometrium in women with postmenopausal bleeding: a Nordic multicenter study. Am J Obstet Gynecol 172:1488–1494
8. Jacobs I, Gentry-Maharaj A, Burnell M, Manchanda R, Singh N, Sharma A, Ryan A, Seif MW, Amso NN, Turner G, Brunell C, Fletcher G, Rangar R, Ford K, Godfrey K, Lopes A, Oram D, Herod J, Williamson K, Scott I, Jenkins H, Mould T, Woolas R, Murdoch J, Dobbs S, Leeson S, Cruickshank D, Skates SJ, Fallowfield L, Parmar M, Campbell S, Menon U (2011) Sensitivity of transvaginal ultrasound screening for endometrial cancer in postmenopausal women: a case-control study within the UKCTOCS cohort. Lancet Oncol 12:38–48
9. Smith-Bindman R, Kerlikowske K, Feldstein VA, Subak L, Scheidler J, Segal M et al (1998) Endovaginal ultrasound to exclude endometrial cancer and other endometrial abnormalities. JAMA 280:1510–1517
10. Breitkopf DM, Frederickson RA, Snyder RR (2004) Detection of benign endometrial masses by endometrial stripe measurement in premenopausal women. Obstet Gynecol 104:120–125
11. Kimura T, Kamiura S, Yamamoto T, Seino-Noda H, Ohira H, Saji F (2004) Abnormal uterine bleeding and prognosis of endometrial cancer. Int J Gynaecol Obstet 85:145–150
12. Seebacher V, Schmid M, Polterauer S, Hefler-Frischmuth K, Leipold H, Concin N, Reinthaller A, Hefler L (2009) The presence of postmenopausal bleeding as prognostic parameter in patients with endometrial cancer: a retrospective multi-center study. BMC Cancer 9:460
13. Geller SE, Harlow SD, Bernstein SJ (1999) Differences in menstrual bleeding characteristics, functional status, and attitudes toward menstruation in three groups of women. J Womens Health Gend Based Med 8:533–540

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