

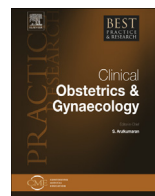


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Imaging techniques in the management of abnormal vaginal bleeding in non-pregnant women before and after menopause



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Transvaginal ultrasound plays a pivotal role in the management of non-pregnant women with abnormal vaginal bleeding. No other imaging technique has a role in the triage of these women. In women with postmenopausal bleeding, ultrasound is used to categorise women as at low or high risk of endometrial cancer, and the result of the ultrasound examination is the basis for further management. In women with abnormal vaginal bleeding before the menopause, the role of ultrasound is less clear. This is because some common causes of abnormal vaginal bleeding before the menopause cannot be diagnosed with ultrasound, such as infection, dysfunctional bleeding, or problems with intrauterine contraceptive devices or contraceptive pills. Nonetheless, transvaginal ultrasound may also sometimes be helpful in women with abnormal vaginal bleeding before the menopause. In this chapter, I present ultrasound findings in women with endometrial cancer, endometrial polyps, endometrial hyperplasia, adenomyosis, uterine myomas, including submucous myomas and leiomyosarcoma, and describe ultrasound-based triage of women with postmenopausal bleeding.

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Introduction

The causes of abnormal vaginal bleeding differs between pre- and post-menopausal women. Endometrial cancer and other endometrial malignancies are relatively common causes in post-menopausal women, but are rare before menopause. Myomas and adenomyosis may cause abnormal

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bleeding before menopause but rarely thereafter. Endometrial polyps, hyperplasia, and uterine leiomyosarcomas may explain abnormal vaginal bleeding before and after menopause, but leiomyosarcomas are extremely rare. Infection, dysfunctional bleeding, or problems with contraceptives are common causes of abnormal vaginal bleeding before the menopause.

Transvaginal ultrasound plays a pivotal role in the management of non-pregnant women with abnormal vaginal bleeding. No other imaging technique has a role in the triage of these women. In women with postmenopausal bleeding, ultrasound is used to categorise women at low or high risk of endometrial cancer, and the result of the ultrasound examination is the basis for further management. In women with abnormal vaginal bleeding before the menopause, the role of ultrasound is less clear. This is because some common causes of abnormal vaginal bleeding before the menopause cannot be diagnosed with ultrasound, such as infection, dysfunctional bleeding, or problems with intrauterine contraceptive devices or contraceptive pills. Nonetheless, transvaginal ultrasound may sometimes be helpful in these women.

A gynaecological ultrasound examination in a woman with abnormal vaginal bleeding must be preceded by a thorough history and a careful speculum examination and gynaecological palpation. The role of ultrasound is to detect pathology not detectable at a clinical examination (e.g. endometrial pathology, small submucous myomas, adenomyosis, cancer of the urinary bladder, or small hormone-producing ovarian tumours). The ultrasound examination is also used to confirm or refute a diagnosis suspected on the basis of abnormal findings at palpation (e.g. uterine intramural or subserous myomas, or adnexal masses). The clinician then needs to decide if an abnormal ultrasound finding is the likely cause of the abnormal bleeding or if it is an incidental finding unrelated to the woman's symptoms.

The examination technique to be applied when scanning the uterus, and the terminology to be used when describing ultrasound images of the endometrium and the uterine cavity, have been described elsewhere [1]. An ultrasound examination carried out because of abnormal vaginal bleeding should also include examination of the adnexa and the urinary bladder, because abnormal bleeding may be explained by a hormone-producing ovarian tumour or a tumour in the urinary bladder (i.e. the woman confusing bleeding from the urinary tract with vaginal bleeding).

Imaging techniques in the management of postmenopausal bleeding

Ultrasound plays an important role in the management of women with postmenopausal bleeding. About 10% of women with postmenopausal bleeding have endometrial cancer, but as many as 50% may not have any endometrial pathology at all [2]. Strong scientific evidence supports transvaginal ultrasound examination and measurement of endometrial thickness to discriminate between women with postmenopausal bleeding that are at high risk of endometrial cancer and those that are at low risk. The risk of finding an endometrial cancer in a woman with postmenopausal bleeding and endometrial thickness as measured by ultrasound 4 mm or less is low. In a meta-analysis that included almost 6000 women with postmenopausal bleeding, this risk was estimated to be about 1 in 100 women not using hormone replacement therapy and about 1 in 1000 women using hormone replacement therapy [2]. It is considered safe to refrain from endometrial sampling to obtain a histological diagnosis in women with postmenopausal bleeding and endometrial thickness 4 mm or less [2–4]. This endometrial thickness cut-off is applicable to users and non-users of hormone replacement therapy [2]. Although it has been suggested that it would be safer to use a cut-off of 3 mm to exclude endometrial cancer in women with postmenopausal bleeding [5], the 4-mm cut-off prevails in clinical practice.

In rare cases, a cervix cancer not detectable at speculum examination or palpation, a bladder tumour (Fig. 1) or an ovarian tumour (e.g. a granulosa cell tumour) may be detected at the transvaginal ultrasound examination. Imaging of cervix cancer is described in chapter 7 of this issue.

How to measure endometrial thickness at transvaginal ultrasound

Endometrial thickness is measured on a sagittal scan through the uterus. The uterus is scanned from one side to the other, and the endometrial thickness is measured where it seems to be at its thickest from its outermost border on one side to that on the other [1]. The endometrium must not be measured on a transverse scan, because a transverse scan may be an oblique scan and, if so, will yield too large a

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