Transvaginal Sonogram and Hysteroscopy Findings in the Assessment of Endometrial Lesions

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The Relationship Between Transvaginal Sonogram and Hysteroscopy Findings in the Assessment of Endometrial Lesions in Postmenopausal Bleeding: A Case Study

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Introduction
Endovaginal (EV) ultrasound scanning is being used in the investigation of post-menopausal bleeding (PMB). The bleeding could be the result of a number of factors; endometrial polyps are one of the common findings in these patients. The aim of the study was to correlate the findings of the endo-transvaginal scan (TVS) to hysteroscopy findings, in order determine the sensitivity and predictive values of both.

Material & Methods
This was a retrospective study that looked at 37 patients with PMB referred for endovaginal ultrasound, hysteroscopy and biopsy investigations.

Result
Thirty-seven patients with PMB were scanned using TVS and hysteroscopy. The result was not specific or sensitive using TVS alone. 76% presented generalized endometrium thickening and 24% failed to present any identifiable thickening. 22 polyps were missed using TVS and it were found by hysteroscopy.

Conclusion
TVS alone is not sensitive enough to diagnose polyps in PMB patients. If it is compounded with hysteroscopy, the reliability is much higher.

Introduction
Postmenopausal bleeding is a relatively common presentation that can be a source of anxiety because it is a symptom common to both benign and malignant conditions. Menopause (MP) is the permanent cessation of menstruation resulting from the loss of follicular ovarian activity[1]. Generally, PMB is regarded as bleeding from the genital tract one or many years following the cessation of menses[2]. In most cases of postmenopausal bleeding (PMB) no organic cause is found. Some form of further investigation is required in order to exclude the possibility of malignancy[3] or to identify the existence of benign conditions such as, endometrial hyperplasia or polyps.

Diagnosis is often made from histological samples obtained during a hysteroscopy and D&C. The latter are invasive and may be avoided if there is an initial assessment with sufficient reliability to identify those who need further treatment. Transvaginal ultrasound is a non-invasive technique that can be assessed for this purpose.

PMB is regarded as an indicator to perform invasive procedures such as hysteroscopy, endometrial biopsy[4] or dilation and curettage (D&C)[5,6]. D&C, although generally considered to be the gold standard when assessing the endometrium, is invasive and of limited sensitivity[7]. Malignant endometrial conditions are diagnosed only in a minority of women with PMB. If the risk remains high enough that patients require further investigation, there remains a need for a less invasive test which is well-tolerated by patients and relatively inexpensive[4,8,9]. Studies have favored the use of transvaginal ultrasound as an initial investigation for women with PMB. This may raise the need for a more invasive D&C, hysteroscopy or biopsy[4,10]. The identification or exclusion of an endometrial malignancy is the primary goal of scanning this group of PMB patients[4,9]. It is important that the presences of a benign pathology, such as endometrial polyps, can be detected and confirmed as the cause of abnormal bleeding. Endometrial polyps are relatively common in both pre and post menopausal women, and found in up to 10% of females[7]. They maybe permanently attached, pedunculated, single or multiple and can be associated with endometrial hyperplasia[7]. They are usually less then one cm in size.
Histology
Histologically, endometrial polyps are composed of a fine fibrous core of stroma and glands and are invariably benign. They may be a symptomatic and cause abnormal uterine bleeding.

Sonographic Images
Many sonographers will assert that the presence of polyps can be both confirmed and excluded using transvaginal sonogram. Various criteria have been hypothesizing as indicating the presence of polyps in the endometrium cavity, including endometrial thickness, intracavitary fluid and density of endometrial echoes. Studies have demonstrated the limited ability of the transvaginal sonogram to discriminate polyps in both pre and postmenopausal women.

Methods
This was a retrospective study. Thirty-seven patients with PMB were examined by sonogram and followed by a hysteroscopy at three hospitals in Canada and Brunei. Without bias selection, 20 patients from Canada and 17 patients from Brunei were selected. Various ultrasound machines were used, such as the ATL ultra mark 3000, HDI 5000, Diasonic 1000, Sonoline and Aligant 4500, with a 7.5 Mhz transvaginal transducer and 3.5 Mhz trans-abdominal transducer. The machines were top of the line and the differences did not influence the results. TVS transducers with the same frequencies, 5 to 10 MHz, were used.

The author did all the ultrasound exams and measurements. Patients had signed a consent form approved by the hospitals ethics committees. Patients had attended the outpatient clinic between July 1992 and July 1999 with post-menopausal bleeding and sent for a transvaginal ultrasound scan, followed by hysteroscopy and biopsy investigation. Patient’s ages ranged from 40 to 80 years (median 60 years). EV examinations of the uterus were done in both sagittal and coronal planes. The American Institute of Ultrasound use in Medicine, criteria was used.

The following criteria were recorded:

- patient age at menopause
- endometrial thickness (ET)
- the presence of abnormal echoes of fluid within the endometrium
- the presence of any other uterine or ovarian pathology
- whether the patient was taking HRT or Tamoxifen

The results were collected from the pathology departments for the biopsies and hysteroscopy. Any intracavitary fluid detected was subtracted from the overall thickness of the endometrium. The endometrial texture differentiation was as homogeneous, heterogeneous or cystic. The presences of submucosal myomas or focal polyps were documented. The presence and position of myometrial fibroids were noted. Any adnexal pathology such as dermoids, were recorded. The ultrasound reports were then compared with hysteroscopy and histology findings. The comparison was done by the department’s radiologist.

Limitation
A prospective study will have greater validity because all subjects will be required to have a hysteroscopy study, regardless of the TVS finding. Whereas in other cases, only those with abnormal TVS will be referred for hysteroscopy. In that case, those with endometrial lesions but missed by TVS, will not be identified by hysteroscopy.

Results
Thirty-seven patients with PMB were scanned using TVS. Hysteroscopy and histological results were obtained. Endometrium thickness (ET) of less than 4 mm were found in eight cases using TVS with no signs of polyps and had normal hysteroscopy. Twenty-two cases measured an ET of between 5 to 6 mm using TVS. Hysteroscopy results demonstrated polyps with no focal polyps noted on sonogram. Seven cases measured ET of 7 mm, both TVS and hysteroscopy results confirmed the presence of polyps. With ET of 5 to 6 mm, seven cases noted fibroid changes within the myometrium in the ultrasound report, while the hysteroscopy reports indicated the presence of polyps. The result of this study suggests that the diagnosis of endometrial polyps is not specific using TVS alone. While some are readily identifiable, others fail to present any specific features. 76 % presented as a generalized thickening of the endometrium, while 24 % failed to present any identifiable thickening.

Discussion
When taking an endometrium thickness of > 5mm, the prevalence of polyps in the sample was 76%, as a positive diagnosis. The predictive value of TVS was less sensitive and less specific than the predictive value of the hysteroscopy. The ability of transvaginal sonogram to correctly identify endometrial pathology can be affected by a number of factors. During a transvaginal sonogram,
sonographers often obtain detailed images showing clearly defined polyps within the endometrium. This leads to the general idea that the majority of polyps can be detected by transvaginal sonogram. However, results from this study indicated that very few polyps can be detected in this way. Subsequent hysteroscopy examinations identified sizeable and numerous small polyps which had not been noted sonographically. The use of saline contrast (sonohysterography) may well improve the detection of endometrial polyps, however the widespread use of hysteroscopy has now generally obviated the use of this technique. Essentially this comes down to how much reliability should a gynecologist place on a negative ultrasound report for endometrial polyp in a patient with postmenopausal bleeding. The predictive value of TVS for screening endometrial lesions is lower than the use of hysteroscopy. Ultrasound equipment has improved dramatically over the past several years, particularly with the development of endovaginal transducers with multi frequencies, harmonic imaging and 3D sonography. These features can increase the specificity and negative predictive value PG, thus decreasing the need for invasive procedures. No financial support granted to this research and no commercial affiliation was involved. The author wishes to express his deepest appreciation to Dr Zammit, Dr Desilva, Dr Laporte, and Dr Essam Shaaban for their supervision and assistance.

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