

# The Relationship between Hysteroscopy, Endometrial Biopsy and The Results of Transvaginal Sonography in Assessing Endometrial Polyps

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## العلاقة بين تنظير الرحم، خزعة بطانة الرحم ونتائج التخطيط التصوئي عبر المهبل في تقييم سلائل البطانة الرحمية

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**الملخص: الهدف:** يستعمل التخطيط التصويري عبر المهبل في اسقضاء النزف التالي للياس. والذي يكون لعوامل عدة. منها سلائل البطانة الرحمية التي توجد بكثرة عند المريضات. الهدف من الدراسة هو مقارنة نتائج تلك الطريقة مع نتائج تنظير الرحم. لتحديد الحساسية والقيمة التنبؤية لكل طريقة في اكتشاف سلائل بطانة الرحم. **الطريقة:** هذه دراسة استعدابية صممت لدراسة حساسية ونوعية التخطيط التصوئي عبر المهبل في اكتشاف سلائل بطانة الرحم. تم دراسة 37 حالة تعاني من النزف التالي للياس من سنة 1992 الى سنة 1999. احيلت للتخطيط التصوئي عبر المهبل وتنظير الرحم وفحص خزعة بطانة الرحم. **النتائج:** تم فحص 37 مريضة تعاني من النزف التالي للياس بالتخطيط التصوئي عبر المهبل وتنظير الرحم. النتيجة ليست نوعية أو حساسة حين استخدم فحص التخطيط التصوئي بمفرده. 82.85% من الحالات كان لديها تضخم بطانة الرحم العام (أكثر من 4 ملم). 22% من السلائل (62.8%) لم يتم تشخيصها بواسطة التخطيط التصوئي عبر المهبل لوحده. بينما استطاع تنظير الرحم من اكتشاف كل حالات سلائل بطانة الرحم قاطبة (100%). **الخلاصة:** لا يكفي استعمال التخطيط التصوئي عبر المهبل لتشخيص حالات سلائل بطانة الرحم عند المريضات اللاتي يعانين من النزف التالي للياس. خاصة عندما تكون السليبة أقل من 6 ملم. وعندما ترفق مع تنظير الرحم لتحسن المعولية والحساسية بشكل ملموس.

**مفتاح الكلمات:** سلائل بطانة الرحم، التخطيط التصوئي عبر المهبل، النزف التالي للياس، تنظير الرحم.

**ABSTRACT Objective:** Transvaginal Sonography (TVS) is being used in the investigation of postmenopausal 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 was to compare the findings of TVS and hysteroscopy to determine the sensitivity of each method in detecting endometrial polyps. **Methods:** This was a retrospective study, designed to investigate the sensitivity and specificity of transvaginal sonography in the detection of endometrial polyps. This study was conducted from July 1992 to July 1999 and identified from the record 37 patients with PMB referred for transvaginal sonography, hysteroscopy and biopsy investigations. **Results:** Thirty-seven patients with PMB were scanned using TVS and hysteroscopy. The result was not specific or sensitive when using TVS alone. TVS showed 13.52 % sensitivity, hysteroscopy/biopsy showed 100% sensitivity. TVS  $p>0.06$  was not significant. **Conclusion:** Using TVS alone to diagnose polyps in PMB patients is not sensitive, especially when the polyps are smaller than 6 mm. If it is combined with hysteroscopy, the reliability and sensitivity are significantly improved.

**Keywords:** Endometrial polyps, Transvaginal Sonography, Postmenopausal bleeding, Hysteroscopy

**P**OSTMENOPAUSAL BLEEDING (PMB) IS A relatively common presentation that can be a source of anxiety because it is a symptom com-

mon to both benign and malignant conditions. Menopause is the permanent cessation of menstruation resulting from the loss of follicular ovarian activity.<sup>1</sup>

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Generally, PMB is regarded as bleeding from the genital tract one or many years following the cessation of menses.<sup>2</sup> PMB has no organic cause and some form of further investigation is required in order to exclude the possibility of malignancy<sup>3</sup> or to identify the existence of benign conditions such as endometrial hyperplasia or polyps. PMB is regarded as an indicator to perform invasive procedures to obtain histological samples for diagnosis, such as hysteroscopy, endometrial biopsy<sup>4</sup> or dilation and curettage (D&C).<sup>5,6</sup> TVS is a non-invasive technique that can be assessed for this purpose. Endometrial polyps are common finding in 10% of pre and postmenopausal women and it is important they are diagnosed as the main source for the bleeding and the presence of any malignant lesion excluded.<sup>7</sup> Histologically, the endometrial polyps are composed of a fine fibrous core of stroma and glands and are invariably benign. They may be asymptomatic and cause abnormal uterine bleeding.<sup>8</sup> Malignant endometrial conditions are diagnosed only in a minority of women with PMB. The risk remains sufficiently high, however, that the patients require further investigation. Therefore, there is a need for a less invasive test, which is well tolerated by patients and relatively inexpensive.<sup>8,9</sup> The identification or exclusion of an endometrial malignancy is the primary goal of scanning this group of PMB patients.<sup>4,9</sup> Studies have favoured the use of transvaginal ultrasound as an initial investigation for women with PMB; this may raise the need for more invasive D&C, hysteroscopy or biopsy.<sup>4,10</sup> It is important to know which modality to use to find more diagnostic details. The aim of this study was to analyze the patients with PMB and compare the results from TVS and hysteroscopy. Many sonographers will assert that the presence of polyps can be both confirmed and excluded using transvaginal sonogram. Various criteria have been hypothesized as indicating the presence of polyps in the endometrium cavity, including endometrial thickness (ET), intracavitary fluid and the density of endometrial echoes. Studies have demonstrated the limited ability of the transvaginal sonogram to discriminate polyps in both pre- and postmenopausal women.<sup>9,11&12</sup>

## METHODS

This was a retrospective study. Thirty-seven patients with PMB were examined by TVS, followed by a hysteroscopy and biopsy at three hospitals, in Canada and Brunei, without selection bias. Twenty patients were

examined in Canada and 17 in Brunei. Various ultrasound machines were used, such as ATL Ultra Mark 3000, HDI 5000, Diasonic 1000, Sonoline and Aligant 4500 scanning machines, with a 7.5 Mhz transvaginal and 3.5 Mhz trans-abdominal transducers. The machines were top of the range and the differences did not influence the results, as TVS transducers with the same frequencies (5 to 10) MHz were used. The author did all the ultrasound examinations and measurements. The patients had signed a consent form approved by the hospitals' ethics committees. The patients had attended outpatient clinics between July 1992 and July 1999 with post-menopausal bleeding and been referred for a TVS, followed by hysteroscopy and biopsy investigation. The patient ages ranged from 40 to 80 years (median was 60 years). TVS of the uterus were done in both sagittal and coronal planes. The American Institute of Ultrasound use in medicine criteria were 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 hormone replacement therapy (HRT) or Tamoxifen. The results for the biopsies and hysteroscopy were collected from the pathology departments. Any intracavitary fluid detected was subtracted from the overall thickness of the endometrium. The endometrial texture differentiation was homogeneous, heterogeneous or cystic. The presence of submucosal myomas (fibroids) or focal polyps was documented. The presence and position of myometrial myomas (fibroids) was noted. Any adnexal pathology such as dermoid was recorded. The ultrasound reports were then compared with hysteroscopy and histology findings. The comparison was done by the departmental radiologist. Female nurses chaperones were asked to be in the ultrasound room when the TVS was conducted.

## RESULTS

Thirty-seven patients with PMB were scanned using TVS. Hysteroscopy and histological results were obtained from the pathology departments upon request. Endometrium Thickness (ET) of 4 mm was found in eight cases using TVS with no sign of polyps, and using hysteroscopy four polyps were detected. ET of 5 to 6 mm was found in 22 cases. Using TVS, 8 fibroids were suspected within the myometrium and one polyp noted. Hysteroscopy results confirmed the presence

**Table 1- The sensitivity of TVS versus Hysteroscopy and Biopsy to detect endometrial polyps.**

Number of Patients	Endometrial Thickening (ET)	TVS Finding	Sensitivity	Hysteroscopy Finding	Sensitivity	Biopsy Finding	Sensitivity
8	4mm	Normal Inconclusive	0%	4 polyps 4 normal	100%	4 polyps; Benign	100%
22	5 to 6 mm	8 fibroids 1 polyp	4.5%	1 fibroid 22 polyps	100%	22 polyps; 21 Benign, 1 Malignant	100%
7	7 to 8 mm	4 polyps, 3 normal	57.15%	7 polyps	100%	7 polyps Benign	100%

TVS= Transvaginal sonography

of 22 polyps and one fibroid was found. Seven cases measured an ET of 7 to 8 mm; TVS found four polyps and hysteroscopy results confirmed the presence of seven polyps. The results were tabulated according to the ET and the findings from TVS, hysteroscopy, and biopsy results [Table 1].

### DISCUSSION

When taking an endometrium thickness 5 to 8 mm the prevalence of polyps using TVS was 17.25 % as a positive diagnosis. The predictive value of TVS was less sensitive and less specific than the predictive value of hysteroscopy, especially in ET less than 6 mm. The ability of TVS to identify correctly the endometrial pathology can be affected by a number of factors. During TVS, 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 could be detected in this way.<sup>9, 11, 12</sup> Subsequent hysteroscopy examination identified sizeable and numerous small polyps less than 5 mm, which had not been noted sonographically. The use of saline contrast (sonohysterography)<sup>12</sup> 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 a gynecologist should place on a negative ultrasound report for endometrial polyps in a patient with postmenopausal bleeding. The predictive value of TVS for screening endometrial polyps is much lower than the use of hysteroscopy. Ultrasound equipment has improved dramatically over the past several years, particularly with the development of endo vaginal transducers with multi frequencies, harmonic imaging and 3D sonog-

raphy. These features can increase the specificity and negative predictive value, thus decreasing the need for invasive procedures. Hysteroscopy confirmed the presence of endometrial lesions in 100% of cases in this study. TVS failed in 75.67 % of the case to confirm the presence of endometrial lesions. TVS was sensitive in 24.33 % of the cases. When the endometrium thickening (ET) was 7 mm and larger, TVS was sensitive in 57.15 % of the cases. TVS was not sensitive in 95.45 % of the cases when ET was 5 to 6 mm. Using TVS alone it was difficult to differentiate between polyps and subserosal fibroids with false positive reporting. In ET 4mm and less, TVS missed four polyps, which were found by hysteroscopy and biopsy. The result of this study suggests that the diagnosis of endometrial polyps is not specific using TVS alone and it was not significant, ( $p>0.06$ ), especially when the ET is 5 mm or less. While some polyps are readily identifiable, other polyps fail to present any specific features. 78.38 % of the cases presented with endometrial thickening. The sensitivity increased to 100% when a combination of TVS and hysteroscopy were used:  $p<0.01$  and better than 95% confidence interval was obtained. TVS failed in 95.5 % of the cases to detect polyps in 5 to 6 mm ET. Therefore, the negative reports on the four cases done by TVS with an ET of 4 mm and less was coincidence and not reliable. TVS depends upon sonographer skills and training and the type of ultrasound equipment being used. If the equipment and the TVS transducers were equipped with 3-D, harmonic fusion, angio colour Doppler, gain suppression and focal strength capabilities, the detection of these lesions might be more successful.

### LIMITATIONS

A prospective study would have greater validity because all subjects would be required to have a hysteros-

copy regardless of the TVS findings, whereas in other cases, only those with abnormal TVS will be referred for hysteroscopy. In that case, those with endometrial lesion, but missed by TVS, would not be identified by hysteroscopy. It was difficult in some cases to obtain consent forms from the patients when they are older than 70 years. Most patients over the age of 70 asked their family members. They consented to the TVS after the radiologist and their physician explained the benefit of this procedure to them. The advanced ultrasound machines are expensive and required trained skillful sonographers to operate them.

### CONCLUSION

Using TVS alone to detect endometrial lesions is not sensitive and reliable enough. Using TVS with hysteroscopy together with TVS increases the sensitivity to 100%. TVS was not sensitive and unreliable in 86.48 % of the cases in this study. Hysteroscopy is the method of choice to be used in PMB cases if the TVS shows a normal result, as it could be a false negative result. Advanced ultrasound equipment and multi frequency transducers are necessary to increase the sensitivity of the examination.

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