



Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE

DOI: 10.47750/jptcp.2022.954

Accuracy of office hysteroscopy in diagnosis of endometrial pathologies compared to ultrasound and histopathology in Baghdad Teaching Hospital

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Submitted: 11 June 2022; Accepted: 22 July 2022; Published: 18 August 2022

ABSTRACT

Background: Menstrual problems with all manifestations ranging from life-threatening bleeding to amenorrhea are considered patterns of abnormal uterine bleeding (AUB), which is until now a popular reason for referral to the gynaecologic clinic and requires a special diagnostic tool.

Objective: To assess the accuracy of hysteroscopy in diagnosing endometrial pathologies and to compare it with sonographic and histopathologic reports.

Patients and Methods: A prospective study conducted in the Baghdad Teaching Hospital on 60 Iraqi females having varying complaints from abnormal uterine bleeding in pre- and post-menopausal women, infertility, and chronic pelvic pain with normal or abnormal ultrasound findings. Office hysteroscopy was done and an endometrial biopsy was obtained for histopathology for a period of 10 months between September 2020 and June 2021.

Results: The current study showed that hysteroscopy was more accurate in diagnosing sensitivity of endometrial poly (100%), fibroids (83%), hyperplasia (84.2%), and cancer (50%) whereas ultrasounds were more accurate in diagnosing sensitivity to endometrial myoma (90%). Hysteroscopy and ultrasound showed low sensitivity in detecting endometrial cancer (50% and 34%, respectively).

Conclusion: Although a transvaginal ultrasound was considered an integral part in the diagnosis of endometrial pathologies, it can be used for initial investigation, however, when suspecting endometrial pathology, hysteroscopy can be more advanced for evaluation, immediate treatment of endometrial masses, and obtaining targeted biopsies. Hysteroscopy showed high sensitivity in detecting endometrial polyps.

Keywords: *endometrial pathologies, histopathology, office hysteroscopy, ultrasound*

J Popul Ther Clin Pharmacol Vol 29(3):e104–e108; 18 August 2022.

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INTRODUCTION

Menstrual problems ranging from life-threatening bleeding to amenorrhea are considered patterns of abnormal uterine bleeding (AUB),¹ which is until now a popular reason for referral to a gynaecologic clinic and requires a special diagnostic tool.² Fertility can also be impaired by uterine pathologies disturbing the endometrium such as polyps, myomas, and structural congenital anomalies of the genital tract, which again needs a distinctive test for diagnosis. Transvaginal ultrasonography (TVU) is recognized as an initial imaging performed in gynaecological complaints because it is non-invasive and affordable.³ Office hysteroscopy has several advantages. It helps avoid the risk of anaesthesia, no hospital admission is required, cost effective, and also has good correlation of the results compared with inpatient hysteroscopy. Office hysteroscopy, in its present form, avoids most traumatic uterine manoeuvres, leading to a less painful and better-tolerated procedure.⁴ Endometrial biopsy is one of the preferred methods for identifying the causes of endometrial pathologies and its sensitivity and specificity studied by many researchers.⁵ This study compares the accuracy of office hysteroscopy to transvaginal ultrasound and histopathology.

PATIENTS AND METHODS

A prospective study conducted on 60 women complaining of menstrual problems, infertility, or pelvic pain, referred to the Gynaecology Clinic in the Baghdad Teaching Hospital/Medical City for a period of 10 months between September 2020 and end of June 2021. A detailed history was obtained and a gynaecological exam was done. All the patients were sent for a transvaginal ultrasound, which was performed by the same operator using the Siemens S2000 ultrasound device. The ultrasound concentrates on endometrial thickness assessed by the presence of hyper-echogenicity line in the centre with a homogeneous endometrium, junctional zone,

and the presence of any mass suggested polyp or fibroids.

Then, an office hysteroscopy appointment was scheduled for the patient, Using a 5-mm hysteroscope with a 30-degree telescope (Karl Storz-endoskope) TELE PACK X LED TP 100. The type of distention media used was normal saline and the type of anaesthesia cervical block used was lidocaine 4% given in two spots, at the 3 o'clock and 9 o'clock positions, using a dental syringe. The evaluation of the endometrial cavity included: no findings, polyps, fibroids, endometrial type (atrophic, proliferative or secretory), hyperplasia and/or malignancy, endometritis, and adhesions. Then, if a polyp was found, it was removed by scissors and an endometrial sample was obtained and sent for histopathology.

RESULTS

As shown in table 1, this study enrolled 64 patients with abnormal endometrial pathologies and >50% (51.6%) were in the age group of 41–50 years with mean age (45.61±7.26) years. The patients mainly complained of abnormal uterine bleeding (90.6%), infertility (7.8%), and pelvic pain (1.6%).

Abnormal uterine pathologies were shown in table 2, in which the hysteroscopy diagnosed all

TABLE 1. Patient criteria.

Variables		No.	%
Age group (years)	≤30	2	3.1
	31–40	12	18.8
	41–50	33	51.6
	>50	17	26.6
	Mean±SD	45.61 ± 7.26	
Chief complaints	AUB	58	90.6
	Infertility	5	7.8
	Pelvic pain	1	1.6

cases of polyps whereas the TVU diagnosed only 10 cases, hysteroscopy diagnosed only 2 of 3 cases with endometrial CA and TVU diagnosed only 1 case.

Tables 3 and 4 show that the validity of both hysteroscopy and TVU regarding four main endometrial abnormalities in this study, in which

hysteroscopy was more accurate in diagnosing sensitivities of endometrial polyposis, hyperplasia, and cancer, whereas ultrasounds were more accurate in identifying endometrial myoma sensitivity.

DISCUSSION

Based on the fact that transvaginal ultrasound and hysteroscopy are the best techniques to detect uterine pathologies, we conducted this study and the results obtained were compared with the results of histopathology: the current gold standard for diagnosis of endometrial pathologies.⁶ Additionally in the last few years, new ultrasound devices have emerged in the market with high frequency probes and the introduction of office hysteroscopy, which allows diagnosis of endometrial lesions and treatment simultaneously.³

In this study, the most common complaint of the patients was abnormal uterine bleeding (90.6%) and the pathological findings included polyps, myomas, cancer, hyperplasia, and atrophic endometrium. In addition to normal findings, hysteroscopy diagnosed 14 cases with polyps, whereas ultrasound failed to diagnose 4 cases, and this gives a

TABLE 2. TVU and hysteroscopic findings in women with histologically proved abnormal endometrium.

Histopathology (n = 64)	TVU	Hysteroscopy
Endometrial polyp (n = 14)	10	14
Myoma (n = 13)	10	11
Endometrial CA (n = 3)	1	2
Atrophic endometrium (n = 4)	2	4
Secretory endometrium (n = 2)	4	4
proliferative endometrium (n = 4)	16	7
Endometrial hyperplasia (n =24)	21	22
Total	64	64

TABLE 3. Validity of hysteroscopy in detecting endometrial pathologies.

Validity	Endometrial Polyps	Myoma	Endometrial Hyperplasia	Endometrial Carcinoma
Sensitivity (%)	100.0%	83.0%	84.2	50.0%
Specificity (%)	77.9	87.0	92.0	81.0
Negative predictive value (%)	88.9	77.0	89.4	79.0
Positive predictive value (%)	99.2	81.0	85.0	44.0

TABLE 4. Validity of the transvaginal ultrasonography in detecting endometrial pathologies.

Validity	Endometrial Polyps	Myoma	Endometrial Hyperplasia	Endometrial Carcinoma
Sensitivity (%)	80.0	90.0	80.7	34.0
Specificity (%)	70.0	93.0	90.0	76.0
Negative predictive value (%)	72.1	92.0	86.4	73.0
Positive predictive value (%)	82.0	91.0	84.0	48.0

sensitivity of 100% and a specificity of 77.9% for hysteroscopy in diagnosing polyps. Contrarily, it resulted in sensitivity of 80% and specificity of 70% for TVU in diagnosing these results agreed with a study conducted in the Czech Republic. The study revealed a sensitivity of 94% and specificity of 95% for hysteroscopy and a sensitivity of 54% and specificity of 80% for TVU for diagnosing endometrial polyps. This means that we need another diagnostic test to improve the accuracy of the ultrasound in detecting polyps.⁷ Regarding myoma, our results revealed a sensitivity and specificity of 83% and 87%, respectively, for hysteroscopy in diagnosing myoma grades 0, 1, and 2 (intracavitary and submucous) compared with 90% and 93% for ultrasound and, these findings disagree with Vinter et al. who found higher sensitivity and specificity for hysteroscopy in detecting uterine fibroids compared to the TVU.⁸

Furthermore, our study reveals a sensitivity of 84.2% and specificity of 92% for hysteroscopy in diagnosing hyperplasia compared to TVU 80.7% and 90%, respectively, and not surprisingly both hysteroscopy and TVU showed low sensitivity of 50% and 34% in detecting endometrial cancer compared to the histopathologic results and these findings were comparable to the results obtained by Krampl et al, who reported a sensitivity of 33% for TVU and 22% for hysteroscopy and a specificity of 88% and 87%, respectively, in diagnosing hyperplasia and malignancy.⁹

According to Balić D and Balić A, the reason behind the discrepancy of results between the TVU and hysteroscopy findings might be due to the use of a high frequency US probe and better resolution images. As a result, the echogenic zones appeared as small polyps,³ while a study conducted in Italy suggests the risk or error during TVU and office hysteroscopy subjected to operator's skills and experience.¹⁰ In our study, the four cases of polyps missed by us were described by the operator as a thickened endometrium and suggested hyperplasia and, of course, a Doppler study added to the test

would overcome the problem by identifying a single feeder vessel.

CONCLUSION

Although TVU is considered an integral part in the diagnosis of endometrial pathologies and it can be used for initial investigation; however, when suspecting endometrial pathology, hysteroscopy can be a more advanced method for evaluation and immediate treatment of endometrial masses and to obtain targeted biopsies. Hysteroscopy showed high sensitivity in detecting endometrial polyps in particular, whereas low sensitivity was seen with both TVU and hysteroscopy in detecting endometrial cancer.

ETHICAL APPROVAL

The study protocol was approved by the Iraqi Ethical Committee at the Department of Obstetrics and Gynecology, College of Medicine, University of Baghdad, Iraq.

CONFLICT OF INTEREST

The author declares no conflict of interest.

INFORMED CONSENT

The patient's consents (written form) were obtained from all participants, who enrolled in the current study.

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