e-ISSN: 0976-822X, p-ISSN:2961-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2024; 16(10); 147-151

Original Research Article

Comparative Analysis of Hysteroscopy and Transvaginal Sonography in Perimenopausal Patients with Abnormal Uterine Bleeding: A Correlation with Histopathological Findings

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Received: 01-07-2024 Revised: 15-08-2024 / Accepted: 22-10-2024

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Conflict of interest: Nil

Abstract

Background and Aim: Abnormal uterine bleeding refers to any bleeding from the uterus that deviates from the typical volume, duration, regularity, or frequency expected during a menstrual cycle. Transvaginal sonography provides a comprehensive evaluation of anatomical irregularities within the uterus and the pathologies affecting the endometrium and myometrium. The study aimed to assess the underlying causes of abnormal uterine bleeding through the utilisation of transvaginal sonography, hysteroscopy, and endometrial curettage, with the goal of attaining the highest level of diagnostic precision.

Material and Methods: This cross-sectional study involved 150 perimenopausal women aged 35 to 45 years, who sought care at the outpatient department of obstetrics and gynaecology at a Tertiary Care Teaching Institute in India over the course of one year. Details concerning the woman's menstrual and obstetric history were requested. A comprehensive systemic examination, along with a gynaecological assessment and targeted investigations such as transvaginal sonography (TVS) and hysteroscopy, were conducted.

Results: The findings indicate that the average endometrial thickness measured via transvaginal ultrasound for endometrial hyperplasia was 15.40±6.32 mm. In contrast, uterine leiomyomas presented an average thickness of 13.43±2.21 mm. For a normal endometrium, the mean thickness was recorded at 7.40±3.11 mm, while polyps exhibited an average thickness of 10.22±3.43 mm. A total of 150 women experiencing perimenopause underwent hysteroscopy to investigate abnormal uterine bleeding (AUB). A normal endometrium was observed in 77 women, accounting for 51.33% of the cases examined. A polyp was identified in 39 women, representing 26% of the population studied. Hyperplasia was identified in 27 women, accounting for 18%, while Leiomyoma was observed in just 7 women, representing 4.6%.

Conclusion: Hormonal imbalance, endometrial polyps, endometrial hyperplasia, and leiomyomas are significant contributors to abnormal uterine bleeding in perimenopausal women. Hysteroscopy demonstrates a range of accuracy in identifying endometrial pathology, outperforming transvaginal ultrasound in this regard.

Keywords: Abnormal uterine bleeding, Biopsy, Hysteroscopy, Transvaginal sonography.

Introduction

Abnormal uterine bleeding stands out as the most prevalent gynaecological issue faced by women during the perimenopausal and postmenopausal stages of life. Transvaginal sonography serves as a valuable tool for identifying the underlying causes of abnormal uterine bleeding, including conditions such as fibroids, adenomyosis, endometrial polyps, and adnexal pathology. Additionally, it aids in assessing endometrial thickness and morphology, as well as the regularity of the endo-myometrial border. [1] Transvaginal sonography (TVS) is not able to completely rule out sessile and pedunculated lesions of the endometrium, as well as malignancies. Additionally, it is associated with

a significant false negative rate when it comes to diagnosing focal intrauterine pathology. [2,3] Transvaginal ultrasound (TVS) serves as the primary method for examining the underlying reasons for abnormal uterine bleeding. In nearly one-sixth of perimenopausal patients, endometrial lesions go undetected or are misdiagnosed when transvaginal ultrasound is utilised as the sole diagnostic tool. Recent advancements in minimally invasive gynaecology have positioned hysteroscopy as a promising tool for evaluating the endometrium in perimenopausal women experiencing abnormal bleeding, particularly when ultrasound results are normal. [4,5]

Hysteroscopy is a procedure that, while invasive, offers high sensitivity and specificity for detecting intra-cavitary uterine lesions such as endometrial polyps and submucous myomas. Its use is less common compared to transvaginal sonography, primarily due to the need for specialised training and the invasive nature of the procedure. The method effectively identifies distinct lesions; however, it does not provide a histological diagnosis.

Dilatation and curettage is widely regarded as the gold standard for diagnosing abnormal uterine bleeding (AUB). However, it's noteworthy that in 60% of cases, blind curettage only samples less than half of the endometrial cavity. The use of hysteroscopy alongside directed biopsy demonstrates a high level of sensitivity when it comes to identifying malignant and premalignant lesions. [6]

The study aimed to assess the underlying causes of abnormal uterine bleeding through the use of transvaginal sonography, hysteroscopy, and endometrial curettage, with the goal of attaining the highest level of diagnostic precision.

Material and Methods

This cross-sectional study involved 150 perimenopausal women aged 35 to 45 years, who visited the outpatient department of obstetrics and gynaecology at a Tertiary Care Teaching Institute in India over the course of one year.

Following the acquisition of written and informed consent, counselling will be provided to perimenopausal women experiencing abnormal uterine bleeding (AUB) who meet the specified inclusion and exclusion criteria for the study. Women in the perimenopausal stage who meet the specified inclusion and exclusion criteria, express a willingness to participate in the study, and are prepared for surgical intervention in the hospital.

Inclusion Criteria

- Perimenopausal age group (40–55 years)
- Having abnormal uterine bleeding

Exclusion criteria for current study were; women with uterus >12 weeks pregnant size, cervical lesions on per speculum examination, women who had already received hormone therapy, morbid medical illness, pregnancy, pelvic inflammatory disease and bleeding disorder.

The details gathered from the woman included her name, age, and menstrual history, focussing on aspects such as cycle length, duration of flow, the number of pads used daily, any history of clot passage, cycle regularity, bleeding volume, and associated dysmenorrhea. Additionally, her obstetric history, including any tubal ligation, past medical conditions like thyroid disorders, surgical history, and family medical history were also enquired about.

A comprehensive clinical assessment was conducted, encompassing measurements of height and weight, evaluation of pallor, pulse, blood pressure, and examination for thyroid enlargement, among other factors. A comprehensive systemic examination was conducted, alongside a gynaecological assessment. This included a per speculum and per vaginal examination to evaluate the cervix, vagina, uterine size, uterine mobility, and to check for tenderness or masses in the fornices. Standard diagnostic assessments include a complete blood count, blood group with Rh typing, serum TSH levels, platelet count, fasting and postprandial blood sugar measurements, as well as evaluations of liver and kidney function. Investigations such as 2D transvaginal sonography and diagnostic hysteroscopy were conducted.

Statistical analysis: The collected data was organised and input into a spreadsheet application (Microsoft Excel 2019) before being exported to the data editor interface of SPSS version 19 (SPSS Inc., Chicago, Illinois, USA). Quantitative variables were characterised using means and standard deviations or medians and interquartile ranges, depending on their distribution patterns. Qualitative variables were reported in terms of counts and percentages. The confidence level for all tests was established at 95%, while the level of significance was set at 5%.

Results

This study aimed to assess the endometrium through transvaginal ultrasound, hysteroscopy, and its relationship with histopathological findings in perimenopausal women experiencing abnormal uterine bleeding. A total of 150 perimenopausal women participated in the study, undergoing transvaginal sonography (TVS) and hysteroscopy, with treatment administered based on the pathological findings observed. The sensitivity, specificity, positive predictive value, and negative predictive value of transvaginal sonography and

hysteroscopy were evaluated in the context of detecting normal endometrium, endometrial hyperplasia, polyps, and fibroids, with findings correlated to histopathological results.

A total of 150 perimenopausal women, aged between 35 and 45 years, participated in the study conducted during this period. The average age of the women experiencing perimenopause in the study was 43.23 years, with a standard deviation of 1.65 years. The representation of women in the study varied from 0 to 5. In perimenopausal women experiencing abnormal uterine bleeding (AUB), menorrhagia emerged as the predominant symptom, affecting 52.22% of this population. Following closely was polymenorrhagia, reported in 36.01% of women surveyed. Irregular bleeding was observed in just 11.32% of women, indicating a lack of consistent bleeding patterns. The average endometrial thickness measured by transvaginal ultrasound for cases of endometrial hyperplasia was recorded at 15.40±6.32 mm. In contrast, uterine leiomyomas presented a mean thickness of 13.43±2.21 mm. For a normal endometrium, the average thickness was noted to be 7.40±3.11 mm, while polyps exhibited a mean thickness of 10.22±3.43 mm. The uterine size assessed through per vaginal examination ranged from 8.10 to 8.43±2.50 weeks across various pathologies. A total of 150 perimenopausal women underwent transvaginal sonography (TVS) for abnormal uterine bleeding (AUB). The transvaginal ultrasound revealed a minimum endometrial echo complex measuring 2.03 mm, while the maximum reached 36 mm, resulting in a mean endometrial complex of 9.43 ± 4.12 mm. A transvaginal ultrasound revealed that the endometrium appeared normal in 96 women, accounting for 64% of the cases. Endometrial hyperplasia was observed in 40 women, representing 26.6%. Additionally, uterine polyps were identified in 11 women, which is 7.33%, while uterine leiomyomas were present in 2 women, or 2% of the participants. In a study involving 150 perimenopausal women, hysteroscopy was performed to investigate abnormal uterine bleeding (AUB). A normal endometrium was observed in 77 women, accounting for 51.33% of the cases. A total of 39 women, representing 26% of the study population, were found to have a polyp. Hyperplasia was identified in 27 women, accounting for 18%, while Leiomyoma was observed in just 7 women, representing 4.6%.

A study involving 150 perimenopausal women was conducted to perform histopathological examinations of the endometrium in cases of abnormal uterine bleeding (AUB). A normal endometrium was observed in 102 women, accounting for 68% of the cases. A polyp was identified in 34 women, representing 22.66% of the population studied. Hyperplasia was identified in 12 women, accounting for 8%, while Leiomyoma was observed in just 2 women, representing 1.33%. The current study revealed that none of the perimenopausal women experiencing abnormal uterine bleeding were diagnosed with endometrial malignancy. Among 12 women diagnosed with endometrial hyperplasia through histopathological examination, transvaginal ultrasound was able to identify the condition in just 4 cases. Among the 102 normal endometrial findings identified through histopathology, transvaginal sonography successfully detected normal endometrium in 73 women. Among the 34 polyps identified through histopathological examination, transvaginal sonography successfully detected polyps in just 5 women. However, the transvaginal ultrasound did not identify the presence of leiomyoma. The findings indicated a lack of consistency between transvaginal sonography and histopathological examination. The p value of 0.12 indicates a lack of statistical significance (Table 4). In a study involving 12 women diagnosed with endometrial hyperplasia, hysteroscopy successfully identified the condition in 6 participants. Among 102 normal endometrial findings observed through histopathology, hysteroscopy was able to identify only 17 cases. The findings indicated a notable concordance between hysteroscopy and histopathological examination, with a p-value of 0.02, underscoring its statistical significance.

Discussion

Effective management of abnormal uterine bleeding (AUB) hinges on precise diagnosis, which is contingent upon selecting the diagnostic tests that offer the greatest sensitivity and specificity for the underlying pathologies associated with AUB. The causes of perimenopausal abnormal uterine bleeding (AUB) are diverse, including endometrial hyperplasia, polyps, and myomas. The success of clinical management for abnormal uterine bleeding in the perimenopausal age group hinges on accurately identifying the underlying cause. This requires a thorough evaluation, which includes a detailed history, physical examination, and appropriate investigations. The assessment of anatomical changes in the endometrium can be conducted through transvaginal ultrasound, hysteroscopy, and histopathological examination. Each of these procedures possesses distinct predictive value. [7,8]

Table 1: Comparison between TVS and HPE

Variables	Sensitivity (%)	Specificity (%)	Positive predictive value (%)	Negative predictive value (%)
Normal	70.25	35.50	73.12	32.96
Hyperplasia	14.2	91.10	33.54	80.02
Polyp	51.02	80.05	12.94	95.85
Leiomyoma	0	98.90	0	98.03

Table 2: Comparison between hysteroscopy and HPE

Variables	Sensitivity (%)	Specificity (%)	Positive predictive value (%)	Negative predictive value (%)
Normal	87.02	51.96	65.35	79.23
Hyperplasia	21.98	93.78	45.10	84.86
Polyp	58.84	91.10	68.74	87.35
Leiomyoma	0	98.12	0	94.91

Table 3: Comparison between TVS and hysteroscopy

Variables	TVS	Hysteroscopy			Total
	Hyperplasia	Leiomyoma	Normal	Polyp	
Endometrial hyperplasia	18	2	11	9	40
Uterine leiomyoma	0	0	3	0	3
Normal endometrium	13	8	51	24	96
Uterine polyp	0	0	4	7	11
Total	31	10	69	40	150

Following a comprehensive history and gynaecological examination, basic investigations including transvaginal sonography (TVS), hysteroscopy, and endometrial evaluation through histopathology were conducted. Based on the findings from the hysteroscopic-guided biopsy, women were subsequently managed either medically or surgically, depending on the histopathological report. The current study found that the endometrial thickness measured by transvaginal ultrasound for a normal endometrium was 7.40±3.11 mm, aligning with the findings of Waleed et al. [7]

The measurements for endometrial hyperplasia were recorded at 15.40±6.32 mm, while the polyp size averaged 10.22±3.43 mm. various studies have explored the findings related to TVS in perimenopausal women experiencing abnormal uterine bleeding (AUB). The current study found that 64% of women exhibited a normal endometrium. Myomas affect approximately 2% of women, a statistic that aligns closely with the findings of Waleed et al. Endometrial polyps are found in 5.82% of women, while endometrial hyperplasia affects 21.36% of women, according to research conducted by Waleed et al. [9] The current investigation in Health Promotion and Education In a study, it was found that 68% of women had a normal endometrium, while 1.33% presented with myoma on histopathological examination. Additionally, the presence of endometrial polyps was noted. Among the subjects studied, 22.66% were women, with an incidence of endometrial hyperplasia recorded at 8%, closely aligning with the findings of Rajshree et al. The perimenopausal phase in a woman's life significantly influences her overall health.

In this study, over 50% of women exhibited normal results on transvaginal sonography and hysteroscopy. In perimenopausal women, abnormal uterine bleeding (AUB) can stem from several factors, including hormonal imbalances, endometrial polyps, endometrial hyperplasia, and leiomyomas. While various diagnostic methods exist, our research indicates that transvaginal ultrasound and hysteroscopy exhibit differing levels of accuracy in identifying endometrial pathology. The diagnostic accuracy of transvaginal ultrasound (TVS) for identifying intramural fibroids and adenomyosis is commendable; however, it falls short in distinguishing between endometrial polyps, hyperplasia, and early-stage cancers. Hysteroscopy demonstrates a greater efficacy compared to transvaginal sonography in identifying intracavitary lesions such as polyps and submucosal myomas. Mojgan Barati and colleagues advocate for the use of hysteroscopy as a subsequent step for patients experiencing abnormal uterine bleeding, even in cases where transvaginal ultrasound results are normal. [10] While hysteroscopy may demonstrate a high sensitivity for detecting endometrial hyperplasia, it is important to note that it cannot substitute for histological diagnosis when it comes to distinguishing between benign and malignant conditions. Hysteroscopy serves as a valuable tool for conducting targeted biopsies on identified

lesions. Previous research indicates that the combination of transvaginal sonography and hysteroscopy enhances diagnostic accuracy in cases of abnormal uterine bleeding. [11] This study contributes to the existing literature on the effectiveness of transvaginal sonography and hysteroscopy, as well as the formulation of an algorithm for assessing the endometrium in cases of abnormal uterine bleeding among perimenopausal women. Further research with larger sample sizes is essential for validation.

Conclusion

The causes of abnormal uterine bleeding (AUB) in perimenopausal women include hormonal imbalance, endometrial polyps, endometrial hyperplasia, and leiomyomas. Hysteroscopy demonstrates a range of accuracy in identifying endometrial pathology, outperforming transvaginal ultrasound in this regard. In the current investigation, over 50% of women exhibited normal results on transvaginal sonography and hysteroscopy.

References

1. Fraser IS, Critchley HO, Munro MG. Abnormal uterine bleeding: getting our terminology straight. Curr Opin Obstet Gynecol. 2007; 19(6):591-5.
2. Karlsson B, Granberg S, Wikland M, Ylöstalo P, Torvid K, Marsal K, et al. Transvaginal ultrasonography of the endometrium in women with postmenopausal bleeding: a Nordic multicenter study. Am J Obstet Gynecol. 1995; 172:1488-94.
3. Mortakis AK, Mavrelos K. Transvaginal ultrasonography and hysteroscopy in the diagnosis of endometrial abnormalities. J Am Assoc Gynecol Laparosc. 1997; 4:449-52.
4. Conoscenti G, Meir YJ, Fischer-Tamaro, Maieron A, Natale R, D'ottavio, et al. Endometrial assessment by transvaginal sonography and histological findings after D & C in women with postmenopausal bleeding. Ultrasound Obstet Gynecol. 1995; 6:108- 15.
5. Reddi Rani P, Lakshmikantha G. Transvaginal sonography and saline infusion sonohysterography in the evaluation of abnormal uterine bleeding. J Obstet Gynecol India. 2010; 60(6):511-5.
6. Subhankar D, Barunoday C, Relaul K, Kanti AR, Kumar MP, Kumar GT. Abnormal uterine bleeding in peimenopausal age: Diagnostic options and accuracy. J Obstet Gynecol India. 2011; 1:189-94.
7. Katke RD, Zarariya Ashish N. Use of diagnostic hysteroscopy in abnormal uterine bleeding in perimenopausal age group and its clinicopathological corelation with ultrasound and histopathology finding: experience in tertiary care institute. Int J Reprod Contracept Obstet Gynecol. 2015; 4(2):413-8.
8. Al-Kubaisi RI. The relationship between hysteroscopy, endometrial biopsy and the results of transvaginal sonography in assessing endometrial polyps. Sultan Qaboos Univ Med J. 2007; 7:51-4.
9. El-Khayat W, Sleet MS, Mahdi EY. Middle East Fertil Soc J. 2011; 16(1):77-82.
10. Mojgan B, Sara M, Farideh M, Shabnam S. Off ice hysteroscopy in patients with abnormal uterine bleeding and normal transvaginal sonography. Int J Fertil Steril. 2008; 4:175-8.
11. Al-Kubaisi RI. The relationship between hysteroscopy, endometrial biopsy and the results of transvaginal sonography in assessing endometrial polyps. Sultan Qaboos Univ Med J. 2007; 7:51-4.