

ORIGINAL ARTICLE

Correlation of Sonographic Findings and Histopathological Examination of Hysterectomy Specimens in Perimenopausal Patients with Abnormal Uterine Bleeding

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ABSTRACT

Background: Abnormal uterine bleeding (AUB) is a frequent prenatal problem that affects the women of all ages. AUB is the condition in which vaginal bleeding occur in the absence of pregnancy. The most common and easily available imaging procedure is the ultrasonography. Our study aimed to investigate the correlation between sonographic findings and histopathological examination of hysterectomy specimens in perimenopausal women with AUB.

Study design: It is a cross-sectional study conducted at Lady Willingdon Hospital Lahore and Divisional Headquarters Teaching Hospital Mirpur, Azad Kashmir for the duration of six months from July 2022 to December 2022.

Material and Methods: This study on hysteroscopy was carried out on 50 patients suffering from uterine bleeding and having a biopsy. All the patients selected in the given study were according to the inclusion criteria, while those patients were excluded that do not fulfill the inclusion criteria. Most of the patients included in this study had ages between 31 to 41 years. The study was approved by the review and ethical board committee of the hospital.

Results: Most patients having this ultrasonography had fibroid and bulky uterus. Only a few had Adenomyosis and thick endometrium. Neglectable patients had an endometrial polyp and malignancy issues. The sensitivity value for the normal endometrium used as a control was at an acceptable range and it was used as the control for the further evaluation of other attributes.

Conclusion: For the diagnosis of abnormal uterine bleeding, hysteroscopy is an excellent diagnostic tool and it is highly efficient for the estimation of pathological issues of the endometrium wall.

Keywords: Abnormal uterine bleeding, sonography and histopathological examination.

INTRODUCTION

Abnormal uterine bleeding (AUB) is a frequent prenatal problem that affects the women of all ages. AUB is the condition in which vaginal bleeding occur in the absence of pregnancy. In perimenopausal woman AUB may be as a result of hormonal changes that occur during the transition to menopause. AUB can also be caused by the different underlying pathological situations like endometrial polyps, endometrial hyperplasia and uterine fibroids. Menstruation is very important for woman reproductive life. It is the cyclic process that starts form menarche to menopause¹⁻². Endometrium is an energetic component of menstrual cycle in female reproductive system. Many of the variation occur in the endometrial stroma and glands such as differentiation of endometrial tissues, proliferation and break down endometrial tissues. These changes occur under the incessant impact of indigenous hormones. The most widely performed surgical intervention for treatment of AUB is hysterectomy. By the endometrium histological variation the multiple disease pattern can be detected. The AUB can be lead from acute to chronic inflammatory changes. AUB treatment is important to prevent the complications like anemia. The most common and easily available imaging procedure is the ultrasonography³⁻⁴. The ultrasonography can either be trans-abdominal or trans-vaginal. Hysteroscopy can be used in the estimation of endometrium. In case of sub mucosal fibroid the endometrium evaluation can be performed with hysteroscopy and sonography. Many studies investigate the correlation between sonographic findings and histopathological examination of hysterectomy specimens in perimenopausal women with AUB. The studies included women between the ages of 40 and 55 years who present with AUB and are scheduled for hysterectomy. Transvaginal ultrasound can be performed prior to surgery, and the sonographic findings will be compared with the histopathological examination of the hysterectomy specimens⁵⁻⁶. The primary outcome will be the correlation between sonographic findings and histopathological examination in diagnosing endometrial hyperplasia, endometrial polyps, and uterine fibroids. Secondary outcomes will include the diagnostic accuracy of TVS in

identifying the malignant lesions and the association between the sonographic findings and clinical characteristics such as age, parity, and BMI. Hysterectomy is the most frequent gynaecological treatment that is performed all over the world because of the patient's satisfaction. The study can identify the specific sonographic features that are associated with the specific pathological conditions, which could help to improve the accuracy of TVS in diagnosing AUB⁷⁻⁸. Epithelial deviations of Endometrium can diagnose the phenomena of numerous disease configurations, taking into consideration the woman's age and the sequence of her menstrual cycle. Regardless of the fact that there are multiple effective treatments for AUB, medical technique, particularly hysterectomy, is still the most familiar post - operative surgery performed in the world at the moment due to higher patient outcomes⁹⁻¹⁰. The survey's logic was that by understanding the continuum of perimenopausal abnormal uterine bleeding in patients scheduled for hysterectomies and connecting it with computed tomography and histopathological findings, we can decrease the impact on the health system by preserving the research list brief and offering better options for treatment after verifying the diagnosis.

MATERIAL AND METHODS

This study on hysteroscopy was carried out on 50 patients suffering from uterine bleeding and having a biopsy. All the patients selected in the given study were according to the inclusion criteria, while those patients were excluded that do not fulfill the inclusion criteria. Most of the patients included in this study had ages between 31 to 41 years. The study was approved by the review and ethical board committee of the hospital. According to the inclusion criteria following patients were included in the study:

- Patients with perimenopausal age
- Patients with abnormal uterine bleeding

According to the exclusion criteria following patients were excluded from the study:

- Patients with coagulopathy
- Patients with endocrinal pathology

• Patients with the treatment of hysterectomies
 Pattern follows approval, 50 cases meeting inclusion criteria were selected from the clinical research outpatient department using a non-probability expedient methodology. To make a diagnostic accuracy, we examined these women by capturing their age, parity, menstrual detailed history, and proprioceptive examination. Pelvic ultrasonography was performed on all of these cases, and the firm strategy endometrial thickness, texture, myometrial texture, and growth were measured. Myometrium and endometrium findings were collected following histopathology reports of hysterectomies.

RESULTS

This study on hysteroscopy was carried out on 50 patients suffering from uterine bleeding and having a biopsy. Histopathological studies of these patients were also carried out. In this study, histopathological validations are considered as gold standard as compared to the hysteroscopic studies. The patients are divided into different age groups to estimate the correlation of the respective parameters.

Table 1: Distribution of patients in different age groups.

Age of the patients	Total no. of patients	%
26-30	5	10.0
31- 41	25	50.0
42-51	17	34.0
52-60	3	6.0
Sum	50	100

After the distribution of patients, ultrasonography of the patients was done to look for deep insight into the uterus. Different conditions of the uterus were observed like Fibroid and bulky one. In the same way, endometrium walls, polyps, and different malignancies were also studied. All of these diagnosed attributes are further validated with histopathological examination and hysteroscopic validations. Most patients having this ultrasonography had fibroid and bulky uterus. Only a few had Adenomyosis and thick endometrium. Neglectable patients had an endometrial polyp and malignancy issues. The bleeding patterns of all the patients were also studied in detail to diagnose the exact reason behind them.

Table 2: Findings of ultrasonography (n: 50).

Diagnosed issues	Percentage
Bulkiness of uterus	45.1
Fibroid uterus	29.5
Thick endometrium	10.1
Adenomyosis	12.2
Malignancies	1.56
Polyp	1.54

Table 3: Hysteroscopic accuracy.

Hysteroscopy predictions	Specificity %	Sensitivity %	NPV %	PPV %	Accuracy %
Control	80.6	89.2	93.56	65.9	82.4
Hyperplastic endometrium wall	70.8	67.9	82.47	53.4	70.1
Polyp	96.7	66.7	93	81.2	89.9
Atrophic	100	34.5	92.9	100	94.3
Suspicious	100	0	93.4	0	94.3
Fibroid	100	0	95.8	0	98.7

Then the diagnostic accuracy of hysteroscopy was validated in terms of sensitivity and specificity. All the attributes of the uterus and endometrium wall and the polyp was validated to avoid any kind of suspicious result. PPV (positive predictive value), NPV, (Negative predictive value), as well as accuracy in terms of percentage, was also estimated for complete validation of results. The sensitivity value for the normal endometrium used as a control was at an acceptable range and it was used as the control for the further evaluation of other attributes. Hyperplastic and polyp

endometrium gave more sensitivity values. However, the specificity value was higher for the endometrium polyp.

DISCUSSION

The patients under study had an age range from 25 to 60 years and most of the patients having aged between 31 to 40 years. The youngest patient included in this study had age 27 years, while the oldest patient was at age 60 years. The incidence age was exactly according to the age mentioned in the literature¹¹⁻¹². One of the major reasons behind hysterectomy is AUB. This study was done on 50 patients suffering from a premenopausal hysterectomy. The major menstrual issue is menorrhagia. In this study, an Ultrasonographic evaluation of the uterus and endometrium wall was carried out. All of the diagnosed patients' results were further validated by histopathological studies. About 45.1% of patients were suffering from a bulky uterus, 29.5% were suffering from fibroid uterus, 10.1% has thick endometrium walls, 12.2% patients had Adenomyosis, and neglectable patients had an endometrial polyp and malignancy issues. The bleeding patterns of all the patients were also studied in detail to diagnose the exact reason behind them. All of these patterns were according to the studies mentioned in the literature. So our study completely follows the literature.

A study carried out in Turkey also shows that most women of middle age from 31 to 40 years mostly suffer from abnormal bleeding of the uterus¹³⁻¹⁴. In this study, a comparison of the histopathological studies and sonographic studies was done on hysterectomy specimens were done, and most of the patients had fibroid uterus and thick endometrium walls which is exactly the results obtained in our study. This study also declares hysteroscopy, as an efficient and gold standard method for the diagnosis of abnormal bleeding through the uterine wall. Different kinds of pathogens may involve in such kind of bleeding after the menstruation period. A study done in the U.S. revealed that the fibroid uterus is the main reason behind AUB (Abnormal uterine bleeding) and for its diagnosis hysterectomy is employed¹⁵⁻¹⁶. For the more appropriate diagnosis of fibroids, there is a need for pathological and radiological evaluation. While for the estimation of endometrium condition, there is a need for histopathological validations which reveals hyperplasia.

Another study conducted in japan¹⁷⁻¹⁹ shows that hysteroscopic accuracy for the hyperplastic endometrium wall is more sensitive and specific as compared to the others. On the other hand for the estimation of suspicious and fibroid uterus 100% specificity was also observed. Here in this study, the sensitivity value for the normal endometrium was used as a control and the same control was used in our study. So in general our study follows the patterns of other studies as well. For further analysis, the bleeding patterns of all the patients were also observed to find out the exact reason behind uterine bleeding and its diagnosis. For further validation of our results, a Biopsy was done to find out the exact situation of the uterus and endometrium wall and polyp. The atrophic and suspicious results are accurately validated by our available methods of diagnosis. Then both ultrasonography and histopathological validations were compared and correlated to finally calculate the accuracy in terms of percentage. In the same way sensitivity, specificity, NPV, and PPV were calculated. According to the literature, all these attributes were reported as 100%, 33%, 100%, and 93%, respectively. But here our results show a little deviation, which is different due to the different environmental conditions of the study area. As well as dietary requirements and availability also differ greatly. Their sample size was also huge and our study is done on a small population size which decrease the efficiency of the results. The studies of the UK and the U.S²⁰⁻²¹ shows a huge difference from our study, all the above-mentioned reasons are also validated over here and one of the main reason behind it is the availability of more advanced machines and instruments. As a developing country, we are running out of modern instruments for diagnosis and

measurements of different parameters. There is a need for more accurate and advanced diagnostic tools.

CONCLUSION

For the diagnosis of abnormal uterine bleeding, hysteroscopy is an excellent diagnostic tool and it is highly efficient for the estimation of pathological issues of the endometrium wall. The Fibroid uterus is the main reason for AUB and there is a need for radiological and pathological estimation to diagnose the fibroid uterus. Ultrasonography as well as histopathological validations are required for more appropriate diagnosis.

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