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Original article

A Retrospective Study on Diagnosing Efficacy of Transvaginal Sonography Versus Hysteroscopy in Abnormal Uterine Bleeding

Dr. Priyanka Chaudhary [*1], Dr. Poonam Singh [2], Dr Rehana Najam [3], Dr Shubhra Shrivastava [4], Dr Astha Lalwani [2]

[1]Junior Resident (JRIII), [2]Professor, [3]Professor & Head of Department, [4]Assistant Professor, [2]Professor
Department of Obstetrical and Gynaecology, Teerthanker Mahaveer Medical College and Research Centre, Delhi Road, Moradabad, UP, India

*Corresponding author- Dr. Priyanka Chaudhary; *priyankachoudhary1130@gmail.com*

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Abstract

Background: Around 33% of females that presents to gynecological OPD have abnormal uterine bleeding (AUB). Out of various causes of AUB, the most common causes that were encountered includes endometrial polyps & hyperplasia, leiomyomas and annovulation. By diagnosing the etiology of abnormal uterine bleeding accurately, the prevalence of hysterectomies can be reduced. So, in this study the effectiveness of transvaginal sonography versus hysteroscopy was compared in the diagnosis of AUB. ***Methods:*** A total number of 64 patients in perimenopausal age group with AUB were enrolled in the study. All the patients were subjected to TVS & Hysteroscopy for the assessment of uterine cavity which was followed by endometrial sampling and then the sensitivity & specificity of both the modalities were statistically analysed. ***Results:*** In our study, mostly patients were presented with heavy menstrual bleeding(n=26) followed by frequent bleeding, intermenstrual bleeding & irregular menstrual bleeding. On TVS, 12 patients had normal uterine cavity, adenomyosis,fibroids, polyp, cystic ovaries were seen in 19,18,10, & 5, in women with AUB .On Hysteroscopy, uterine cavity was found normal in 15 females followed by endometrial polyp, fibroids & cerebroid appearance was seen in, 12, 12, 4 patients respectively and on histopathology, endometrial hyperplasia (n=20)was most commonly seen followed by polyp, proliferative & secretory endometrium. Both TVS & Hysteroscopy findings were statiscally significant. ***Conclusion:*** Both Hysteroscopy & transvaginal sonography has the ability to determine the abnormalities of endometrium with different accuracy. Hence the patients who were presented with AUB should undergone TVS as primary measure, followed by hysteroscopy in the same sitting for diagnostic & therapeutic procedure whenever required

Keywords: ***Transvaginal sonography, Hysteroscopy, Abnormal uterine bleeding***

Introduction

Abnormal uterine bleeding is a type of bleeding that arises from uterine corpus varying in duration, amount, frequency and cyclicity [1]. Its prevalence fluctuates between 10% to 30% and varies in different population [2]. Abnormal uterine bleeding most commonly occurs in perimenopausal age group which may be due to anatomic changes, hormonal imbalance, systemic diseases, infections or complications of pregnancy.

FIGO in 2018 has developed a newer classification (PALM-COEIN) for the etiology of AUB where PALM stands for structural causes while COEIN stands for non-structural causes [3].

Majority of problems that happens to perimenopausal women were due to anovulatory cycles, endometrial hyperplasia & benign uterine neoplasia while in postmenopausal women, the most common cause of AUB was atrophy of vagina & endometrium and hormonal therapy, only 10% bleeding occurs due to carcinoma of endometrium [4].

Transvaginal sonography provides detailed assessment of anatomic abnormalities of the uterus and endometrium pathologies like endometrial polyps, adenomyosis, leiomyomas, endometrial hyperplasia & malignancy [5].

Hysteroscopy is although invasive but plays a very important role in the diagnosis and management of patients with intracavitary lesions. However, there are risk of perforation, cervical laceration, infections and creation of false passage. It is typically more challenging & expensive than TVS [6].

With the advancement in the technology, both TVS & Hysteroscopy, they come in the workup of AUB patients but still there is dilemma when we compare the efficacy of the two. Hence the present study is undertaken to compare the diagnostic efficacies of both the modalities in the patients of AUB.

Aim

To determine the role of TVS and hysteroscopy in the evaluation of AUB

Objectives

1. To study the role of TVS in the diagnosis of AUB
2. To study the role of Hysteroscopy in AUB

3. To compare the the effectiveness of TVS & Hysteroscopy in the diagnosis of AUB

Material & Method

The present study was undertaken in our institute for a period of one year from October 2019-November 2020. All the study subjects were in perimenopausal age group(40-49yrs) who were presented with complaints of AUB (varying in duration, frequency, amount & cyclicity) were enrolled in the study with exclusion criteria- Pregnancy, Ca Cervix, PID, Unmarried female, Coagulation disorder, Bleeding disorders.

A total no. of 64 patients who were fulfilling the inclusion criteria & exclusion criteria were examined with thorough history & clinical examination.

All the patients had undergone TVS & Hysteroscopy which was followed by endometrial sampling and the sensitivity & specificity of the two modalities were then statistically analysed.

Observation & Results

Table 1: Distribution of women according to age and duration of symptoms in months

Characteristics	(n=64)	Percentile (%)
Mean age in years (40-49yrs)	**44.5 yrs**	**68.3%**
Duration in months		
1-3	**13**	**20.3%**
3-6	**33**	**51.6%**
6-12	**16**	**25%**
>12	**2**	**3.1%**

Table 1 showing frequency distribution of women according to mean age & duration of symptoms in months, where 33 patients had maximum duration of symptoms for 3-6 months i.e 51.6%

Table 2: Distribution of women according to symptoms

Clinical Symptoms	Number (n=64)	Percentage (%)
Heavy menstrual bleeding	26	40.6%
Inter-menstrual bleeding	10	15.6%
Frequent bleeding	20	31.3%
Irregular menstrual bleeding	8	12.5%

Table 2: Showing frequency distribution of pattern of bleeding, where maximum patients were with Heavy menstrual bleeding i.e 40.6%

Table 3: Distribution of patients according to pain

Symptomatic patients	N=64	Percentile (%)
With pain	43	68.3%
Without pain	21	32.8%

Table 3: showing frequency distribution of symptomatic patients, where maximum patients had pain i.e in 68.3%

Table 4: Distribution of women according to TVS finding

TVS	Number(n=64)	Percentage (%)
Normal	**12**	18.6%
Fibroid uterus	**18**	28.1%
Submucous	10	15.6%
Subserosal	1	5.6%
Intramural	7	38.9%
Polyp	**10**	15.6%
Endometrial	8	80%
Endocervical	2	20%
Adenomyosis	**19**	29.7%
Cystic ovaries	**5**	7.8%

Table 4, showing the frequency distribution of intra- uterine findings on TVS, where maximum patients were having adenomyosis i.e 29.7%

Table 5: Distribution of women according to hysteroscopic findings

Hysteroscopic findings	Number	Percentage (%)
Grossly normal	15	23.4%
Polypoidal appearance	20	31.3%
Endometrial polyp	12	18.7%
Pebble stone appearance	3	4.7%
Fibroid	12	18.8%
Submucous	12	
Subserosal	0	
Intramural	0	
Starry sky appearance	1	1.6%
Cerebroid appearance	4	6.3%

Table 5, showing the frequency distribution of intrauterine findings on hysteroscope, where maximum patients were having polypoidal appearance (Endometrial hyperplasia) i.e in 31.3%

Table 6: Distribution of women according to histopathological findings

Histopathological findings	Number (n=64)	Percentage (%)
Proliferative	10	15.6%
Secretory	7	10.9%
Disorder proliferation	4	6.25%
Endometrial hyperplasia	20	31.3%
Polyp	12	18.7%
Atrophic endometrium	4	6.3%
Endometritis	2	3.1%
Submucous fibroid	3	4.7%
Endometrial cancer	2	3.1%

Table 6, showing frequency distribution of histopathological findings, where maximum patients had endometrial hyperplasia i.e 31.3%

Table 7: Comparision of TVS, Hysteroscopy and Histopathology findings

AUB findings	TVS	Hysteroscopy	Histopathology
AUB-Polyp	10	10	10
AUB-A Adenomyosis	19	0	0
AUB-L Leiomyoma	18	12	3
AUB-M Endometrial hyperplasia	0	20	20
AUB-Endometritis	0	2	2
Endometrial atrophy	0	1	6
Ovarian Cyst	4	0	0

Table 7, showing the comparative findings of TVS, Hysteroscopy and Histopathology where adenomyosis & Leiomyoma were seen maximum on TVS i.e 19 and 18 patients respectively while endometrial hyperplasia was seen maximum on Hysteroscopy & Histopathology i.e in 20 patients.

Table 8: Statistical analysis of Hysteroscopy and TVS

Transvaginal ultrasonography	
True positive	34
True negative	11
False positive	15
False negative	11
Specificity	57.69%
Sensitivity	89.47%
Negative predictive Value	73.33%
positive predictive value	65.3%
P-value	**<0.001**
Hysteroscopy	
True positive	32
True negative	12
False positive	17
False negative	3
Specificity	58.62%
Sensitivity	91.40%
Negative predictive value	80%
Positive predictive value	65.30%
P Value	**<0.001**

Table 8, showing statistical analysis of Hysteroscopy and TVS, where sensitivity & specificity of Hysteroscopy was higher in 91.40%, 58.6% respectively and p value was statistically significant i.e <0.001

Discussion

During our study, the comparision in the efficacy of Hysteroscopy versus transvaginal sonography was being done in patients having AUB in perimenopausal age group. As shown by our study, the commonest type of presentation was heavy bleeding during menses which can be compared with the other studies conducted by Goyal B.K[7] and Ridhi kathuria and Archana B et al[8] (2010).

As shown in our study, the most common age group was 40-49 yrs having bleeding without pain in 67.3% of the women which can be compared with other studies conducted by Jaya Choudhary [9] which implied that majority of patients with AUB were in the perimenopausal age group.

In our study, majority of women (51.6%) had duration of symptoms for 3-6 months followed by 25% for 6-12 months followed by20.3% for 1-3 months and 3.1% from >12 months which can be compared by Kathuria [10] (2014) study where 50% patients had the symptoms for 3-6 months followed by 26% for 6-12 months followed by 20% for 1-3 months and 4% for >12 months.

Mishra et al[11] conducted a study and found that most common uterine pathology associated with AUB on TVS was leiomyoma (18.4%), adenomyosis (11%), endometrial polyp in (7.2%) & increased endometrial thickness in (11.4%) that can be compared with other studies by Kumari [12]; with leiomyoma as the most common cause in 14.28% patients, thickened endometrium in 11.4%, adenomyosis in 8.57%, polyp in 8.57% and cystic ovaries in 2.8%. In contrast to our study, most common pathology was adenomyosis (23.7%) followed by fibroid in 28.1% and polyp in 18.8% of women.

In hysteroscopy, most common abnormality found in our study was increased endometrial thickness (31.3%), submucous fibroid (18.7%), followed by myomatous polyp (4.7%) which was opposite with the studies of Sinha P [13].

As histopathology is the gold standard, the most common abnormality found in our study was endometrial hyperplasia in 33.1% followed by proliferative in 21.9% and disordered proliferation in 15.6% which was relatable with the analysis done by Ziari K [14].

As shown in the tables, the present-day high frequency USG is comparable to the hysteroscopy and the diagnostic efficacies of the two were found to be statistically significant when compared with histopathology TVS being non-invasive in nature forms the basis of evaluation in AUB. We recommend hysteroscopy must also be included in the panel of investigations as it offers the advantage of diagnosis followed by simultaneous management of case. This offers the benefit of less hospital stay and early management of AUB patients.

Conclusion

Both transvaginal sonography & Hysteroscopy can augment the diagnostic efficacy of the underlying cause as both have different accuracy in finding the intacavitary lesions of endometrium. Therefore, all the patients having AUB should undergone through transvaginal sonography as the primary step and then hysteroscopy in the same sitting to do diagnostic & therapeutic procedure wherever required and necessary.

Conflicts of Interest

None

Funding Statement

None

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