

DOI: 10.5455/2320-1770.ijrcog20150425

Research Article

## Use of diagnostic hysteroscopy in abnormal uterine bleeding in perimenopausal age group and its clinicopathological co-relation with ultrasound and histopathology findings: experience in a tertiary care institute

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**Received:** 05 February 2015

**Revised:** 16 February 2015

**Accepted:** 01 March 2015

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### ABSTRACT

**Background:** Abnormal Uterine Bleeding (AUB) refers to bleeding that is excessive or occurs outside of normal cyclic menstruation. It accounts for two-thirds of all hysterectomies worldwide. Evaluation of the endometrium as a cause of AUB is done mainly in three modes i.e. by Imaging of endometrium by transvaginal/transabdominal ultrasound, visual assessment by hysteroscopy and cellular assessment by microscopic evaluation of endometrial samples.

**Methods:** Ours is a retrospective observational study of all diagnostic hysteroscopies performed for AUB in 40-45 year age group at Cama and Albless hospital, Mumbai between April 2012 and January 2015. We studied 66 cases of conventional diagnostic hysteroscopy at our institute to establish correlation of hysteroscopy findings with other diagnostic tools i.e. ultrasound and histopathological findings.

**Results:** On ultrasound 65.2% of the endometrial pathologies leading to AUB were due to endometrial hyperplasia with polyp accounting for 4.5%. 43.9% of the total patients were having fibroid as associated pathology on ultrasound. On hysteroscopy more number of cases of polyp were diagnosed (21.2%) as compared to ultrasound (4.5%). On histopathological appearance we found simple hyperplasia in 4.5% of cases and simple hyperplasia with atypia in 1.5% all of cases i.e. 6% total cases of hyperplasia. These are potentially carcinogenic patients. 47% of cases had endometrium in proliferative phase which is the commonest pathological finding on histopathological examination.

**Conclusions:** The relatively poor sensitivity of both endometrial biopsy and ultrasound in the detection of intrauterine focal pathology encourage us to propose that Hysteroscopy be utilized as a first line investigation in AUB.

**Keywords:** AUB, Hysteroscopy, Ultrasonography, Perimenopausal age group

### INTRODUCTION

Abnormal Uterine Bleeding (AUB) refers to bleeding that is excessive or occurs outside of normal cyclic menstruation.<sup>1</sup> Abnormal Uterine bleeding is one of the

most common health problem encountered by women of perimenopausal age group i.e. around 40-45 years. It accounts for two-thirds of all hysterectomies worldwide, thereby a great cause of morbidity and mortality in this age group.<sup>2</sup>

Hysteroscopy, office as well as conventional, is the gold standard investigation of abnormal uterine bleeding<sup>3</sup> besides its proven role in infertility. It helps us rule out organic endouterine causes of AUB, take targeted biopsy and formulate further management in this age group.

Ultrasound is a safe initial investigation in the management of abnormal uterine bleeding as it is a non-invasive procedure for the detection of endometrial pathology. The incidence of detection of an abnormal pathology by ultrasonography is high when focal lesions as fibroids, polyps or foreign body is concerned.<sup>4</sup>

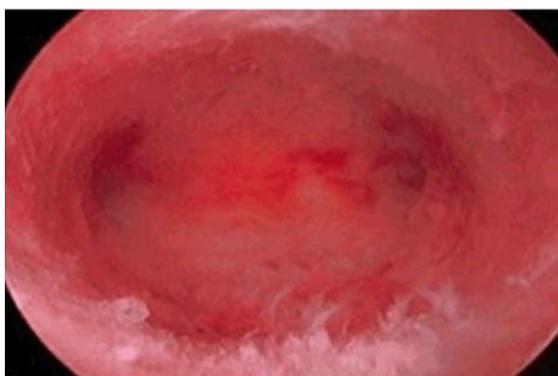
Histopathological evaluation of the endometrial samples plays a significant role in the diagnosis of abnormal uterine bleeding. Dilatation and Curettage (D and C) is the mainstay of endometrial sampling since a long time. D and C also allows for a fractional curettage with separate sampling of both the endometrial and endocervical tissue. The underlying disease can be detected by histological variations of endometrium taking into account the age of the woman, the phase of her menstrual cycle, and use of any exogenous hormones. Early evaluation in the perimenopausal women is essential to confirm the exact nature of the lesion and to rule out malignancy.<sup>5</sup>

We studied 66 cases of conventional diagnostic hysteroscopy done for AUB at our institute to establish correlation of hysteroscopy findings with other diagnostic tools i.e. ultrasound and histopathological findings.

**METHODS**

This study is a retrospective observational study of all diagnostic hysteroscopies in 40-45 year age group performed in Cama and Albles hospital, dept. of obstetrics and gynecology between April 2012 and January 2015. Total number of hysteroscopies performed in this period was 111. Out of total 111 hysteroscopies almost 60% i.e. 66 were performed for abnormal uterine bleeding mainly menorrhagia in 40-45 year age group.

Before hysteroscopy, the standard pre-op investigations were done for anaesthetic fitness.



**Figure 1: Normal endometrium.**

Evaluation of the endometrium as a cause of AUB is done mainly in three modes.

- Imaging of endometrium by transvaginal / transabdominal ultrasound.
- Visual assessment by hysteroscopy.
- Cellular assessment by microscopic evaluation of endometrial samples.

**RESULTS**

Highest no. of patients presented with menorrhagia and least with metropathica (Table 1).

**Table 1: Symptomatology of AUB (N=66).**

Symptom	Number	Percentage
Menorrhagia	49	74.24%
Polymenorrhea	3	4.5%
Polymenorrhagia	07	10.6%
Metrorrhagia	4	6.06%
Menometrorrhagia	2	3.03%
Metropathica	1	1.5%

The distribution from our study (Table 2) showed that on Ultrasound 65.2% of the endometrial pathologies leading to AUB were due to endometrial hyperplasia with polyp accounting for just 4.5% whereas 30.3% of the cases had pathologies not involving the endometrium.

**Table 2: Type of pathology on ultrasound under investigation (N=66).**

Pathology	Number of cases	Percentage (%)
Endometrial hyperplasia	43	65.2
Endometrial polyp	3	4.5
Normal endometrium	20	30.3



**Figure 2: Endometrial hyperplasia on ultrasound.**



**Figure 3: Endometrial polyp on ultrasound.**

43.9% of the total patients were having fibroid as associated pathology on Ultrasound (Table 3) and all of these patients had one or other form of sonologically abnormal endometrium.

**Table 3: Type of associated pathology on ultrasound, under investigation (N=66).**

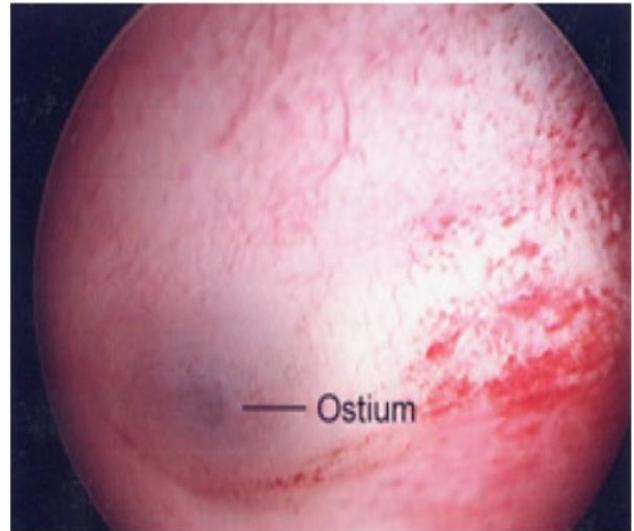
Pathology	Number of cases	Percentage (%)
Fibroid	29	43.9
ovarian cyst	7	10.6
PCOD	3	4.5
Adenomyosis	2	3.3
No abnormality	25	37.8

On hysteroscopy more number of cases of polyp were diagnosed (22.7%) as compared to ultrasound (4.5%) suggesting the former is a more sensitive mode of investigation as far as the diagnosis of polyp is concerned (Table 4).

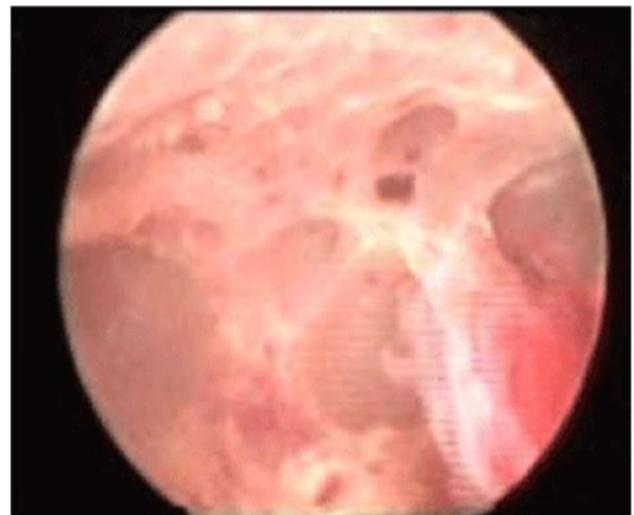
**Table 4: Hysteroscopic appearance of endometrium under investigation (N=66).**

Pathology	Number of cases	Percentage (%)
Endometrial hyperplasia	19	28.8
Endometrial polyp	15	22.7
Disordered proliferative endometrium	2	3
Atrophic	1	1.5
Normal	29	43.9

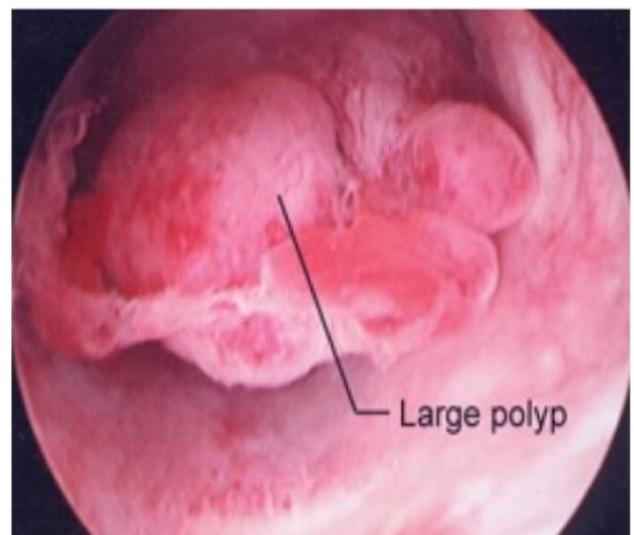
Also endometrial hyperplasia, which was diagnosed in 65.2% of cases by ultrasound, were found to be only 28.8% by hysteroscopy. This suggests that Ultrasound overdiagnosed hyperplasia (Table 4).



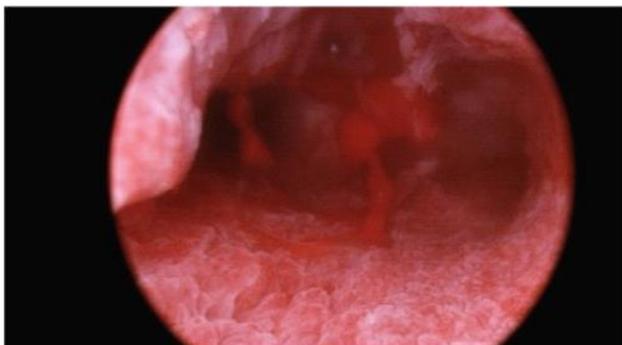
**Figure 4: Normal endometrium on hysteroscopy.**



**Figure 5: Endometrial hyperplasia on hysteroscopy.**



**Figure 6: Endometrial polyp on hysteroscopy.**



**Figure 7: Endometrium in disordered proliferative phase.**



**Figure 8: Multiple endometrial polyps.**

We found 10.6% of submucous fibroids and 18.1% intramural fibroid in our study and the rest 15.1% fibroids, reported by ultrasound probably having subserous location (Table 5).

**Table 5: Hysteroscopic evidence of fibroid (N=66).**

Pathology	Number of cases	Percentage (%)
Submucous fibroid	7	10.6
Intramural fibroid	12	18.1
No fibroid	47	71.2

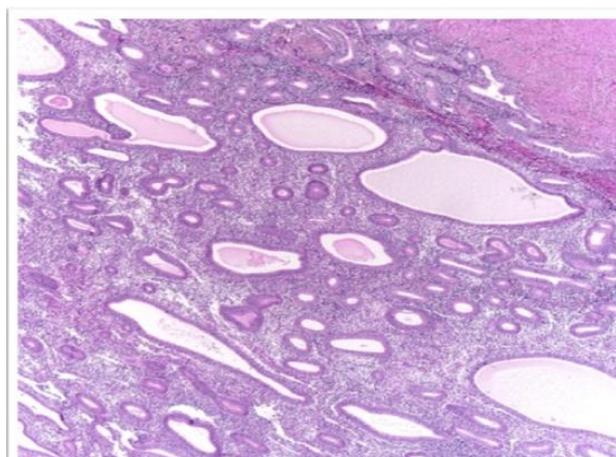


**Figure 9: Submucous fibroid on hysteroscopy.**

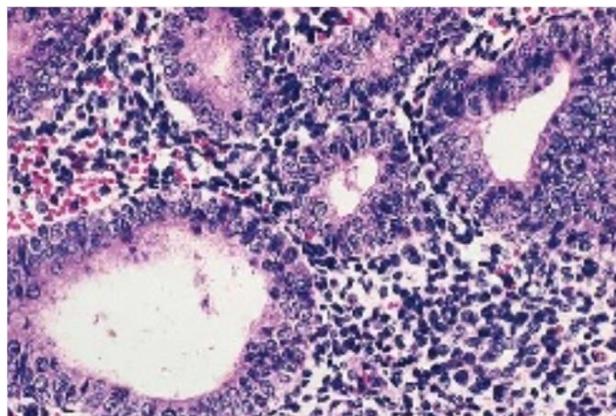
On histopathological appearance we found simple hyperplasia in 4.5% of cases and simple hyperplasia with atypia in 1.5% all of cases i.e. 6% total cases of hyperplasia (Table 6). These are potentially carcinogenic patients. 47% of cases had endometrium in proliferative phase which is the commonest pathological finding on histopathological examination.

**Table 6: Histopathological appearance of endometrium under investigation (N=66).**

Pathology	Number of cases	Percentage (%)
Proliferative phase	31	46.9
Secretory phase	27	40.9
Simple hyperplasia	3	4.5
Simple hyperplasia with atypia	1	1.5
Complex hyperplasia	0	0
Complex hyperplasia with atypia	0	0
Irregular shedding	1	1.5
Irregular ripening	0	0
Hormonally treated	1	1.5
Atrophic	2	3



**Figure 10: Simple endometrial hyperplasia without atypia.**



**Figure 11: Simple endometrial hyperplasia with atypia.**

## DISCUSSION

Menorrhagia is the commonest symptom of AUB in this age group (74.24%).

Uterine fibroids is found to be the one of the most commonly associated disorders (43.9%) of Abnormal uterine bleeding in patient in the age group of 40-45 years.<sup>6</sup> It was found in our study that all cases of AUB with uterine fibroids had an endometrial thickness of >10 mm on ultrasound, suggestive of endometrial hyperplasia.<sup>7</sup> Rather it is an indirect finding as hysteroscopy is done in fibroid to evaluate endometrium only when there is hyperplasia.

On hysteroscopy more number of cases of polyp were diagnosed (22.7%) as compared to ultrasound (4.5%) suggesting the former is a more sensitive mode of investigation as far as the diagnosis of polyp is concerned.

Also endometrial hyperplasia, which was diagnosed in 65.2% of cases by ultrasound, were found to be only 28.8% by hysteroscopy. This suggests that ultrasound overdiagnosed hyperplasia. Endometrial hyperplasia which is an actually a precancerous condition, was histopathologically confirmed only in 6% of the total cases while disordered proliferation was histopathologically confirmed in 46.9% cases. So majority of cases which were labeled as hyperplasia were because of disorderly grown endometrium.

Hysteroscopy is a more sensitive tool in evaluating uterine pathology by direct visualization as compared to ultrasound and Blind biopsies<sup>8</sup> which was also shown by our study.

Hysteroscopy and directed biopsy is the 'gold standard' approach for most accurate evaluation of endometrium to rule out focal endometrial carcinoma.<sup>9</sup>

The use of blind endometrial sampling to evaluate the uterine cavity, by itself, is an inaccurate technique for diagnosing pathologic conditions commonly associated with menorrhagia, such as endometrial polyps, submucous myomata, and focal endometrial abnormalities including adenocarcinoma and its precursors i.e. endometrial hyperplasia. The supplementary application of diagnostic hysteroscopy with directed biopsy will ensure the recognition of these intracavitary lesions.

Diagnostic hysteroscopy, though being increasingly employed for evaluation of AUB, is still underutilized. Since the introduction of the hysteroscopic technique, the procedure has undergone significant modifications, contributing to an increase in patient acceptance. Introduction of fiberoptics, reduction in the caliber of the endoscopes, use of simpler distending media and availability of safer local infiltrative anesthetics have all contributed to an increasing utilization of this technique

in evaluation of the uterine cavity. More than 50% of all diagnostic hysteroscopies, however, are still being performed in the Operating Room (OR), and this trend could be attributed to a combination of a lack of awareness on the part of the physician and perhaps non-availability of smaller caliber endoscopes. Compared to Ultrasound, hysteroscopy allows for a direct visualization of the endometrial cavity and hence detection of any focal lesion. It offers the additional opportunity of obtaining a directed biopsy in the same setting if indicated, thus obviating the need for a separate scheduling of the procedure. Studies have demonstrated a superior yield of directed biopsies compared to D&C in providing representative histological specimens.<sup>10,11</sup>

There is a high incidence of intracavitary uterine pathology, mainly fibroid (43.9%) in patients presenting with abnormal uterine bleeding. This is especially true when considering the 40-45 years age group who present with heavy regular bleeding, clinically enlarged uteri and significant anemia. The relatively poor sensitivity of both endometrial biopsy and ultrasound in the detection of intrauterine focal pathology encourage us to propose that Hysteroscopy be utilized as a first line investigation in these patient evaluations.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the institutional ethics committee*

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DOI: 10.5455/2320-1770.ijrcog20150425

**Cite this article as:** Katke RD, Zarariya AN. Use of diagnostic hysteroscopy in abnormal uterine bleeding in perimenopausal age group and its clinicopathological co-relation with ultrasound and histopathology findings: experience in a tertiary care institute. *Int J Reprod Contracept Obstet Gynecol* 2015;4:413-8.