



## Diagnostic Hysteroscopy in Abnormal Uterine Bleeding: A Prospective Analytical study

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### ABSTRACT

Localized lesions like a polyp or abnormal growth can be missed by traditional dilatation and curettage whereas such intrauterine abnormalities can be easily diagnosed by hysteroscopy as we can directly visualise the cervical canal and uterine cavity. The objective of our study was to assess the diagnostic accuracy of hysteroscopy in diagnosing the cause of AUB and to correlate hysteroscopy findings with histopathology. This prospective study was conducted in women with symptoms of AUB in the reproductive, perimenopausal and postmenopausal age group who had undergone hysteroscopy over a period of 2 years. Hysteroscopic findings and histopathology findings were compared. The main symptoms for which hysteroscopy was performed was postmenopausal bleeding (44.1%) followed by menorrhagia (33.8%). Hysteroscopy detection of abnormal findings had a sensitivity 90%, specificity 87.5%, positive predictive value 98.2% and negative predictive value 53.8%. To conclude hysteroscopy improves the accuracy of diagnosing intrauterine pathologies and also helps in treating some causes of AUB by simple procedures in the same sitting thereby avoiding major surgeries.



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## INTRODUCTION

Abnormal uterine bleeding, one of the most common gynaecological problems seen in reproductive and post-menopausal women has varied etiology. According to the International Federation of Gynecology and Obstetrics (FIGO), AUB has been

classified based on the etiology by a new classification system PALM-COEIN. Causes of AUB are divided into PALM - structural causes (polyp; adenomyosis; leiomyoma; malignancy) and COEIN - non-structural causes (coagulopathy; ovulatory dysfunction; endometrial; iatrogenic; and not yet classified) to facilitate targeted management (Munro *et al.*, 2012). For a long time, dilatation and curettage is the main modality of investigation of AUB, but, this blind technique can miss a polyp or any localized abnormal endometrial growth (Bettocchi, 2001; Guin *et al.*, 2011). Hysteroscopy helps in diagnosis of intrauterine abnormalities as we can directly visualise the cervical canal and uterine cavity. Additional benefit of hysteroscopy is that biopsies or polypectomy can be done at the same sitting. This advantage of hysteroscopy increases patient satisfaction (Darwish *et al.*, 2012). Focused treatment of specific pathology may prevent major surgery. In the present day, though hysteroscopy

is expensive it is trying to replace dilatation and curettage for the evaluation of AUB. Hence, the study was conducted with the objective to assess the diagnostic accuracy of hysteroscopy in patients with AUB and to correlate the hysteroscopic findings with histopathology.

## MATERIALS AND METHODS

This prospective analytical study was conducted in women with symptoms of AUB in the reproductive, perimenopausal and postmenopausal age group in a tertiary care hospital in semiurban area over a period of 2 years from 2016- 2018. Patients who were willing to participate in the study were included after informed written consent. Patients demographic details and examination findings were noted. Postmenstrually hysteroscopic examination was done in all patients except for patients with continuous bleeding or irregular cycles. Hysteroscopic examination was performed in the usual sequential manner starting from ectocervix, then proceeding to cervical canal, uterine cavity, endometrium and finally ostia of the fallopian tube. All endometrial samples were sent for histopathological examination. Hysteroscopic findings and histopathology findings were compared. The sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of hysteroscopy were calculated.

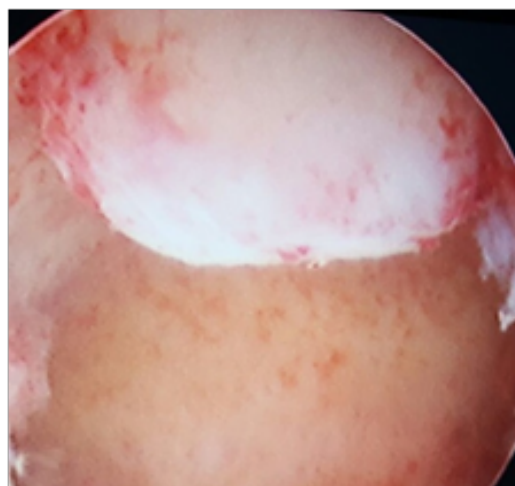
## RESULTS

During the study period, 68 women had undergone hysteroscopy for AUB. In the study, the age of patients ranged from 35 to 65 years (Average 48 years).

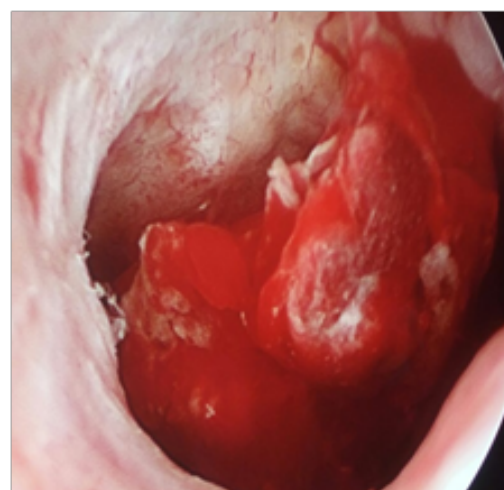


**Figure 1: Hysteroscopic findings -Endometrial polyp**

The main symptoms for which hysteroscopy was



**Figure 2: Hysteroscopic findings -Submucosal fibroid**



**Figure 3: Hysteroscopic findings - Growth filling the endometrial cavity**

performed was postmenopausal bleeding (44.1%) followed by menorrhagia (33.8%). Among postmenopausal women 50% had endometrial polyps and 20% atrophic endometrium in hysteroscopy (Table 1).

Among 13 patients who had normal hysteroscopy findings, 6 had proliferative phase endometrium and 7 had secretory phase endometrium. In 12 patients who had polypoid endometrium 8 had proliferative endometrium, 3 had hyperplastic endometrium (2 patients -simple hyperplasia without atypia and one with atypia) and 1 had secretory phase endometrium. In patients with hysteroscopic findings of endometrial polyp (Figure 1), 93.7% were confirmed as endometrial polyp in histopathology and 1 patient was diagnosed as adenosarcoma. All patients diagnosed as fibroid (Figure 2) hysteroscopically were confirmed by histopathology. Both patients who were suspicious

**Table 1: Symptomatology and hysteroscopic findings**

Symptoms Total patients (68) %	Hysteroscopic findings					
	Polypoidal endometrium 12 (17.6%)	Endometrial Polyp 25 (36.7%)	Fibroid 10 (14.7%)	Atrophy 6 (8.8%)	Growth 2(2.9%)	Normal findings 13(19.1%)
Menorrhagia (23) 33.8%	5	7	4	0	0	7
Menometrorrhagia (3) 4.4%	2	0	1	0	0	0
Metrorrhagia (2) 2.94%	0	1	1	0	0	0
Polymenorrhoea (2) 2.94%	0	1	0	0	0	1
Polymenorrhagia (4) 5.88%	0	1	0	0	0	3
Metropathia (4) 5.88%	2	0	2	0	0	0
Postmenopausal bleeding (30) 44.1%	3	15	2	6	2	2

**Table 2: Correlation between hysteroscopy and histopathology**

Hysteroscopy findings	Proliferative Endometrium 14(20.5%)	Secretory Endometrium 8(11.8%)	Hyperplasia 3 (4.4%)	Atrophic endometrium 3(4.4%)	Endometrial Polyp 24(35.2%)	Malignancy 3(4.4%)	Fibroid 10 (14.7%)	No tissue 3(4.4%)
Normal 13 (19.1%)	6	7	0	0	0	0	0	0
Polypoidal endometrium 12(17.6%)	8	1	3	0	0	0	0	0
Atrophic Endometrium 6(8.8%)	0	0	0	3	0	0	0	3
Malignancy 2(2.9%)	0	0	0	0	0	2	0	0
Fibroid 10(14.7%)	0	0	0	0	0	0	10	0
Endometrial Polyp 25(36.7%)	0	0	0	0	24	1	0	0

**Table 3: Evaluation of diagnostic efficacy of hysteroscopy for different AUB pathologies**

	Sensitivity	Specificity	PPV	NPV
Abnormal findings	90%	87.5%	98.2%	53.8%
Hyperplasia	100%	-	25%	-
Endometrial polyp	100%	-	96%	-

of malignancy by hysteroscopy (Figure 3) were confirmed by histopathology (Table 2).

Hysteroscopy detection of abnormal findings had a sensitivity 90%, specificity 87.5%, positive predictive value 98.2% and negative predictive value 53.8%. Sensitivity of Hysteroscopy for diagnosing endometrial hyperplasia and endometrial polyp is 100% (Table 3).

## DISCUSSION

In our study, the main indication for which hysteroscopy was performed was postmenopausal bleeding (44.1%), followed by menorrhagia (33.8%). In contrast, in the study by Guin *et al.* (2011), the frequent indication for hysteroscopy was menorrhagia (30%) followed by menometrorrhagia and oligomenorrhea (16%). Whereas 2% patients only presented with postmenopausal bleeding. Menorrhagia as the primary indication for hysteroscopy was reported by Guin *et al.* (2011); Sciarra and Valle (1977); Homou (1981) while postmenopausal bleeding and perimenopausal abnormal uterine bleeding were the main indications in the study of Pasqualotto *et al.* (2000); Sciarra and Valle (1977); Homou (1981).

In our study, 80.9 % of patients who underwent hysteroscopy had positive findings. In the study by Guin *et al.* (2011) among the women who had undergone hysteroscopy 74% had intrauterine pathology and most common finding was hyperplastic endometrium (30%) succeeded by mucus polypi (28%). We had 80.9% of intrauterine pathology. Most common finding was polyp (36.7%) followed by polypoidal endometrium (17.6%) (Guin *et al.*, 2011). Whereas in the study by Patil *et al.* and Sinha *et al.* 47 - 50% of patients who underwent hysteroscopy had normal findings (Patil *et al.*, 2009; Sinha *et al.*, 2018). In our study among 12 patients with polypoidal endometrium, 8 had proliferative endometrium and 3 patients had hyperplastic endometrium. Hysteroscopic diagnostic accuracy for hyperplasia was 72% in a study by Patil *et al.* (2009).

In various studies, incidence of endometrial polyps has been reported ranging from 9.1% - 45.9% (Guin *et al.*, 2011; Sciarra and Valle, 1977; Homou, 1981). In women with endometrial polyp as a cause of AUB, hysteroscopic polypectomy can be done easily thereby reducing major surgeries like hysterectomy and its morbidity. In our study, Positive predictive value of hysteroscopy for endometrial polyp was 96% when compared to 62% in a study by Patil *et al.* (2009). Naik *et al.* (2017) found diagnostic accuracy of hysteroscopy to be better in polyps and submu-

cous myomas which were missed by USG and also by traditional D and C. One patient with endometrial polyp in our study was diagnosed as adenocarcinoma on histopathology. Hence, both hysteroscopy and histopathology are complementary in evaluation of AUB.

Atrophic endometrium was seen in 18% in present study as compared to 6% -14% in various other studies (Sciarra and Valle, 1977; Homou, 1981; Valle, 1981). The finding of atrophic endometrium in hysteroscopy is reassuring in women with symptoms of postmenopausal bleeding. Diagnostic accuracy of atrophic endometrium in our study is 100 % compared to 69% in the study by Patil *et al.* (2009).

In our study, hysteroscopy examination has a sensitivity of 90% and specificity of 87.5% in detecting abnormal intrauterine pathologies in contrast to 78.3% sensitivity and 63.6% specificity in the study by Sinha *et al.* (2018). In the study by Elbareg *et al.* (2015), hysteroscopy had sensitivity of 98.9%, specificity 97.5%, positive predictive value 98.8%, negative predictive value 98.5% with diagnostic accuracy of 98.3% in diagnosing benign endometrial lesions.

Selvanathan *et al.* (2019) on comparing hysteroscopic targeted therapies and hysterectomy found that quality of life both short term and long term was better in hysteroscopy group.

## CONCLUSION

Hysteroscopy improves the accuracy of diagnosing intrauterine pathologies and also helps in treating some causes of AUB by simple procedures in the same sitting thereby avoiding major surgeries. Both hysteroscopy and histopathology are complementary in diagnosing causes of AUB.

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## Conflict of Interest

The authors declare that there is no conflict of interest.

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