

Role of Hysteroscopy in Diagnostic Evaluation of Intrauterine Causes of Abnormal Uterine Bleeding Compared to Pathology Reports .

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Abstract

Background: Abnormal uterine bleeding is a common gynaecological problem affecting 25-35% women of reproductive age group and upto 50 % women of perimenopausal age group .there are various causes of AUB classified according to PALM COEIN classification .it is a debilitating condition affecting women in their middle age and its management depends on correct diagnosis. hysteroscopy is an important diagnostic modality used for diagnosis of structural causes of AUB .

AIM of study: To study role of hysteroscopy in diagnostic evaluation of intrauterine causes of AUB compared to histopathology reports .

Material and methods: This is a retrospective observational study in which we studied 350 patients of AUB who underwent hysteroscopy for diagnostic evaluation followed by guided biopsy of the lesions and D& C . hysteroscopic findings and histopathology reports were reviewed for all patients and correlated .

Observation and results: 80 % patients were in peri and postmenopausal age group in our study .Commomest presenting symptom was menorrhagia .Hysteroscopy detected abnormality in 210 cases of AUB. Most common pathology seen on hysteroscopy was polyp followed by hyperplastic thickened endometrium. Sensitivity of hysteroscopy for detecting intrauterine pathology was 100 % and specificity was 76.5% .PPV and NPV value were 79.5% and 100% respectively . hysteroscopy detected all cases of polyp and submucous myomas .it overdiagnosed few cases of hyperplastic endometrium but did not miss any case of hyperplasia or malignancy .

Conclusion: diagnostic hysteroscopy is good for evaluation of intrauterine causes of AUB and it correlates well with the hitopathology reports especially for the detection of polyps , submucous myomas and endometrial hyperplasia . hence it can be used as a first line diagnostic test for detection of these abnormalities and taking guided biopsy from any lesion ,however it can not replace biopsy and histopathological evaluation which gives a detail understanding about the nature of the pathology like hyperplastic endometrium and rulesout atypia and malignancy .hence hysteroscopy with guided biopsy should be ideal for diagnostic evaluation of intrauterine causes of AUB .

keywords: hysteroscopy, AUB ,endometrial polyp, endometrial hyperplasia.

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I. Introduction And Background

Abnormal uterine bleeding is a common gynaecological problem affecting women of reproductive age group and more so women of perimenopausal age and postmenopausal women .It accounts for over one third of gynaecological OPD patients increasing to about 50% in perimenopausal and postmenopausal age group. There are various causes of AUB and the correct management depends on right diagnosis .Broadly abnormal uterine bleeding is classified as organic causes and nonorganic causes .Clinical evaluation with detailed history and pelvic exam followed by sonography and D& C has been traditionally used for diagnosis of AUB .Sonography is good for diagnosis of structural causes like fibroids and ovarian cysts however it is not a reliable diagnostic modality for intrauterine lesions .

Dilatation and curettage has been used for diagnosis of cause of AUB however it has been found that blind D&C can miss intrauterine pathology in over 50% cases .Hysteroscopy is now being introduced for the diagnosis of intrauterine pathology for various indications including AUB. It gives us an advantage of direct visualization of uterine cavity and taking

directed biopsies from abnormal areas and in many cases where intrauterine lesions are present treatment can also be carried out in same sitting if needed for eg. removal of polyps and submucous myomas .

II. AIM Of Study

In this study we analysed the role of diagnostic hysteroscopy in evaluation of intrauterine causes of AUB compared to histopathology. Findings on hysteroscopy were correlated with hisopathological results to study the sensitivity, specificity and accuracy of hysteroscopy in diagnosis of various intrauterine causes of AUB .

III. Material And Methods

This is a Retrospective Observational study conducted at Department of OBGYN ,CCM medical college ,Durg , Chhattisgarh ,India. Women presenting to gynae OPD with Abnormal uterine bleeding between January 2015 and December 2016 were included . 350 women with Abnormal uterine bleeding who had undergone diagnostic hysteroscopy for AUB have been included in the study. All women had a thorough diagnostic evaluation including a detailed history, clinical examination ,ultrasonography and hysteroscopy with biopsy .

Hysteroscopy was performed in all patients with bettochi's 4mm office hysteroscope with 30 degree forward oblique lens with normal saline as infusion media. Hysteroscopic findings were recorded ,directed biopsy taken , lesion removed for biopsy wherever feasible followed by curettage of endometrium .All materials were sent for histopathological examination in separate containers .

Data of all 350 patients were tabulated and hysteroscopy findings correlated with histopathology reports and data analysed .The results were compared with other studies in literature and discussed.

IV. Observation And Results

Total of 350 patients were included in the study . all patients had undergone hysteroscopy and guided biopsy with D&C for diagnostic evaluation of AUB.

Table – 1 -Distribution of patients according to age-group

Age group	No of patients	%
20-30 yrs	16	4.5%
30-40yrs	17	14.84%
40-50 yrs	264	68.2%
50-60yrs	47	10.5%
>60 yrs	6	1.7%
Total	350	

Age group of patients ranged from 22 yrs to 70 yrs with mean age of 46 yrs with majority of patients 68.2% were in 40-50 yr age group and 14.8% in 30-40 yrs age group and 13.4 % in 50-60 yr age group and 1.7 % were above 60 yrs .Thus around 80 % patients of AUB were peri and postmenopausal in our study.

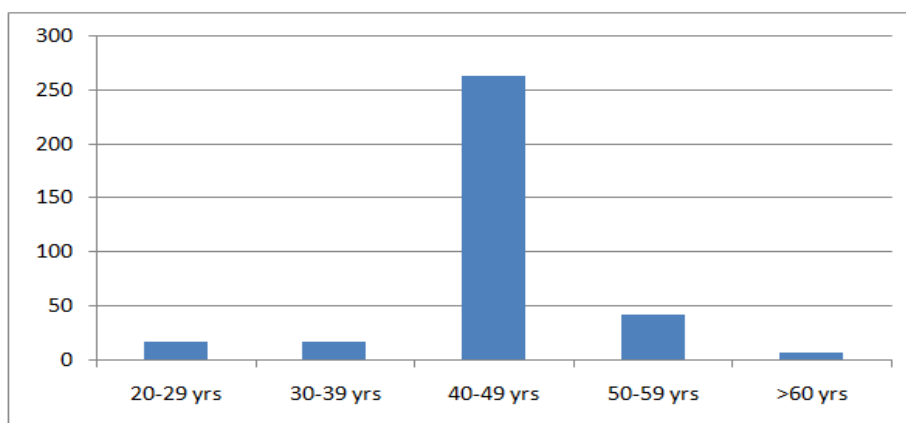


Chart showing age distribution of patients with AUB

Table 2- Distribution of patients according to symptoms

s.no	symptoms	No of patients	%
1	menorrhagia	182	52%
2	metrorrhagia	8	2.29%
3	menometrorrhagia	66	18.86%
4	polymenorrhoea	65	18.58%
5	Postmenopausal bleeding	29	8.29%
	total	350	

The commonest symptom in our study was menorrhagia in 52% followed by menometrorrhagia and polymenorrhoea in 18.86% and 18.58% respectively. 8.29% patients had postmenopausal bleeding as their presenting complaint while 2.29% had irregular bleeding or metrorrhagia .

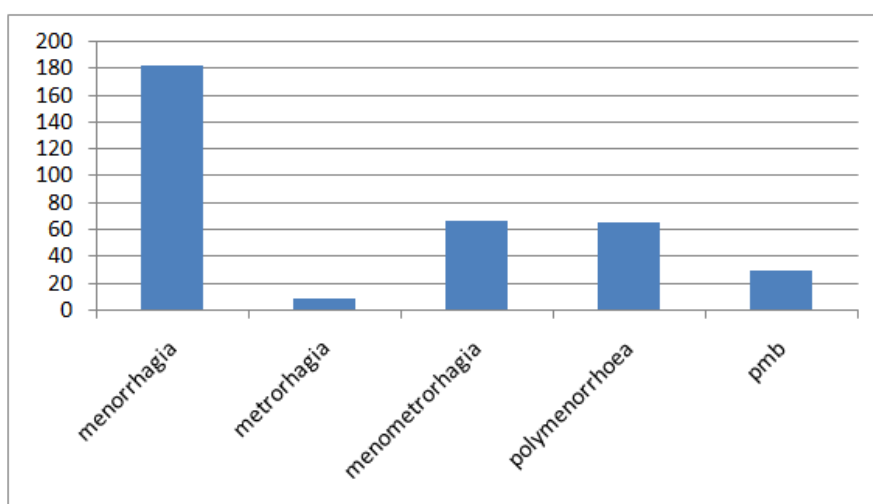


Chart showing distribution of patients according to presenting complaints

Table 3 - Hysteroscopy findings

Finding	Total no	%
polyp	84	24%
Thickened Hyperplastic endometrium	74	21.1%
Thickened Hyperplastic endometrium with polyps	26	7.4%
Fibroids-intramural bulging in cavity /submucous	19	5.4%
Atrophic endometrium	4	1.1%
adhesions	3	0.85%
Normal cavity	140	40%
	350	

Out of 350 patients 140 had normal cavity on hysteroscopy with no intrauterine pathology detected remaining 210 patients had one or more abnormalities detected on hysteroscopy Thus incidence of positive finding on hysteroscopy in our study population was 60 % . 100 (28.5%) patients had thickened hyperplastic endometrium on hysteroscopy out of that 26 (7.4%) had associated polyps along with hyperplastic endometrial lining detected on hysteroscopy . 84 (24%)patients had polyps with normal endometrial lining on hysteroscopy .and 26 patients had polyp with hyperplastic lining .hence total of 110(31.4%) patients were having polyps .

Thus over all incidence of polyp as a cause of AUB in our study was 31.4% followed by endometrial hyperplasia in 28.5% . 19 patients had fibroids seen as a bulge in endometrial cavity on hysteroscopy .Thus 5.4% patients had submucous fibroids as cause of AUB . Other findings on hysteroscopy were atrophic lining in 4(1.1%) and adhesion in 3(0.85%) patients .

Table 4: Histopathology findings total =350 patients

Finding	Total no	%
Secretory endometrium	45	12.8%
Proliferative endometrium	138	39.4%
Normal histology report	183	52.2%
Abnormal histologu report	167	47.7%
Secretary endometrium with polyp	12	3.4%
Proliferative endometrium with polyp	33	9.4%
Simple cystic hyperplasia without atypia	50	14.2%
Simple cystic hyperplasia with atypia	11	3.14%
Complex hyperplasia without atypia	2	0.57%
Complex hyperplasia with mild –mod. atypia	4	1.14%
Adenocarcinoma endometrium	4	1.14%
Benign endometrial polyp	45	12.8%
Benign endocervical polyp	30	8.57%
Leiomyomatous polyps	19	5.4%
Placental polyp/RPOC	1	0.28%
Atrophic scanty endometrium	8	2.28%
Dysplastic polyp(CIN 3 in cervical polyp)	2	0.57%
Squamous cell ca in cervical polyp	1	0.28%

52% cases on histopathological exam had normal endometrial lining , 12.8% had secretory endometrium and 39.4% had proliferative endometrium .61 cases had simple cystic hyperplasia ,6 cases had complex hyperplasia .thus 67 (19.1%) patients had endometrial hyperplasia as diagnosis out of that 15 cases had atypia .and 42 had no atypia . 4(1.14%) cases of Adenocarcinoma of endometrium were diagnosed ,1 case of squamous cell ca in cervical polyp and 3 cases of CIN 3 in cervical polyp diagnosed . 45 (12.8%) cases of benign endocervical polyp ,30 (8.57%)cases of endocervical polyp and 19(5.4%) cases of leiomyomatous polyp were found and 1 cases of placental polyp due to retained products found. 8(2.28%) cases of atrophic endometrial lining seen .

Table 5: Correlation of hysteroscopy with histopathological findings

Hysteroscopy	Histopathology abnormal	Histopathology normal	Total
Abnormal	167 (true positive)	43(false positive)	210
normal	0 (false negative)	140(true negative)	140
	167	183	350

Sensitivity	100
Specificity	76.5%
Positive Predictive Value	79.5%
Negative Predictive Value	100

Sensitivity of hysteroscopy for diagnosis of intrauterine lesions is 100 % ie. it is able to detect all subjects with disease .Specificity of hysteroscopy for diagnosis of intrauterine lesions in our study is 76.5% which means 23.5% subjects tested positive ie lesion detected on hysteroscopy but they did not have any abnormality detected on histopathology Positive predictive value of 79.5% and negative predictive value was 100% .which means for those who had lesion detected on hysteroscopy 79.5% actually have the disease and was confirmed on histopathology while those who had no lesion detected on hysteroscopy 100 % of them had no lesion detected on hitopathology also .

Table 6: Correlation of hysteroscopy findings and histopathology reportsNormal hysteroscopy finding -140

Hitopathology report	Total no	%
Secretary endometrium	35	25%
Proliferative endometrium	105	75%
	140	

Out of 350 cases of AUB 140 had no intrauterine lesion diagnosed on hysteroscopy .and on histopathological examination of endometrial curettage 35 cases had secretary endometrium and 105 cases had proliferative endometrium .Histopathological reports correlated well with hysteroscopy finding of negative intrauterine lesion .Thus negative predictive value of hysteroscopy for intrauterine causes of AUB is 100 %

Table 7: Correlation of hysteroscopy findings and histopathology reports
Thickened Hyperplastic /polypoidal endometrium =100

Histopathology report	Total no	%
Secretary endometrium	4	4%
Proliferative endometrium	14	14%
Simple cystic hyperplasia without atypia	50	50%
Simple cystic hyperplasia with atypia	11	11%
Complex hyperplasia without atypia	2	2%
Complex hyperplasia with mild – mod. atypia	5	5%
adenocarcinoma	4	4%
Polyp with PE/SE	10(3-EM/5-EC/2 Lm)	

Out of 100 cases reported as thickened hyperplastic endometrium on hysteroscopy ,8 cases had secretary endometrium on histopathology ,out of which 4 had polyp also along with secretary endometrium .20 cases had proliferative endometrium .6 out of which had associated polyp. out of 10 cases with polyps 3 had endometrial polyp, 5 had endocervical polyp and 2 were leiomyomatous polyp.While hysteroscopy over diagnosed hyperplastic endometrium in 18 cases which were reported normal on histopathology, no cases of endometrial hyperplasia or adenocarcinoma was missed on hysteroscopy .82 cases reported as hyperplastic endometrium of hysteroscopy and were confirmed on histopathology with 50 cases of SCH without atypia ,7

cases of complex hyperplasia and 4 cases of adenocarcinoma .and 10 cases had polyps .Thus hysteroscopy is reliable for diagnosis of hyperplastic endometrium however thickened hyperplastic endometrium on hysteroscopy can have various histological diagnoses ranging from normal proliferative and secretory endometrium to adenocarcinoma of endometrium Hence hysteroscopy alone cannot be relied for diagnosis of endometrial hyperplasia and guided biopsy is must for proper histopathological diagnosis so that proper treatment can be advised . AUB with proliferative and secretory endometrium and no other organic cause can be managed with conservative or medical treatment .endometrial hyperplasia management depends on presence or absence of atypia and age and menopausal status .

Simple hyperplasia without atypia can be managed with hormonal treatment while complex hyperplasia and simple hyperplasia with atypia are considered premalignant conditions hence in perimenopausal patient hysterectomy is advised .Adenocarcinoma warrants pan hysterectomy with RPLND .Thus hysteroscopic guided biopsy helps to accurately tailor the treatment of AUB according to the diagnosis .

Table 8: Correlation of hysteroscopy findings and histopathology reports

Polyps on hysteroscopy =110

Histopathology report	Total no	%
Benign endometrial polyp	45	40.9%
Benign endocervical polyp	30	27.2%
Leiomyomatous polyps	19	17.2%
Placental polyp/RPOC	1	0.9%
Dysplastic polyp(CIN 3 in cervical polyp)	2	1.8%
Squamous cell ca in cervical polyp	1	0.9%
adenocarcinoma	4	3.6%
Complex hyperplasia without atypia	2	1.8%
Complex hyperplasia with atypia	4	3.6%
Simple hyperplasia with atypia	2	1.8%

Out Of 210 Cases Of Abnormal Hysteroscopy 110 Patients Had Polyps .

Most common being benign endometrial polyp in 45 (40.9%)patients ,benign endocervical polyps in 30(27.2%) cases and leiomyomatous polyp and placental polyp in 19(17.2%) and 1 (0.9%)cases respectively .CIN 3 was found in 3 cases of cervical polyp while 1 case had invasive squamous cell carcinoma in cervical polyp . 4 cases had adenocarcinoma while 6 cases of complex hyperplasia was found ,2 without atypia and 4 cases with atypia .these were the ones with thickened hyperplastic polypoidal endometrium on hysteroscopy . 2 cases of polyp with endometrial hyperplasia had simple cystic hyperplasia with atypia . Thus with progression of hyperplastic endometrium to polypoidal hyperplasia degree of atypia also progresses as is evident from our findings . These findings again emphasize the importance of histopathological examination of hysteroscopic guided biopsy specimen .hysteroscopy identifies the intrauterine lesion as cause of AUB however its correct histological diagnosis is important to decide the treatment modality for a particular patient .

V. Discussion

Hysteroscopy has been found to be a totally reliable method for the study of abnormal uterine bleeding (AUB) compared to histological tests (1) However to get the maximum benefit from this procedure, it is important to select patients properly and the investigation should be performed by skilled personnel to obtain optimal results so that patients are managed adequately and cost effectively (2) Outpatient diagnostic hysteroscopy should become a first line investigation in peri and postmenopausal patients with abnormal uterine bleeding due to high sensitivity and specificity of this method in diagnosis of intra uterine lesions, it can be used as an ideal diagnostic tool to assess the patients with AUB (3,4).

Complications of hysteroscopy (vasovagal response, pain, hemorrhage and uterine perforation) are very few if proper training is received and all precautions taken . It has been reported in less than 2% of cases (5). Currently hysteroscopy is not widely used as an initial diagnostic procedure in AUB because of its cost, invasiveness and need for a skilled operator (6).however diagnostic hysteroscopy can be easily learnt and can be performed in out patient setting without any anaesthesia .

In our study the sensitivity and specificity of hysteroscopy for diagnosis of intrauterine pathology in patients with AUB is 100% and 76.5% ,with PPV of 79.5% and NPV of 100% .Other authors have reported similar results . An Iranian study by tajossadat and fereshteh et al reported sensitivity, specificity, PPV and NPV of hysteroscopy in patients with AUB were 100%,80.5%, 88.9% and 100%, respectively.(7)Kelekci *et al* (2005) found sensitivity of 87.5% and specificity of 100% for hysteroscopy in detecting intracavitary abnormalities (8).

In the study of Jakab *et al* (2001), the sensitivity of hysteroscopy in the diagnosis of intrauterine lesions was 97% (9). Paschopoulos *et al* (2001) reported sensitivity and specificity of 92% and 95% for hysteroscopy in diagnosing intracavitary pathology in women with AUB (10). The research of Dueholm *et al* (2001) showed sensitivity and specificity of procedure as 84% and 88%, respectively (11). Bonnamy *et al* (2002) reported sensitivity and specificity of hysteroscopy as 78% and 97% in patients with AUB (12). Thus most studies have reported sensitivity of hysteroscopy for diagnosis of intrauterine pathology as more than 85% on an average. It proves the importance of hysteroscopy as an important tool for diagnostic evaluation of AUB. Hysteroscopy diagnosed almost all cases of polyp in our study and no polyp was missed hence it can be a reliable method for diagnosis and also treatment of polyps as majority of polyps can be removed in same sitting with office hysteroscope. Tajossadat and fereshteh *et al* reported detection of endometrial polyp by hysteroscopy had sensitivity of 93%, specificity of 100%, PPV of 100% and NPV of 95.4%. (7). Pasqualotto *et al* (2000) reported sensitivity of hysteroscopy for detection of endometrial polyp as 99% (13), while Epstein *et al* (2001) reported it as 80% (14). In the study of Jakab *et al* (2002), the sensitivity of hysteroscopy in detection of circumscribed intrauterine lesions was 100% (9). In the study of Kelekci *et al* (2005), hysteroscopy revealed a sensitivity of 80%, a specificity of 80%, PPV of 100% and NPV of 93.9% for detecting endometrial polyps (7)

thus our study as well as that of other authors shows the importance of hysteroscopy for its ability to detect localized intracavitary lesions such as polyps and submucous myomas. Since it is direct visualization of the cavity no lesion is missed and majority can be removed in same sitting. In study of tajossadat and fereshteh *et al* Hysteroscopy showed sensitivity, specificity, PPV and NPV of 25%, 89.7%, 12.5% and 93.3% respectively in detection of endometrial hyperplasia. (7) There were some cases over diagnosed by hysteroscopy as endometrial hyperplasia, but no cases of hyperplasia were missed by this procedure. Similar finding was there in our study also few cases being overdiagnosed by hysteroscopy but no case of endometrial hyperplasia are missed.

In our study there were 4 cases of adenocarcinoma which was diagnosed as thickened hyperplastic polypoidal endometrium on hysteroscopy. In study of tajossadat and fereshteh *et al* no cases of adenocarcinoma was found. As no of postmenopausal women were few, they said. In the study of Sousa *et al* (2001) on postmenopausal women with AUB, hysteroscopy revealed sensitivity of 88.9%, specificity of 98.3%, PPV of 88% and NPV of 98.3% in detection of endometrial carcinoma, presenting itself as a superior diagnostic procedure compared to ultrasonography (15). 7 cases of atrophic endometrium also correctly diagnosed on hysteroscopy. Thus in postmenopausal bleeding hysteroscopic guided biopsy can rule out adenocarcinoma, hyperplasia and finding of atrophic endometrial lining can reassure both the patient and gynaecologist.

VI. Conclusion

Hysteroscopy has very high sensitivity and specificity for detection of intrauterine lesions esp localized ones and accurately diagnoses endometrial, endocervical and leiomyomatous polyps. For hyperplastic endometrium hysteroscopy has a high sensitivity as it does not miss any lesion but few cases are overdiagnosed and histopathological examination of hysteroscopic guided biopsy specimen gives us the correct histological picture to help in treatment planning. Thus hysteroscopy can be used as a first line diagnostic tool for patients with AUB though biopsy of lesion and endometrial curettage is important for accurate diagnosis of type of pathology and planning the treatment.

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