

Original Research

The Role Of Diagnostic Hysteroscopy In Abnormal Uterine Bleeding And Its Histopathological Correlation Following Blind Dilatation And Curettage

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ABSTRACT

Background: abnormal uterine bleeding (AUB) is a common gynecological disorder in women. To render appropriate treatment, it is vital to establish the correct diagnosis, in this backdrop we've studied the utility of hysteroscopy as a diagnostic procedure against a blind dilatation and curettage. The objectives of the study were hysteroscopic evaluation of abnormal uterine bleeding in reproductive and post-menopausal women. Hysteroscopic findings were compared with the histopathological reports following blind dilatation and curettage.

Methods: It was a prospective study on women with signs and symptoms of AUB for a period of 12 months. Detailed history and medical examination and Transvaginal ultrasound (USG) of pelvis were done for endometrial thickness and toruleout structural abnormality. 50 cases were included for hysteroscopy. Endometrial biopsy taken by blind dilation and curettage (D&C) and sent for histopathological examination (HPE). The hysteroscopic and histopathological findings were analyzed.

Results: Both hysteroscopy and (D&C) were accurate when an abnormality was recognized, giving a specificity of 96.4% and 96.4% respectively and positive predictive value of (95.2% versus 94.4%). The potential to diagnose a lesion was more with hysteroscopy i.e. sensitivity in evaluation to curettage, (90.9% versus 77.4%), and a negative diagnosis was less wrongly made with hysteroscopy in comparison to curettage (false negative rate: 9.1% versus 22.7%). In intracavitary lesions like polyp, hysteroscopy was best.

Conclusions: Hysteroscopy is a sensitive diagnostic procedure that provides useful information in all intracavitary lesions and has a higher sensitivity and specificity. A blind D & C can miss focal lesions including Polypendometrial carcinoma, hence hysteroscopy is advisable.

Keywords: Hysteroscopy, focal lesions, Polypendometrial carcinoma

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INTRODUCTION

AUB is one of the commonest conditions for which patients attend gynecological out-patient. Any deviation from the normal pattern of menstrual bleeding is called as abnormal uterine bleeding. AUB is responsible for more than one-third of gynecologic consultations and almost two-thirds of hysterectomies.^{1,2} It is estimated that a woman has a 1 in 20 lifetime chance of consulting her gynaecologist due to heavy menstrual bleeding.³ Inconsistencies in nomenclature and lack of standardized techniques of classification have hampered investigation and

management of AUB. In an effort to bring improvement, Federation of international Gynecology and Obstetrics (FIGO) have approved a classification system for abnormal uterine bleeding. It classifies the causes into two categories structural and functional. It is described via the acronym PALM –COEIN.⁴ PALM (structural): P- Polyp, A-Adenomyosis, L-Leiomyoma and M-Malignancy. COEIN (functional): C-Coagulopathies, O-Ovulatory dysfunction, E-Endometrial, I-Iatrogenic, N-not yet classified.

Diagnostic D & C was an important diagnostic procedure for the diagnosis of AUB for many years

and advent of hysteroscopy has led to a new era inside the diagnosis and management of AUB. Diagnostic D & C is a blind procedure and likely to miss many diagnosis. Hysteroscopy involves direct visualization of the uterine cavity and biopsy can be taken under direct visualization. "A vigilant eye in the uterine cavity is better than numerous blind curettages" – Lindmann. Subsequently it is now considered as gold standard for prognosis of AUB.⁵

METHODS

This study was done over duration of 1 year at JLN Medical College, RajkiyaMahilaChikitsalya, Ajmer, Rajasthan, India. Women of reproductive age group, above 20 years, perimenopausal and post-menopausal women have been included within the study. The patients with adnexal masses, and cervical lesions, bleeding diathesis were excluded from the study. 50 cases of AUB were included in the study. Those patients were seen in the outpatient department, a detailed menstrual history, both systemic and gynecological examination was done. USG pelvis was done to detect any structural abnormality and to see the endometrial thickness. Patients were admitted on D7-D10 of their menstrual cycle. In case of post-menopausal woman, they were prepared and admitted when the bleeding decreased or stopped. Hysteroscopy was performed with 4 mm rigid scope with normal saline as distending medium under general anaesthesia. The endometrium was described as normal, atrophic, hyperplastic based on the typical appearance of the endometrium. All the intracavitary lesions like endometrial polyps, sub mucous myoma were seen and documented. Under the same sitting, a blind curettage became done and the endometrium sent for HPE.

RESULTS

Age group of the patients ranged from 30-64 years and the higher prevalence of AUB was seen in the age group 41 to 50 years (table 1). Mean age was 45 years. Menorrhagia 44% became the most typical presentation (table 2). Abnormal findings were seen in 21 patients (42%), while the remaining 29 patients (58%) showed normal endometrium (table 3). Amongst the 18 cases which were reported to be abnormal, 12 patients (12%) had hyperplastic endometrium (4 without atypia, 2 simple hyperplasia with atypia), 4 patients (8%) had polyp, 4 (8%) patients had atrophic endometrium, 2 had endometritis (Table 4). Histopathology findings corroborate the hysteroscopically detected cases of hyperplasia, atrophic endometrium and endometritis. Of the 50 patients who underwent hysteroscopy and curettage, patients (84%) had the same tissue diagnosis in both hysteroscopy and curettage. Hysteroscopy revealed more information than curettage in (10%) cases and curettage revealed more information in (4%) cases. Out of the 32 cases said to be normal in HPE study, 4 cases of polyp and 1 case of submucous myoma was missed by D & C (Table 5).

Both hysteroscopy and curettage were accurate when an abnormality was diagnosed, giving a specificity of 96.4% and 96.4% respectively and positive predictive value of 95.2% and 94.4% respectively (Table 6). The ability to diagnose a lesion was more with hysteroscopy i.e. sensitivity in comparison to curettage, (90.9% versus 77.4%) while a negative diagnosis was less wrongly made with hysteroscopy in comparison to diagnostic curettage (False negative rate: 9.1% versus 22.7%).

Table 1: Age distribution of AUB patients.

Age in years	Normal	Abnormal	Percentage
20-30	Nil	Nil	0 (0%)
31-40	3 (6%)	2 (4%)	6 (10%)
41-50	21 (44%)	7 (16%)	30 (60%)
>51	5 (8%)	12 (22%)	14 (30%)
Total	29 (58%)	21 (42%)	50 (100%)

Table 2: Distribution of patients according to menstrual abnormality in AUB (n=50).

Type	Number of patients	Percentage (%)
Menorrhagia	21	44
Polymenorrhea	14	26
Postmenopausal bleeding	07	14
Metrorrhagia	05	10
Oligomenorrhea	03	06

Table 3: Distribution of patients according to hysteroscopic findings.

Findings	No. of patients (n)	Percentage (%)
Normal	27	58.0
Hyperplastic	08	12.0
Atrophic	04	8.0
Polyp	08	16.00

Submucousmyoma	02	4.00
Endometrial carcinoma	01	2.0
Total	50	100

Table 4: The histopathological findings (n=50).

Findings	No of patients (n)	Percentage (%)
Normal	31	64.0
Hyperplasia without atypia	05	8.0
Hyperplasia with atypia	02	4.0
Atrophic endometrium	04	8.0
Myoma (submucous)	01	2.0
Polyp	04	8.0
Endometritis	02	4.0
Endometrial carcinoma	01	2.0
Total	50	100

Table 5: Showing clinicopathological correlation.

Hysteroscopic findings	Histopathological findings	Normal	Endometrial polyp	Hyperplasia	Submucous fibroid	Endometrial atrophy	Endometrial CA	Endometritis
No of cases								
Normal	29	32	00	00	00	00	00	00
Endometrial polyp	08	00	04	00	00	00	00	00
Hyperplasia	06	00	00	06	00	00	00	00
Sub mucous fibroid	02	00	00	00	01	00	00	00
Endometrial atrophy	04	00	00	00	00	04	00	00
Endometrial CA	01	00	00	00	00	00	01	00
Endometritis	00	00	00	00	00	00	00	02

Table 6: Comparison of the validities.

	Hysteroscopy	Histopathology
Sensitivity	90.9%	77.3%
Specificity	96.4%	96.4%
PPV	95.2%	94.4%
NPV	93.1%	84.4%
Accuracy	94%	88%

DISCUSSION

Abnormal uterine bleeding is one of the most frequently encountered conditions in gynecology, as quoted by Prentice A.⁶ till recently the usual method of evaluating abnormal uterine bleeding was dilatation and curettage. The diagnosis was obtained by this manner in most patients, but in about 10% blind curettage; may miss the focal lesions. Hysteroscope offers a valuable tool in the hands of the gynecologist. Hysteroscopic inspection of uterine cavity is a simple and well accepted method. The direct real time visualization, real-color, hydrated, well-illuminated, and augmented vision of the uterine cavity make this diagnostic tool very accurate to detect minute focal endometrial pathology and small lesions and helping us to take well guided direct biopsies. Hysteroscopic examination predicts endometrial lesions with a good accuracy as well as endometrial aspect

characterization, adopting a nomenclature similar to that used by the pathologist. This approach makes correlation between hysteroscopic findings and histopathological results simpler.⁷ The use of hysteroscopy in abnormal uterine bleeding is replacing the blind curettage, as it “sees” and “decides” the cause. This is because the uterine cavity can be observed panoramically and the area in query can be curetted for histopathological examination. In fact, it is the eye in the uterus.^{8,9} The complication rate of the procedure is very less; hence nowadays many gynecologists are performing office hysteroscopy.¹⁰ In our study there were no operative headaches. In the big study done by Singhi et al, the complication rate was 0.6%.¹¹ The complications in comparison to D & C are much lower, as hysteroscope is inserted under vision.¹² The most common finding was endometrial polyp (16%). The

majority of other studies also state the highest incidence of endometrial polyp (32.5% Raquel et al, 37.6% Cordeiro et al).^{13,14} The type of abnormal hysteroscopic findings vary according to the age group and presentation. In our series of patients, endometrial polyp and hyperplasia were the predominant findings with symptoms of menorrhagia and metrorrhagia (18%). Our results are comparable to results published by other authors.¹⁵⁻²¹ The abnormal findings on hysteroscopy ranged from 50% to 74% in other studies. Our study showed abnormality in 42% of the patients. Of the 21 cases with abnormal findings on hysteroscopy (table 8), commonest was endometrial polyp (16%), followed hyperplasia (12%), and submucousmyoma (4%) The results of our study indicate a high sensitivity and specificity of hysteroscopy in detection of intrauterine pathology (90.9%, 96.4%). Cases which were diagnosed as normal by hysteroscopy, turned out to be endometritis by histopathology. The study of Allameh et al; confirmed a sensitivity of 100% and specificity of 80.5% and the look at of Tandulwadkar et al. 97% and 98%, respectively.^{22,23} Pasqualotto et al reported sensitivity of hysteroscopy for detection of endometrial polyp as 99%, while Epstein et al reported it as 80%.^{24,25} In the study of Jakab et al, the sensitivity of hysteroscopy in detection of circumscribed intrauterine lesions was 100%.²⁶ Kelekci et al found sensitivity of 87.5% and specificity of 100% for hysteroscopy in detecting intracavitary abnormalities.²⁷ In our present study detection of intracavitary lesion was 100%. Hysteroscopy diagnosed polyps, hyperplasia and sub mucosal myoma with 100% accuracy. The confirmation of the diagnosis was made in post hysterectomy specimens sent for histopathology, thereby yielding sensitivity, specificity, PPV, NPV of 100%. Patil et al and ValsonHet al, also reported accuracy of 100% in the diagnosis of endometrial polyp and submucous myoma.^{15,28} This become comparable to different study. Whereas Velle et al obtained diagnostic accuracy of 88.6% In case of endometrial hyperplasia Harika Bet al stated the sensitivity, specificity, PPV, NPV of 98,95,63,99% respectively.^{7,29} Arslan et al reported a PPV of 71.4% and NPV of 95.4% in diagnosis of endometrial hyperplasia. In one of the latest study done by Chaudhari KR, Sathe P, the sensitivity, specificity, positive Predictive value (PPV),negative Predictive value (NPV) and accuracy of diagnostic hysteroscopy in the observe was 98.3%, 80.5%, 89.7%, 96.7% and 91.8% respectively.³⁰ In our study, the diagnostic hysteroscopy had sensitivity of 90.9% specificity of 96.4%, PPV of 95.2% and NPV of 93.1%, and accuracy of 94%. Hysteroscopy diagnosed 4 cases of atrophic endometrium; Histopathological examination confirmed the findings, giving the accuracy of 100%. The incidence of endometrial cancer that is seen in the literature is generally higher.³¹

CONCLUSIONS

Hysteroscopy is emerging as the new gold standard for the evaluation of abnormal uterine bleeding. The diagnostic accuracy of hysteroscopy is very high compared to D & C in intracavitary lesions D & C can miss focal lesions which can be picked up by hysteroscopy. Endometrial biopsy under hysteroscopic guidance can play a supporting role in supplementing the diagnostic accuracy of hysteroscopy. Adequate diagnosis is crucial for the selection of relevant treatment of abnormal uterine bleeding and avoidance of unnecessary major surgical procedure.

REFERENCES

1. Lasmar RB, Dias R, Barrozo PR, Oliveira MA, CoutinhoEda S, da Rosa DB. Prevalence of hysteroscopic findings and histologic diagnoses in patients with abnormal uterine bleeding. *FertilSteril.* 2008;89(6):1803-7.
2. Jain V, Chodankar RR, Maybin JA, Critchley HOD. Uterine bleeding: how understanding endometrial physiology underpins menstrual health. *Nat Rev Endocrinol.* 2022;18(5):290-308.
3. Schorge JO, Schaffer JI, Halvorson LM et al. 2nd ed. New York. McGraw Hill. 2008.
4. Munro MG, Critchley HOD, Broder MS, Fraser IS. FIGO classification system (PALM-COEIN) for causes of abnormal uterine bleeding in nonpregnant women of reproductive age. *International Journal of Gynecology and Obstetrics.* 2011;113:3-13.
5. Bradley H, Nezhat F. Hysteroscopy. In: Nezhat C. Nezhat's operative gynecologic laparoscopy and hysteroscopy. New York: Cambridge University press. 2008;577-9.
6. Prentice A. When does heavy flow merit treatment? *Practitioner.* 2000;244:179-82.
7. Elbareg AM, Elmahashi MO, Essadi FM. Evaluation of Intrauterine Pathology: Efficacy of hysteroscopy in comparison to Histopathological Examination. *Reproductive System & Sexual Disorders: Current Research.* 2015;4:149.
8. El-Gama HH, Abd-El-Salam M, Ghanem RM, Al-AniS. Role of diagnostic hysteroscopy and histopathology in evaluation of abnormal uterine bleeding. *The Egyptian Journal of Hospital Medicine* 2018;72(7):4765-4771
9. Baggish M, Guedj H, Valle R. Hysteroscopy: Visual perspectives of uterine anatomy, physiology and pathology. 3rd ed. London: Lippincott Williams & Wilkins. 2007:330-59.
10. Nikolaou D, Salman G, Richardson R. Operative hysteroscopy in the outpatient setting: its role within a gynaecology service. *Gynaecol Surg.* 2009;6(1):21-4.
11. Singhi A. Comparison of complications rates in endoscopic surgery performed by a clinical assistant. An experienced endoscopic surgeon. *J GynecolEndosc Surg.* 2009;1(1):40-6.
12. Baggish M, Guedj H, Valle R. Hysteroscopy: Visual perspectives of uterine anatomy, physiology and pathology, 3rd edition. London: Lippincott Williams & Wilkins. 2007:15-30.
13. Raquel P, Claudio G, Suzana A, Alice V. Tamoxifen use and endometrial lesions: hysteroscopic, histological and immunohistochemical findings in

- postmenopausal women. *Menopause*. 2009;16(2):293-300.
14. Cordeiro A, Condeco R, Sousa F, Leitno C. Office hysteroscopy after ultrasonographic diagnosis of thickened endometrium in postmenopausal women. *Gynecol Surg*. 2009;(4):317-22.
 15. Patil SG, Bhute SB, Inamdar SA, Neema SA, Deepti SS. Role of diagnostic hysteroscopy in abnormal uterine bleeding and its histopathological correlation. *J GynecolEndosc Surg*. 2009;1(2):98-104.
 16. Subhankar D, Barunoday C, Rejwal K. Abnormal uterine bleeding in perimenopausal age: Diagnostic options and accuracy. *The journal of obs and gyn of India*. 2011;189-94.
 17. TrajkovicDinic SP, Kopitovic V, Antic V. Role of hysteroscopy in evaluation of patients with Abnormal uterine bleeding. *Scientific Journal of the faculty of medicine in Nis*. 2011;28(3):177-81.
 18. Razzaq A, Shukar-ud-Din S, Soomro N. Role of diagnostic hysteroscopy in case of abnormal uterine bleeding. *Pak J Surg*. 2011;27(4):309-15.
 19. Gita G, Kaur SS, Arvind L, Shashi K. Hysteroscopy in evaluation of abnormal uterine bleeding. *The journal of obs and gyn of India*. 2011;61(5):546-9.
 20. Nanda SS, Dash S, Behera A. Diagnostic value of hysteroscopy in perimenopausal abnormal uterine bleeding compared to histopathologic study of blind D and C. *J of evolution of medical and dental sciences*. 2013;39:74-97.
 21. Singh S, Taneja BK, Singh P, Ahlawat R. Role of diagnostic hysteroscopy in abnormal uterine bleeding. *Int J ReprodContraceptObstet Gynecol*. 2014;3(3):544-51.
 22. Allameh T, Mohammadiazadeh F. Diagnostic value of hysteroscopy in abnormal uterine bleeding compared to pathology reports. *Iran J Reprod Med*. 2007;5(2):61-4.
 23. Tandulwadkar S, Deshmukh P, Lodha P, Agarwal B. Hysteroscopy in postmenopausal bleeding. *J GynaecolEndosc Surg*. 2009;1(2):89-93.
 24. Pasqualotto EB, Margossian H, Price LL, Bradley LD. Accuracy of preoperative diagnostic tools and outcome of hysteroscopic management of menstrual dysfunction. *J Am AssocGynecolLaparosc*. 2000;7:201-9.
 25. Epstein E, Ramirez A, Skoog L, Valentin L. Trans vaginal sonography, saline contrast sonohysterography and hysteroscopy for the investigation of women with postmenopausal bleeding and endometrium >5 mm. *Ultrasound Obstect Gynecol*. 2001;18:157-62.
 26. Jakab AJ ,Ovari L , Juhasz B , Birinyi L , Bacsko G, Toth Z. Ultrasound diagnosis of focal intrauterine lesions. *OrvHetil*. 2002;143:1739-43.
 27. Kelekci S, Kaya E, Alan M, Alan Y, Bilge U, Mollamahmutoglu L. Comparison of transvaginalsonography , saline infusion sonography, and office hysteroscopy in reproductive-aged women with or without abnormal uterine bleeding. *FertilSteril*. 2005;84:682-6.
 28. ValsonH, KulkarniC, MukerjeeS, GowdaSN. The role of diagnostic hysteroscopy in abnormal uterine bleeding and its histopathological correlation following blind dilatation and curettage. *Int J ReprodContraceptObstetGynecol*2016;5:609-14..
 29. Harika B, Subbaiah M, Maurya DK. Diagnostic Accuracy of Hysteroscopic Scoring System in Predicting Endometrial Malignancy and Atypical Endometrial Hyperplasia. *J Midlife Health*. 2021;12(3):206-210.
 30. Chaudhari KR, Sathe P. Role of diagnostic hysteroscopy in evaluation of abnormal uterine bleeding and its histopathological correlation. *Int J ReprodContraceptObstet Gynecol*. 2014;3:666-70.
 31. Ribeiro CT, Rosa-E-Silva JC, Silva-de-Sá MF, RosaESilva AC, PoliNeto OB, Candido Dos Reis FJ. Hysteroscopy as a standard procedure for assessing endometrial lesions among postmenopausal women. *Sao Paulo Med J*. 2007;125(2):338-42.