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A single centre cross sectional study to find the role of diagnostic hysteroscopy and its relation with histopathology in abnormal uterine bleeding

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Abstract
Background: Abnormal uterine bleeding is any bleeding from uterus that is abnormal in volume, regularity and/or timing that has been present for the majority of the last 6 months [1]. Dilatation and curettage has long been gold standard for abnormal uterine bleeding but Hysteroscopy helps in direct visualization of the endometrial cavity and directed endometrial biopsy.
The objective of this study was to find the accuracy of hysteroscopy in evaluation of abnormal uterine bleeding and to correlate and compare hysteroscopy findings with histopathology findings.
Material and Method: A cross sectional study carried out in department of obstetrics and gynecology MGM medical college and MY hospital Indore India, on 90 married females with age more than 25 years with abnormal uterine bleeding who underwent Hysteroscopy, endometrial sampling and histopathological analysis with consent. The hysteroscopic and histopathologic findings obtained were compared.
Study conclusion: The final results obtained showed a sensitivity and positive predictive value of 100% & 91.17 % respectively for hysteroscopy. Hysteroscopy is an accurate and feasible investigation for evaluating various causes of abnormal uterine bleeding especially endometrial pathologies. No complications related to the procedure were observed. Hysteroscopy was found to be 100% sensitive and 78% specific for AUB.

Keywords: Hysteroscopy, histopathology, aub, endometrial sampling

Introduction
Abnormal uterine bleeding is any bleeding from uterus that is abnormal in volume, regularity and/or timing that has been present for the majority of the last 6 months. It may be excessively light or heavy and may be prolonged, frequent, or random [1].
Abnormal vaginal bleeding is a common complaint in women. The prevalence of some type of abnormal bleeding is up to 30% among women of reproductive age [2].
Dilatation and curettage has long been gold standard for abnormal uterine bleeding but Hysteroscopy helps in direct visualization of the endometrial cavity and importantly, directed endometrial sampling of any suspicious areas [3].
Use of hysteroscopy in abnormal uterine bleeding is almost replacing blind curettage, as it "sees" and "decides" the cause. This is because the uterine cavity can be observed and the area in question can be curetted directly. In fact, it is like an eye in the uterus. The objective of this study was to find the accuracy of hysteroscopy in evaluation of abnormal uterine bleeding and to correlate and compare hysteroscopy findings with histopathology findings.

Material and Methods
This is a cross sectional prospective study carried out in department of obstetrics and gynecology MGM medical college and MY hospital, Indore, India over 1 year on 90 married females with age more than 25 years with abnormal uterine bleeding. They underwent Hysteroscopy post menstrual. Endometrial sampling and histopathological analysis of the sample obtained after appropriate consent. The hysteroscopic and histopathologic findings obtained were compared. Patients with any demonstrable pelvic pathology like cancer cervix or vagina or vulva acute pelvic infection and patients on hormones or with acute profuse uterine bleeding or history of recent intrauterine perforation were excluded from the study. Patients

were admitted one day before the procedure after informed consent for participation in the study. Under appropriate anaesthesia, cervical dilatation up to at least 8mm was achieved. 5 mm hysteroscope was then inserted along with normal saline as the distending media. Preparations for interventions through hysteroscopic guidance were kept ready prior to each procedure. Results were recorded in a prescribed proforma. Under vision endometrial sampling was done in each patient and sample tissue sent for histopathological examination.
Multistage random sampling was done. Data was entered in excel sheet and was analysed using SPSS Software. Appropriate statistical tests were applied wherever necessary.

Results

Table 1: Findings at hysteroscopy

Findings at hysteroscopy	No. of patients	%
Normal	22	
Secretory	12	27.7
Proliferative	10	
Endometrial hyperplasia	21	23.3
Endometrial polyp	24	25.5
Submucous myoma	7	6.6
Atrophic endometrium	8	8.8
Swiss cheese appearance	2	2.2
Missing IUCD	6	6.6

11 out of 90 cases showed normal secretory endometrium and 14 showed normal proliferative endometrium on hysteroscopy 21 cases showed endometrial hyperplasia. 23 showed endometrial polyp.
6 cases showed submucous myoma, 2 swiss cheese appearance, and 6 showed IUCD.

Table 2: Findings at endometrial histopathology

Findings at endometrial histopathology	No. of patients	%
Normal endometrium	12	06
Secretory proliferative	16	
Endometrial hyperplasia	12	13.3
Simple	03	3.3
Cystic glandular hyperplasia adenomatous	05	5.5
Endometrial atrophy	8	8.8
Submucous myoma	6	6.6
Endometritis	2	2.2
Irregular ripening	3	3.3
Endometrial polyp	23	25.5

Table 3: Comparison between hysteroscopy (table 1) and histopathology (table 2)

Proliferative	87.5%
Endometrial hyperplasia	95.2%
Endometrial atrophy	87.5%
Submucous myoma	100%
Endometrial polyp	100%

Table 4: Endometrial hyperplasia on HPE

Total no. of patients with hyperplasia on HPE	17
Simple hyperplasia	12 (13.3%)
Complex hyperplasia	5 (5.5%)

Table depicted that out of 17 patients of endometrial hyperplasia, 12 (13.3%) were of simple endometrial hyperplasia and 5 (5.5%) were of complex (adenomatous) hyperplasia.

Table 5: Showing sensitivity, specificity, positive predictive value and negative predictive value of Hysteroscopy with histopathologic examination

Variable	Sensitivity %	Specificity %	PPV %	NPV %
Proliferative	62.5	100	100	92.5
Secretory	100	100	100	100
Endometrial polyp	91.7	97	91.6	96.9
Atrophic	100	100	100	100
Myoma	100	97.6	71.4	100
Endometrial hyperplasia (Simple and complex)	88	91.8	71.4	97.1
Cystic glandular hyperplasia	66.6	100	100	98.8

Above table shows that the sensitivity, specificity, positive predictive value and negative predictive value for normal proliferative endometrium was found to be 62.5, 100, 100, 92.5 respectively. Normal secretory endometrium appearing as orange, undulating and thick endometrium on hysteroscopy was seen in 17 cases. For this, sensitivity, specificity, PPV, NPV were 100 each. For endometrial polyp, sensitivity, specificity, PPV and NPV were found to be 91.7, 97, 91.6, 86.9 respectively.

Discussion

The most common findings on hysteroscopy in our study was normal proliferative followed by normal secretory endometrium. The most common abnormal findings found on hysteroscopy in our study was endometrial polyp (25.5%) followed by endometrial hyperplasia (23.3%). Patil *et al.* [4] found proliferative (34%), secretory (16%), hyperplasia (18%), endometrial polyp (9%). Channa Reddy Sunitha [5] found normal finding (54%) endometrial hyperplasia (20%), endometrial polyp (7%).
In our study hysteroscopy was unable to diagnose 2 cases of endometritis and 3 cases of irregular gland ripening while it was 100% accurate in diagnosing endometrial polyps and submucous myoma. Hysteroscopy was found to be having sensitivity and specificity of 100% for normal secretory endometrium while for normal proliferative endometrium sensitivity of 63% and specificity of 100% was noted.
In our study out of 17 patients of endometrial hyperplasia, 12 (13.3%) were of simple endometrial hyperplasia and 5 (5.5%) were of complex (adenomatous) hyperplasia. The sensitivity, specificity, positive predictive value and negative predictive value for normal proliferative endometrium (endometrium was pink, smooth and thin, appearing to be of proliferative type) was found to be 62.5, 100, 100, 92.5 respectively. The findings are in accordance with other studies.
Normal secretory endometrium appearing as orange, undulating and thick endometrium on hysteroscopy was seen in 17 cases. For this, sensitivity, specificity, PPV, NPV were 100 each.
For endometrial polyp, sensitivity, specificity, PPV and NPV were found to be 91.7, 97, 91.6, 86.9 respectively. It was the most common abnormality found in our study. Endometrial polyp was found in 24 cases on hysteroscopy (appeared as small growths in the uterine cavity, which were soft, oval, pedunculated with a smooth surface), all of which showed endometrial polyp on histopathology as well.
Out of the 8 patients found to be having atrophic endometrium (the endometrium appeared flat, thin and fragile. At some points; petechie and hemorrhages were present. The tubal ostia were very prominent), the histopathology showed atrophic endometrium in all these 8 cases resulting in sensitivity, specificity, PPV and NPV to be 100 each.

In case of submucous myoma which was seen in 7 pt as a white-colored bulge, round in shape, with a smooth surface, which was diagnosed on hysteroscopy as submucous leiomyoma. On hysteroscopy, 5 were confirmed as myoma on histopathology while 2 cases were seen as adenomatous hyperplasia.
Endometrial hyperplasia was seen in 21 patients on hysteroscopy while in only 20 patients on histopathology.
Out of 20 patients of endometrial hyperplasia, 12 had simple endometrial hyperplasia, 3 cystic glandular hyperplasia and 5 complex hyperplasia.
Swiss cheese appearance was observed in 2 patients on hysteroscopy while cystic glandular hyperplasia was confirmed on histopathology in 3 patients.
Submucous myoma was found in 7 patients on hysteroscopy while on histopathology in 6 patients Missing copper t was diagnosed with 100% sensitivity with hysteroscopy.
In 12 patients on hysteroscopy secretory endometrium was seen and it was confirmed on histopathology in all 12 patients.
Normal proliferative endometrium was observed in 16 patients on hysteroscopy while it was confirmed only in 10 patients.
Carcinoma endometrium was not found in any patient.

Table 6: The sensitivity and specificity of hysteroscopic findings in patients with abnormal uterine bleeding in our study is comparable to other studies as shown below

S. No.	Studies	Sensitivity	Specificity
1	Bender *et al* [6]	0.98	0.78
2	Channa Reddy Sunitha *et al* [5]	0.91	0.96
3	Kumar AK *et al* [7]	0.91	0.92
4	Cicinelli *et al* [8]	0.96	1
5	Present study	0.1	0.78

After analysing the above data, it is brought forth that diagnostic hysteroscopy is a reliable procedure for assessing intrauterine pathologies in patients with abnormal uterine bleeding. Patient acceptability is also high with this procedure.

Conclusion

The final results obtained showed a sensitivity and positive predictive value of 100 & 91.17 respectively for hysteroscopy. No complications related to the procedure were observed.
Taking into consideration all the factors, hysteroscopy is an accurate and feasible investigation for evaluating various causes of abnormal uterine bleeding especially endometrial pathologies. Hysteroscopy is found better in diagnosing and treating certain conditions like missing copper t, focal endometrial pathologies. Hence as far as possible all abnormal uterine bleeding should undergo hysteroscopy and guided biopsy for better results.

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