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Use of Hysteroscopy in abnormal uterine bleeding: An edge over histopathological examination & blind D & C: an ambulatory procedure

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Abstract
AUB is the most common complain of reproductive age group women. In this study the causes & findings of AUB were compared by performing hysteroscopy & D & C and their histopathology also compared thoroughly .
Materials & Methods: *This study was a prospective study carried out in SCB medical college, a tertiary care hospital in Odisha, from Aug 2013 to Aug 2015 for 2 years. 200 cases were selected for this study aging 18 years and above with menstrual irregularities. Hysteroscopy was performed in 100 patients, endometrial biopsy was taken during the procedure & sent for HP study. In another 100 patients, D & C was performed & sent for HP study as control basis. The findings on hysteroscopy and D & C and there HP reports were correlated and compared.*
Results: *On hysteroscopy , out of 100 cases , 32 % came as proliferative , 16 % secretory ,16 cases as sub mucous fibroid , 13 cases as endometrial hyperplasia ,8 cases as endometrial atrophy, 4 cases as endometrial adhesion ,1 case as CuT in situ & 1 case of endometrial carcinoma whereas HP study on same patients came as 43 % as proliferative, 20 % as secretary, 18 % as hyperplasia, 6% as endometrial polyp,4% as atrophic endometritis, 2 % as fibroid polyp, 1% absent endometrium & 1% as endometrial carcinoma . Another 100 patients on whom blind D & C were performed came as 52 % as proliferative, 20 % secretory, 19% as endometrial hyperplasia, 6% as atrophic endometrium and 3 % as endocervical polyp.*
Conclusion: *In patients with AUB, hysteroscopy provides more accurate and detailed diagnosis than dilatation and curettage alone. Especially endometrial cavity lesions are more accurately diagnosed by hysteroscopy and also in similar setting; therapeutic procedures can be performed than the blind D & C procedure.*
Keywords: *D & C – dilatation and curettage, HP report – histopathological report, DH – diagnostic hysteroscopy.*

Introduction

Abnormal uterine bleeding is one of the most common presenting symptoms encountered in a gynaecologist's office or primary care settings.[1] Unpredictable and unscheduled bleeding often lead to psychological, medical and sexual problems requiring pharmacological and surgical interventions. Apart from non-invasive procedures like trans-vaginal sonography (TVS) majority of

gynaecologists advice for dilatation and curettage or diagnostic hysteroscopy and /or endometrial biopsy as the initial method of evaluation as minimally invasive procedures[2]. Within the framework of time considerations, day care interventions are increasingly becoming popular.[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. In fact, it is an eye in the uterus.[4]

Aims and Objectives

1. To study the accuracy of hysteroscopy in evaluation of abnormal uterine bleeding.
2. To correlate hysteroscopic findings with histopathologic findings
3. To correlate D & C findings with hysteroscopic findings.

Materials and Methods

This prospective study was carried out in the department of obstetrics and gynaecology at scb medical college, Cuttack, odisha a tertiary care hospital from Aug 2013 to Aug 2015 for 2 years. Two hundred cases were selected from the patients of age group 18 and above with menstrual irregularities. Those with pregnancy, gross pelvic pathology like fibroids, ovarian mass, carcinoma cervix, active pelvic infection on clinical examination, gross medical co morbidities were excluded from this study. Detailed history was taken, examination was done and investigations were sent. Out of 200, 100 patients were selected randomly on whom hysteroscopy was performed and then endometrial samples sent for HP examination. In another 100 patients, blind D & C was performed and endometrium sent for HP study. The correlation between findings on hysteroscopy and D & C and there HP reports were tabulated .On few patients , in the same setting of hysteroscopy therapeutic procedures were also performed , in others the management was decided according to age ,parity and the cause of the disease .

Results

In our present study, 200 cases of ambulatory gynaecological procedures i.e. 100 each of D and C and hysteroscopy were performed and their outcomes were studied and compared.

Abnormal uterine bleeding was most prevalent among 35 -50 yrs age group constituting total 118 out of 200 cases (59 %). This shows that majority of women belong to perimenopausal age groups. Hormonal imbalance is most common during perimenopausal period and this can explain the cause of AUB during this age group. Study by Gita Guin, Surpreet kaur, Sashi Khare, Arvind Lele also found similar findings.[5] In our study the commonest affected patients were para 3 or more, 88 out of 200 (44%) and least affected were nulliparous, 12 out of 200 (6 %). 110 out of 200 (55 %) patients belong to middle socio-economic status. 54 out of 200 (27%) belong to low socio-economic status and 36 out of 200 (18 %) belong to high socio-economic status. 140 patients out of 200 (70 %) were from rural set up mostly and 60 out of 200 (30 %) belong to urban as majority of Indian population live in rural areas. Sheetal G Patil , S B Bhute, Neema S Acharya and Deepti S Shrivastava also reported similar findings in his study showing commonest affected patients were para 3 or more (41 %), 59 % patients belong to middle socio economic status and also 68 % of patients were from rural set up mostly .[6]

Diagnostic hysteroscopy was performed under analgesia and normal saline was used as distending medium and the hysteroscopic findings were correlated with that of histopathologic findings.

In the present study, menorrhagia (40 %) was the most frequent indication for hysteroscopy. Second most common indication being post menopausal bleeding (14%) followed by metropathica haemorrhagica and metrorrhagia both being 10 % each (table -1). Sonja Pop , Trajkovic Dinic , Vesna Kopitov , Vladimir Antic also found menorrhagia as the leading cause of hysteroscopy in his study .[7]

Table - 1

Chief complain	Frequency	percentage
Menorrhagia	40	40
Metrorrhagia	11	11
Menometrorrhagia	6	6
Polymenorrhea	2	2
Polymenorrhagia	9	9
Metropathica	10	10
Hypomenorrhea	3	3
Oligomenorrhea	5	5
Postmenopausal bleeding	14	14
Total	100	100

On DH, the most common finding was proliferative endometrium (32 %) followed by secretory endometrium and submucous fibroid (16 % each). Then 13 cases of endometrial hyperplasia were detected (13%). 4 cases of endometrial adhesions were present and in 1 patient CuT was found which was removed. 1 out of 100 patients was detected to be a case of endometrial carcinoma. (1 %) (table 2). Sheetal G Patil[6], S B Bhute, S A Inamdar, Neema S Acharya and Deepti S Shrivastava performed hysteroscopy on 100 abnormal uterine bleeding and their findings on hysteroscopy were : proliferative 34 %, secretary 16 %, hyperplasia 18 % , atrophic 8 %, endometrial polyp 9 %, submucous myoma 11 % , carcinoma endometrium 3 % and misplaced CuT 1 %[6]. HP reports were correlated. Most common finding was proliferative endometrium (43%) followed by secretory endometrium (25%). 18 % cases came out to be endometrial hyperplasia, in 4 % cases atrophic endometritis, 2 % fibroid polyp, 6 % endometrial polyp and in 1 % endometrial carcinoma (table 3). Sheetal G Patil [6] ,S B Bhute, S A Inamdar , Neema S Acharya and Deepti S Shrivastava found 42 % of proliferative endometrium, 22 % secretary endometrium, 20 % endometrial hyperplasia , 5 % endometrial polyp , 1 % fibroid polyp, 2 % endometrial carcinoma, 3 % atrophic endometritis.[6]

In hysteroscopy, when endometrium appears pink, smooth and thin, then we diagnose it as proliferative type.[6] 32 cases were diagnosed as proliferative endometrium on hysteroscopy, but 43 patients were detected to have proliferative endometrium in HP study with tall columnar cells with pseudostratifcation (75%). (table 5) Out of 43 cases hysteroscopy detected 25 cases (58%). On the other hand 7 cases of fibroid, 2 cases of endometrial polyp and 2 cases of endometrial adhesions were missed on HP report, but were detected on hysteroscopy. On hysteroscopy 32 cases were detected to be proliferative type out of which 25 came in HP as proliferative type (78%), 4 cases came to be secretory type (12.5%) and 3 were diagnosed as endometrial hyperplasia without atypia (9%). The sensitivity, specificity, PPV, NPV of hysteroscopy in diagnosing proliferative endometrium were 70.5%, 89%, 86%, and 76% respectively . (Table 4) Sheetal G Patil , S B Bhute, S A Inamdar, Deepti S shrivastava also found similar results that sensisitivity , specificity, PPV, NPV of hysteroscopy for diagnosing proliferative endometrium were 78.5, 86.2, 80.5, and 80 % respectively.[6]

Table – 2 DH findings of 100 AUB Cases

Hysteroscopy findings	Frequency	%
Proliferative endometrium	32	32
Secretory	16	16
Submucous fibroid	16	16
Endometrial polyp	9	9
Endometrial hyperplasia	13	13
Endometrial adhesion	4	4
Endometrial Atrophy	8	8
CuT	1	1
Endometrial Carcinoma	1	1
Total	100	100

Under hysteroscopy, 16 cases were found to be secretory in which endometrial cavity appeared to be orange ,undulating and thick . Out of 16 cases of secretory endometrium detected by hysteroscopy, 12 came to be secretory in HP report (75 %), 3 came to be proliferative (19 %) and 1 came to be simple endometrial hyperplasia without atypia (6%). 6 cases of fibroid; 1 case of endometrial adhesion were missed and came out to be of secretory endometrium on HP study. So sensitivity, specificity, PPV, NPV of hysteroscopy in diagnosing secretory endometrium are 65.8% , 95%, 86%, 85% respectively.(Table 4) Sheetal G Patil , S B Bhute , S A Inamdar , Deepti S shrivastava also found similar results that sensisitivity, specificity, PPV, NPV of hysteroscopy for diagnosing secretory endometrium were 60, 93.5, 81.5, and 87 % respectively.[6]

Table – 3 HP reports of 100 patients on whom DH performed

Hystopathology findings	Frequency	%
Proliferative endometrium	43	43
Secretory	25	25
SEH without atypia	13	13
SEH with atypia	03	03
CEH without atypia	01	01
CEH with atypia	01	01
Endometrial Atrophy	04	04
Fibroid polyp	02	02
Endometrial polyp	06	06
Absent endometrium	01	01
Endometrial carcinoma	01	01
Total	100	100

SEH – simple endometrial hyperplasia,
CEH – complex endometrial hyperplasia

In hysteroscopy 13 endometrium appeared to be thickened, edematous and undulating diagnosing them as endometrial hyperplasia[6] but in HP report out of 13, 11 (85%) came to be endometrial hyperplasia, & 1 proliferative and secretory each. On the other hand 18 cases came to be endometrial hyperplasia on HP report, out of which 13 (72%) were simple endometrial hyperplasia without atypia, 3 (17%) came to be simple endometrial hyperplasia with atypia, 1 (5.5%) came to be complex endometrial hyperplasia without atypia and 1 (5.5%) with atypia. Sensitivity, specificity, PPV, NPV of hysteroscopy for endometrial hyperplasia is 70%, 98%, 90%, 91%. (Table 4) Sheetal G et all found the sensitivity, specificity, PPV, NPV of hysteroscopy for diagnosing endometrial hyperplasia to be 75, 92.5 ,87.5 & 93.67 %.[6] Loverro et al found it to be 63 , 95 ,98 & 99 % respectively.[8] Arslan et al did hysteroscopy in 216 premonopausal and 114 post menopausal women for diagnosing endometrial hyperplasia . The PPV and NPV were 71.4 and 95.4 % .[9]

Table – 4

Findings	Sensitivity	specificity	PPV	NPV
Proliferative	70.5	89	86	76
Secretory	65.8	95	86	85
Hyperplasia	70	98	90	91
Submucous fibroid	100	87.5	12.5	100
Endometrial polyp	100	97	67	100
Atrophic	100	97	67	100
Carcinoma	100	100	100	100

16% patients on hysteroscope showed white coloured bulge, round in shape with smooth surface which was diagnosed as sub mucous myoma[6]. Only 2 cases were confirmed on HP study. Rest of 7 cases showed proliferative endometrium, 6 cases showed secretory type of endometrium, 1 case found to be simple endometrial hyperplasia without atypia. So sensitivity, specificity, PPV, NPV of hysteroscopy on diagnosing submucousal fibroid to be 100 % , 87.5 % , 12.5 % and 100 % respectively . So diagnostic accuracy of hysteroscope for submucous myoma was only 12.5 % but after hysterectomy, considering the final diagnosis, diagnostic accuracy of hysteroscopy came to be 100 % (table 4). Sheetal G et all found the sensitivity , specificity , PPV , NPV of hysteroscopy for diagnosing submucous fibroid were 100, 89.5, 9.09 & 100 %.[6] Similar findings were reported by Panda et al[10] and Veena et al[11] but Valle et al[12] and Sheth et al[13] had reported 88 and 81 % of PPV respectively. 9 % of patients on hysteroscopy had small growths in the uterine cavity which were soft, oval, pedunculated with smooth surface were seen. These growth appeared as endometrial polyps.[6] HP report confirmed in 6 cases (75 %). In 2 cases HP report came to be proliferative endometrium (22 %), 1 came to be simple endometrial hyperplasia with atypia (11 %). so sensitivity , specificity, PPV, NPV of hysteroscope in diagnosing endometrial polyp were 100 % , 97 % , 67% & 100 % respectively. But after hysterectomy, all the cases came to be endometrial polyp. Hence diagnostic accuracy of hysteroscopy in detecting endometrial polyp was 100 %. Sheetal G et al found the sensitivity, specificity, PPV, NPV of hysteroscopy for diagnosing endometrial polyp were 100, 95, 56 & 100 % respectively.[6] But compared to the final diagnosis each came to be 100 % . Haller et al [14] had reported sensitivity and specificity of 100 and 96.7 % respectively Veena et al[11] had obtained it to be 100 % each. In 8 of patients endometrium appeared flat, thin and fragile. At some points petechie and haemorrhages were present. This picture was suggestive of atrophic endometrium[6] which was confirmed by HP study in 4 cases and in 1 case there was no endometrium found. So sensitivity, specificity, PPV & NPV of hysteroscopy in diagnosing atrophic endometrium were 100 % ,

97 % , 67 % & 100 % . Sheetal G Patil et al also found similar results. They found the sensitivity, specificity, PPV & NPV of hysteroscopy for diagnosing atrophic endometrium to be 100, 96, 62.5 & 100 % respectively. This correlated with the report of Panda et al[10], Haller et al[15] had reported sensitivity and specificity of 100 & 97 % respectively. In 1 case hyperplasia with polypoidal growth with areas of ulceration, haemorrhage and increase in vascularity were labelled as carcinoma endometrium on hysteroscopy which was confirmed on HP study also[6]. So sensitivity, specificity, PPV and NPV of hysteroscopy on diagnosis of endometrial carcinoma came to be 100 % in each. Mencaglia et al[14] combined hysteroscopy with endometrial biopsy for diagnosing endometrial carcinoma and found nearly 100 % accuracy in diagnosis of endometrial carcinoma and its precursors. But Haller et al[15] had got a reduced sensitivity of 50 % but better specificity of 100 %. Valler[12] and Panda et al [10] had obtained diagnostic accuracy of 100 % each.

In 1 patient missed CuT was found inside the endometrial cavity to be the cause of bleeding which was removed. This was missed in HP report which showed it to be a case of proliferative endometrium. So sensitivity, specificity, PPV & NPV of hysteroscopy in diagnosing CuT were 100 % each. Sheetal G Patil et al[6] had also similar findings. In 4 patients, endometrial adhesion were found to be the cause of menstrual irregularity on hysteroscopy but on HP study, 2 cases came to be proliferatve endometrum, in 1 secretory endometrium and in 1 it came to be complex endometrial hyperplasia without atypia .so sensitivity, specificity, PPV, NPV for diagnosing adhesion were 100 % each . Panda et al also had similar findings. [10]

Similarly 100 cases underwent D & C with 100 AUB patients as the control group. Out of which 52 (52 %) came to be proliferative type, 20 cases (20%) were secretory type, 19 cases (19%) cases came to be endometrial hyperplasia, 6 % atrophic, 3 % endometroid polyp. Out of 19 cases of endometrial hyperplasia, 14 were simple

Table – 5

HP reports / DH Findinds	proliferative	secretory	SEHw/atypia	SEHwithatypia	CEHw/atypia	CEHwithatypia	atrophic	Fibroidpolyp	Endo.polyp	Abs endo	carcinoma	Total
proliferative	25	4	3									32
secretory	3	12	1									16
Hyperplasia	1	1	8	2		1						13
Atrophic	2	1					4			1		8
Fibroid	7	6	1					2				16
Endo.polyp	2			1					6			9
Adhesion	2	1			1							4
CuT	1											1
Carcinoma											1	1
Total	43	25	13	3	1	1	4	2	6	1	1	100

endometrial hyperplasia without atypia, 3 were simple endometrial hyperplasia with atypia, 1 was complex without atypia and 1 was complex with atypia. Sonja Pop, Trajkovic Dinic, Vesna Kopitovic , Vladimir Antic et al also found similar results of D & C. They did D & C and found proliferative and secretary endometrium in 68 % cases. [5]

Morbidity (table 6)

200 cases of ambulatory procedures were performed under sedation and the patient compliance was observed during procedure. Visual Analogue scale comprising of 0-10 was used as a method of pain perception. Most of the patients on which diagnostic hysteroscopy performed were complained of Visual Analog Scale (VAS) of 0-3, mean being 2.4. In D & C, patients complained Visual Analog Scale (VAS)

of 0-2 mean being 1.8. So there is not so much difference in pain scoring in DH, in comparison to D & C .In two multicentric trials of American Association of Gynaecologic laparoscopists performed by Hulka et al stated complication rates to be 1% and Visual Analog Scale (VAS) of 0-2. He found no such difference in pain scoring in DH, in comparison to D & C.[16]

In the present study no one complained of post operative nausea and vomiting (PONV). 2 out of 200(1%), one each in DH & D&C developed complication. In DH, 1 patient complained of dysnea, difficulty in respiration, may be due to volume overload leading to pulmonary edema due to excessive normal saline use, which can be diagnosed early by knowing the amount of NS entered into the body. In 1 case of D & C, the patient complained of pain abdomen, mild bleedings PV and fever which was managed conservatively. Majority of patients on which DH were performed became ambulatory within 30minutes & in case D&C they became ambulatory in 15 minutes on an average.

In both the study groups, patients were observed for 3-4 hours and they were discharged after 3 hours on an average after fit for discharge, duration of both procedures being 20 minutes each. Total duration of hospital stay in both the groups were 8 hours (Avg) . Asher Shushan, Roger hart et al performed hysteroscopic surgeries on 47 patients taking median operation time 20 minutes (range 5 -60 minutes) and median post operative hospital stay was zero days (range 0- 2 days).[17] Although diagnostic hysteroscopy is more costly than the commonly performed blind D & C , but comparing the risk benefits of office hysteroscope , benefits overweights the cost factor .[5]

Table - 6

Areas reviewed	DH(100)	D & C(100)
Pain Scoring	0-3	0-2
Post-OP ambulation	30min	15min
Ready fordicharge	3hours	3hours
Duration hosp stay	6-8hours	6-8hours
PONV	0	0
Complication	1	1

Conclusion

AUB, being the most common gynaecological problem now a days, except biochemical test, all gynaecologist evaluate the patients by performing blind curettage & endometrial biopsy or by hysteroscopic evaluating the intra uterine cavity followed by endometrial biopsy. Both being ambulatory (office) procedures hysteroscopy is a valuable, simple, low risk technique which allows adequate exploration of the endometrial cavity under visual control. It ensures speed and safety with the diagnosis and treatment. The results are immediately available. In patients with abnormal uterine bleeding, hysteroscopy provides the possibility of immediate diagnosis and prompt and effective treatment. It allows finding out the source of bleeding and perform a directed biopsy of the suspected area. It affords a more accurate diagnosis than dilatation and curettage for intrauterine pendunculated pathologies. But for hyperplasia and Carcinoma endometrium, histopathology is 100% diagnostic. Lesions like endometrial polyps and pedunculated fibromyomas can be removed under direct vision with hysteroscope. Diagnosis of endometrial atrophy is best made by hysteroscopy. Curettage does not always yield a positive diagnosis of this condition and may even worsen this condition .It is a very helpful technique in patients with intrauterine synechia. Since it can detect their presence, extension and nature and these can also be removed under visual control with the hysteroscope only. So it can be concluded that hysteroscopy offers an invaluable advantage of direct visualization of any abnormality within the uterine cavity. It does not substitute other diagnostic procedure; rather, it complements them. Hysteroscopy is simple, quick and economic technique, well accepted by the patient, with great potential in gynaecology. Hysteroscopic guided biopsy and histopathology are considered as the “new gold standard” in evaluating a case of abnormal uterine bleeding as an ambulatory procedure.

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