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Original Research Article

Diagnostic hysteroscopy in abnormal uterine bleeding: a five years study in Kathmandu university hospital

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ABSTRACT

Background: Abnormal uterine bleeding is the cause of concern, inconvenience and discomfort to many ladies, this affects millions of women in both developed and developing world. Until recent times, dilatation and curettage was the usual method of evaluation .This detects the cause of bleeding in less than 50% of the cases, but hysteroscopy is a better diagnostic modality and prompt treatment can be provided in the same setting.
Methods: A prospective study was carried out in the Department of Obstetrics and Gynecology at Dhulikhel hospital, Kathmandu University Hospital, Kavre, Nepal from January 2010 to January 2016. Two hundred and eighteen cases were enrolled in this study. Patients with abnormal uterine bleeding above the age of 18 years were enrolled. Hysteroscopic examination was done in all patients after the pregnancy was ruled out with urine pregnancy test and ultrasonology. The patients then underwent hysteroscopic guided endometrial sampling and endometrium was sent for histopathologic examination. The correlation between findings on hysteroscopy and histopathologic examination was tabulated.
Results: Following were the findings on hysteroscopy: proliferative endometrium was in 59%, secretary endometrium was in 14%,endometrial hyperplasia in 12%, atrophic in 2 %, endometrial polyp in 7%, submucous myoma in 5% and carcinoma of endometrium in 1%.
Conclusions: In patients with abnormal uterine bleeding, hysteroscopy provides more accurate diagnosis than dilatation and curettage.

Keywords: Abnormal uterine bleeding, Dilatation and curettage, Hysteroscopy

INTRODUCTION

Abnormal uterine bleeding (AUB) is irregular uterine bleeding that occurs in the absence of recognizable pelvic pathology, general medical disease, or pregnancy. It reflects a disruption in the normal cyclic pattern of ovulatory hormonal stimulation to the endometrial lining. The bleeding is unpredictable in many ways. It may be excessively heavy or light and may be prolonged, frequent, or random. It is the cause of concern, inconvenience and discomfort to many ladies, this affects millions of women in both developed and developing world.[1] AUB should be suspected in patients with unpredictable or episodic heavy or light bleeding despite a normal pelvic examination

Hysteroscopy allows us to look inside the endometrial cavity in order to diagnose and treat causes of abnormal bleeding. It can improve the diagnostic accuracy and can permit better treatment of uterine diseases. After hysteroscopy, the elective surgery of the patient can be planned better.[2] Hysteroscopy in abnormal uterine bleeding is almost replacing dilatation and curettage, as

hysteroscopy helps to see and decides the cause. In fact, it is an eye in the uterus.[3]

The main aim of this study is to study the accuracy of hysteroscopy in evaluation of abnormal uterine bleeding and to correlate hysteroscopic findings with histopathologic findings.

Since this kind of correlative study was not done previously in Nepal, so this is the first of its kind of study in Nepal.

METHODS

The study was carried out in the Department of Obstetrics and Gynecology at Dhulikhel Hospiatal, Kathmandu Univesity Hospital, Kavre, Nepal. It was conducted from January 2010 to January 2016. Two hundred and eighteen cases were selected for this study from the patients of age group 18 and above. Informed consent was taken with the patients. Patients with abnormal uterine bleeding were admitted, any demonstrable pelvic pathologies like fibroids, cancer of cervix or vagina or endometrium on clinical examination and those having active pelvic infection, coagulation disorder, thyroid disease, pregnancy, patients on hormonal drugs like tamoxifen were excluded from the study.

Patients were subjected to a detailed history and examination, and investigations were done. Hysteroscopic examination was done in all patients Hysteroscopy was carried out in the operation theater. Short intravenous anaesthesia (Inj. Propofol 1 mg/kg body weight) were given to all the cases as it reduced he anxiety and the muscle relaxation was better. The distending media used was normal saline.

The patients then underwent hysteroscopic guided endometrial sampling and endometrium was sent for histopathologic examination. The correlation between findings on hysteroscopy and histopathologic examination was tabulated.

Further management of the patient was decided according to age, parity, severity of the disease, hysteroscopic and histopathologic report. All data were recorded on a predesigned proforma.

For the statistical data analysis, SPSS v.20.0 for Windows (SPSS inc., Chicago, USA) was used.

RESULTS

Table 1 shows that the patients age varied from 20 to 68 years in this study. Abnormal uterine bleeding was most noted amongst women of age groups between 26–30 years and 41–45 years. The commonest affected patients were of parity of 2 or more (42%) and least affected were para 1 (10%). 49% of the cases belonged to middle socioeconomic strata, 21% to high socioeconomic strata and 30% of the cases belonged to poor socioeconomic strata. Also, 59.8% of the population was from rural set-up.

Table 1: Demographic details (n=218).

Age of patients (years)	Number of patients (n=218)	Percentage (%)
20-25	6	2.5
26-30	52	24
31-35	15	6.9
36-40	33	15
41-45	102	47
>45	10	4.6
Parity index		
Para 1	22	10
Para 2	50	23
Para 3	91	42
>Para 3	55	25
Socio economic score (SES)		
High	47	21
Middle	106	49
Low	65	30
Urban	88	41
Rural	130	60

Out of 790 gynecological cases, the number of abnormal uterine bleeding is 218.So the incidence came out to be 27.59%.

Table 2 shows the abnormal bleeding pattern of which, 35% of patients with abnormal uterine bleeding complained of menorrhagia. 26% of patients complained of metrorrhagia and 13% presented with postmenopausal bleeding and 12% with polymenorrhagia.

Table 2: Abnormal uterine bleeding pattern (n=218).

Abnormal uterine bleeding	No of cases (218)	percentage
Menorrhagia	76	35
polymenorrhea	19	9
polymenorrhagia	27	12
Metrorrhagia	56	26
hypomenorrhea	7	3
oligomenorrhea	4	2
Postmenopausal bleeding	29	13

Out of 129 cases diagnosed as proliferative endometrium in hysteroscopy, 116 came out to be proliferative in histopathology whereas 9 came out to be secretory, 2 came out to be simple hyperplasia without atypia and 2 came out to be complex hyperplasia without atypia. Likewise other correlative findings are well demonstrated in Table 3.

After the diagnosis was confirmed, treatment was given to the patients. Hysterectomy was done in 57 patients. In 5 patients, myomectomy was done. 6 submucosal fibroids and 14 endometrial polyps were removed by operative hysteroscopy. 136 patients were put on hormonal treatment according to endometrial histopathology report. Thus, hysteroscopy played an important role in the treatment of abnormal uterine bleeding. Approximately 30-35 minutes time was required for the whole procedure.

Table 3: Showed the hysteroscopic findings correlated with the histological findings (n=218).

Hysteroscopic findings	Proliferative	Secretory	Simple hyperplasia without atypia	Complex hyperplasia without atypia	Polyp	Fibroid	Atrophic	Carcinoma
Proliferative (129)	116	9	2	2				
Secretory (30)		30						
Hyperplasia (26)			18	8				
Polyp (16)					16			
Fibroid (11)		1			1	9		
Atrophic (4)		2					2	
Carcinoma (2)								2
Total patients	116	42	20	10	17	9	2	2

DISCUSSION

Abnormal uterine bleeding is one the most frequently encountered condition in gynecology. As quoted by Menon et al, the incidence is 30–40% of all gynecological cases.[4] The result of this study is comparable with our study as the incidence in our study is 27.59%. In this prospective study, 218 women between 20 and 68 years of age who presented with complaints of abnormal uterine bleeding pattern had undergone two different diagnostic modalities to reach a conclusion - diagnostic hysteroscopy and endometrial histpathology report.

This study was undertaken to correlate the hysteroscopic findings with histopathologic report. The results of various authors are shown in Tables 4 to 7.

Table 4: Incidence of endometrial hyperplasia in different studies.

Author	Year	Incidence of hyperplasia (%)
Silander T[11]	1962	6.66
Dexus S et al [12]	1981	21
Sheth S et al[10]	1989	26
Panda A et al[6]	1999	28.3
Jyotsana et al[13]	2004	22.66
Patil SG et al[5]	2008	20
Present study	2016	11.92

Table 5: Incidence of submucus myoma in different studies.

Author	Year	Incidence of submucus myoma
Valle RF et al[9]	1981	14.33
Mencalgia L et al[15]	1987	9.6
Jong PD et al[16]	1990	11.18
Panda A et al[6]	1999	6.6
Jyotsana et al[13]	2004	17.33
Present Study	2016	5.04

Table 6: Incidence of endometrial polyp reported by different authors.

Author	Year	Incidence of endometrial polyp (%)
Silander T[11]	1963	6.66
Mencalgia L et al[15]	1987	9.8
Jong PD et al[16]	1990	7.8
Anuradha Panda A et al[6]	1999	10
Acharya Vet al[14]	2003	12
Jyotsana et al[13]	2004	20
Present study	2016	7.33

Table 7: Incidence of carcinoma endometrium in different studies.

Author	Year	Incidence of carcinoma endometriumm (%)
Sciarra JJ and Valle RF[17]	1977	1.26
Valle RF[9]	1981	0.53
Jong PD et al[16]	1990	3.3
Jyotsana et al[13]	2004	1.3
Patil SG et al[5]	2008	2
Present study	2016	1

Group I: patients with proliferative endometrium

In 129 patients, endometrium was pink, smooth and thin, appearing to be of proliferative type. It was confirmed by histopathology in 116 patients. Histology of the endometrial curetting revealed proliferative endometrium with tall columnar cells and pseudostratification. Sensitivity, specificity, positive predictive value and negative predictive value of hysteroscopy for proliferative endometrium compared to histopathology were 100, 85.07, 80.48 and 100%, respectively. Patil stated sensitivity, specificity, positive predictive value and negative predictive value of hysteroscopy for proliferative endometrium compared to histopathology were 78.57, 86.2, 80.48 and 84.74%, respectively.[5] This is comparable with our study.

Group II: patients with secretory endometrium

Hysteroscopy proved uterine cavity to be normal with undulating and thick endometrium appearing to be secretory endometrium in 30 cases. It was confirmed in 42 cases. So, sensitivity, specificity, positive predictive value and negative predictive value of hysteroscopy for secretory endometrium were 88.37, 99, 94.43 and 97.20% respectively.

Overall diagnostic accuracy for diagnosing normal endometrium was 92.93% for hysteroscopy. Panda et al had reported diagnostic accuracy for normal endometrium as 92.5%, which is similar to our study.[6]

Group III: patients with hyperplastic endometrium

In these patients, the endometrium appeared to be thickened, edematous and undulating. There were 26 patients with this hysteroscopic finding. This finding was consistent with histology of the endometrium in all 26 cases and 4 ladies diagnosed as proliferative endometrium in hysteroscopy were diagnosed as hyperplasia in histopathology.

So, hysteroscopic diagnostic accuracy for hyperplasia was 72%. So, sensitivity, specificity, positive predictive value and negative predictive value of hysteroscopy for hyperplasia were 66.7, 98.37, 87.5 and 93.81%, respectively.

Loverro et al stated the sensitivity, specificity, positive predictive value and negative predictive value as 98, 95, 63 and 99%, respectively, for endometrial hyperplasia.[7] Similarly, Arslan et al did hysteroscopy in 216 premenopausal and 114 postmenopausal women for diagnosing hyperplasia.[8] The positive predictive value was 71.4% and negative predictive value was 95.4% in diagnosis. Likewise, diagnostic accuracy of hysteroscopy for endometrial hyperplasia was 68.2, 71.4 and 76.4% in a series reported by Valle et al, Seth et al and Panda et al respectively which is similar to our study.[6,9,10]

Apart from that the incidence of endometrial hyperplasia in different studies varies from 6-28% as shown in Table 4 and it is comparable with our study which showed around 11%.

Group IV: submucous myoma

A white-colored bulge, round in shape, with a smooth surface, which was diagnosed on hysteroscopy as submucous leiomyoma, was found in 11 patients. Nine case was confirmed on histopathology. The incidence of myoma ranged from 6-17% in various studies as shown in table 4. In our study the incidence was 5.04%, which is lower than other studies, the reason may be because patients aremore aware of the different diagnostic tools and undergo ultrasonography as a routine checkup. In which it is detected early and early treatment is taken.

Diagnostic accuracy of hysteroscopy for submucous fibroid was only 99.9%. So, sensitivity, specificity, positive predictive value and negative predictive value of hysteroscopy for fibroid compared with histopathology were 100, 100, 100 and 100%, respectively. But compared with final diagnosis, sensitivity, specificity, positive predictive value and negative predictive value of hysteroscopy for fibroid were 100% each. Similar findings were reported by Panda et al and Acharya et al.[5,14] But Valle and Sheth et al had reported 88 and 81%, respectively, of diagnostic accuracy.[9,10]

The incidence of submucus myoma in different studies ranges from 6-17%, whereas our study showed 5% only as shown in Table 5.

Group V: patients with endometrial polyp

In 16 patients on hysteroscopy, small growths in the uterine cavity, which were soft, oval, pedunculated with a smooth surface were seen. These growths appeared as endometrial polyps. Histopathology report confirmed the findings in all 16 cases.

As shown in Table 6 the incidence of endometrial polyp varied from 6-20%, our study had an incidence of 7.33% which is similar to other studies. Diagnostic accuracy of

hysteroscopy for endometrial polyp was 100%. So, sensitivity, specificity, positive predictive value and negative predictive value of hysteroscopy for endometrial polyp compared to histopathology were 81.48, 100, 100 and 97.44%, respectively. But compared to final diagnosis, sensitivity, specificity, positive predictive value and negative predictive value of hysteroscopy for endometrial polyp were 100% each. Haller et al had reported sensitivity and specificity of 100 and 96.7%, respectively.[18] Panda had reported diagnostic accuracy of 100% in diagnosing polyp.[5] Acharya had obtained sensitivity, specificity, positive predictive value and negative predictive value of hysteroscopy for endometrial polyp as 100% each.[14] But Valle and Seth et al had obtained a diagnostic accuracy of 88.6 and 81.8%, respectively.[9,10]

Group VI: atrophic endometrium

In 4 patients, the endometrium appeared flat, thin and fragile. At some points; petechie and hemorrhages were present. The tubal ostia were very prominent. The picture was suggestive of atrophic endometrium, which was also confirmed by histopathology in 2 cases. Sensitivity, specificity, positive predictive value and negative predictive value of hysteroscopy for atrophic endometrium were 86, 100, 100 and 95.41%, respectively. This correlated with the report of Panda et al and Haller et al who had reported sensitivity and specificity of 100 and 97%, respectively.[6,18]

Group VII: carcinoma endometrium

In 2 patients, hyperplasia, with polypoidal growth, with areas of ulceration, hemorrhage and increased vascularity were labeled as carcinoma endometrium on hysteroscopy. Both the cases were confirmed on histopathology. As shown in Table 7 the incidence of carcinoma varied from 0.5 -3% in various studies. Our study showed the incidence of 1%, which is similar to other studies.

Diagnostic accuracy of hysteroscopy was 100%. So, sensitivity, specificity, positive predictive value and negative predictive value of hysteroscopy for carcinoma endometrium were 100, 100,100 and 100%, respectively. Mencaglia et al combined hysteroscopy with endometrial biopsy for diagnosing endometrial carcinoma and found nearly 100% accuracy in the diagnosis of endometrial neoplasia and its precursors.[15]

But Haller et al had got a reduced sensitivity of 50% but better specificity of 100%.[18] Panda and Valle had obtained diagnostic accuracy of 100% each.[6,9] Hysteroscopy revealed a sensitivity, specificity, positive predictive value and negative predictive value of 100, 49.6, 81 and 100%, respectively, according to Litta et al.[19]

So, hysteroscopy is more accurate (100%) in identifying intrauterine pathologies like endometrial polyp, submucous myoma and endometrial hyperplasia, than endometrial biopsy or dialatation and curettage alone.[4,20,21] Histopathology had 100% accuracy in diagnosing carcinoma endometrium. The diagnosis of hyperplasia, its types and carcinoma was only possible after histopathologic examination.

The main limitation of our study is sample size and hospital based study. The result will be more accurate and representable if the cases will be screened from the community and along with it hospital based study will be combined for the analysis and final results.

CONCLUSION

Hysteroscopy is a valuable, simple, low-risk diagnostic as well as therapeutic modality which allows an adequate exploration of the uterine cavity under visual control. It ensures safety if used with caution. 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 us to visualise 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 pathologies. But for hyperplasia and carcinoma endometrium, histopathology is 100% diagnostic.

It is very beneficial for endometrial polyps and pedunculated myomas as it can be removed under direct vision with the hysteroscope.

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