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Research Article

Evaluation of abnormal uterine bleeding: role of diagnostic hysteroscopy and its correlation with histopathology

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ABSTRACT

Background: The objective was to assess the accuracy of diagnostic hysteroscopy in evaluation of abnormal uterine bleeding and to correlate hysteroscopic findings with histopathology reports.

Methods: A prospective study was carried out at our institute from January 2010 to December 2013. Ninety cases were included in this study. Patients' age varied from 20 to 60. Those women with the history of abnormal uterine bleeding were admitted. In all cases diagnostic hysteroscopic examination and dilatation and curettage were carried out. Endometrium was sent for histopathology and correlation of hysteroscopic findings with histopathology reports was studied.

Results: Various findings on hysteroscopy are as following: proliferative endometrium 36.66%, secretary endometrium 17.77% endometrial hyperplasia 24.44%, atrophic endometrium 5.55%, endometrial polyp 8.88%, submucous fibroid 4.44%, and endometrial carcinoma 2.22%.

Conclusions: Hysteroscopy is an eye in uterus and it provides more accurate diagnosis than dilatation and curettage alone in patients with abnormal uterine bleeding.

Keywords: Diagnostic hysteroscopy, Abnormal uterine bleeding, Dilatation and curettage, Dysfunctional uterine bleeding

INTRODUCTION

Some women conclude that any deviation from their personal menstrual experience is abnormal, and they will take treatment for the same. Many of them ignore even significant variations in their menstrual function; sometime to such an extent that severe iron deficiency anemia occurs. The most common reason for gynecological referrals is abnormal uterine bleeding in premenopausal and postmenopausal women. More than 40% of them are having polyps and fibroids.¹

Hysteroscopy gives an accurate diagnosis by direct visualization of the cervical canal and endometrial cavity, and results in medical or surgical management related to the specific etio-pathology, avoiding the need for major surgery¹. Previously dilatation and curettage was usual

method of evaluating abnormal uterine bleeding and it misses the cause in more than 50% of the cases.^{1,2} Gimpelson and Rappold² reported that hysteroscopy is considered an accurate 'gold standard' in endometrial cavity evaluation and hysteroscopy associated with guided biopsy was more accurate than dilatation and curettage.

The aims and objectives of this study were to assess the accuracy of diagnostic hysteroscopy in evaluation of abnormal uterine bleeding and to correlate its findings with histopathology reports.

METHODS

A prospective study was carried out at our institute from January 2010 to December 2013. Ninety cases were

included in this study. Patients' age varied from 20 to 60. Those women with the history of abnormal uterine bleeding without any demonstrable pelvic pathology were included in the study. Demonstrable pelvic pathology (e.g. fibroids), Cancer of cervix or vagina on clinical examination, coagulopathy, thyroid disease, pregnancy, patients on hormonal drugs like tamoxifen are excluded from study.

Diagnostic hysteroscopy and dilatation and curettage were carried out in all cases preferably in postmenstrual period, except in those women who came with complaints of continuous vaginal bleeding or who has very irregular menstrual cycles. Endometrium was sent for histopathology and correlation of hysteroscopic findings with histopathology findings was studied. Further management of each patient was planned according to age, parity, severity of the disease, hysteroscopic findings and histopathology report. All the data were collected and recorded.

RESULTS

In the study, the age of patients varied from 20 to 60 years. Abnormal uterine bleeding was most common among women having age groups, 26-30 years and 41-45 years (32%). Para 1 (12%) was least affected and the commonest affected women were para 3 or more (36%). Sixty five percentages of the women were belonging to middle socioeconomic class, 17% to high socioeconomic class and 18% of the cases were from poor socioeconomic class.

Twenty percent of the cases had essential hypertension, 10% had past history of tuberculosis, and 8% were diabetes Mellitus. Patients with thyroid disease and coagulopathy were excluded from this study.

In the present study, 22% women presented after 1-3 months duration of abnormal uterine bleeding, 52% women had abnormal uterine bleeding for more than 3 months to 1 year duration, and 26% women presented after 1 year duration of abnormal uterine bleeding. Incidence of different menstrual pattern is shown in Table 1. Twenty nine percentages of women had associated infertility, and 16% had dysmenorrhea.

Table 1: Pattern of different menstrual irregularities.

Pattern of different menstrual irregularities	n (%)
Polymenorrhoea	16 (17.77)
Menorrhagia	18 (20.00)
Polymenorrhagia	12 (13.33)
Metrorrhagia	4 (4.44)
Continuous bleeding p/v	20 (22.22)
Oligomenorrhoea	10 (11.11)
Post-menopausal bleeding	10 (11.11)

Out of 90 cases, 12% cases had undergone dilatation and curettage (D and C) previously for same complaints, 10% had past history of cesarean section, 10% had history of tubal sterilization and 7% had history of suction and evacuation. Four percent of the patients had hemoglobin less than 4 g%, 5% patients had hemoglobin between 4-6 g%, and 10% patients had hemoglobin between 6-8 g%. Blood transfusion was given prior to hysteroscopy and curettage to these patients.

On per speculum examination, cervix was normal in 52% of cases, presence of cervical erosion in 27% of cases and hypertrophied cervix in 21% of cases. On per vaginal examination, size of uterus was normal in 48% of cases, 6 week size of uterus in 52% of cases. Women with abnormal uterine bleeding having, size of uterus more than 6 weeks or associated pathology like uterine fibroid, cervical polyp and carcinoma of cervix were excluded from this study.

Paps' test and transvaginal ultrasound were carried out in all patients. Seventy percent had satisfactory cervical cytology and 30% had cytology showing inflammatory cells. Normal ultrasonographic findings were present in 62.2% of the patients. The most commonly detected pathology was endometrial hyperplasia (17.8%), followed by uterine myoma (15.5%), on ultrasound. Endometrial polyp was diagnosed in 4 (4.4%) cases while carcinoma of endometrium was suspected in one (1.1%) case. Hysteroscopy was carried out in 90 cases under general anesthesia. The distending medium was normal saline in all cases. Hysteroscopic-guided curettage was done in all patients and the tissue was sent for histopathology. The findings of hysteroscopy were correlated with histopathology reports.

Table 2: Findings on diagnostic hysteroscopy.

Findings on diagnostic hysteroscopy	n (%)
Proliferative	33 (36.66)
Secretary	16 (17.77)
Endometrial hyperplasia	22 (24.44)
Atrophic endometrium	5 (5.55)
Endometrial polyp	8 (8.88)
Submucous fibroid	4 (4.44)
Endometrial carcinoma	2 (2.22)

Thirty four cases had proliferative endometrium on histopathology and in 33 cases, proliferative endometrium was found on hysteroscopy. Out of 34 cases, 28 cases showed proliferative endometrium on hysteroscopy. Four cases of endometrial hyperplasia, one case of polyp and one case of atrophic endometrium diagnosed on hysteroscopy but histopathology reports were proliferative endometrium. On hysteroscopy, four cases of proliferative endometrium on hysteroscopy showed secretary endometrium on histology.

Twenty three cases of secretory endometrium on histopathology and 16 cases were diagnosed on hysteroscopy. Out of these 23 cases, 14 were confirmed as secretory endometrium on hysteroscopy and histopathology. On hysteroscopy, the remaining five cases showed proliferative endometrium and one case showed polyp and three cases showed submucous fibroid.

Twenty three cases of hyperplasia were diagnosed on histopathology, and 22 cases were suspected of hyperplasia on hysteroscopy. Eighteen cases of hyperplasia on hysteroscopy also correlated with histopathology, remaining 4 cases had proliferative endometrium on histology. Out of 18, simple hyperplasia without atypia was reported in 10 cases, 4 had simple hyperplasia with atypia, 2 had complex hyperplasia without atypia and 2 cases had complex hyperplasia with atypia.

Table 3: Histopathology report.

Histopathology report	n (%)
Proliferative	34 (37.77)
Secretary	23 (25.55)
Simple hyperplasia without atypia	10 (11.11)
Simple hyperplasia with atypia	5 (5.55)
Complex hyperplasia without atypia	6 (6.66)
Complex hyperplasia with atypia	2 (2.22)
Endometrial polyp	4 (4.44)
Fibroid polyp	1 (1.11)
Carcinoma endometrium	1 (1.11)
Tuberculous endometritis	2 (2.22)
Atrophic endometrium	1 (1.11)
No endometrial tissue obtained	1 (1.11)

In two cases, there was suspicion of carcinoma endometrium on hysteroscopy. Out of them, one case was confirmed on histopathology, other had complex hyperplasia without atypia. In five cases hysteroscopy revealed atrophic endometrium. Out of them only one case (37.5%) was confirmed on histopathology; in two cases tuberculous endometritis was diagnosed on histopathology, in one case, no endometrial tissue was obtained and one case had proliferative endometrium on histopathology.

In four cases, hysteroscopy showed submucous fibroid; only 1 case was confirmed on histopathology. Two cases had undergone hysterectomy, and other two had undergone hysteroscopic resection of submucous fibroid. Diagnosis of fibroid was confirmed by histopathology examination later on.

In eight cases, hysteroscopy revealed endometrial polyp, out of which four were confirmed on histopathology. Other four cases required operative hysteroscopy for polyp removal after 4 to 6 weeks, and diagnosis of polyp confirmed by histopathology.

Management was planned for each patient after confirming the diagnosis with diagnostic hysteroscopy and guided curettage. Hysterectomy was done in 15 cases. In two patients, hysteroscopic resection of submucous myoma was done. In four cases, endometrial polyps were removed by operative hysteroscopy. Sixty nine patients were given hormonal treatment according to the histopathology report of endometrium. Thus, hysteroscopy played a valuable role in the management of abnormal uterine bleeding. One patient had uterine perforation while procedure, and did not require any treatment expect close monitoring. The duration for the whole procedure was 15-20 min.

Table 4: Diagnostic accuracy of hysteroscopy in intrauterine pathology.

	Sensitivity (%)	Specificity (%)	Positive predictive value (%)	Negative predictive value (%)
Proliferative	87.50	89.66	82.35	92.86
Secretary	73.68	87.32	60.85	92.54
Hyperplasia	78.26	89.55	72.00	92.31
Fibroid	100	95.56	20.00	100
Polyp	100	95.35	50.00	100
Atrophic endometrium	100	95.51	20.00	100
Carcinoma endometrium	100	98.88	50.00	100

DISCUSSION

Abnormal uterine bleeding is the most common problem among gynecologic consultation. Approximately it accounts for 33% of all gynecological cases, and for 69% of cases among postmenopausal women.³ The study shows that diagnostic hysteroscopy is very much safe, accurate, feasible, and clinically useful in the diagnosis of intrauterine abnormalities. This study was undertaken to correlate the hysteroscopic findings with histopathology report. Confirming the diagnosis and planning medical management with hormones or appropriate surgical intervention is important in the clinical management of abnormal uterine bleeding. Accurate diagnosis avoids major gynecologic surgery in favor of minimally invasive surgery by operative hysteroscopy.

Proliferative endometrium

Endometrium was pink, smooth and thin (proliferative type) in 33 cases on hysteroscopy. The same was confirmed by histopathology in 28 patients. Histology of proliferative endometrium shows tall columnar cells with pseudo stratification. Findings were different in five cases. Diagnostic accuracy of hysteroscopy for proliferative endometrium was 84.84%. Sensitivity, specificity, positive predictive value and negative predictive value of diagnostic hysteroscopy for proliferative endometrium compared to histopathology were 87.50, 89.66, 82.35, and 92.86% respectively.

Secretary endometrium

Normal uterine cavity with orange, undulating and thick endometrium (secretary type) was found in 16 cases on Hysteroscopy. It was confirmed in 14 cases. Diagnostic accuracy of hysteroscopy for secretary endometrium was 87.5%. Sensitivity, specificity, positive predictive value and negative predictive value of diagnostic hysteroscopy for secretary endometrium were 73.68, 87.32, 60.87, and 92.54%, respectively (Table 4). Overall diagnostic accuracy for diagnosing normal endometrium was 85.71% for hysteroscopy. Panda et al.⁴ reported diagnostic accuracy of hysteroscopy for normal endometrium as 92.5%.

Endometrial hyperplasia

The endometrium is thickened, edematous and undulating in case of endometrial hyperplasia on hysteroscopy. Twenty two cases were with this hysteroscopic finding. In 18 cases, this finding was correlated with histology of the endometrium. It differed in 4 cases. Hysteroscopic diagnostic accuracy for endometrial hyperplasia was 81.81%. Sensitivity, specificity, positive predictive value and negative predictive value of diagnostic hysteroscopy for hyperplasia were 78.26, 89.55, 72, 92.31 %, respectively. For endometrial hyperplasia, Loverro et al.⁵ found the sensitivity, specificity, positive predictive value and negative predictive value as 98, 95, 63 and 99%, respectively (Table 4).

Arslan et al.⁶ performed diagnostic hysteroscopy in premenopausal (216 cases) and postmenopausal (114 cases) for diagnosing endometrial hyperplasia. The positive predictive value and negative predictive value were 71.4%, 95.4% respectively in diagnosis. Valle et al.,⁷ Seth et al.⁸ and Panda et al.⁴ study showed diagnostic accuracy of hysteroscopy for endometrial hyperplasia was 68.2, 71.4 and 76.4% respectively.

Submucous fibroid

Submucous fibroid appears as a white-colored rounded bulge with a smooth surface on hysteroscopy. It was found in 4 patients. Only one case was confirmed on histopathology. Diagnostic accuracy of hysteroscopy for submucous fibroid was only 25%. Comparing with the final diagnosis, diagnostic accuracy of hysteroscopy was 100%. Sensitivity, specificity, positive predictive value and negative predictive value of diagnostic hysteroscopy for fibroid compared with histopathology were 100, 95.56, 20 and 100%, respectively (Table 4).

But comparing with final diagnosis, sensitivity, specificity, positive predictive value and negative predictive value of diagnostic hysteroscopy for fibroid were 100% each. Similar findings were reported by Panda et al.⁴ and Acharya et al.⁹ But Valle et al.⁷ and Sheth et al.⁸ had reported diagnostic accuracy 88 and 81% respectively.

Endometrial polyp

On hysteroscopy, small growths in the uterine cavity, which were soft, oval, pedunculated with a smooth surface were seen in 8 (8.8%) patients. These growths were endometrial polyps and in 4 cases histology report confirmed the findings.

For endometrial polyp, diagnostic accuracy of diagnostic hysteroscopy was 50%, when compared to histopathology. But diagnostic accuracy was 100% at the time of the final diagnosis. Sensitivity, specificity, positive predictive value and negative predictive value of diagnostic hysteroscopy for endometrial polyp compared to histopathology were 100, 95.35, 50 and 100%, respectively (Table 4). But comparing the final diagnosis, sensitivity, specificity, positive predictive value and negative predictive value of hysteroscopy for endometrial polyp were 100% each. Haller et al.¹⁰ had obtained sensitivity and specificity of 100 and 96.7%, respectively. Acharya et al.⁹ had reported sensitivity, specificity, positive predictive value and negative predictive value of hysteroscopy for endometrial polyp as 100% each. Panda et al.,⁴ Valle et al.⁷ and Seth⁸ had obtained a diagnostic accuracy of 100, 88.6 and 81.8%, respectively.

Atrophic endometrium

Five (5.5%) patients' showed flat, thin and fragile endometrium and clearly seen tubal ostia. Petchie and some areas of hemorrhages were present. Hysteroscopic picture was suggestive of atrophic endometrium, which was confirmed by histopathology only in one case. Endometrial tissue was not obtained in one case.

Diagnostic accuracy of hysteroscopy was 40%. Sensitivity, specificity, positive predictive value and negative predictive value of diagnostic hysteroscopy for atrophic endometrium were 100, 95.51, 20 and 100%, respectively (Table 4). Reports correlate with survey by Panda et al.⁴ and Haller et al.,¹⁰ which had reported sensitivity and specificity of 100 and 97%, respectively.

Endometrial carcinoma

Two (2.2%) patients showed endometrial hyperplasia, with polypoidal growth, with areas of hyperemia, ulceration, hemorrhage, labeled as carcinoma endometrium on hysteroscopy. One case was confirmed on histopathology. Diagnostic accuracy of hysteroscopy was 50%. Sensitivity, specificity, positive predictive value and negative predictive value of hysteroscopy for endometrial carcinoma were 100, 98.88 50 and 100%, respectively (Table 4).

Panda et al.,⁴ Valle et al.⁷ and Mencaglia et al.¹¹ found 100% accuracy in the diagnosis of endometrial carcinoma with hysteroscopy and guided endometrial biopsy. Haller et al.¹⁰ obtained sensitivity of 50% but specificity of 100%. According to Pietro Litta et al.¹² hysteroscopy revealed a sensitivity, specificity, positive predictive

value and negative predictive value of 100, 49.6, 81 and 100%, respectively. The only pathological condition missed by hysteroscopic viewing was tuberculous endometritis.

Thus hysteroscopy was more accurate (100%) in diagnosing intrauterine pathologies like endometrial polyp, submucous fibroid, than dilatation and curettage alone.¹³ Histopathology had 100% accuracy in confirming diagnosis of carcinoma endometrium.

CONCLUSION

Hysteroscopy is a simple technique which allows visualization of the uterine cavity. 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 polyp or submucous fibroids. But for hyperplasia and carcinoma endometrium, histopathology is 100% diagnostic. Lesions like endometrial polyps and pedunculated fibromyomas can be removed under direct vision with the 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 the condition. It is a very useful technique for diagnosis of intrauterine synechia and its division under visual control. Hysteroscopic-guided biopsy and histopathology are considered as the “new gold standard” in evaluating a case of abnormal uterine bleeding.

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