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ORIGINAL RESEARCH

Study of diagnostic hysteroscopy in abnormal uterine bleeding and its histopathological correlation

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ABSTRACT

Introduction: We evaluate the cause of abnormal uterine bleeding by using hysteroscope , by which pathological lesion can be seen under direct vision and help in giving immediate diagnosis and we also correlate the hysteroscopy findings with histopathology reports. **Materials and Methods:** It is a prospective study to be conducted to evaluate the intrauterine pathology in 50 premenopausal women with abnormal uterine bleeding attending gynaecological outpatient department at our institute. Any bleeding , thyroid disease, tuberculosis, asthma , hypertension, diabetes. On general examination pallor ,pulse and blood pressure were recorded. The cardiovascular , respiratory and nervous systems were examined. Patients were examined abdominally, per speculum and per vaginally .Patients haemogram, blood grouping, fasting and post pandrial blood sugar , serology (VDRL, HIV, HBsAg), ultrasound and other investigations like chest x ray , lipid profile , renal and liver test were done.Chi-square/Fisher Exact test has been used to find the significance of study parameters on categorical scale between two or more groups. **Results:** Out of the 50 patients , 41 patients were found to have abnormalities , 48 % of patients was diagnosed with hyperplasia , 14 % patients was diagnosed with polyp , 14 % patients was diagnosed with fibroid , 2 % patients was diagnosed with atrophy and 4% patients was diagnosed with cancer. Sensitivity, specificity, positive predictive value(PPV),negative predictive value (NPV) and accuracy of hysteroscopy are 85.71%, 67.44%, 30%, 96.97% and 70 %. This proves that hysteroscopy is better than dilatation and curettage and is highly accurate diagnostic tool. **Conclusion:** Hysteroscopy is a valuable, simple, low risk technique which allows an adequate exploration of the uterine cavity under visual control. It affords the diagnosis and treatment with speed and safety.

Keywords: Abnormal uterine bleeding (AUB), Hysteroscopy, pathological lesion, hyperplasia, fibroid

INTRODUCTION

Abnormal uterine bleeding (AUB) is defined as any type of bleedingin which the duration, frequency, or amount is excessive for an individual patient. [1,2,3]

Abnormal uterine bleeding is a common clinical problem with myriad causes. However, physicians with a solid knowledge of menstrual physiology and a thorough approach to differential diagnosis can evaluate and manage the problem with confidence.[4,5,6,7,8]

Endometrium is a highly specialized tissue with amazing liability and sensitivity to ovarian hormones and tremendous capacity for regeneration after menstruation. The endometrium is composed of endometrial glands, stroma and vasculature, all of which respond to hormonal levels.[9,10,11]Variations in menstrual flow and timing often occur at the extremes of reproductive age because of the prevalence of anovulatory cycles.

Menarche is typically followed by longer cycles that eventually decrease in length and The usual duration of flow is 4 to 6 days, with an average volume of blood loss of 30 ml.[12] Abnormal patterns that have flow heavier than 80 ml, last for 7 or more days, or have intervals less than 21 days can result in anemia. Normal menstrual cycles are characterized by cycle length of 28 days (+ 7 days), duration of flow of 4 days (+ 2 days), and blood loss of 40 ml (+ 2 0 ml) Because volume of flow is difficult to determine, most practitioners refer to the amount of pads or tampons used or soaked throughout per day as a quantifying measure. Bleeding that interferes with daily activities or causes anxiety warrants evaluation and treatment.[36,37,38] [13,14,15]

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Abnormal uterine bleeding is responsible for more than one-third of gynaecologic consultations and nearly two-thirds of hysterectomies.

It is estimated that a woman has a 1 in 20 lifetime chance of consulting her primary physician becauseof menorrhagia [2].Many authors have suggested endometrial sampling must be taken in all women ≥35 years old with abnormal uterine bleeding.

Dilatation & Curettage is a blind procedure, it will only scrap less than 50% of the endometrial cavity in 60% of the patients[3] , becomes less accurate than hysteroscopy in diagnosing structural pathology such as polyps, fibroids, Intrauterine adhesions and congenital malformations. [16,17,18]

According to different investigators, the efficacy of hysteroscopy in diagnosing the presence of endometrial hyperplasia ranges from 56 to 82% compared with histology and is 100% in diagnosing its absence.[19]

A thorough history and physical examination are fundamental for the workup of AUB. While evaluating the causes for AUB, it is found that benign uterine diseases and endometrial hyperplasia are accounting for at least 70% of AUB cases, which enables the gynecologist for investigating the uterine cavity to offer the most appropriate therapy.

Some authors have said that the accuracy of diagnosis based on hysteroscopic visualization is high for endometrial cancer and moderate for other endometrial diseases.

Since Hysteroscopy and its directed biopsy are more accurate than dilatation and curettage, it is considered an accurate **'gold standard'** in uterine cavity evaluation[7].

Hysteroscopy is better and useful diagnostic tool for assessing intracavitaryabnormalities[5].It is safe, less clinically significant complications and allows for the visualization of the probable uterine source of bleeding in the presence of organic lesions and also provides a means to sample the site most likely to yield positive results.HenceHysteroscopic evaluation in patients with abnormal uterine bleeding is needed.

MATERIALS AND METHODS

The present study is a prospective study,to study the accuracy hysteroscopy in abnormal uterine bleeding and its histopathological correlation. The study was carried out in the Department of Obstetrics and Gynecology at the teaching hospitals attached to JNMC (jawaharlalnehru medical college)i.eAcharyaVinobaBhave Rural Hospital.

The period of study from 2015 to 2016 (1 year), Approval for the study protocol and clearance were obtained from the Ethical Review Committee of J.N Medical College, Sawangi (meghe) to which all the AcharyaVinobaBhave Rural Hospital where the study was conducted, are affiliated.

50 patients were selected in this study from patients who were admitted with history of abnormal uterine bleeding.

Inclusion Criteria

Women with Menorrhagia, Metrorrhagia, Menometrorrhagia, Polymenorrhagia, Oligomenorrhea

Exclusion Criteria

Pregnancy, IUCD (Intrauterine contraceptive devices), Hormone producing Ovarian tumors in USG, Endocrine disorders like hyper- or hypothyroidism, Diabetes, adrenal disease, prolactin disorders, Coagulation disorders, liver/renal diseases, Acute pelvic infection

Methodology

It is a prospective study to be conducted to evaluate the intrauterine pathology in 50 premenopausal women with abnormal uterine bleeding attending gynaecological outpatient department at our institute.

Menstrualhistories were taken from the patients and past history were also noted.

Any bleeding, thyroid disease, tuberculosis,asthma , hypertension,diabetes. On general examination pallor,pulse and blood pressure were recorded.The cardiovascular, respiratory and nervous systems were examined.Patients were examined abdominally, per speculum and per vaginally.Patients haemogram, blood grouping , fasting and post pandrial blood sugar , serology (VDRL,HIV,HBsAg), ultrasound and other investigations like chest x ray , lipid profile , renal and liver test were done .

UPT was done to rule out pregnancy and USG. After getting informed written consent for the procedure, diagnostic hysteroscopy will be performed.Hysteroscopic examination was done in all patients post menstrually.

Procedure of hysterscopy: Under anaesthesia, patient was placed in dorsal lithotomy position, Perineum and vagina were gently swabbed with providence iodine. Posterior vagina was depressed with Sims speculum.The anterior lip of the cervix was grasped with a vulsellum. A suitable telescope was selected and checked for clarity of the eye-piece andobjective lens. The light generator was switched on, and the fibre optic cable was attached to the telescope. The telescope was inserted into the diagnostic sheath and the selected medium- Normal saline was flushed through the sheath to expel any air within the sheath. The hysteroscope was inserted into the cervical canal and advanced into the uterine cavity through internal os under direct vision by manipulating along the axis of the canal. Endometrial cavity was visualised systematically. Any intrauterine pathology was looked for and endometrial sampling was taken from the abnormal sites for Histopathological examination and its correlation was done with hysteroscopic findings .Fluid input and output was monitored to avoid overload.

STATISTICAL ANALYSIS

Descriptive statistical analysis has been carried out

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inthe present study. Results on continuous measurements are presented on Mean ±SD (Min-Max)and results on categorical measurements are presented in Number(%).Significance is assessed at 5% level of significance. Chi-square/Fisher Exact test has been used to find the significance of study parameters on categorical scale between two or more groups. 95% Confidence Interval has been computed to find the significant features. Confidence Interval with lower limit more than 50% is associated with statistical significance.

RESULT

Table 1: Age distribution of patients studied

Age in years	Number of patients	%
31- 35	26	52
36-39	10	20
40-45	7	14
More than 46	7	14
Total	50	100.0

In the present study maximum age incidence was between 31-35, the youngest patient in this study was 1 years and oldest was 52 years.

Table 2: Parity distribution of patients studied

Parity	Number	Percentage
nulliparous	6	12
multiparous	44	88
Total	50	100

In the present study maximum parity incidence was in multiparous women (88%).

Table 3: Distribution of patients studied according to clinical presentation

Medical History	Number	Percentage
Hypertensive	16	32
Diabetes Mellitus	4	8
Hypertension + Dabetes Mellitus	2	4
Normal	34	56
Total	50	100

As shown in the above table , 32 % patients were hypertensive , 8 % patients were diabetic , 4 % patients were diabetic and hypertensive and remaining 56 % were normal .

Table 4: Abnormal uterine bleeding pattern

Menstrual Complaint	Number	Percentage
Menorraghia	33	66
Oligomenorrhea	2	4
Polymenorrhea	1	2
Continous Bleeding	7	14
Postmenopausal Bleeding	7	14
Total	50	100

Table 4 shows , the most common presentation was menorraghia (66%) followed by continous bleeding (14%) and postmenopausal bleeding (14%) patients polymenorrhea (2%) was least common presentation.

Table 6: hysteroscopy findings

Hysteroscopic Finding	Number of cases	Percentage
Normal	7	14
Hyperplasia	24	48
Polyp	7	14
Fibroid	7	14
Atrophic	1	2
Malignancy	4	8
Total	50	100

Out of the 50 patients , 41 patients were found to have abnormalities , 48 % of patients was diagnosed with hyperplasia , 14 % patients was diagnosed with polyp , 14 % patients was diagnosed with fibroid , 2 % patients was diagnosed with atrophy and 4% patients was diagnosed with cancer.

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Table 6: Histopathological findings

Histopathological findings	Number	Percentage
Hyperplasia	16	32
Normal	20	40
Insufficient	1	2
Polyp	4	8
Cancer	4	8
Myoma	5	10
Total	50	100

Out of the 50 patients , 25 patients were found to have abnormalities , 32 % of patients was diagnosed with hyperplasia , 8 % patients was diagnosed with polyp, 10 % was diagnosed with myoma and 8 % patients was diagnosed with cancer.

Table 7: Correlation between hysteroscopic finding and histopathologic report

Hysteroscopy Findings		Histopathological findings						
	Normal	Hyperplasia	Polyp	malignancy	Insufficient	Myoma	Total	P VALUE
Normal	6	1	0	0	0	0	7	113.62 0.0001,S
Hyperplasia	11	13	0	0	0	0	24	
Polyp	2	0	4	0	0	1	7	
malignancy	0	0	0	4	0	0	4	
Atrophic	1	0	0	0	0	0	1	
Fibroid	0	2	0	0	1	4	7	
Total	20	16	4	4	1	5	50	

Out of 16 cases of hyperplasia on histopathology , in 24 cases of hyperplasia was diagnosed on hysteroscopy. Out of 24 cases , all 24 cases of hyperplasia was diagnosed on hysteroscopy. Out of 4cases of polyp on histopathology , in 7cases of polyp was diagnosed on hysteroscopy. Out of 7 cases , all 7 cases of polyp was diagnosed on hysteroscopy .out of 4 cases of malignancy on histopathology , in 4 cases of hyperplasia was diagnosed on hysteroscopy. Out of 4 cases , all 4 cases of malgnancy was diagnosed on hysteroscopy .out of 5 cases of myoma on histopathology , in 7 cases of fibroid was diagnosed on hysteroscopy. Out of 7 cases , all 7 cases of fibroid was diagnosed on hysteroscopy. **This proves that hysteroscopy is better than dilatation and curettage.**

Table 8: Different statistical values of hysteroscopy in diagnosis of intrauterine pathologies

ᵡ2-value	sensitivity	specificity	PPV	NPV	Accuracy
113.62 p-value=0.0001,S	85.71%	67.44%	30%	96.97%	70.00%
95% CI	42.13-99.64	51.46-80.92	11.89-54.28	82.78-99.92	

In the above table, sensitivity , specificity , positive predictive value(PPV),negative predictive value (NPV) and accuracy of hysteroscopy are 85.71%, 67.44%, 30%, 96.97% and 70 %. . This proves that hysteroscopy is better than dilatation and curettage and is highly accurate diagnostic tool.

DISCUSSION

In this prospective study, 50 women between 31 - 65 years age who presented with complaints of abnormal uterine bleeding pattern had undergone hysteroscopy and dilatation and currettage .

In present study, maximum age incidence was between 31-35, the youngest patient in this study was 1 years and oldest was 52 years .Alawani (1983), Trivedi (1985) ,Khandawala (1986) , studied maximum patients in the age group of 30-40 years, 20-40 years, 20-50 years, respectively.[20,21]

A study carried out in 1995 by Joseph Schenker depicted that the women affected most were in the age group 4050 (46%). Women < 25 were next in the line (32%).

In present study,the women suffering from abnormal bleeding pattern were mostly seen in multiparous females i.e. 88% and 12% in nulliparous females.

Siegler et al (1976) studied the same findings i.e. 29.18% patients were para 3 or more followed by 28.79% nulliparous. Study done by Nagele et al (1996) [22] found 21 % patientsnulligravida. AcharyaVeena et al (2003) [23] found 90% women multiparous. [24]

In present study,32 % patients were found to be hypertensive , 8 % patients were known diabetic , 4 % patients were diabetic and as well as hypertensive and remaining 56 % were normal.

NeethaNandan et al 2013, Among the study group, 27 cases (15.4%) had co-morbid medical disorders.11.4% were hypertensive, 1.7% were diabetic, whereas 2.3% patients had both diabetes and hypertension and 0.6% were hypothyroid. Only 2 patients out 175 had a family history of breast cancer. Among 12 patients who had endometrial cancer on histopathology, 7 patients had associated medical co-

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morbidities.[23]

Brill in 1995 reported that polymenorrhagia was the most common finding in 70 women (48%), followed by menorrhagia and Metropathiahemorrhagica in 22% and 16% respectively. [25,26]

Channareddysunitha et al(2013), majority of the patients had presented with menorrhagia. The second commonest had post menopausal bleeding, 16 cases (32%). There were 6 cases(12%) with polymenorrhagia and 5 patients (10%) with metrorrhagia.[27]

NeethaNandan et al 2013, in this study the commonest symptom for hysteroscopy was menorragh i a a b ou t 8 7 (49.7%) fol lowed by postmenopausal bleeding 29(16.6%). Other indications for hysteroscopy were irregular cycles, polymenorraghia, continuous bleeding per vaginum and dysmenorrhoea.[23]

In present study, Out of the 50 patients who underwent hysteroscopy , 41 patients were found to have abnormalities , 48 % of patients was diagnosed with hyperplasia , 14 % patients was diagnosed with polyp , 14 % patients was diagnosed with fibroid , 2 % patients was diagnosed with atrophy and 4% patients was diagnosed with cancer whereas 30 patients were found to have abnormalities in histopathology report , 32 % of patients was diagnosed with hyperplasia , 8 % patients was diagnosed with polyp 8 % patients was diagnosed with cancer and 10 % was diagnosed with myoma.Valle et al (1981) , evaluated the accuracy of hysteroscopy for the evaluation of patients with abnormal uterine bleeding compared with traditional dialatation and curettage, 553 patients evaluated, amongst which 277 (50.09%) had intrauterine abnormalities in the form of endometrial polyp, focal adenomatous hyperplasia and submucousmyoma. There was correlation of abnormal findings obtained by hysteroscopic examination and histopathological examination. The accuracy of diagnosis of focal adenomatous hyperplasia was 100%. They concluded that the precision and accuracy afforded by hysteroscopy are valuable in the evaluation of patients with uterine bleeding. The hysteroscopic findings should be corraborated with tissue diagnosis for confirmatory results. He detected endometrial polyp in 39.4%, submucousmyoma in 16.2% patients and hyperplasia in 3.8% patients.[28]

Luca Mencaglia et al (1987) performed micro hysteroscopic examination on 618 women, 45 years of age or above with abnormal uterine bleeding. 384 (54%) had normal and functional or atrophic endometrium, 78 (12.6%) had low risk hyperplasia, 8 (1.3%) had high risk hyperplasia and 66 (10.6%) had adenocarcinoma. Diagnostic accuracy of hysteroscopy reached 100% with endometrial neoplasia, 87.5% with high risk hyperplasia and 65.2% with low risk hyperplasia when it was associated with histologic findings.[29]

Diagnostic accuracy of hysteroscopy for endometrial hyperplasia was 68.2%, 71.4% and 76.4% in a series reported by Valle et al (1981)[28], S. S. Seth et al (1989) and Anuradha Panda et al (1999) respectively.[30]

In 1999, a study by Anuradha Panda et al, evaluated the accuracy of hysteroscopy in evaluation of abnormal uterine bleeding pattern and correlated the hysteroscopic findings with histopathology findings. Abnormal findings were detected in 66% cases and hyperplasia was the commonest among them. Sensitivity of hysteroscopy was 92.5% and that of blind curettage was 83.3% in evaluation of cases with abnormal uterine bleeding.[30]

Garuti G et al (2001) found that hysteroscopy showed sensitivity and specificity of 94.2% and 88.8% respectively in predicting normal or abnormal histopathology of endometrium. Highest accuracy was for endometrial polyp.[31]

NeethaNandan et al 2013[23], Out of 175 patients, 108 patients were diagnosed to have endometrial hyperplasia on hysteroscopy, however only 53 confirmed to have on histopathologically. Similarly 25 patients were said to have normal findings on hysteroscopy but by histopathology 85 were having normal endometrium. Hysteroscopy was highly specific for diagnosis of polyp (95.9%), cancer (100.0%), and atrophy (96. 9%), normal endometrium (92.2%) but low specificity for diagnosing hyperplasia (48.4%). The sensitivity of hysteroscopy in diagnosing polyp and endometrial hyperplasia were 100% and 84.9% respectively but it was low in case of cancer (16.7%) and normal endometrium (21.2%).

Kamlesh R. Chaudhari et al (2014) found that the sensitivity, specificity, Positive Predictive Value (PPV), Negative Predictive Value (NPV) and accuracy of diagnostic hysteroscopy in the study was 98.3%, 80.5%, 89.7%, 96.7% and 91.8% respectively. For the diagnosis of endometrial hyperplasia these were 92%, 92%, 89%, 94%, and 92 % respectively. For polyp these figures were 94%, 96%, 87%, 98%, 95% respectively; for endometrial atrophy there were 66%, 95%, 60 %, 98% and 94%; for submucous fibroid 91%, 95%, 78%, 98%, and 94%; for malignancy 75%, 98%, 75%, 98%, 97% respectively.[25]

In present study,sensitivity, specificity, positive predictive value (PPV),negative predictive value (NPV) and accuracy of hysteroscopy are 85.71%, 67.44%, 30%, 96.97% and 70 %. . This proves that hysteroscopy is better than dilatation and curettage and is highly accurate diagnostic tool.

CONCLUSION

Abnormal uterine bleeding is one of the commonest gynaecological conditions patient presents with.In the early days, abnormal bleeding was the most common indication for dilatation and curettage but because of the pitfalls involved in this blind procedure, ultrasonography and hysteroscopy were added for accurate results.The ability to observe hysteroscopically the entire endometrium provides valuable addition to the methods of diagnosis.

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Because the hysteroscopic visualization of endometrium alone may not provide an accurate diagnosis, a specimen of endometrium is essential for histopathological correlation.

Hysteroscopy is a valuable, simple, low risk technique which allows an adequate exploration of the uterine cavity under visual control.It affords the diagnosis and treatment with speed and safety. In patients with abnormal uterine bleeding, hysteroscopy provides the possibility of immediate diagnosis and prompt and effective treatment.

Polyps and submucous fibroids are often missed by curettage. For the diagnosis of submucous fibroids and polyps, hysteroscopy is superior to other diagnostic methods. But for hyperplasia and carcinoma endometrium, histopathology was 100% diagnostic.

In patients with abnormal uterine bleeding, it should be performed in conjunction with curettage or biopsy or histopathologic diagnosis. It is not a substitute for tissue diagnosis but can augment the information available to the gynaecologist.

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