e-ISSN: 0976-822X, p-ISSN:2961-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2024; 16(2); 271-275

Original Research Article

A Study to Assess the Accuracy of Hysteroscopy in the Diagnosis of the Cause of Bleeding in Women with Abnormal Uterine Bleeding

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Received: 14-12-2023 / Revised: 18-01-2024 / Accepted: 27-02-2024
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Conflict of interest: Nil

Abstract

Aim: The aim of the present study was to assess the accuracy of hysteroscopy in the diagnosis of the cause of bleeding in women with abnormal uterine bleeding.

Material & methods: This prospective observational study was conducted on 200 patients attended the Department of Obstetrics and Gynecology between the duration of January 2021 to December 2023 and to assess the role of diagnostic hysteroscopy and histopathology in evaluation of abnormal uterine bleeding.

Results: Majority of the patients belonged to 31-40 years age group. Of the 200 patients, majority, 80 had symptoms for more than 1 year, 72 patients had symptoms for 6 months to 1 year and 48 patients had symptoms for less than 6 months. Majority of the patients presented with menorrhagia. The second commonest was post-menopausal bleeding in 32 cases. There were 30 cases with polymenorrhagia and 26 patients with Hypomenorrhea. Out of 200 patients, 50 had proliferative followed by 44 secretary. Histopathology findings corroborate the hysteroscopically detected cases of hyperplasia, atrophic endometrium and endometritis. Both hysteroscopy and curettage were accurate when an abnormality was diagnosed, giving a specificity of 96.4% and 96.4% respectively and positive predictive value of 94.3% and 95.3% respectively. The ability to diagnose a lesion was more with hysteroscopy i.e. sensitivity in comparison to curettage, (91.9% versus 78.2%) while a negative diagnosis was less wrongly made with hysteroscopy in comparison to diagnostic curettage.

Conclusion: Hysteroscopy has a definitive role in evaluating patients with abnormal uterine bleeding especially with patient with thick endometrium, in any age group. Hysteroscopy is a safe and reliable procedure in the diagnosis of cases with abnormal uterine bleeding with high sensitivity, specificity, positive predictive value and negative predictive value and the results of hysteroscopy are immediately available. Hysteroscopy and histopathology complement each other in evaluating patients with abnormal uterine bleeding for accurate diagnosis and further treatment.

Keywords: Hysteroscopy, Histopathology, Uterine Bleeding

Introduction

Abnormal uterine bleeding is a common problem mainly encountered in peri-menopausal and post-menopausal women. It attributes as a cause for 25% of total gynaecological surgeries performed by a gynaecologist. Although abnormal uterine bleeding is an outcome which has several aetiological reasons, FIGO has classified it into 9 main categories, which are arranged according to the acronym PALM-COEIN (pronounced ‘‘pahm-koin’’): polyp; adenomyosis; leiomyoma; malignancy and hyperplasia; coagulopathy; ovulatory dysfunction; endometrial; iatrogenic; and not yet classified. In general, the components of the PALM group are discrete (structural) entities that can be measured visually with imaging techniques and/or histopathology, whereas the COEIN group is related to entities that are not defined by imaging or histopathology (non-structural). [1] Abnormal uterine bleeding has a negative impact on quality of life and in turn affects the efficiency of the women. [2]

Abnormal vaginal bleeding is a common complaint in primary care. The prevalence of some type of abnormal bleeding is up to 30% among women of reproductive age. [3] Over 18% of all gynecology outpatient visits in the United States are for menorrhagia alone. [4] Because most cases are associated with an ovulatory menstrual cycles, adolescents and perimenopausal women [5] are particularly vulnerable. About 20% of affected individuals are in the adolescent age group, and 50% of affected individuals are aged 40-50 years. In 2011, the International Federation of Gynecology and Obstetrics (FIGO) published a new classification system and the American College of Obstetrician-Gynecologist has also endorsed this new classification system. [6]

Until recent times, usual method of evaluating this symptom was dilatation and curettage. But this detects the cause in less than 50% of the cases. Hysteroscopy offers a valuable extension of the gynaecologist's armamentarium. 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. [7] Hysteroscopy allows direct visualization of the endometrial cavity and importantly, directed endometrial sampling of any suspicious areas. [8] 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. [9]

Hence the aim and objectives of this study were to study the accuracy of hysteroscopy in evaluation of abnormal uterine bleeding and to correlate hysteroscopic findings with histopathologic findings.

Material & Methods

This prospective observational study was conducted on 200 patients attended the Department of Obstetrics and Gynecology, Nalanda Medical College and Hospital, Patna, Bihar, India between the duration of January 2021 to December 2023 and to assess the role of diagnostic hysteroscopy and histopathology in evaluation of abnormal uterine bleeding.

Inclusion Criteria:

- Age: 20 – 50 years of age with abnormal uterine bleeding due to structural causes. Written and signed informed consent by the patient to participate in the study.
- Multiparous and nulliparous women with abnormal uterine bleeding who will not require any emergency management at the time of the study.

Exclusion Criteria:

- Patient with severe anemia due to menorrhagia.
- Professed vaginal bleeding.
- Suspected pregnancy.
- Patient unwilling to\ participate in study.
- Patient with tight or closed cervical os.

Methodology

A detailed History including the following points as Present history of bleeding including onset, course, duration, and criteria of bleeding pattern. History of recent hormonal contraception and particular drug intake were noted. History of bleeding tendency or general cause of bleeding was noted. Past history of operations or blood transfusion was noted. Family history of similar condition was noted.

General examination includes Weight, height, BMI, general appearance. Vital signs (blood pressure and pulse), pallor and manifestations of anemia were noted. Inspection of external genitilia. Bimanual examination to detect uterine size, mobility, axis, tenderness and adnexal masses was done. Pelvic ultrasound report was checked.

Hysteroscopy Evaluation:

Diagnostic hysteroscopy was conducted outside of the formal operating theatre setting in an appropriately sized, fully equipped and staffed treatment room with adjoining, private changing facilities and toilet, in Nmch patna Bihar Diagnostic hysteroscopy was carried out by a professional, skilled and expertise examiner. An assistant nurse was available. Written patient's information was provided before the appointment and consent for the procedure were taken.

Women without contraindications advised to take standard doses of non-steroidal anti-inflammatory agents (NSAIDs), Diclofenac sodium supp. 100mg, around one hour before their scheduled outpatient hysteroscopy appointment with the aim of reducing pain in the immediate postoperative period.

We used a rigid continuous flow 30" hysteroscopy, with an outer sheath of 2.9 mm. The technique provided a constant uterine distention by attaching plastic bags of saline 0.9% to dual infusion tubing. The cavity was explored looking for polyps, masses, myomas or polyploidy endometrium. The light source used in this study is a fiber optic light cable, with straight connector, diameter 2.5mm, length 180 cm. Distension of the uterine cavity was needed by attaching plastic bags of saline solution 0.9%, at a pressure of 200- 120 mmHg with the aim to use the lowest pressure required to distend the uterine cavity adequately. The procedure was monitored using a single chip video camera, and the image is displayed on a monitor visible to the operator. The camera has a focal length varying from F70 to F 140.

The hysteroscopy picture which appeared through the optic was transmitted on the monitor by the camera which was fitted to the eyepiece of the optic where the 30" diagnostic hysteroscopy could be performed with better visualization and accuracy.

Statistical analysis:

Data were statistically described in terms of range, mean ± standard deviation (± SD), median, frequencies (number of cases) and percentages when appropriate. Agreement between US, hysteroscopy diagnosis and endometrial sampling diagnosis was done using kappa statistic. For comparing categorical data, Chi square (±2) test was performed. Exact test was used instead when the expected frequency is less than 5. p values less than 0.05 was considered statistically significant. All statistical calculations were done using computer programs SPSS (Statistical Package for the Social Science; SPSS Inc., Chicago, IL, USA) version 15 for Microsoft Windows.

Results

Table 1: Demographic data

Variables	Number (%)
Age (years)	
20-30	26 (13)
31-40	94 (47)
41-50	50 (20)
51-60	30 (15)
Duration of symptoms	
<6 months	48 (24)
6months – 1 year	72 (36)
>1 year	80 (40)
Clinical presentation	
Menorrhagia	50 (25)
Continuous bleeding	24 (12)
Hypomenorrhea	26 (13)
Polymenorrhea	12 (6)
Polymenorrhagia	30 (15)
Post-menopausal bleeding	32 (16)
Other	26 (13)

Majority of the patients belonged to 31-40 years age group. Of the 200 patients, majority, 80 had symptoms for more than 1 year, 72 patients had symptoms for 6 months to 1 year and 48 patients had symptoms for less than 6 months. Majority of the patients presented with menorrhagia. The second commonest was post-menopausal bleeding in 32 cases. There were 30 cases with polymenorrhagia and 26 patients with Hypomenorrhea.

Table 2: Findings at endometrial histopathology

Findings	No. of patients (%)
Proliferative	50 (25)
Secretary	44 (22)
Simple hyperplasia without atypia	32 (16)
Simple hyperplasia with atypia	12 (6)
Complex hyperplasia without atypia	10 (5)
Complex hyperplasia with atypia	4 (2)
Endometrial polyp	30 (15)
Atrophic endometrium	8 (4)
Tuberculous endometrium	6 (3)
Endometrial carcinoma	4 (2)
Total	200 (100)

Out of 200 patients, 50 had proliferative followed by 44 secretary. Histopathology findings corroborate the hysteroscopically detected cases of hyperplasia, atrophic endometrium and endometritis.

Table 3: Comparison of the validities

	Hysteroscopy	Histopathology
Sensitivity	91.9%	78.2%
Specificity	96.4%	96.4%
PPV	94.3%	95.3%
NPV	94.2%	85.5%
Accuracy	95%	89%

Both hysteroscopy and curettage were accurate when an abnormality was diagnosed, giving a specificity of 96.4% and 96.4% respectively and positive predictive value of 94.3% and 95.3% respectively. The ability to diagnose a lesion was more with hysteroscopy i.e. sensitivity in comparison to curettage, (91.9% versus 78.2%) while a negative diagnosis was less wrongly made with hysteroscopy in comparison to diagnostic curettage.

Discussion

Abnormal uterine bleeding is one of the most frequently encountered conditions in gynecology, as quoted by Prentice A. [10] Till recently the usual method of evaluating abnormal uterine bleeding was dilatation and curettage. The diagnosis was obtained by this manner in most patients, yet in about 10% blind curettage; may miss the focal lesions. Hysteroscope offers a valuable tool in the hands of the Gynecologist. Hysteroscopic inspection of uterine cavity is a simple and well accepted method. The direct real time visualization, real-color, hydrated, wellilluminated, and augmented vision of the uterine cavity make this diagnostic tool very accurate to detect minute focal endometrial pathology and small lesions and helping us to take well guided direct biopsies. Hysteroscopic examination predicts endometrial lesions with a good accuracy as well as endometrial aspect characterization, adopting a nomenclature similar to that used by the pathologist. This approach makes correlation between hysteroscopic findings and histopathological results easier. [11] The use of hysteroscopy in abnormal uterine bleeding is replacing the blind curettage, as it “sees” and “decides” the cause. This is because the uterine cavity can be observed panoramically and the area in question can be curetted for histopathological examination. In fact, it is the eye in the uterus. [12,13]

Majority of the patients belonged to 31-40 years age group. Of the 200 patients, majority, 80 had symptoms for more than 1 year, 72 patients had symptoms for 6 months to 1 year and 48 patients had symptoms for less than 6 months. In an investigation directed by Schwarzler a sum of 104 patients with age differing from 26 to 79 years was evaluated. [14] Tahir considered 400 ladies all above age of 35 years with maximum occurrence between 40-50 years. [15] Majority of the patients presented with menorrhagia. The second commonest was post-menopausal bleeding in 32 cases. There were 30 cases with polymenorrhagia and 26 patients with Hypomenorrhea. Out of 200 patients, 50 had proliferative followed by 44 secretary. Histopathology findings corroborate the hysteroscopically detected cases of hyperplasia, atrophic endometrium and endometritis. Symptomatic exactness of hysteroscopy for endometrial hyperplasia was 68.2, 71.4 and 76.4% of every an arrangement announced by Valle et al [16] Sheth et al [17] and Panda et al [18] separately. Haller et al [19] had revealed affectability and specificity of 100 and 96.7%, separately. Panda A et al [18] had announced indicative precision of 100% in diagnosing polyp.

The incidence of endometrial cancer that is seen in the literature is generally higher. [20] Abnormal peri and post-menopausal bleeding is associated with endometrial cancer in about 10% of cases. [21] The lower incidence in our study was may be due to the patients with postmenopausal bleeding were taken up for fractional curettage, which is still opted by many of the Gynecologists in our setup. Both hysteroscopy and curettage were accurate when an abnormality was diagnosed, giving a specificity of 96.4% and 96.4% respectively and positive predictive value of 94.3% and 95.3% respectively. The ability to diagnose a lesion was more with hysteroscopy i.e. sensitivity in comparison to curettage, (91.9% versus 78.2%) while a negative diagnosis was less wrongly made with hysteroscopy in comparison to diagnostic curettage and these findings are being supported by Torrejon et al [22] series in which sensitivity was 71.8% and specificity 96.4%.

Conclusion

Hysteroscopy has a definitive role in evaluating patients with abnormal uterine bleeding especially with patient with thick endometrium, in any age group. Hysteroscopy is a safe and reliable procedure in the diagnosis of cases with abnormal uterine bleeding with high sensitivity, specificity, positive predictive value and negative predictive value and the results of hysteroscopy are immediately available. Hysteroscopy and histopathology complement each other in evaluating patients with abnormal uterine bleeding for accurate diagnosis and further treatment.

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