VALIDITY OF HYSTEROSCOPY AND HISTOPATHOLOGY IN PATIENTS WITH MENSTRUAL IRREGULARITY

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Background: Abnormalities in menstrual cycle is the most common presenting symptom in Gynaecology out-patient. Dilatation and curettage has been the diagnostic investigation of choice for decades in such cases. With the advent of new more valid and safe methods, it has been replaced by hysteroscopy as gold standard. The objective of this study was to know the sensitivity and specificity of hysteroscopy in patients presenting with menstrual irregularity. **Methods:** Validity study was conducted over 269 cases for a period of two years at Maternal and child health centre, Pakistan Institute of Medical Sciences, Islamabad. Inclusion criteria were age ≥35 years and abnormal uterine bleeding. Patient with positive pregnancy test, recent cervicitis, vaginitis, endometritis, pelvic infection were excluded. Hysteroscopy and curettage was performed after taking informed consent, mostly on outpatient basis. A predesigned Performa was used for a detailed record of hysteroscopic findings, which were later compared with histopathology report. Data was analysed using MS Excel, and Cross Tabulation was done using Epi-info. Sensitivity, specificity, positive predictive value and negative predictive value of hysteroscopy was calculated against histopathology, the gold standard. **Results:** Sensitivity, specificity, positive predictive value and negative predictive value of hysteroscopy was calculated against histopathology after excluding 46 (17.1%) cases of uterine fibroid that were diagnosed only at hysteroscopy. Hysteroscopy has shown highest sensitivity for retained products of conception and adenocarcinoma (100%) while a specificity of 90% and above for all hysteroscopic findings. Seventy eight percent of the procedures were performed on outpatient basis, 95% under intravenous sedation and 95% with no operative complication. **Conclusion:** Hysteroscopy should be used as an adjunct procedure to curettage as it is a better tool for diagnosis of intracavity lesions, with a high sensitivity and specificity for endometrial carcinoma.

Keywords: Hysteroscopy, histopathology, menstrual irregularity

INTRODUCTION

Hysteroscopy and curettage, although very simple and useful procedure is not being carried out in most of our gynecological units. It is an important tool for diagnosing causes of menstrual irregularity, which is itself a great problem responsible for 33% of referrals to Gynae outpatient. The value rises to 69% in peri- and postmenopausal group.[1] Dilatation and curettage (D&C) has been traditionally used as gold standard for evaluation of abnormal uterine bleeding however hysteroscopy, endometrial biopsy and ultrasonography are the major diagnostic modalities used now a day. The inadequacy of D&C in obtaining representative tissues has been reported in literature. In 60% of patients who underwent D&C, less than half of endometrial cavity was curetted.[2] Brokes and Serder reported 60 % false negative rates for D&C.[3] In cases where D&C was unsuccessful, hysteroscopy with directed biopsy revealed pathologic endometrial lesion in 12.9% of patients, with endometrial hyperplasia in 9.4% and endometrial carcinoma in 3.4%.[4] Thus, hysteroscopy and curettage (H&C) is now regarded as gold standard for evaluation of abnormal uterine bleeding. The common abnormalities found during diagnostic hysteroscopy include benign polyp, fibroids, intrauterine adhesions, retained products of conception (RPOC), endometritis and endometrial carcinoma .The hallmark of hysteroscopy is its simplicity. Procedure can be performed on outpatient basis under intravenous sedation. Hysteroscope used for diagnostic purpose is generally 4mm in outer sheath with 30 degree fore oblique view. CO2, normal saline and glycine are the common distension media used.

Although establishing a setup for hysteroscopy and curettage need trained staff, hysteroscope with its maintenance and distension media, it is very cost effective in the long run as it avoids the risk of general anaesthesia, does not required theatre space or anaesthetist cover, reduces time spend in hospital, allows quicker return to the normal activities and above all, a better chance for diagnosis.

The purpose of this study was to know the different pathologies associated with menstrual irregularity which can be diagnosed by hysteroscopy and curettage and, to know the sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of hysteroscopy against histopathology. Safety of this outpatient procedure was also determined by noticing the associated complications.

MATERIAL AND METHODS

Hysteroscopy and curettage was performed on 290 patients 35 years of age and above presented with menorrhagia, polymenorrhagia, irregular periods or post menopausal bleeding. Patients unwilling for the procedure, incomplete follow-up, positive pregnancy test, recent cervicitis, vaginitis, endometritis, pelvic infection and uterine perforation were excluded from the study. Twenty-one patients were excluded due to non availability of histopathology reports. Total 269 cases were included in the study after taking informed consent and evaluated in gynae outpatient by detailed history and clinical examination. Investigations include complete blood picture, urine analysis, random blood sugar, renal function tests, hepatitis B & C screening and routine pelvic ultrasound. Hysteroscopy was performed mostly on out patient basis in a separate setting reserved for the procedure. A trained staff nurse was available for assistance and instrumental care. After maintaining I/V line with lactated ringer, patient put in lithotomy position. Injection sosegon 10mg and phenergan was used for sedation. Hysteroscopy was performed by using rigid hysteroscope—Karl storz, with 30 degree tilt and 5mm diagnostic sheath(Olympus office system).Normal saline with Ashcroft pressure cuff or CO2 were used as distention medium with pressure between 50-75mmHg & flow rate 40-60ml/min.After performing pelvic examination, anterior lip of cervix was held with tenacullum. Cervical dilatation upto hegar 6 was usually required. Light source and distention media were attached to hysteroscope which was then introduced into the os. Further advancement was done under direct vision to perform a systematic inspection of uterine cavity including fundus, ostia, all the four walls and cervical canal. Hysteroscopy was followed by sharp curettage and specimen sent for histopathology. Patients monitored in recovery room for 4–6 hours and discharged home on the same day if there was no complication. A predesigned proforma was filled at the same time with detailed record of hysteroscopic findings, which were later compared with histopathology reports. Data based was made in MS Excel; cross tabulation was done in Epi-info. Descriptive statistics were used for demographic features while sensitivity,specificity, PPV and NPV of hysteroscopy was calculated for each hysteroscopic diagnosis against histopathology, the gold standard.

RESULTS

The mean age of the patients was 47.1±8.36 years, mean age at menarche was 13.3±1.66, and mode of parity was 4. Various indications for hysteroscopy included menorrhagia (39.4%), polymenorrhagia 26.8%, irregular bleeding (25.3%) and postmenopausal bleeding (8.6%). The various findings observed at hysteroscopy are presented in Table-1 while histopathology diagnoses of endometrial curettings in Table-2.

Hysteroscopy diagnose uterine fibroid in 17% (46) cases for which various histopathology results were normal endometerium 27 cases, hyperplasia 2 cases, endometritis 8 cases and hormonal imbalance 9 cases. Hysteroscopy identify 6 cases as RPOC. Five were confirmed by histopathology while one case turned out as hormonal imbalance. Twenty one cases of abnormal uterine bleeding were diagnosed as endometritis by hysteroscopy out of which 19 were confirmed by histopathology. Hyperplasis 1 and hormonal imbalance 1 were the histopathology reports for the rest of two. Normal endometrium was identified in 87 cases. Histopathology confirmed 55 of them. For the rest of 32 cases, the most common histopathology diagnosis was endometritis 10 and hormonal imbalance 15. Others were hyperplasis 5, polyp 1 and atrophic endometrium 1. Hyperplasia was diagnosed by hysteroscopy in 36 cases. Histopathology showed same report for 20 of those cases while the remaining 16 cases turned out as endometritis 5, hormonal imbalance 7, normal endometrium 3 and polyp 1. Out of 35 cases of polyps identified at hysteroscopy, 21 were confirmed by histopathology while it reported normal endometrium 6, hyperplasia 1, endometritis 2 and hormonal imbalance 5 for the rest of 14 cases. Adenocarcinoma was diagnosed by hysteroscopy in 6 cases out of which 2 were confirmed by histopathology while the other 4 cases turned out as hyperplasia 3 and normal endometrium 1.

Sensitivity, specificity, PPV and NPV of hysteroscopy was calculated for each hysteroscopic diagnosis against histopathology and presented in tabular form (Table-3) after excluding 46 cases of fibroid diagnosed at hysteroscopy and no match of histopathology was available for them (n=223). It has shown highest sensitivity for RPOC and adenocarcinoma, i.e., 100% while polyps and atrophic endometrium has sensitivity of 88% and 89% respectively. Sensitivity for endometrial hyperplasia was low 63%. Hysteroscopy has shown a specificity of 100% for RPOC, 99% for endometritis, 98% for adenocarcinoma and 92% for endometrial hyperplasia.

Seventy 8% of procedures were performed on outpatient basis. In 95% cases, intravenous sedation with injection sosegon and phenergan was used successfully. No operative complication was observed in 256 cases (95%). There was difficulty in passing hysteroscope in 7 cases (2.6%), vomiting requiring extra stay in hospital for observation in 4 (1.5%) cases and uterine perforation in 2 (0.7%) cases, both were managed conservatively and discharged home after 48 hours of observation, without any need for blood transfusion.

Table-1: Findings at hysteroscopy (n=269)

Findings	No. of cases	Percentage
Normal	87	32.3
Fibroid	46	17.1
Hyperplasia	36	13.4
Polyp	35	13
Endometritis	21	7.8
Atrophic	17	6.3
Hormonal imbalance	15	5.6
Adenocarcinoma	6	2.2
RPOC	6	2.2

Table-2: Diagnosis at histopathology (n=269)

Diagnosis	No. of cases	Percentage
Normal	99	36.8
Endometritis	54	20.1
Hormonal imbalance	45	16.7
Hyperplasia	32	11.9
Polyp	23	8.6
Atrophic	9	3.3
RPOC	5	1.9
Adenocarcinoma	2	0.7

Table-3: Sensitivity, specificity, Positive and Negative Predictive Value of hysteroscopy

	True		False					
	+ve	-ve	+ve	-ve	Sensitivity	Specificity	Positive Predictive Value	Negative Predictive Value
Findings	A	D	B	C	A/A+C×100	D/D+B×100	A/A+B×100	D/D+C×100
Adenocarcinoma	2	217	4	0	100%	98%	33%	100%
Rpoc's	5	217	1	0	100%	100%	83%	100%
Polyps	21	185	14	3	88%	93%	60%	98%
Atrophic	8	205	9	1	89%	96%	47%	100%
Hyperplasia	20	175	16	12	63%	92%	56%	94%
Normal	55	119	32	17	76%	79%	63%	88%
Endometritis	19	175	2	27	41%	99%	90%	87%
Hormonal Imbalance	4	179	11	29	12%	94%	27%	86%

DISCUSSION

Hysteroscopy, a low risk outpatient procedure involving visualization of endometrial cavity is replacing inpatient dilatation and curettage for evaluation of abnormal uterine bleeding.[5] Comparison between hysteroscopy and histopathology with TVS showed superiority of hysteroscopy in diagnosing intracavity lesions. Similarly hysterosonographic results compared well with hysteroscopy (agreement rate 94.8%) than histopathology (agreement rate 77.6%).[6,7] Hysteroscopy is easy to perform, well tolerated by the patient and can identify pathological lesions missed by endometrial biopsy or D&C. In this study, all cases of uterine fibroid identified by hysteroscopy, thus showing its superiority for diagnosing intracavity lesions. Bonnamy *et al* has shown sensitivity of 88% and specificity of 94% for diagnosing fibroid.[8] Cynthia Farquhar *et al* in their systematic review also found wide range for sensitivity (53–100) with a high specificity(97–100) regarding diagnosis of uterine fibroid.[6] Garuti *et al* has shown overall sensitivity and specificity of hysteroscopy as 94% and 89% respectively for predicting normal and abnormal histopathology of endometrium, with highest accuracy in diagnosing polyps with sensitivity, specificity, NPV and PPV of 95%, 95%, 98% and 81% respectively which is comparable to our results.[9] They reported worst results for estimation of endometrial hyperplasia with sensitivity, specificity, NPV and PPV of 70%, 91%, 94% and 60% while we have the respective values of 63%, 92%, 94% and 56%. Clark TJ also reported moderate accuracy of hysteroscopy for diagnosis of endometrial hyperplasia.[10] This study has shown highest sensitivity and specificity of hysteroscopy regarding diagnosis of RPOC (100%) while no case of adenocarcinoma was missed by it. However, out of 6 cases diagnosed as adenocarcinoma only 2 were confirmed by histopathology thus showing sensitivity, specificity, NPV and PPV of 100%, 98%, 100% and 33% respectively. Christine D. Berg[11] has shown a sensitivity of 86.4% and specificity of 99.2% for adenocarcinoma while Clark TJ[10] also reported high accuracy of hysteroscopy for diagnosis of endometrial cancer. However, these results are quite different from those by Pyari JS *et al* where D&C was the most sensitive technique for diagnosis of hyperplasia and carcinoma when compared with TVS and hysteroscopy.[12] Hysteroscopy has a sensitivity, specificity, NPV and PPV of 89%, 96%, 100% and 47% for atrophic endometrium in our study and the most common histopathology diagnosis was a normal endometrium where its results disagree with histopathology, thus showing curettage can be avoided in such cases.

In our experience, use of saline as distension medium improves the diagnostic capability of hysteroscopy for endometrial lesions as compared to CO_2. Use of hysteroscopy as an outpatient procedure for evaluation of abnormal uterine bleeding can avoid >50% of hospital admissions for D&C, resulting in increased effectiveness and cost benefit along with decreased patient morbidity. Thus hysteroscopy can now be regarded as current gold standard for evaluation of abnormal uterine bleeding.[13] However, diagnosis cannot be relied on hysteroscopy only and a biopsy should be performed during or immediately after examination as accuracy

of hysteroscopy for endometrial carcinoma is high but low for endometrial disease.[10]

CONCLUSION

Hysteroscopy should be used as an adjunct procedure to curettage as it is a better tool for diagnosis of intracavity lesions, with a high sensitivity and specificity for endometrial carcinoma.

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