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Hysteroscopy as a Diagnostic Aid in Gynecology

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Abstract

Endoscopic techniques for diagnosis and treatment of several diseases have gained importance in medicine, especially over recent years. The advantage lies in direct optical judgment of body cavities and frequently the possibility of surgical treatment during same procedure. Although diagnostic and operative laparoscopy has been established in gynecology for several decades, hysteroscopy is still neglected due to problematic nature of its technical developments. This study was conducted at Govt. Medical College, Miraj from November 2011 to October 2013, highlights the role of hysteroscopy as a diagnostic tool in gynecology. The aim of this study was to evaluate the diagnostic role of hysteroscopy in abnormal uterine bleeding and infertility. This was a prospective study carried out in Department of Obstetrics and Gynecology after approval of ethical committee. Outdoor and indoor patients with complaints of abnormal uterine bleeding and infertility underwent hysteroscopy followed by directed biopsy of endometrium for histopathological study. It was found that 50 patients were of age group from 20-70 years and most common age group was 40-49 years (50%). Most common presenting symptom was Menorrhagia (60%). 51.02% had abnormal findings on hysteroscopy while 48.98% had normal intra-uterine cavity. Most common lesion detected was Endometrial hyperplasia in 40% patients followed by endometrial polyp (32%), atrophic endometrium (12%), submucous fibroid (8%), intra-uterine synechiae (4%) and CuT embedded in fundal region (4%). Sensitivity, specificity, PPV, NPV and accuracy of diagnostic hysteroscopy was 95.65%, 88.46%, 88%, 95.83% and 91.84% respectively. It was concluded that hysteroscopy is a reliable tool for evaluating the patients of AUB and Infertility and should be followed by endometrial biopsy.

Key Words: Hysteroscopy, Diagnosis, Gynaecology

Introduction

“Vigilant eye in uterine cavity is better than numerous blind curettage” quoted Lindemann about future of hysteroscopy.

Endoscopic techniques for diagnosis and treatment of several diseases have gained importance in medicine, especially over recent years. The advantage lies in direct optical judgement of body cavities and frequently the possibility of surgical treatment during same procedure. Although diagnostic and operative laparoscopy has been established in gynaecology for several decades, hysteroscopy is still neglected due to problematic nature of its technical developments. Only in last few decade, technical and organ specific problem have been solved. Hysteroscopy has ushered new era in the evaluation of AUB. By direct visualization of uterine cavity, it is able to pinpoint the etiology in majority of cases. It can accurately detect endometrial hyperplasia and aids in early diagnosis of endometrial carcinoma and uterine polyp and also helps for guided endometrial biopsy as opposed blind curettage sample from D and C. In past few decades, many ART have been invented raising hopes of infertile couples. However, still many patients have remained without success even with these procedures. It has been known that intra-uterine factors plays about 15-20% role in contributing female infertility. Hence, ruling

out any intra-uterine pathology by hysteroscopy becomes an important step before subjecting patient to any ART. Intra-uterine pathology and structural uterine anomalies that are responsible for infertility, recurrent abortion or recurrent IVF failure can be detected and treated, resulting in improved pregnancy rate. Its use as an office hysteroscopy is increasing day by day. Thus hysteroscopy has a bright future in gynaecology.

Material and Methods

The present study is a prospective study carried out in Department of Obstetrics and Gynaecology at Govt. Medical College, Miraj from November 2012 to October 2013 after approval of ethical committee. Material for present study was collected from patients attending OPD and admitted in gynaecology ward with complaints of abnormal uterine bleeding and infertility. I have excluded patients with per vaginal bleeding due to causes other than uterine eg. Carcinoma cervix and other lower genital tract malignancy, genital tract infection and bleeding disorders. Hysteroscopy was performed using IV anaesthesia using drugs ketamine and diazepam. Hysteroscope used in this study was rigid hysteroscope with forward/oblique 30° angle with 4.1 mm size with cold fibre-optic light source. Normal saline (0.9%) was used as distention media. All the patients included in study underwent hysteroscopy followed by directed biopsy of endometrium for histopathological study. The results of hysteroscopy and histopathology were collected, compared and analyzed. The analyzed data was compared with other series in literature and discussed. All patients were well informed about the study in all aspects and written informed consent was obtained. Patients were observed post-operatively for any complications and put on IV antibiotics. Most Patients were discharged on next day.

Results

In present study, 45 patients with AUB and 5 patients with infertility underwent hysteroscopy and results were as follows. Maximum age incidence(50%) of AUB was between 40-49 years. Minimum age was 23 years and maximum age was 66 years.(Table I). 73.33% patients of AUB were multiparous, 13.11% were grandmultiparous, 11.11% were primiparous and 2.22% was nulliparous. (Table IV). 60% patients presented with menorrhagia and 8% patients with Polymenorrhoea, menometrorrhagia and postmenopausal bleeding each. 6% patients presented with polymenorrhagia, 4% with primary infertility and 6% with secondary infertility.(Table II). 53.33% had AUB since 4-6 months, 22.22% since 7-9 months, 13.33% since 9-12 months and 11.11% since 0-3 months. (Table III)

51.02% had abnormal findings on hysteroscopy while 48.98% had normal intra-uterine cavity and in 1 case hysteroscopy could not be performed as uterine cavity could not be distended with media, so only diagnostic D&C done in this case and it is excluded from some results. Most common lesion detected was Endometrial hyperplasia in 40% patients followed by endometrial polyp (32%), atrophic endometrium(12%), submucous fibroid(8%). Each 1 patient(4%) had intra-uterine synechiae and CuT embedded in fundal region. Hysteroscopic procedure failed in 1 patient. Out of 3 patients with secondary infertility, each 1 patient had endometrial polyp, endometrial synechiae and normal hysteroscopic findings. Out of 2 patients with primary infertility, 1 patient had endometrial hyperplasia and 1 had normal hysteroscopic findings.(Table V).

Out of 50 patients, 28 patients(56%) had normal endometrium on histopathology while 22 patient (44%) had abnormal endometrium. Of the abnormal findings, 45.46% had endometrial hyperplasia followed by endometrial polyp(27.27%), submucous fibroid(9.09%), atrophic endometrium(9.09%). 1 patient (4.54%) had endometritis and 1 patient (4.54%) with secondary infertility had fibrous synechiae . 2 patients with polyp on hysteroscopy had normal endometrium on histopathology. Out 3 patients diagnosed as having atrophic endometrium on hysteroscopy, 2 patients had same diagnosis on histopathology while 1 patient had normal

endometrium. . 1 patient with atrophic endometrium on hysteroscopy had normal histopathology. 1 patient with normal hysteroscopic of 49 patients, 45 patients had same diagnosis on both hysteroscopy and histopathology.(Table V)

Thus sensitivity, specificity, PPV and NPV of diagnostic hysteroscopy was 95.65%, 88.46%, 88% and 95.83% respectively. Diagnostic accuracy of hysteroscopy was 91.84(Table VI). Minor complications like vomiting in 7 patients (14%), PV bleeding in 3 patients (6%) and urinary retention in 1 patient (2%) occurred post-operatively. There was no major complication during procedure such as perforation. There was no mortality related to procedure.

Discussion and Conclusion

In present study ,diagnostic hysteroscopy was performed in 50 cases of AUB and Infertility and correlated with histopathology. The age group in this study was between 20-70 years and maximum age incidence for AUB was between 40-49 years followed by 30-39 years. In Gianninoto's⁽¹⁾ series, age range was 38-80 years and commonest incidence of AUB was between 30-45 years. In Aisha Razzaq⁽²⁾ series, maximum age incidence of AUB was between 40-60 years. In Allameh⁽³⁾ series, overall, 34.3% of patients were between 40-50 years old.

The commonest presenting complaint in this series was menorrhagia (60%), followed by Polymenorrhoea (8%), menometrorrhagia (8%), post-menopausal bleeding (8%), polymenorrhagia (6%) and secondary infertility (6%), primary infertility (4%). Waleed –El-Khayat⁽⁴⁾ series had menorrhagia (40%) as a most common symptom followed by menometrorrhagia (34%). Guin Geeta⁽⁵⁾ series had 35% cases of menorrhagia followed by menometrorrhagia (16%), oligomenorrhoea (16%) and post-menopausal bleeding (2%). . In Aisha Razzaq⁽²⁾ series, the most common indication for hysteroscopy was menorrhagia that was observed in 31 patients (38.8%) and the least common was postmenopausal bleeding that was observed in 6 patients (7.5%). In Allameh⁽³⁾ series, most patients' complaints were menorrhagia in 22 cases (21%), menometrorrhagia in 69 cases (65.7%), and postmenopausal bleeding in 14 cases (13.3%).In this study, abnormal findings on hysteroscopy were found in 25 patients (51.02%), while in the remaining 24 patients (48.98%), no abnormality was detected. Hysteroscopic procedure could not be performed in 1 case. Thus result is consistent with previous studies Panda⁽⁶⁾ (53.4%), deWit⁽⁷⁾ (45.8%), Loffer⁽⁸⁾ (51.44%). In present study, out of the 25 cases with abnormal findings on hysteroscopy, most common lesion detected was Endometrial hyperplasia in 10 patients (40%) followed by endometrial polyp in 8 patients (32%). 3 patients (12%) had atrophic endometrium and 2 patients (8%) had submucous fibroid. 1 patient (4%) with secondary infertility had intra-uterine synechiae. 1 patient (4%) had CuT embedded in fundal region. Hysteroscopic procedure failed in 1 patient.Wamsteker⁽⁹⁾ found endometrial polyp and submucous myoma in 33.67% cases, endometrial hyperplasia in 12.56% and endometrial atrophy in 10.05%, Trotsenburg⁽¹⁰⁾ observed myoma and polyps in 14% and deLewit⁽⁷⁾ reported myoma in 21% and polyp in 14.4%. Guin Geeta⁽⁵⁾ finding are as follows: endometrial hyperplasia (30%), polyp (28%), multiple findings in 13% cases and 7% had IUCD in their uteri without their knowledge.

Out of 3 patient with secondary infertility, 1 patient was having minimal endometrial synechiae, while polyp was detected in 1 case and negative hysteroscopic view in 1 patient. Out of 2 cases of primary infertility, endometrial hyperplasia detected in 1 case and negative hysteroscopic view in 1 patient. All patients with infertility had normal USG and both patients with primary infertility and 1 case secondary infertility who was later diagnosed as intra-uterine synechiae on hysteroscopy had normal HSG. Nezhat⁽¹¹⁾ in his series reported that 13.5% of infertile women scheduled for IVF treatment had intra-uterine adhesion. Hinckley and Milki⁽¹²⁾, reported that most common intra-cavitary finding in infertile women even in absence of AUB was asymptomatic polyp in

10-32% cases. Doldi⁽¹³⁾ carried out a study in 300 patients scheduled to undergo IVF, the frequency of unsuspected intrauterine pathology has been reported to be 40% by routine hysteroscopy. All 300 patients had normal HSG and frequency of subtle pathologies were as follows: endometrial polyp 78(65%), endometrial hyperplasia 20(17%), endometrial hypotrophy 16(13%) and other endometritis, adhesion=6(5%). Thus hysteroscopy is important for evaluation of patients with infertility before contemplating them for costly IVF cycles to rule out intra-uterine pathology.

In present study, sensitivity, specificity, PPV and NPV of hysteroscopy was 95.65%, 88.46%, 88% and 95.83% respectively. In Tajossadat Allameh⁽³⁾ et al series, sensitivity, specificity, PPV and NPV was 100%, 80.5%, 88.9% and 100% respectively. In Aisha Razzaq⁽²⁾ series, sensitivity, specificity, PPV and NPV was 97.9%, 90.6%, 94% and 96% respectively. In present study, overall accuracy of hysteroscopy in diagnosis of intra-uterine pathology was 91.85%. Overall accuracy in Aisha Razzaq series was 95%. Parasnis⁽¹⁴⁾ reported overall accuracy 92% and 100% for both polyp and myoma. Torregen⁽¹⁵⁾ reported accuracy of hysteroscopy for diagnosis of endometrial hyperplasia as 92.5% in pre-menopausal women and 97.3% for post-menopausal women.

Thus it may be concluded that hysteroscopy may be regarded as a safe, efficient and accurate in diagnosis of intra-uterine lesions, provided it is combined with directed biopsy.

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TABLES

TABLE NO. I : AGE-WISE DISTRIBUTION: (n=50)

AGE GROUP	NO. OF PATIENTS	PERCENTAGE(%)
20-29 YRS	8	16
30-39 YRS	10	20
40-49 YRS	25	50
50-59 YRS	6	12
>60 YRS	1	2

TABLE NO. II : SYMPTOM-WISE DISTRIBUTION: (n=50)

SYMPTOM	NO. OF PATIENTS	PERCENTAGE(%)
MENORRHAGIA (A)	30	60
POLYMENORRHAGIA (B)	3	6
POLYMENORRHOEA (C)	4	8
MENOMETRORRHAGIA (D)	4	8
POSTMENOPAUSAL BLEEDING (E)	4	8
PRIMARY INFERTILITY (F)	2	4
SECONDARY INFERTILITY (G)	3	6

TABLE NO. III : DURATION OF SYMPTOMS (AUB): (n=45)

DURATION	NO. OF PATIENTS	PERCENTAGE(%)
0-3 MNTHS	5	11.11
4-6 MNTHS	24	53.33
7-9 MNTHS	10	22.22
9-12 MNTHS	6	13.33

TABLE NO. IV: PARITY OF PATIENT (AUB) (n=45)

PARITY	NO. OF PATIENTS	PERCENTAGE
NULLIPAROUS	1	2.22
PRIMIPAROUS	5	11.11
MULTIPAROUS	33	73.33
GRANDMULTIPAROUS (≥ 4)	6	13.33

TABLE NO. V: COMPARISION OF HYSTEROSCOPY AND HISTOPATHOLOGICAL DIAGNOSIS: (n=49)

Hysteroscopic diagnosis	Histopathological diagnosis							Total
	Normal endometrium	E. Hyperplasia	polyp	Fibroid	E. atrophy	Endometritis	Synechia	
Normal	24	0	0	0	0	1	0	25
E. hyperplasia	0	10	0	0	0	0	0	10
Polyp	2	0	6	0	0	0	0	8
Fibroid	0	0	0	2	0	0	0	2
E. atrophy	1	0	0	0	2	0	0	3
Endometritis	0	0	0	0	0	0	0	0
Synechia	0	0	0	0	0	0	1	1
Total	27	10	6	2	2	1	1	49

TABLE NO. VI: OVERALL COMPARISION BETWEEN HYSTEROSCOPY HISTOPATHOLOGTY (n=49)

HYSTEROSCOPY	HISTOPATHOLOGY	
	PRESENT	ABSENT
POSITIVE	22 (a)	3 (b)
NEGATIVE	1 (c)	23 (d)

SENSITIVITY= $a/a+c \times 100 = 22/23 \times 100 = 95.65\%$

SPECIFICITY= $d/b+d \times 100 = 23/26 \times 100 = 88.46\%$

POSITIVE PREDICTIVE VALUE= $a/a+b \times 100 = 22/25 \times 100 = 88\%$

NEGATIVE PREDICTIVE VALUE= $d/c+d \times 100 = 23/24 \times 100 = 95.83\%$

FALSE POSITIVE RATE= $b/b+d \times 100 = 3/26 \times 100 = 11.54\%$

FALSE NEGATIVE RATE= $c/a+c \times 100 = 1/23 \times 100 = 4.35\%$

ACCURACY= $a+d/a+b+c+d \times 100 = 45/49 \times 100 = 91.84\%$

a=(TP)= true positive

b=(FP)= false positive

c=(FN)= false negative

d=(TN)= true negative