



# Three Thousand Cases of Office Hysteroscopy: See and Treat an Indian Experience

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## Abstract

**Study Objective** Assessment of feasibility of office hysteroscopy in Indian setting.

**Design** Retrospective study design.

**Setting** Tertiary care centre: Galaxy care Hospital, Pune, India.

**Patients** Three thousand consecutive women undergoing office hysteroscopy between 2012 and May 2018.

**Interventions** Office hysteroscopy 2200 cases (2012–2017) with Bettocchi 2.9 scope and Hamou endomat. Eight hundred cases (2017–2018) with Bettocchi 1.9 scope and EASI. Normal saline was used as distension medium. With Hamou endomat, settings have drip rate of 200 ml/min with irrigation pressure of 75 mmHg and suction bar 0.15. With EASI, settings were for Bettocchi 4 (1.9 mm) and Bettocchi 5 (2.9 mm) scope with 45 mmHg. Hysteroscopies were carried out by an experienced operator trained in office hysteroscopy. All hysteroscopies were done in early proliferative phase (4th–11th day).

**Main Outcome Measures** Success, failure and complication rates.

**Results** Hysteroscopies were successfully performed in nearly 98.66% of cases with 4 patients requiring a two-step procedure due to > 3 cm pathology. One thousand eight hundred eight (62.2%) were diagnostic hysteroscopies, while operative hysteroscopies were performed in one thousand one hundred twenty (37.8%). One patient (1/3000) had a vasovagal attack.

**Conclusions** In outpatient setting, counselling the patient for office hysteroscopy played an important role to overcome pain and anxiety, in addition to low pressure, continuous flow irrigation and vaginoscopic approach. Traditional resectoscopic surgeries should be reserved for challenging cases (i.e. endometrial ablation) or for certain pathologies (myomas > 2.0 cm, broad-base, large-size polyps). Recent advances in technique and instrumentation facilitate this approach and might encourage

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greater adoption by the gynaecology community. With the right approach, technique and setup, office hysteroscopy is feasible with favourable outcomes.

**Keywords** Hysteroscopy · Vaginoscopy · Pain · Anxiety

### Abbreviations

EASI	Endometrial automatic suction irrigation system
RPOC	Retained products of conception
IVF	In vitro fertilisation
ICO	Internal cervical os

## Introduction

Hysteroscopy comes from the Greek terms hysteros meaning uterus and scopy meaning to look. Hysteroscopy enabled visualization of a narrow and dark space, which was difficult until the mid-nineteenth century.

Hysteroscopy was seldom done earlier, and ‘dilatation and curettage’ (D&C) or pipelle was used by the majority for the purposes of diagnosis and treatment of intrauterine pathologies.

Uterine cavity is a virtual cavity and the endometrium sheds every month. With innovations in the field of endoscopy, distension media made it possible to visualize the endometrial cavity.

Office hysteroscopy overcame all the limitations of D&C and other blind procedures and enabled evaluation of the uterine cavity [1].

In order to overcome the sensation of pain caused by speculum and vulsellum among patients undergoing office hysteroscopy [2], vaginoscopic approach (no touch) was first proposed by Bettocchi and Selveggi (1995).

Mucus, blood or coil threads from the cervical os can be followed to visualize the cervix during vaginoscopy [3].

‘See and treat hysteroscopy’ has bridged the gap between diagnostic and operative hysteroscopy [1].

Smaller diameter hysteroscopes have made it easier to perform office hysteroscopy [1].

This has reduced the burden on operative rooms.

Use of saline solution as the distension media made it possible to use bipolar energy and thereby reduce thermal spread through the tissue during the procedure and has reduced complication rates [1].

Hysteroscopy is useful for the evaluation of the uterine cavity [4].

Bettocchi’s modified technique of ‘grasp biopsy wherein the biopsy forceps provided the pathologist with a larger amount of tissue for diagnosis [5].

With the advent of miniature 5 Fr ancillary instruments (scissors; graspers; biopsy cups; bipolar electrodes, there has

been a paradigm shift from ‘inpatient’ setting to an ‘outpatient’ setting [6].

The present study is aimed at assessing the feasibility of office hysteroscopy in Indian settings.

## Aims and Objectives

The aim is to assess the feasibility of office hysteroscopy in Indian setting.

## Methodology

This was a hospital-based retrospective study conducted in a tertiary care teaching institute Galaxy care hospital, Pune, India, during 2012–2018.

An informed written consent was obtained, and counselling of women was done in the outpatient department before the procedure.

Patient was placed in lithotomy position with her buttocks jutting out of the table. No pre-medication was given, and hysteroscopy was performed by vaginoscopic approach (no use of Sim’s speculum and vulsellum to locate the cervix and steady the cervix. ‘No touch technique’ wherein the 30°fore oblique rigid miniature scope is introduced in the vagina by just separating the labia majora with only gentle touch) without any cervical dilatation. Normal saline was used as distension media and pressure used equal to intrauterine pressure.

2.9 mm Bettocchi scope was used for 2200 cases of hysteroscopy from 2012 to 2017 and 1.9 mm Bettocchi scope for 800 cases from 2017 to 2018.

During the procedure, a nurse or a resident provided support to the patient (‘vocal local’) which further alleviated her anxiety and the surgeon also got the patient involved into the procedure by offering her to look at the monitor while simultaneously explaining any abnormalities if present.

Following the introduction of the scope perpendicular to the axis of the vagina, the posterior fornix was seen.

External os was localised and with fluid distension, and the scope was moved forward aligned with and into the internal os. On entering the cavity and with a panoramic view, the uterine cavity was evaluated. The twisting of the bridge and barrel of the scope enabled visualisation of the later walls and bilateral tubal ostia. Twisting the barrel to 180° enables visualisation of the posterior wall. At the end of the evaluation, the inflow in closed, the pressure is decreased,

and subtle intrauterine lesions are ruled out, thus preventing a negative hysteroscopy.

Any pathology when detected was evaluated and treated accordingly based on the nature of the pathology.

Backup anaesthetic help and emergency medication such as injection atropine were kept ready to manage vasovagal attacks.

Following the procedure, the patient was observed for 30 min for any pain or discomfort or any other complications and was sent home. Patient was called for follow-up after 5 days or contacted the doctor in case of any complaints.

The data were collected and analysed retrospectively.

## Inclusion Criteria

All women requiring endometrial cavity evaluation for AUB, PMB, fibroid, polyp, infertility or before IVF.

Adolescent girls with menstrual disorders and associated congenital anomalies.

Geriatric (with age > 65 years).

## Exclusion Criteria

### Heavy Menstrual Bleeding

Active genital infection like herpes infection.

Suspected pregnancy/abortion or ectopic gestation.

Latter half of the menstrual cycle.

## Study Outcome Measures

Success of the procedure was evaluated on the basis of following parameters

1. Need of anaesthesia/analgesia.
2. Pain score as per Visual Analog Scale (VAS) score.
3. Completion of procedure.
4. Complications like vasovagal attack, excessive bleeding.
5. Need of second sitting, Asherman syndrome.

**Table 1** Hysteroscopy done in various age group

S. no.	Age group	No. of cases	Total per cent (n = 3000)
1.	Adolescent	10	0.3
2.	Reproductive	1410	47
3.	Premenopausal	1061	35.6
4.	Postmenopausal	519	17.3

6. Infection like endometritis.

## Institutional Review Board Statement

Ethical clearance was obtained from the institutional review board.

## Results

Out of the 3000 cases, the majority (1410) belonged to the reproductive age group while 1061 were in the premenopausal age group ( $44 \pm 3$  years) and 10 were adolescents while 519 included postmenopausal women ( $46 \pm 4$  years and cessation of menstruation for  $\geq 1$  year) (Table 1). Among the 3000 hysteroscopic procedures attempted, 4 remained incomplete and had to be completed in the second setting as polyps were > 3 cm. Patients were counselled and agreed for second sitting (Table 2).

Of the 3000 attempted hysteroscopies, 1880 were diagnostic while 1120 were operative procedures (Table 3).

Among those undergoing diagnostic hysteroscopies, endometritis as diagnosed by macroscopic features described by Cicinelli (micropolyps, hyperaemic areas around glands and stromal oedema) was found in 202 cases, 24 cases of which on TB PCR were diagnosed as tuberculous endometritis. One hundred ten cases were of failed IVF. Endometrial carcinoma was diagnosed in one hundred and eighty-four women. Twenty-seven were found to have a uterine septum, and thirty-two were diagnosed with superficial adenomyosis. Majority (1435) had a normal uterine cavity (Table 4).

Operative hysteroscopy included 891 cases of polypectomy and 150 cases for removal of retained products, and 28 cases of submucous myoma (2.0 cm) underwent myomectomy with bipolar needle by slicing technique and

**Table 2** Procedure completion

S. no.		Attempted	Not attempted
1.	Total	3000	–
2.	Completed	2996	0
3.	Incomplete/failed	4	0

**Table 3** Diagnostic and Operative hysteroscopies

S. no.	Type of procedure	Total per cent (n = 3000)
1.	Diagnostic	1880 (62.2%)
2.	Operative	1120 (37.8%)
	Total	3000

**Table 4** Diagnostic office hysteroscopies

S. no.	Diagnosis	Number of cases	Per cent <i>n</i> = 1880
1.	Normal	1435	76.3
2.	Endometritis	202	10.7
3.	Endometrial carcinoma	184	9.8
4.	Uterine septum	27	1.4
5.	Superficial adenomyosis	32	1.7

then removing each piece. Septal (18 cases) resection was done by combination of scissors and bipolar needle. There are eight cases of impacted IUCD removal and two cases of osseous metaplasia.

Intrauterine adhesions i.e. Asherman syndrome (23 cases) were dealt with semirigid scissors, and thick adhesions required bipolar hook (Table 5).

Majority of the patients (1650 with 2.9 mm and 725 with 1.9 mm) gave a VAS score of 0 (Table 6).

## Discussion

Hysteroscopy has changed the management of intrauterine pathologies in women with abnormal uterine bleeding (AUB) [7].

Polypectomies constituted the largest operative hysteroscopies. Depending on the size and consistency, they were removed with grasper and hysteroscopy, tenaculum or cut into pieces by bipolar needle and removed piece by piece.

In a study by Tangri et al. [7] of 1920, majority were patients with infertility.

Majority 1435 (76.3%) of those undergoing diagnostic office hysteroscopy had a normal uterine cavity, while 445 (23.6%) had abnormalities. This was as per the study by Tangri et al. [7] wherein 94 (59.11%) had a normal uterine cavity, whereas 65 (40.8%) showed abnormalities.

**Table 5** Operative office hysteroscopies

S. no.	Procedure	Number of cases	Per cent <i>n</i> = 1120
1.	Polypectomy	891	79.5
2.	Myomectomy	28	3.9
3.	Asherman syndrome adhesiolysis	23	1.2
4.	Uterine septal resection	18	1.6
5.	RPOC removal	150	13.4
6.	Impacted IUCD removal	8	0.71
7.	Procedure: Osseous metaplasia	2	0.17

**Table 6** VAS score

Scope	None	Mild (1 ± 3)	Moderate (4 ± 7)	Severe (8 ± 10)
2.9 mm ( <i>n</i> = 2200)	1650	533	17	0
1.9 mm ( <i>n</i> = 800)	725	63	12	0

In this study, abnormalities detected were endometritis (10.7%), endometrial carcinoma (9.8%), uterine septa (1.43%) and superficial adenomyosis (1.7%).

In the study by Tangri et al. [7], abnormalities detected were endometrial polyps (24.5%), polypoidal hypertrophic endometrium (8.8%), submucous fibroids (3.1%), hyperaemic cavity (1.2) and others.

A total of 3000 hysteroscopies were attempted, and 98.66% were successfully completed. Vaginoscopic approach was successfully used in all the hysteroscopies. As per a study done by Cooper NA, vaginoscopic technique was successful in most of the hysteroscopies (83–98%) [2].

As per a review by Attilio Di Spiezio Sardo et al. [8], the two-step technique seems to be effective and safe; however, the extended GnRH agonist treatment and repeated hysteroscopies can cause greater distress in patients.

In our study, none of the patients were given any GnRH treatment before or after myomectomy.

Hysteroscopy is useful for diagnosis and management of Mullerian anomalies since it can be done preserving the hymenal ring [9].

The indications in our series were cervical stenosis with hematometra, vaginal septum with WWH syndrome and primary amenorrhoea with endometrial Koch's.

Uterine septa were found in 27 (1.4%) cases, and vaginal septal resection was not done in any of the patients in our study.

Among adolescents, the hymenal opening being about 4–7 mm and the scope could enter the vagina without injury to the hymen.

As per a case report by Chao-Lan Shih et al. [9], vaginal septum was removed without injury to the hymen ring in an adolescent virgin with uterus didelphys, obstructed right hemivagina with vertical vaginal septum and right renal agenesis.

As per Tasma et al. [10] among postmenopausal women with a rigid cervix, misoprostol was used previously for dilatation. However, it is not useful for pain reduction due to the hypo-oestrogenic state and causes gastrointestinal side effects which favours use of office hysteroscopy in these women.

In case of fibrosis, we used 5Fr grasper in the operative channel to open up the stenosed external or internal Os without causing pain while opening the stenosis as there

are no nerve terminals in fibrosed tissue and also there are no blood vessels.

Misoprostol was not used in any of our cases or any other ripening agent as it could cause to much dilatation of cervix, thereby resulting in leakage of normal saline from the side of the scope and thereby preventing proper distention of cavity.

In case of external os or internal os stenosis, grasper was used for in situ dilatation. Where grasper could not dilate, semirigid scissors were used to take radial cuts at 3 o' clock and 6 o' clock and where stenosis was severe, bipolar needle was used to take radial cuts anteriorly at 3 o' clock and 6 o' clock [1].

IUD users with missing strings on string checks or during removal may be managed in office setting which is convenient and less expensive for patient and the hospital [11].

According to Prabhakaran et al., intrauterine exploration for a misplaced IUD could be painful which can be overcome with office hysteroscopic removal which requires no anaesthesia or cervical dilatation [11].

Office hysteroscopy is readily acceptable with faster recovery and return to normal activities [12].

The procedure has a learning curve, and the skill has to be attained with vigorous training in this modality [3].

Owing to the reusability, office hysteroscopy is economical and feasible which supports our 'see and treat' approach and can be proposed as the gold standard for investigation and treatment of pathologies associated with HMB [13].

In our study, 1 patient experienced a vasovagal attack probably since saline was used as distension medium. No other complications were noted.

As per Agostini et al., where risk of vasovagal syndrome in 2079 women undergoing outpatient hysteroscopy was evaluated, episodes were significantly higher with use of CO<sub>2</sub>, regardless of the indication for hysteroscopy, parity and menopausal status of the patient [14].

In a study by Copper N.A.M. among women undergoing office hysteroscopy, there was no significant difference in the incidence of vasovagal episodes between local anaesthetic and control groups [15].

In a study by Carlos De Angelis et al., when the level of pain was rated according to the four classes of VAS (severe  $8 \pm 10$ , moderate  $4 \pm 7$ , mild  $1 \pm 3$ , no pain), the incidence of moderate  $\pm$  severe pain was found to be lower in group B (2.7 mm mini-hysteroscope) than in group A (4 mm traditional scope) [16].

In our study, pain was less with 1.9 scope. Thus, severity of pain can be directly proportional to the diameter of the scope.

Bipolar electrosurgical technology along with small diameter scopes with working channels and continuous flow systems has increased the safety of hysteroscopic procedures. Grasping forceps and scissors could be employed

to treat adhesions as well as endometrial polyps smaller than or the same size as the ICO [6].

Therapeutic procedures can also be performed in outpatient setting (e.g. submucous myomectomy and polypectomy, adhesiolysis), thereby reducing the need for an additional sitting [11].

The concept of efficient, safe and convenient 'see and treat' setting with 'one stop' gynaecology in an ambulatory setting wherein the patient 'ambulates in' and 'ambulates out' has come of age [3].

Hence, outpatient diagnostic and operative hysteroscopy is gaining prominence as a standard of care [15].

Strengths of our study included a large sample size and a retrospective study design. Evaluation of patients from different age groups and decreased selection bias were also strengths of the study.

Our study had a few limitations: no unpublished data were taken which could result in bias. The study was conducted in a single centre and done by single operator which might not reflect the overall results among various centres of India.

Also, office hysteroscopy requires formal training and mentorship. The vaginoscopic technique (no touch) as described by Bettocchi requires the knowledge and training of using the 30 degree forward oblique scope to enter the cervical canal and then the internal os.

## Conclusion

Office hysteroscopy is a simple and convenient method for evaluation of the uterine cavity and for performing diagnostic and therapeutic procedures for various gynaecological indications in the same setting ('see and treat approach'), thereby making it cost-effective.

Vaginoscopic approach has the added advantage of enabling evaluation of vagina as well as performing the procedure in the office setting, which improves patient compliance towards the procedure.

Alleviating the need for local and general anaesthesia and quicker recovery puts office operative hysteroscopy a step ahead and lower costs of operating room usage.

A number of procedures can be performed with simple instruments such as graspers and scissors during office hysteroscopy which adds to the simplicity of the procedure.

Outpatient hysteroscopy is therefore superior to day-care procedures in terms of feasibility, safety, efficiency, convenience, faster recovery and cost-effectiveness.

Very few gynaecologists perform office hysteroscopy and advances in instrumentation have improved the learning curve of office hysteroscopy and should encourage higher adoption by gynaecologists making it feasible for the patient as well as operating surgeon.

## Compliance with Ethical Standards

**Conflict of interest** The authors declare that they have no conflicts of interest and nothing to disclose.

**Ethical Approval** The study was approved by the Institutional Ethics Committee.

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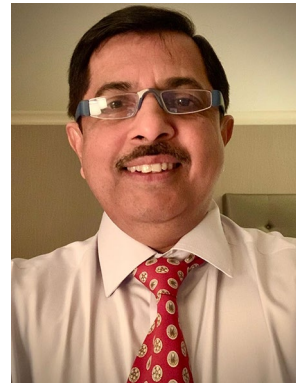
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