Scientific Open Access Journals
SOAJ

Journal of Gynecology & Obstetrics

Research Article | Open Access

# Office Hysteroscopy: A Retrospective Descriptive Study of our Experience over 5 Years at a Tertiary Center

**Lim Whui Whui*, Wee-Stekly Wei-Wei, Shahul Hameed Mohamed Siraj, Bernard Chern Su Min**

KK Women's and Children's Hospital, Singapore

***Corresponding author: Lim Whui Whui,** Email: whuiwhui.lim@mohh.com.sg

**Received:** 04 May 2018; **Accepted:** 18 May 2018; **Published:** 22 May 2018

## Abstract

**Objective:** To describe our 5 year practice and experience of office hysteroscopy

**Design:** Retrospective descriptive study of a single, tertiary center

**Setting:** KK Women's and Children's Hospital, Singapore.

**Population:** All women who had undergone an office hysteroscopy from August 2011 to August 2016 in KK Women's and Children's Hospital for indications of abnormal uterine bleeding, removal of intra-uterine contraceptive device, hysteroscopic ligation, evaluation of infertility and endometrial hyperplasia.

**Methods:** Data from patients' case-notes was retrospectively collated

**Main Outcome Measures:** Demographic data of our patient population, indication for office hysteroscopy, use of cervical priming, time taken for procedure, and the failure rate were collated.

**Results:** A total of 219 patients underwent office hysteroscopy over 5 years in our center. The mean age of the patient population was 45.6years, with a mean gravidity of 1.67. 76.4% of patients were premenopausal with 5% having a Body Mass Index more than 30. 76.3% of office hysteroscopies were performed due to abnormal uterine bleeding, 14.6% for the removal of retained intra-uterine contraceptive device, 4.1% for evaluation of endometrial hyperplasia, 3.2% for investigation of subfertility and 1.8% for hysteroscopic sterilization. Majority of patients were prescribed misoprostol (72.6%) for cervical priming. Average time taken per procedure was 9.92minutes (range 2 to 35minutes). The failure rate in our center was 9.6%. In comparison to conventional hysteroscopy under general anesthesia, the costs of office hysteroscopy is approximately half that of the latter.

**Conclusion:** Office hysteroscopy should be done as a routine, reserving conventional hysteroscopy for the treatment of more complex intrauterine pathology.

**Keywords:** office hysteroscopy, failure rate, abnormal uterine bleeding

**Abbreviations:** AUB: Abnormal Uterine Bleeding; BMI: Body Mass Index; IUCD: Intra-Uterine Contraceptive Device; NSAIDs: Non-Steroidal Anti-Inflammatory Drugs

## Introduction

Hysteroscopy is an endoscopic procedure that allows direct visualization and examination of the cervical canal and uterine cavity, enabling the evaluation of intracervical or intrauterine pathology. This may be done for a purely diagnostic purpose. However, in many cases, pathologies can be diagnosed and treated in the same setting in a 'see and treat' approach. Biopsies of suspected lesions or endometrial sampling may be undertaken at the same time. Hysteroscopy can be done in an outpatient setting, otherwise known as 'office hysteroscopy', or under general anesthesia in an operating theatre. In recent years, there has been a growing trend towards office hysteroscopy. Besides avoiding general anesthesia and its associated risks, office hysteroscopy offers many more advantages. There is a quicker recovery time with a more expeditious return to work and normal activities, a higher patient satisfaction rate [1] as well as cost-saving [2]. Patients are less intimidated by an outpatient environment and are quicker to ambulate post procedure

Notably, with the introduction of smaller-diameter hysteroscopies [3,4] as well as the use of vaginoscopic techniques [5], office hysteroscopy has increasingly gained more acceptance and tolerance by both patients and clinicians.

In our center, we offer both office hysteroscopy as well as the conventional hysteroscopy under general anesthesia in an operating theatre.

## Aim

This is a retrospective descriptive paper with an aim of detailing our experience of office hysteroscopy as a single-center over the course of 5 years.

## Materials and Methods

We reviewed the paper case-notes of patients who had undergone an office hysteroscopy between August 2011 and August 2016 in KK Women's and Children's Hospital, Singapore. In this 5-year period, 219 cases were performed at our outpatient clinic.

Per our inclusion criteria, women with abnormal uterine bleeding, women who have completed their family requesting for hysteroscopic occlusion of tubes, those with missing intra-uterine device threads needing hysteroscopic removal of intra-uterine contraceptive device and those undergoing part of an infertility workup or investigation for endometrial hyperplasia were included. Cases were excluded if office hysteroscopy was performed for other indications.

Demographic data collected were the age of the woman, body mass index (BMI), menopausal status, parity, prior vaginal deliveries and caesarean sections. Other data obtained were the woman's past medical history, past surgical history or any prior cervical procedures performed (e.g loop electrosurgical excision procedure, cervical conization). Details such as hysteroscopy indications, size and type of the scope used, time taken to complete the procedure, any therapeutic procedures performed and any reported complications were recorded down. If endometrial sampling was performed, histology was traced. Information on whether cervical priming was used, or any pre-operative analgesia and post-operative prophylactic antibiotics given was collated. Office hysteroscopy that failed or were abandoned and had to be converted to that under general anesthesia were identified. The reasons underlying such events were recorded down.

Preceding any hysteroscopy, patients who presented in the general clinic had a general history taken. Their height and weight were measured and they were evaluated regarding the need for treatment and cervical priming. All patients had a pelvic ultrasound performed to aid in diagnosis and treatment. A date will then be arranged for an outpatient hysteroscopy with clear instructions on when to take any pre-operative medicines, such as analgesia or that for cervical priming. Adequate counselling was given and informed consent was taken prior to the procedure date.

Procedures are performed or supervised by an experienced hysteroscopist. A vaginoscopic technique is used in which we do not insert a speculum or use a tenaculum to stabilize the cervix. During the procedure, an appropriate-sized rigid scope with a 30 degree fore-oblique lens will be selected (Olympus). Warmed normal saline is used as a medium for uterine distension. Hysteroscopy is then carried out in a systematic manner, inspecting the endo-cervical canal, uterine cavity, bilateral ostia and endometrium. Images are taken and findings are subsequently recorded using a standard computer program (Endosys Reporting System) which generates a report. If any therapeutic procedures or endometrial sampling is performed, this is documented, as well as the exact time in which the procedure commences and is completed.

## Results

A total of 219 patients underwent office hysteroscopy from August 2011 to August 2016. The mean age of patients undergoing office hysteroscopy in our center is 45.6 years (range 22 – 79). Mean gravidity is 1.67 (range 0 to 8). Of 219 patients, 129 (58.9%) had a history of normal vaginal delivery, 54 (24.7%) had a history of previous caesarean delivery, and 52 (23.7%) were nulliparous.

In our patient population, a majority of women who underwent hysteroscopy were fit and healthy, with 160 (73%) of them having no medical problems and 185 (84.5%) having had no previous surgical procedures. 5 women had previous cervical surgeries which included 3 having had loop electrosurgical excision procedure, 1 cone biopsy and 1 laser vaporization.

Five [5] patients were reviewed by the anesthetist and cardiovascular specialists and deemed 'high risk' for general anesthesia. Other patient demographics included 167 (76.4%) pre-menopausal and 32 (14.6%) menopausal patients. We had 11 (5%) obese patients with a BMI more than 30.

A majority of hysteroscopy was performed due to abnormal uterine bleeding (AUB) in 76.3% of patients. Figure 1 depicts the break-down of the various indications for office hysteroscopy which include AUB (e.g. irregular menstruation in pre-menopausal women and post-menopausal bleeding), removal of a retained intrauterine contraceptive device (14.6%), hysteroscopic sterilization after completion of family (1.8%), evaluation of endometrial hyperplasia (4.1%) and for the investigation of subfertility (3.2%).

Misoprostol 200 mcg orally or 400 mcg vaginally was prescribed to 159 (72.6%) of patients for at least 3 hours prior to their procedure time. In our center, only rigid scopes are used. Of the 198 successful hysteroscopy performed, 127 (64.1%) of scopes used was 5.5mm in diameter, 49 (24.7%) was 4.5mm, 16 (8.1%) was 4.0mm, 3 (1.5%) was 5.0mm, 2 (1%) was 6.5mm and only 1 (0.5%) was 3.5mm.

Preoperative analgesia was only given to 15.5% of patients (n=34), mainly with simple analgesics like paracetamol (7 of 34) and non-steroid anti-inflammatory drugs (NSAIDS) (27 of 34), predominantly Mefenamic acid and Arcoxia. Figure 2 represents the various procedures done. These are divided into diagnostic (sampling or no sampling) and therapeutic (polypectomy, removal of IUCD, sterilization, myomectomy and adhesiolysis).

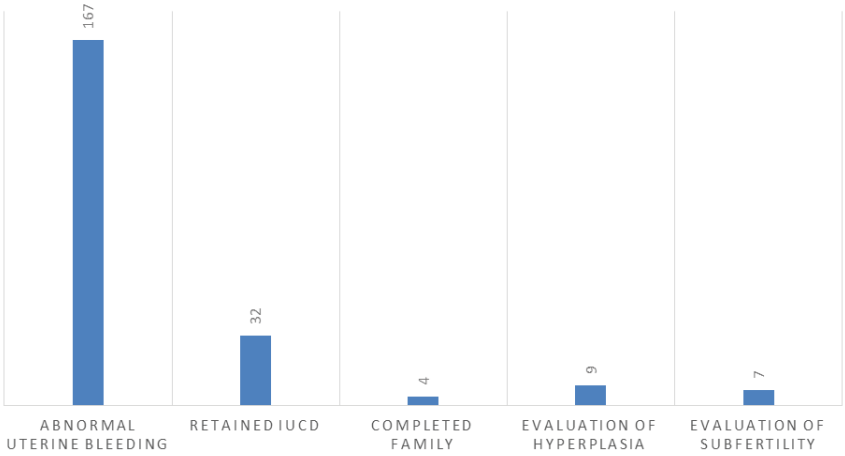


**Figure 1:** Indications for hysteroscopy.

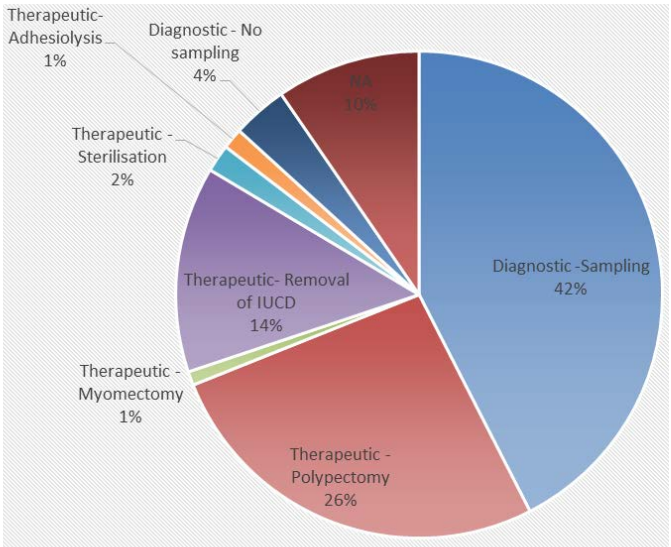


**Figure 2:** Procedure Done.

The average time taken for office hysteroscopy in our center is 9.92minutes (range 2 to 35minutes). Prophylactic antibiotics was prescribed to 72.7% of our patients, with a majority receiving a single oral dose of Azithromycin 1 gram (n= 145), Doxycycline 100mg twice a day for 7 days (n=7), Doxycycline and Metronidazole 400 mg three times a day for 7 days (n=3), Augmentin 625 mg twice a day for 5 days (n=5), Cefalexin 500mg three times a day for 7 days (n=2) and ciprofloxacin 250mg twice a day for 7 days (n=1).

Outpatient hysteroscopy was successful in 198 patients (90.4%). Failure of the procedure was due to cervical stenosis (n=12), patient being unable to tolerate the discomfort of the procedure (n=5), patient anxiety (n=2), unsatisfactory uterine distension due to leaking of medium through cervix (n=1) and uterine perforation upon entry (n=1). Of the 198 successful procedures, 155 cases had samples sent for histology. Figure 3 depicts the various histology obtained, 92.9% of which were benign (144 of 155 cases). In 3 cases (1.9%), endometrioid adenocarcinoma was identified and patients subsequently were referred to the gynae-oncology department. In 3 cases, the uterine cavity appeared atrophic, however an insufficient sample was obtained.

Table 1 details the average costs in our center, comparing both conventional hysteroscopy as a day surgery case and office hysteroscopy. Prices shown are for private care as well as subsidized care for both Singaporean citizens and Singapore Permanent Residents. We have also included the prices for Non-Residents as we have patients from overseas seeking treatment in our center. These costs do not include that incurred should complications occur leading to an increase in operating time and hospital stays. The average cost of an office hysteroscopy is approximately half that of conventional hysteroscopy, illustrating how cost-effective office hysteroscopy is.

There was one complication from office hysteroscopy in our study, which was due to an isolated uterine perforation upon entry into the uterine cavity. The procedure was subsequently abandoned and a laparoscopic assisted hysteroscopy was then organized.

## Discussion

### Use of cervical priming

Misoprostol is a synthetic prostaglandin E1 analogue which has been shown to have cervical ripening effects in both pregnant and non-pregnant women [6,7]. In our study, 72.7% of women were given misoprostol for cervical priming. This was decided based on parity and menopausal status of the patient, and the possibility of therapeutic procedures. Side effects of misoprostol include diarrhea, stomach cramps, nausea and vomiting. Unfortunately, it was not included in the patient case-notes whether patients who were given misoprostol suffered from any side effects.

### Pre-operative and intraoperative analgesia use

Pain and discomfort experienced by the patient during and after a procedure is a limiting factor to the widespread use of office hysteroscopy. It is therefore a common reason for cancelling a procedure. In our center, 23.8% of procedures (5 of 21) cancelled was due to patient distress. Many studies have been conducted with the aim in mind of reducing this discomfort with the use of pre-operative oral analgesics [8], intraoperative para-cervical [9], intra-cervical [10] and trans-cervical anesthesia [11], as well as local anesthetic sprays [12]. However, in our center, we do not perform routine cervical dilatation and with the use of vaginoscopic techniques, thereby forgoing the need for speculums, preoperative and intraoperative analgesics were not deemed compulsory. In our study, 15.5% of cases was offered simple pre-operative analgesics mainly due to patient requests or operator's preference. These include paracetamol or NSAIDs. However, a majority of cases was successfully completed without any analgesics, proving that office hysteroscopy is generally well tolerated by our patients.

### Medium for uterine distension

Rubin first described the use of carbon dioxide gas as a medium to distend the uterine cavity in 1925. Advantages included a cheaper cost and easy availability, as well as the potential for good quality images to be obtained. However, in the presence of bleeding or excess fluid, bubbling can occur which obscure views and may result in missed diagnoses or a longer operating time. In a randomized controlled trial

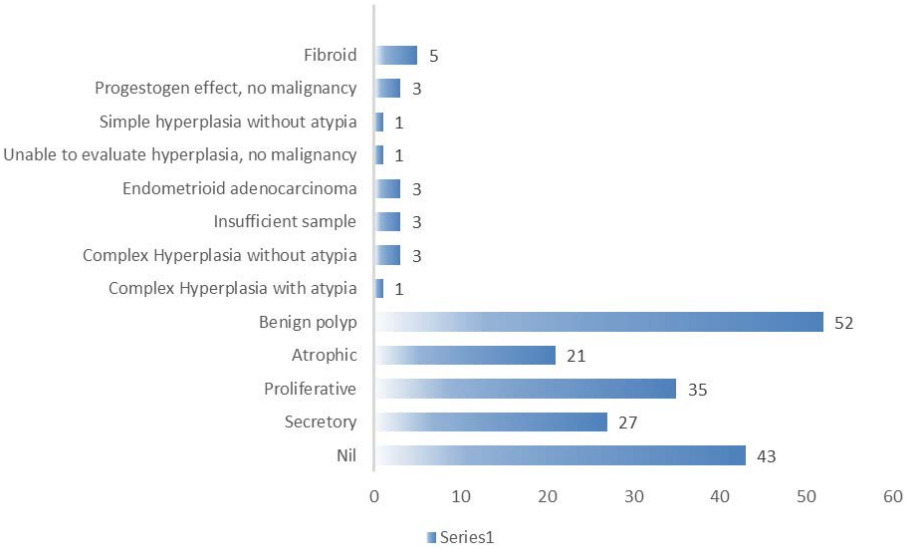


**Figure 3:** Histology Obtained.

**Table 1:** Price of office hysteroscopy versus conventional hysteroscopy.

| | Singaporean/Permanent Resident-Private Class | Singaporean/Permanent Resident – Subsidised Class | Non-Resident |
|---|---|---|---|
| **Office Hysteroscopy** | SGD 1000-1500 | SGD 500 | SGD 1500-2500 |
| **Conventional Hysteroscopy** | SGD 3200 | SGD 1100 | SGD 4500 |

**Citation:** Whui LW, Wei-Wei WS, Siraj SHM, et al. Office Hysteroscopy: A Retrospective Descriptive Study of our Experience over 5 Years at a Tertiary Center. J Gynec Obstet 2018; 1:026.

by Shanker et al, published in 2004, it was concluded that normal saline and carbon dioxide gas as a distension medium for office hysteroscopy was comparable in terms of patient discomfort and satisfaction, although the former was thought to provide better views [13].

In our center, only warmed normal saline was used for uterine distension. This prevents additional procedure time due to the exchange of medium from carbon dioxide to normal saline when views are obscured or when operative procedures need to be carried out.

### Use of prophylactic antibiotics

Although a Cochrane review of prophylactic antibiotics for trans-cervical procedures was inconclusive due to a lack of randomized controlled trials [14], we have routinely given most patients a short course of Azithromycin for prophylactic cover (72.7%). There were no patients who re-presented to our center with endometritis post-procedure. However, one patient developed an allergic reaction to azithromycin and returned with skin rashes to our 24-hour clinic. She was given an anti-histamine and her symptoms subsequently resolved. This encourages us to give due consideration to the risk and benefits of antibiotic prophylaxis which should be decided on a case by case basis.

### Failure rate of office hysteroscopy

Overall failure rate of office hysteroscopy is quoted to be 3.6-4.9% (15). Of 219 women, our center experienced a failure rate of 9.5%. Majority of procedures failed due to cervical stenosis and hence an inability to advance the hysteroscopy into the uterine cavity. In these cases, the procedure was converted to that under general anesthesia. These were then done successfully through gradual cervical dilation with Hegar dilators in theatre. A small number of women experienced anxiety prior to the procedure or were unable to tolerate the discomfort. As it is not in our practice to administer sedative drugs in an outpatient setting, these procedures were likewise done under general anesthesia. Only one case was cancelled due to uterine perforation.

### Patients at high risk for general anesthesia

Of note, there were 5 patients who had multiple comorbidities who were deemed as 'high-risk' for general anesthesia. All had severe cardiac disease and were reviewed by cardiologists prior to the procedure. These cases were then performed successfully and without complications with office hysteroscopy, highlighting the importance of the availability of such a service for high-risk patients.

In our patient population, 5% of patients had a BMI of more than 30, placing them in the obese category. Obese patients are more prone to complications both during and after operations. Problems include difficult intubation and ventilation, maintaining oxygen saturations and a slower recovery from anesthesia. These risks can be eliminated with the use of office hysteroscopy which does not require the use of general anesthesia, providing a safer option for this particular group of patients.

### Complications

In a prospective study conducted by Jansen et al. [16] on the incidence of complications experienced during conventional diagnostic and operative hysteroscopy, there was a 0.76% rate of uterine perforations, nearly half of which were entry related. The rate of fluid overload from the distension medium was quoted as 0.2%. In our study, we looked at any procedure-related complications and found that we had only 1 complication due to uterine perforation (0.46%). The low rate of complications could be attributed to operator's experience, shorter time of procedure, the use of direct visualization of the cervix by the vaginoscopic technique and the avoidance of cervical dilatation. This further emphasizes the safety of office hysteroscopy with the use of vaginoscopic approach.

### What our center can improve on

An audit of a practice seeks to point out areas of deficiency, to bring about improvements for patient safety and a more refined healthcare service.

From this study, we should aim to use misoprostol conservatively so as to avoid any potential side effects or allergic reactions to the medication. A questionnaire can be provided to patients regarding the side effects experienced. This also applies to the use of prophylactic antibiotics post procedure, highlighted by the case of an allergic reaction by one of our patients.

A Visual Analogue Scale (VAS) can also be provided for patients to feedback on the level of discomfort experienced both during and after the procedure, with an additional space for comments on how to further improve the service.

Lastly, a standardized data collection sheet with all the above information can be developed, allowing us to easily audit our practice in the future.

## Conclusion

The advent and rising popularity of office hysteroscopy allows a shift of healthcare away from that of inpatient diagnosis and management, freeing up hospital and operating theatre slots for cases that require general anesthesia and inpatient hospital stays. The cost-effectiveness of this procedure will lower the treatment costs to the patient, as well as lessen the burden on our healthcare budget, especially since hysteroscopy forms a bulk of minimally-invasive surgeries in gynecology. Office hysteroscopy should be done as a routine, reserving conventional hysteroscopy under general anesthesia for the treatment of more complex intrauterine pathology. With a more comprehensive understanding of patient factors in office hysteroscopy, we will be able to provide better and more specific counselling to patients, managing their expectations and improving the success rates of this highly valuable and effective diagnostic and treatment modality.

## Acknowledgements

The authors would like to thank Ms Irene Lim Hwee Theng of the Minimally Invasive Department in KK Hospital for her hard work in tracing patients' case-notes.

## Contribution to Authorship

BC, WWW and SHMS conceived and designed the study. WWW and SHMS assisted in the tracing of notes and vetting of the paper. LWW collated, analyzed the data, and wrote the paper.

## References

1. Kremer C, Duffy S, Moroney M. Patient satisfaction with outpatient hysteroscopy versus day case hysteroscopy: randomised controlled trial. BMJ. 2000; 320:279-82.
2. Marsh F, Kremer C, Duffy S. Delivering an effective outpatient service in gynaecology. A randomised controlled trial analysing the cost of outpatient versus daycase hysteroscopy. BJOG: an international journal of obstetrics and gynaecology. 2004; 111:243-8.
3. Giorda G, Scarabelli C, Franceschi S, Campagnutta E. Feasibility and pain control in outpatient hysteroscopy in postmenopausal women: a randomized trial. Acta obstetricia et gynecologica Scandinavica. 2000; 79:593-7.
4. De Angelis C, Santoro G, Re ME, Nofroni I. Office hysteroscopy and compliance: mini-hysteroscopy versus traditional hysteroscopy in a randomized trial. Human reproduction. 2003; 18:2441-5.
5. Sagiv R, Sadan O, Boaz M, Dishi M, Schechter E, Golan A. A new approach to office hysteroscopy compared with traditional hysteroscopy: a randomized controlled trial. Obstetrics and Gynecology. 2006; 108:387-92.

6. Ngai SW, Chan YM, Liu KL, Ho PC. Oral misoprostol for cervical priming in non-pregnant women. Human reproduction. 1997; 12:2373-5.

7. Ngai SW, Tang OS, Lao T, Ho PC, Ma HK. Oral misoprostol versus placebo for cervical dilatation before vacuum aspiration in first trimester pregnancy. Human reproduction. 1995; 10:1220-2.

8. Nagele F, Lockwood G, Magos AL. Randomised placebo controlled trial of mefenamic acid for premedication at outpatient hysteroscopy: a pilot study. British journal of Obstetrics and Gynaecology. 1997; 104:842-4.

9. Vercellini P, Colombo A, Mauro F, Oldani S, Bramante T, Crosignani PG. Paracervical anesthesia for outpatient hysteroscopy. Fertility and Sterility. 1994; 62:1083-5.

10. Broadbent JA, Hill NC, Molnar BG, Rolfe KJ, Magos AL. Randomized placebo controlled trial to assess the role of intracervical lignocaine in outpatient hysteroscopy. British journal of obstetrics and Gynaecology. 1992; 99:777-9.

11. Zupi E, Luciano AA, Valli E, Marconi D, Maneschi F, Romanini C. The use of topical anesthesia in diagnostic hysteroscopy and endometrial biopsy. Fertility and Sterility. 1995; 63:414-6.

12. Davies A, Richardson RE, O'Connor H, Baskett TF, Nagele F, Magos AL. Lignocaine aerosol spray in outpatient hysteroscopy: a randomized double-blind placebo-controlled trial. Fertility and Sterility. 1997; 67:1019-23.

13. Shankar M, Davidson A, Taub N, Habiba M. Randomised comparison of distension media for outpatient hysteroscopy. BJOG: an International Journal of Obstetrics and Gynaecology. 2004; 111:57-62.

14. Thinkhamrop J, Laopaiboon M, Lumbiganon P. Prophylactic antibiotics for transcervical intrauterine procedures. The Cochrane Database of Systematic Reviews. 2013:Cd005637.

15. Clark TJ, Voit D, Gupta JK, Hyde C, Song F, Khan KS. Accuracy of hysteroscopy in the diagnosis of endometrial cancer and hyperplasia: a systematic quantitative review. JAMA. 2002; 288:1610-21.

16. Jansen FW, Vredevoogd CB, van Ulzen K, Hermans J, Trimbos JB, Trimbos-Kemper TC. Complications of hysteroscopy: a prospective, multicenter study. Obstetrics and Gynecology. 2000; 96:266-70.

**Citation:** Whui LW, Wei-Wei WS, Siraj SHM, et al. Office Hysteroscopy: A Retrospective Descriptive Study of our Experience over 5 Years at a Tertiary Center. J Gynec Obstet 2018; 1:026.