



Original Article

Hysteroscopic Findings and Interventions at A Private Fertility Centre

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ABSTRACT

Background-Hysteroscopy is the gold standard procedure in assessing and treating intrauterine abnormalities that may affect fertility. **Objectives-** To determine the indications, findings, type of hysteroscopic surgeries and complications of hysteroscopy. **Methods-** This cross-sectional study was conducted over a two-year period. The data for 341 consecutive women were collected and reviewed. Statistical analysis was done using Microsoft Excel. **Results-** In this review 336(98.8%) of hysteroscopies were done for the evaluation and treatment of women with infertility. The average age of the study participants was 40.6±6.4 years. The modal parity was para 0 which constituted 74.8% of participants. Intrauterine adhesions (IUA) were the most common findings at hysteroscopy, 80(23.5%) had IUA alone and 13(3.8%) of the women had IUA coexisting with other intrauterine abnormalities. Endometrial polyp was the second most common abnormality seen alone (55(16.1%)) or in combination with other intrauterine abnormalities (10(3.8%)). Hysteroscopic adhesiolysis was done in 93(38.3%) women followed by polypectomy with a frequency of 68(28.2%). There were 5(1.5%) women who had complications, 3(0.9%) of the women had uterine perforation. **Conclusion-** Evaluation and treatment of infertility was the commonest indication for hysteroscopy. Intrauterine adhesions were the commonest findings at hysteroscopy. Intrauterine adhesiolysis was the most frequently performed operative procedure. The most common complication encountered was uterine perforation.

Keywords: Hysteroscopy, Indications, Findings, Complications, Laser, Infertility, Intrauterine adhesions, Uterine Perforation

INTRODUCTION

Millions of people are affected by infertility all over the world and this has an impact on family life and the

community as a whole.¹ Infertility has been regarded as a harrowing life experience for the woman especially, resulting in anxiety and depression comparable to other conditions like HIV infection, heart disease and cancer.² For conception to occur, the integrity of the genital tract needs to be normal.³ Hysteroscope is a valuable tool for evaluating the uterine cavity.⁴

Various endometrial pathologies like intrauterine adhesions, submucous myomas, endometrial polyps or congenital I uterine abnormalities can significantly affect implantation rate and subsequently live birth rate in all forms of assisted conceptions.² Considering that the

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success rate of IVF treatments is 25-30% and attributable mostly to implantation failure, the evaluation of the endometrial cavity prior to IVF procedures is very important.⁵ Prior to the development of the hysteroscope, evaluation of intrauterine pathology was done with hysterosalpingography (HSG), curettage or pelvic ultrasound.^{6,7} The diagnostic accuracy of these modalities are limited as focal lesions may be missed or if they are multiple.^{8,9} Hysteroscopy is an important endoscopic modality in the management of intrauterine pathologies.¹⁰ It is increasingly being used to investigate infertility because of the relative ease of use and the fact that it is less invasive when compared with other gynaecologic endoscopies.¹⁰

Currently a baseline hysteroscopy is recommended before IVF-ET especially in failed previous attempts.¹¹ A report from a private facility in Jos, Nigeria revealed that majority of patients who had hysteroscopy were IVF clients who had it as a pre-IVF assessment or due to recurrent IVF failures.¹⁰ This study was a retrospective review with a smaller study population as a result generalizability is limited. Other reported indications for hysteroscopy include menorrhagia, hypomenorrhoea, recurrent miscarriages.^{10,12} Hysteroscopy is commonly performed as an out-patient ambulatory procedure. They are largely done without anaesthesia as miniature scopes are now available. Therefore, patients remain conscious and walk in and out of the hysteroscopy room and therefore no long periods of post-operative monitoring or recovery.¹³

Despite the diagnostic yield of hysteroscopy, its availability is limited in our environment to fertility centres and some few private and public facilities due to constraints in resources. The indications for hysteroscopy particularly for infertile women preparing for IVF have remained unclear. Not much is known about findings at hysteroscopy and the operative procedures done at hysteroscopy in this environment. We therefore report the indications, hysteroscopic findings, hysteroscopic surgeries and complications in 341 hysteroscopies performed over a period of 3 years.

MATERIALS AND METHODS

This was a prospective cross-sectional study conducted at Alps Hospitals and Diagnostics, Jos, Nigeria from June 2021 to June 2023. The study population was women who presented for gynaecological evaluation. The sampling method was convenience sampling. A pre-structured Microsoft Excel spreadsheet was used to collate data from consecutive women who had hysteroscopy within the study period. The variables collated included age, parity, indication, hysteroscopy findings, interventions and complications. Ethical approval was obtained from the hospital research and

ethical committee with approval number-ALPS/ADM/REC/001/1025.

The hysteroscopies were all carried out by author KE and FAE who have training and experience in gynaecological endoscopy. Author KE had additional training in laser gynaecology. SAO, DOO and SAJ were surgical assistants. Author COE and POK also had basic training in endoscopy. The hysteroscopy procedure was scheduled in the immediate period following menstruation (commonly on 10th day of menstrual cycle).

Procedure For Hysteroscopy

Cervical Postaglandin E1 analogue (Misoprostol®)-400µg was inserted into the posterior vaginal fornix 4-6 hours prior to hysteroscopy to soften the cervix. The patients were placed in lithotomy position, cleaned with antiseptic solution and draped. Analgesia was achieved using conscious sedation using benzodiazepine and an opioid analgesic or paracervical block using a mixture of 5mls each of 1% Lidocaine and 0.5% bupivacain. Regional or general anaesthesia was offered to patients who declined paracervical block or conscious sedation. The cervix was exposed with a pair of Sims speculum and the anterior cervical lip was grasped with tenaculum. Hegar's dilator is used to dilate the cervix where there was severe stenosis.

The equipment used was Smith-Nephew Enhanced Digital 3-Chip Camera unit, Shrek Xenon light source, hp HD monitor, AIDA Image capture device, Olympus rigid hysteroscope with a 30° rod lens telescope, (Germany), Automated infusion pump (C-Fusor 1000 Mx4810 by Smiths Medicals) and Lotus NL B.V Medical diode Laser system.

The rigid hysteroscope, operating sheath, camera, light source and water channel were coupled. Normal saline was utilized as the distension medium and instilled at a controlled pressure of 100-150mm Hg. Complete examination of the cervical canal and endometrial cavity was done and findings were recorded. Women with unicornuate and bicornuate uterus were confirmed with laparoscopy. Uterine myomas were classified based on recommendation by International Federation of Gynaecology and Obstetrics.¹⁴ Those with intrauterine abnormalities that required surgery had hysteroscopic surgery using laser energy. The Laser surgeries were mostly done by author KE who had training in gynaecologic laser surgery and FAE.

Women with complications following hysteroscopy were managed appropriately. A 6-Fr catheter was inserted into the uterine cavities of women that had adhesiolysis or myomectomy then removed on the 10th day post procedure. Fluid deficit was estimated manually after the procedure. Doxycycline capsules, metronidazole, and analgesics were prescribed for

operative cases. Estradiol valerate 2mg twice daily for 21 days was given to women who had myomectomy, metroplasty or intrauterine adhesiolysis to regenerate the endometrium and medroxyprogesterone acetate 5mg daily for 1 week for women with endometrial polyps. All patients were monitored until fully recovered from anaesthesia and discharged home.

Data analysis was performed using Microsoft Excel for Windows, Version 25 Armonk, NY, USA. Continuous variable was presented as mean and standard deviation while categorical variables were presented as proportions and represented in the form of frequency tables and pie chart.

RESULT

Demographic Characteristics

During the period of this study 341 hysteroscopies were in our facility. From Table 1, the average age of the women that had hysteroscopy was 40.8 ± 6.4 years. Most of the women (255(74.8%)) were nulliparous.

Table 1 Demographic Characteristics

PARAMETER	FREQUENCY (%)
21-30	24(7.0)
31-40	132(38.7)
41 and above	185(54.4)
Average age	40.8 ± 6.4
PARITY	
0	255(74.8)
1-3	8(24.3)
4 and above	3(0.9)

Table 2: Indications For Hysteroscopy

PARAMETER	FREQUENCY (%)
Menorrhagia	1(0.3)
Primary amenorrhea	1(0.3)
Recurrent miscarriage	3(0.9)
Infertility With Risk of Intrauterine Adhesions	315(92.4)
Curettage only	119(34.9)
Myomectomy only	92(30.0)
Previous Caesarean section only	26(7.6)
Previous curettage+myomectomy	43(12.6)
Previous myomectomy+caesarean section	20(5.9)
Previous curettage + caesarean section	10(2.9)
Previous myomectomy + Caesarean section + curettage	5(1.5)
Previous Failed IVF only	21(6.2)

Table 3: Findings at Hysteroscopy

FINDINGS	FREQUENCY (%)
Normal	128(37.5)
Intrauterine adhesions only	80(23.5)
Intrauterine adhesions with Polyps	80(23.5)
Intrauterine adhesions with Fibroid	3(0.9)
Polyp only	7(2.1)
Polyp with fibroid	1(0.3)
Fibroid with congenital anomaly	1(0.3)
Polyp with foreign body	31(9.1)
Fibroid only	1(0.3)
Fibroid with congenital anomaly	15(4.4)
Congenital anomalies only	1(0.3)
Congenital anomaly with foreign body	3(0.9)
Foreign Body only	3(0.9)
Cervical stenosis with intrauterine adhesions	5(1.5)
Cervical stenosis with polyps and fibroid	1(0.3)
Cervical stenosis with congenital anomalies and Fibroid	1(0.3)

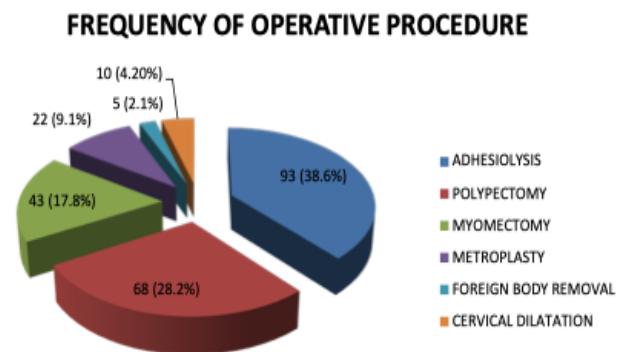


Figure 1: Operative Procedures Performed

Indications for Hysteroscopy

The indications for hysteroscopy are shown in Table 2 below. Infertility with risk of intrauterine adhesion was the commonest indication for hysteroscopy and accounted for 315(92.4%) of the study population. This was followed by women with previously failed IVF only (21(6.2%)). Previous curettage featured prominently as a risk for intrauterine adhesion, curettage only accounted for 119(34.9%) of the risk factors for intrauterine adhesions. Other women had a combination of curettage with other uterine surgeries (Table 2). Women who had myomectomy followed closely, those who had myomectomy only constituted 92(30%) of women that had hysteroscopy during the review period. Other women had myomectomy with other uterine surgeries.

Hysteroscopy Findings

During the period reviewed, 128(37.5%) of the women who had hysteroscopy had normal findings. Intrauterine adhesion was the most common finding at hysteroscopy. Intrauterine adhesion only was seen in 80(23.5%) of women, it was each seen in combination with polyps and congenital uterine anomalies in 3(0.9%) of the study participants. Endometrial polyp was the second most common abnormality seen alone 55(16.1%) or in combination with other intrauterine abnormalities. Other findings at hysteroscopy are shown in Table 3.

Congenital uterine abnormalities were found in 21(6.2%) of the study population. Septate and arcuate uteri constituted 10(47.7%) and 9(42.9%) respectively. One patient each (4.7%) had unicornuate and bicornuate uteri which were all confirmed by laparoscopy.

A total of 43 (12.3%) patients had fibroids at hysteroscopy, the majority (21(48.8%)) were G1 myomas. This was followed by G0 which constituted 18(41.9 %) of all fibroids. Submucous myomas that were a combination of G1 and G0 myomas constituted 3(6.9 %) of myomas. One woman (2.4%) had a G2 myoma. Foreign bodies in the uterine cavity was seen in 5(1.5%) of the cases reviewed, nylon and bone was each seen in 2(40%) patients and 1(20%) patient had a nylon suture in the uterine cavities.

The operative procedures performed during the review period are shown in Figure 1 below. A total of 231 hysteroscopic surgeries were performed during the study period. Hysteroscopic adhesiolysis was the most frequently 93(38.6%) performed procedure during the study period. This was followed by polypectomy with a frequency of 68(28.2%).

The complication occurred in 5(1.5%) of the women who had hysteroscopy. Uterine perforation was the commonest complication and was seen in 3(0.9%) of the women who had hysteroscopy. Cervical tear and pulmonary edema each occurred in 1(0.3%) of the cases reviewed.

DISCUSSION

Hysteroscopy represents a criterion standard for the assessment of the uterine cavity and for operative management of abnormalities within the cavity if the uterus.¹² In this review, most (366(98.6%)) of the hysteroscopy done was part of evaluation for infertility. Infertile women with risk of intrauterine adhesion constituted 315(92.4%) and previous failed In Vitro Fertilization (IVF) constituted 21(6.2%) of the indications for hysteroscopy. This finding may be due to the fact that our Centre is primarily a fertility Centre as a result most of the consultations are for infertility. The findings in this report were similar to a report on the

experience with hysteroscopy at private specialist hospital in Nigeria.

In the report, women who had hysteroscopy as a pre-assessment for IVF constituted 43.2% while recurrent IVF failure and evaluation of infertility constituted 14.9% and 27.2% of the indications respectively.¹⁰ Hysteroscopy is the gold-standard diagnostic modality for the diagnosis and treatment of intrauterine conditions that results in infertility.¹⁵ It has the ability to detect abnormalities in the uterine cavity that was missed by other modalities on investigation.¹⁶ A randomized clinical trial revealed that women with previous IVF failure should have hysteroscopy prior to another IVF as a previous IVF failure is an independent predictor of intrauterine pathologies.¹⁷ During this review 3 patients representing 0.3% of the study population had hysteroscopy due to recurrent pregnancy losses. Evaluation of endometrial abnormalities is recommended in women with recurrent pregnancy losses because endometrial abnormalities are frequently found in this group of women.¹⁸

Of the 341 women that had hysteroscopy during the study period, the finding was normal in 128(37.5%). This is similar to findings in at a private hospital in Jos Nigeria were 43.2% of women who had hysteroscopy had normal findings.¹⁰ Intrauterine adhesions were the most common abnormal finding in this study either alone or with other co-existing abnormalities. Intrauterine adhesion was more commonly associated with cervical stenosis. Endometrial polyps were the second most common abnormality seen on hysteroscopy. Just like this review, a comparative analysis of hysteroscopic findings among infertile women in Nigeria and India revealed that intrauterine adhesion followed by endometrial polyps were the common findings in the Nigerian arm.¹⁹ This was however different from a report by Salazar-Jimenez et al, they reported endometrial polyp as the commonest (26.7%) intracavitary pathology.¹⁵

Endometrial polyps tend to be common in developed countries as hypertension, and obesity, consumption of processed foods increases.²⁰ Intrauterine adhesions is known to adversely affect implantation by distorting the uterine cavity, impairing endometrial growth and receptivity, decreased angiogenesis and alteration of endometrial and myometrial blood flow.²¹ Evidence is now accumulating that polyps are relevant to fertility and fertility treatment outcome.²² Endometrial polyps are thought to impede sperm transportation and implantation of the embryo. Endometrial polyps also cause intrauterine inflammation which leads to the production of inhibitory substances of implantation.²² In a pre-IVF evaluation with hysteroscopy of 458 patients, endometrial polyps were seen in 45.2%, out of these only 12% were detected by transvaginal ultrasonography or sonohysterography before hysteroscopy. Apart from hysteroscopy offering a better detection rate for

endometrial polyps, it allows the spontaneous treatment of this pathology at the same sitting.²³

Another common finding during the review period was submucous myomas. It was seen alone (9.1%) or in combination with other intrauterine abnormalities, with the commonest being cervical stenosis. European Society of Gynaecological Endoscopy Type 1 myoma was the most common (21(48.8%)) type of submucous myoma seen followed by Type 0 (18(41.9%)). Munoz et reported that out of 120 hysteroscopic myomectomies performed 43.4% and 42.5% were done for type 0 and type 1 myomas respectively.²⁴ Myomas creates an environment that is detrimental for fertilization and implantation. Myomas could result in alteration of junctional zone peristalsis. The alteration in frequency and direction of the contraction could result in expulsion of the embryo out of the uterine cavity.²⁵ Increased uterine irritability and reduced blood supply to the developing placenta and fetus are some suggested mechanisms by which fibroids cause miscarriages.²⁶

In this review, Congenital Uterine Anomalies (CUA) was seen in 6.2% of women who had hysteroscopy, majority of which had infertility. This finding contrasted the prevalence of 2.3% reported among infertile women in South-Western Nigeria.¹⁹ The reason for the high prevalence emanating from this study compared to that from south-western may be due to the fact that the study population in our study was larger and included women with indications other than infertility. It has been stated that environmental, nutritional, genetic and racial factors may influence the prevalence of CUA.

Septate and arcuate uteri were the most common congenital uterine anomalies seen and constituted 47.7% and 42.9% respectively. Just like this study, septate uterus was the most common hysteroscopic finding in a report by Ajayi et al.¹⁹ Congenital uterine anomalies are known to be associated with adverse reproductive outcomes, thus routine hysteroscopy has been recommended for infertile to detect CUAs that may adversely affect IVF treatment and outcome.¹⁹

The commonly performed hysteroscopic procedures during the review period include intrauterine adhesiolysis (38.6%), polypectomy (28.2%) and myomectomy (17.8%). Most of the procedures were performed using diode laser. The diode laser is versatile modalities that has a simultaneous cut and coagulate action thereby providing improved haemostasis compared with carbondioxide laser. Diode laser has the unique characteristic of cutting precisely with reduced thermal dispersion consequently minimizing damage to surrounding tissues.²⁸ Hysteroscopic adhesiolysis was the most frequently performed surgery (38.6%) during the period reviewed. Intrauterine adhesiolysis using hysteroscope is the preferred modality for the treatment of intrauterine adhesions compared to the traditional adhesiolysis with blind dilatation and curettage.²⁹ This is

because the surgeon is able to directly visualize and classify the adhesions before intervention.²⁹

Myomectomy for submucous myomas ranks among the frequent (17.7%) surgical procedures after endometrial polypectomy (28.2%). Hysteroscopic myomectomy has been found to increase conception rate and increase reproductive outcomes.³⁰ In this review most (48.8%) of hysteroscopic myomectomy was done for type G1 submucous myomas, this was followed by type G0 submucous myomas (41.9%). Just like this study, a report from Serbia revealed that most of the hysteroscopic myomectomies (62.5%) were done for type G2 myomas followed by type G2 myomas (19.6%).³⁰ It's been observed that the more intramural component a submucous myoma has the more the need for a repeat procedure at another date to complete resection. Due to this, the need for repeat procedures is commoner in G2 submucous myomas.³⁰ There is evidence that hysteroscopic myomectomy is associated with less complications, better reproductive outcomes and improvement in menorrhagia.^{30,31}

The complication rate following hysteroscopy was 1.5% in this review. A report from a private hospital in Nigeria reported a complication rate of 0.9%.¹² A report in India however reported a higher complication rate (2.7%).¹⁵ This discrepancy may be due to the smaller number of patients reviewed in the report compared to ours. Complications tend to be commoner in operative hysteroscopies. Also, if hysteroscopies were performed by a less skilled surgeon may contribute to this higher complication rate. Complications are particularly uncommon during hysteroscopy, but may occur when contraindications to the procedure were ignored, inappropriate use of equipment or where proper surgical techniques are not followed.³² Just like was observed in this study, uterine perforation was the most common complication of hysteroscopic surgery in the report from India.¹⁵ Uterine perforation is common when there is cervical stenosis, severe ante flexion or retroflexion and during myoma resection.⁵ Pulmonary edema from distension fluid overload and cervical tear were each reported in 0.6% of the participants.

The prospective nature of this study was one of its strengths as a prospective study gives data of higher accuracy and without bias. Also, significant variation in level of expertise with hysteroscopy did not arise as hysteroscopy was done by only two of the authors who were well trained. There are limitations in this study that is worthy of being stated. This study was a hospital-based study whose deductions are not applicable to a larger population.

CONCLUSION

In conclusion, evaluation and treatment of infertility was the commonest indication for hysteroscopy. Intrauterine adhesions and endometrial polyps were frequent findings at hysteroscopy at our centre. Intrauterine adhesiolysis and polypectomy were the most frequently performed operative hysteroscopies. The most common complication encountered was uterine perforation. We advocate for more deployment of hysteroscopy for evaluation of the uterine cavity particularly in women with infertility.

Declaration of Interest: None

INTRODUCTION

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