Fertility Enhancing Hysteroscopic Surgery : Our Experience

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Abstract

690 hysteroscopies done over a period of four and a half years for infertility were evaluated. 85 therapeutic hysteroscopic procedures like hysteroscopic metroplasty, lysis of intrauterine adhesions, electroresection of fibroids, removal of foreign bodies and cornual cannulation were carried out. These minimally invasive procedures were associated with satisfying results, least morbidity, shorter hospital stay and high patient satisfaction.

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Introduction

Direct visual examination of the uterine cavity has emerged in place of blind or indirect evaluation methods. Seeing the inside of uterine cavity with the help of hysteroscope and endovision camera helps in making the most appropriate diagnosis and the extent of disease. Most of the intrauterine pathologies can be managed by skilful operative hysteroscopic procedures. The first attempt to visualize the inside of the uterine cavity was made by Pantaleoni in 1869, but hysteroscopy was not widely adopted until the advent of cold light and fibre optics, with lenses to improve image and field of vision. Hysteroscopic surgery has now become extremely popular with gynaecologists because of the rapid recovery time, decreased cost and fewer complications.

Material and Methods

Diagnostic and therapeutic hysteroscopic procedures performed for infertility between March 96 and September 2000 are included in this study. Pre-operative evaluation and pre anaesthetic assessment was done as for any major surgery. All cases of infertility had an ultrasonography and hysterosalpingography (HSG) done prior to surgery. All hysteroscopies were performed under general anaesthesia or spinal anaesthesia. Diagnostic hysteroscopy was performed with 4 mm 30° rigid telescope with a single channel diagnostic sheath or continuous flow sheath. Most of the therapeutic procedures were performed with resectoscope consisting of working element, electrodes, inner sheath and outer sheath. We used passive type working element where loop remained inside the inner sheath. Various electrodes we used, were loop electrode, roller ball or drum electrode and right angle or Collin's knife. For cannulation of Fallopian tube we used sheath with an operating channel through which ureteric catheter and guide wire were passed into the ostia. For diagnostic hysteroscopy

we used Ringer's lactate as the irrigation fluid, however, for operative hysteroscopy non electrolytic 1.5% glycine was used. We used Endomat for maintaining the flow rate and intrauterine pressure. Resectoscopic surgery also required suction of fluid at low pressures to maintain clarity. In all cases, we used Endovision camera with monitor and VCR for imaging and recording. We used 250 watts halogen cold light source or xenon 300 and Valley Lab Force 300 electrosurgical generator as additional accessories.

All cases were performed in semilithotomy position and 45° Trendlenburg tilt. This position facilitated laparoscopy which was done as a routine as part of infertility evaluation or whenever difficult hysteroscopic procedure required laparoscopic guidance. For diagnostic hysteroscopy patient was prepared as for dilatation and curettage (D and C). Cervix was dilated upto 6 mm and then hysteroscope fixed with diagnostic sheath, irrigation tube, light cable and camera was introduced under vision. After entering the cavity both ostia were seen and fundus was inspected. After visualization of fundus, scope was withdrawn to see all the walls of the uterus. Cervical canal was visualized while withdrawing the scope. For resectoscopic surgery, cervix was dilated upto 10 mm. Resectoscope was introduced under vision and after getting oriented with anatomical landmarks surgery was carried out depending upon the requirement of each case.

Results

In this study 690 patients underwent hysteroscopy, out of which 85 required therapeutic hysteroscopic procedures (Table-1). We had 7 cases of septate uterus, out of which 2 had primary infertility and 5 had repeated abortions. Laparoscopy was done in all cases to exclude bicornuate uterus and septum was divided from apex to base with electrocautery using Collin's knife. 2 cases of primary infertility had other factors contributing to infertility. One of them conceived after ovulation induction and had a full term normal delivery. Out of 5 cases with repeated

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pregnancy losses, 3 had live born infant. All these patients who conceived after hysteroscopic metroplasty were given prophylactic cervical encirclage.

Table 1

Hysteroscopic procedures (n=690) and pregnancy outcome

Procedure	No of patients	Pregnancy outcome	
		Abortion	Term Delivery
Only diagnostic	605		
Hysteroscopic metroplasty	7	Nil	4
Lysis of intrauterine adhesions	30	Nil	11
Electroresection of fibroids	13	1	2
Electroresection of polyps	15	Nil	5
Hysteroscopic cornual cannulation	15	Nil	Nil
Removal of foreign bodies	5	Nil	2

We had 30 cases of intrauterine adhesions of varying severity (Table 2). All cases of intrauterine adhesions were treated with knife electrocautery under vision. Grade 3 extensive adhesions were lysed under laparoscopic guidance. 11 patients became pregnant and delivered a viable infant at term, and there were no third stage complications. Most of these cases had Grade 1 adhesions. There were 4 cases of tubercular endometritis with extensive destruction of endometrium. In spite of anti-tubercular treatment and high doses of oestrogen these young patients are persisting with amenorrhoea.

Table 2

Types of adhesions (n=30)

Grade	Description	No	Percentage
Grade 1	Thin flimsy adhesions, cornual areas normal	10	33%
Grade 2	Firm adhesions, connecting different parts of uterus, ostia visible	14	47%
Grade 3	Extensive firm adhesions with agglutination of uterine walls, ostia not visible	6	20%

Electroresection of fibroids was carried out in 13 cases of infertility. Only 3 patients conceived, out of which one ended in abortion and 2 continued till term and had normal delivery. Electroresection of polyps was done in 15 patients out of which only 5 delivered viable infant at term.

We had 15 cases of bilateral cornual block, which were confirmed laparoscopically and cornual cannulation was done with ureteric catheter and Terumo guide wire. In 6 cases cannulation could be done successfully, thereby implying that cornual block was due to a mucus plug or it was a false block. However, none of these patients have conceived.

We had 5 cases of secondary infertility following a previous spontaneous abortion or MTP at 10-14 weeks gestation. In all these cases, we found foetal bones lying embedded in endometrium. Foetal bones were removed under vision. 2 patients conceived and delivered live babies at term.

Discussion

Hysteroscopy is becoming an important tool in the evaluation of infertility in women [1]. Evaluation of endometrial cavity by either HSG or hysteroscopy should be performed early. Hysteroscopic abnormalities are common in infertile patients; intrauterine abnormalities have been detected in 19-62% of infertile women in some studies [2]. In our series, abnormalities were detected in 12.3% of cases.

Fedele and associates [3] reported the successful use of resectoscope in 66 women with septate uterus, with a term pregnancy rate of 83%. However, we had a term pregnancy rate of 55% during a follow up of one year after surgery. In Hassiakos series [4], 78.4% of 211 women with history of pregnancy loss had live born infant. But only 33.3% of 36 with primary infertility became pregnant. Till the advent of hysteroscopic surgery, abdominal metroplasty was carried out which was associated with morbidity of laparotomy, risk of secondary infertility due to adhesions and necessity of subsequent delivery by Caesarean section. Operative hysteroscopy is a safe and effective method of management of uterine septa, and makes future vaginal delivery possible.

In 1948 Asherman described a syndrome of amenorrhoea or hypomenorrhoea, infertility and habitual abortion accompanied by intrauterine synechiae, which usually occurs following D&C in pregnancy or puerperium [5]. Previously Asherman's syndrome was treated by blind division of adhesions followed by oestrogen therapy and an IUCD. Hysteroscopic division of adhesions gives better results with less morbidity, in addition to providing an accurate diagnosis of the extent of adhesions [6,7].

Out of 30 cases of intrauterine adhesions in our series only 11 conceived. Most of these cases had mild or moderate adhesions. 4 cases with severe adhesions are still persisting with amenorrhoea. In a series by Sugimoto [6], of 192 women with adhesions, 181 were successfully treated. Menstruation was restored in 143, 79 became pregnant but only 45 delivered a viable infant and 8 had third stage placental problems. In another series of 187 women, results were comparable to our small series.

Most submucous fibroids cause progressively heavier menstrual flow, irregular bleeding leading to anaemia. Submucous myomas may also impair fertility through inadequate placentation or cornual distortion. Classically, the management in such cases has been myomectomy by laparotomy. Submucous myomas can now be safely removed by operative hysteroscopy [8]. We had 13 cases of submucous myomas and 15 cases of polyps which were resected successfully

hysteroscopically. All the submucous myomas in our series, were those with more than 50% intramural extension. 3 patients conceived after myoma resection and 5 after resection of polyps. One ended in abortion and 7 pregnancies continued till term with normal delivery. We did not give gonadotropin releasing hormone agonist therapy to any of our patients prior to resection. In Donnez [9] series of 24 women who wished to become pregnant and had no other infertility factors, 66% became pregnant. However, in our series pregnancy rate was only 25%.

In cases of infertility with bilateral cornual block detected by HSG and subsequently confirmed laparoscopically, hysteroscopic cannulation was attempted in 15 cases. Tubal patency could be achieved in 6 cases but none of these patients have conceived. These patients may have additional factors contributing to their infertility. This method may have very little therapeutic effect but has definitely prevented unnecessary laparotomy and uterotubal implantation in few cases. However, PG Paul [10] and others have found gratifying results with this procedure.

Secondary infertility due to intrauterine foetal bones has been reported by various authors [11,12]. As hysteroscopy is becoming a mandatory diagnostic procedure in infertility evaluation, more cases are being reported. We had 5 cases of secondary infertility following a previous mid trimester abortion. In all these cases, we found foetal bones lying embedded in endometrium. All the patients were having regular normal periods with no accompaniments. Foetal bones were removed under vision, 2 patients conceived subsequently and delivered live babies at term.

Hysteroscopic surgery has definitely contributed in enhancing fertility. It is now the preferred method of

treatment of Asherman's syndrome, intrauterine septa, removal of foreign bodies, polyps and submucous myomas. Hysteroscopic surgery is advantageous to the patient and the health service in terms of shorter hospitalisation, faster recovery, reduced discomfort and impressive financial savings.

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At an international conference, an American, a Brit, and a Russian were discussing the shortcomings of their diagnoses.

"I can't stand it some time. We treat people for cancer, and then they die of AIDS".

"I know what you mean." said the Brit. "We treat them for yellow fever, and it turns out they had malaria. Then, of course, they die".

"That is not a problem in our country" said the Russian doctor. "When we treat people for a disease, they die of *that* disease."

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