Original Article

Laparohysteroscopy in female infertility: A diagnostic cum therapeutic tool in Indian setting

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Abstract

Aims: To evaluate the role of laparohysteroscopy in female infertility andto study the effect of therapeutic procedures in achieving fertility. **Settings and Design:** Patients with female infertility presenting to outpatient Department of Obstetrics and Gynecology were evaluated over a period of 18 months. **Materials and Methods:** Fifty consenting subjects excluding male factor infertility with normal hormonal profile and no contraindication to laparoscopy were subject to diagnostic laparoscopy and hysteroscopy. **Statistical Analysis Used:** *T*-test. **Results:** We studied 50 patients comprising of 24 (48%) cases of primary infertility and 26 (52%) patients of secondary infertility. The average age of active married life for 50 patients was between 8 and 9 years. In our study, the most commonly found pathologies were PCOD, endometroisis and tubal blockage. 11 (28.2) patients conceived after laparohysteroscopy followed by artificial reproductive techniques. **Conclusions:** This study demonstrates the benefit of laparohysteroscopy for diagnosis and as a therapeutic tool in patients with primary and secondary infertility. We were able to achieve a higher conception rate of 28.2%.

Key words: Diagnostic cum therapeutic tool, infertility, laprohysteroscopy

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Introduction

Infertility, according to WHO, is defined as "a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse". Infertility affects 10–15% of couples,[1] posing a unique issue, as a couple must be treated rather than an individual. Of the causes of infertility, the female factor contributes in the majority of cases (40–55%), followed by the male factor (30–40%), both partners 10%, and unexplained (10%) in the remainder. Clinically, the majority of pelvic pathologies have been difficult to determine based on routine pelvic examinations alone. The ability to see and manipulate uterus, fallopian tubes and ovaries during laparoscopy has made, it an essential part of infertility evaluation. Similarly, visualizing the uterine cavity and identifying the possible pathology has made hysteroscopy[1] an equally important tool in infertility evaluation. The question of tubal morphology, tubal patency, ovarian morphology, unsuspected pelvic pathology, and uterine cavity abnormalities can all be resolved with accuracy at one session by using a combined laprohysteroscopy. In addition, laprohysteroscopic guided biopsy and therapeutic procedures such as polypectomy, myomectomy, septal resection, and adhesionlysis can be done in the same setting.

Currently, the gold standard of diagnosis and treatment of infertility is laparoscopy and hysteroscopy. Our study was undertaken to find the hystero-laparoscopic findings in 50 infertile women, which would help in planning appropriate management in an Indian setting.

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Materials and Methods

Patients with female infertility presenting to the outpatient Department of Obstetrics and Gynecology of a tertiary care hospital in North India were evaluated prospectively over a period of 1½ years. All women who failed to conceive after 12 months of regular intercourse were included. Couples

who had not lived together for at least 12 months, those with male infertility and patients with absolute or relative contraindication for laparoscopy that is., any preexisting cardiovascular or respiratory condition or contraindications related to the procedure of laparoscopy, such as bowel obstruction, hernia, and generalized peritonitis were excluded. A complete and relevant history and clinical examination was carried out. A complete hormonal profile including serum follicle stimulating hormone, luteinizing hormone, prolactin, progesterone, and thyroid stimulating hormone was performed in all patients. Fifty consenting subjects with normal hormonal profile and no contraindication to the procedure were included in this study. The sample size was calculated as patients completing follow-up of 1½ year since the start of the study.

During the laprohysterosopic procedure, the pelvis was inspected, including uterus, fallopian tube, round ligaments, uterovesical pouch, uterosacral ligaments, and pouch of douglas. The tubes were inspected for any abnormality in their length and shape. Both ovaries were inspected regarding their size, shape, thickness of peripheral follicles, evidence of ovulation, and their relationship with fimbrial end of tubes. Peritubal, periovarian and omental adhesions, tubo-ovarian (TO) masses, endometriotic deposits, fibroid, presence of fluid in the pouch of douglas or any pathology, if present was noted. The patency of fallopian tubes was ascertained by injecting methylene blue into the uterine cavity and its spill through the fimbrial ends was checked.

Statistical methods

The data obtained was categorized as patients with primary and secondary infertility and evaluated using *t*-test.

Results

We studied 50 patients of female infertility comprising of 24 (48%) cases of primary infertility and 26 (52%) cases of secondary infertility. The mean age of presentation of patients with primary infertility was 30 ± 5.2 years as compared with 30 ± 6.1; years in those with secondary infertility.

The average age of active married life for the 50 patients with infertility was between 8 and 9 years, 6.8 ± 5 years for primary as compared with 8.32 ± 4.6 years for secondary (P = 0.024) [Table 1].

In our study, the most commonly found pathologies were polycystic ovarian disease (PCOD), endometriosis, and tubal blockage. Of these, PCOD was detected in 11 (22%) patients. These included 8 (33.3%) patients with primary infertility and 3 (11.5%) patients with secondary infertility. Simple ovarian cysts were found in 5 (10%) of the patients, which included 3 (12.5%) patients with primary infertility and 2 (7.7%) patients with secondary infertility.

In our study, 11 (45.8%) patients of primary infertility and 6 (23.1%) patients of secondary infertility had tubal pathologies. These included tubal block in 7 (29.2), beading/sacculations in 2 (8.3%) and dilatation and hydrosalpinx in 1 (4.1%), TO mass in 1 (4.1%) in the primary infertility group. The subjects with secondary infertility had tubal block in 2 (7.7%), dilatation and hydrosalpinx in 2 (7.7%), sacculation in 1 (3.8%), and tubal cyst in 1 (3.8%).

Endometriosis was detected in 9 (18%) patients, which included 2 (8.3%) in primary infertility group and 7 (26.9%) patients in secondary infertility group.

Uterine pathology was present in 6 (12%) patients. These included submucous uterine polyps 1 (4.2%) and uterine septum in 1 (3.8%) among the primary group. In patients with secondary infertility 3 (11.5%) had submucous polyp and 1 (3.8%) had uterine septum [Table 2].

Based on the underlying pathology, various therapeutic procedure were done in these patients which included ovarian drilling in 11 patients with PCOD, cystectomy in two patients, adhesionlysis in patients with endometriosis and hysteroscopic polypectomy and septal resection was done in patients with respective uterine pathology [Table 3]. Some patients with primary infertility had more than one pathology and hence the total number of pathologies is more than the total number of patients evaluated [Table 2].

Table 1: Demographic profile

Head	Primary infertility (*n*=24)	Secondary infertility (*n*=26)	*P*
Age at presentation (years)	30±5.2	30±6.1	0.57
Married of years	6.8±5	8.32±4.6	0.02

Table 2: Laprohysteroscopic abnormalities observed

Abnormality	Primary infertility (*n*=24) (%)	Secondary infertility (*n*=26) (%)	Total (*n*=50) (%)
Endometriosis	2 (8.3)	7 (26.9)	9 (18)
Submucosal fibroid	1 (4.2)	3 (11.5)	4 (8)
Septum uterus	1 (4.1)	1 (3.8)	2 (4)
Tubal blockade	7 (29.2)	2 (7.7)	9 (18)
Sacculation	2 (8.3)	1 (3.8)	3 (6)
Tubal cyst	0	1 (3.8)	1 (2)
Hydrosalpinx	1 (4.1)	2 (7.7)	3 (6)
Tubo-ovarian mass	1 (4.1)	0	1 (2)
PCOD	8 (33.3)	3 (11.5)	11 (22)
Ovarian cyst	3 (12.5)	2 (7.7)	5 (10)
Grand total	26 (108.3)	22 (84.6)	48 (96)

PCOD: Polycystic ovarian disease

Table 3: Procedure done

Procedure	Primary infertility (*n*=24) (%)	Secondary infertility (*n*=26) (%)	Total (*n*=50) (%)
Adhesionlysis	8 (33.3)	3 (11.5)	11 (22)
Drilling	8 (3.33)	3 (11.5)	11 (22)
Cystectomy	0	2 (7.6)	2 (4)
Septal resection	1 (4.1)	1 (3.8)	2 (4)
Grand total	17 (70.8)	9 (34.6)	26 (100)

Eleven (22%) patients were lost to follow-up. Among the remaining 39 subjects, 11 (28.2%) conceived after hysterolaprosopy and treatment. Of these patients, two conceived spontaneously, three patients conceived after intrauterine insemination and six patients conceived after *in vitro* fertilization.

Discussion

The primary outcome in this study was conception rate, which was achieved at 28.2%. Procedures were possible only in 52% of subjects (70.8% of primary infertility and 34.6% with secondary infertility). Hence, it substantiates our hypothesis that infertility can be treated with a single diagnostic as well as therapeutic procedure like hystero-laparoscopy with a reasonable success rate. This is likely to improve with more effective techniques and experience. A follow-up study has been planned to further substantiate this hypothesis.

Polycystic ovarian disease is one of the most common endocrinopathies associated with anovulation in women of the reproductive age, affecting 16–33% of women.[2] Polycystic ovarian syndrome occurs in association with polycystic ovaries and amenorrhea due to an ovulation, variable amounts of hirsutism and obesity is often accompanied by insulin resistance.

Endometriosis is the second most common cause observed in our study. The literature suggests that it can be the primary cause of infertility or one of the contributing factors. However, none of our patients had any dual pathology. Endometriosis may induce infertility as a result of anatomic distortion and adhesions. Histologic examination should be done to confirm the presence of endometrial lesions, especially those with a nonclassical appearance, but laparoscopy is the most commonly used modality to diagnose endometriosis. The golden rule in suspected patients with endometriosis is visual confirmation through laparoscopy (as mild endometriosis can only be detected on laparoscopy) before labeling a patient with endometriosis and starting treatment.[3]

The uterine pathology was seen in 12% of patients. Uterine pathologies are the cause of infertility in as many as 15% of couples seeking treatment[4] and are diagnosed in as many as 50% of infertile patients.[5-7] Septate uterus was the intrauterine abnormality (4%) in our study, which was undiagnosed by prior ultrasonography. Among all congenital uterine abnormalities, septate uterus is the most common cause associated with highest reproductive failure rates.[8,9] Although a diagnosis of septate uterus *per se* is not an indication for septoplasty, the reproductive performance of women with an uncorrected septum is rather poor (80% pregnancy loss, 10% preterm delivery, 10% term delivery) with most losses occurring in the first trimester (approximately 65%). Pregnancy outcomes dramatically improved after surgical correction (80% term delivery, 5% preterm delivery, 15% pregnancy loss).[8] Currently, the modern operative hysteroscopic techniques have made it a relatively easy and brief day care procedure with low morbidity and prompt recovery. Therefore, septal resection is recommended more liberally now-a-days.

This study thus clearly demonstrates the benefit of laparohysteroscopy for the diagnosis and treatment in patients of primary and secondary infertility. We were able to achieve a higher conception rate of 28.2%. Obviously the operator must be adequately trained to use the lapro and hysteroscopic equipment and also to manage such patients.

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