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# Role of diagnostic hystero-laparoscopy (DHL) in the evaluation of infertility

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**Abstract**
**Objective:** To determine the role of diagnostic hysteron laparoscopy in the evaluation of infertility in tertiary care centers.
**Materials and Methods:** This retrospective study was conducted at umaid hospital, a tertiary care centers in Jodhpur, Rajasthan, India from January 2016 to June 2017. Women aged 20-40 years with normal hormone profile without male factor infertility were included.
**Results:** Out of 178 patients, 125 (about 70%) women had primary infertility and the rest (53) had secondary infertility. The patients in secondary infertility group were slightly elder compared to primary group.
**Conclusions:** Hystero laparoscopy is an effective diagnostic tool for evaluation of certain significant and correctable tuba-peritoneal and intrauterine pathologies like peritoneal endometriosis, adnexal adhesions, and substrate uterus, which are usually missed by other imaging modalities.

**Keywords:** Hysteroscopy, infertility, laparoscopy

## Introduction
Infertility is a growing concern of the society. In India there are approximately 10-15% couples are infertile. Identifying the cause of infertility is complex and after a standard evaluation 20-30% of couples will have no clearly identifiable cause of their infertility [1, 2]. It has been estimated that using laparoscopy as a standard test have tubal function would reduce the apparent incidence of unexplained infertility from 10% to 3.5% [3]. Experience has shown that majority of pelvic pathology in infertile women is frequently not well appreciated by routine pelvic examinations and the usual diagnostic procedures. The ability to see and manipulate the uterus, fallopian tubes, and ovaries during laparoscopy has made it an essential part of infertility evaluation. Similarly, visualising the uterine cavity and identifying the possible pathology has made hysteroscopy an equally important tool in infertility evaluation. [3] The question of tubal morphology and patency, ovarian morphology, any unsuspected pelvic pathology, and uterine cavity abnormalities can all be resolved with accuracy at one session. Additionally, hysteroscopic guided biopsy and therapeutic procedures like polyp ectomy, myomectomy, septal resection, and adhesiolysis can be done in the same sitting. [3] This study was undertaken to evaluate the role of diagnostic hystero-laparoscopy (DHL) in the comprehensive work up of infertility, which would help in planning appropriate management.

## Material & Methods
Present study was a retrospective one which was conducted From January 2016 to June 2017 at Tertiary centre Umaid Hospital JODHPUR, Rajasthan. Infertile women with age group 20-40years with normal hormone profile and without male factor infertility were selected and written informed consent was taken. DHL with chromo pertubation test was performed in early follicular phase in all the patients.

## Results
Out of 178 patients, 125 (about 70%) women had primary infertility and the rest (53) had secondary infertility. The patients in secondary infertility group were slightly elder compared to primary group.

In primary infertility group, laparoscopic abnormalites were more common [Table 1] than hysteroscopy. Endometriosis and adnexal adhesions were the most common abnormalities detected in laparoscopy in primary and secondary infertility groups respectively [Table 2]. The most common intrauterine pathology in both the groups was uterine polyp [Table 3].The prevalence of unilateral and bilateral tubal block was equal in both the groups [Table 4].

**Table 1:** Prevalance of hysterscopy and laparoscopy abnormalities

| Procedure | Primary(125) | | Secondary(53) | |
|---|---|---|---|---|
| | Normal | Abnormal | Normal | Abnormal |
| Laparoscopy | 75(60%) | 50(40%) | 35(66%) | 18(34%) |
| Hysteroscopy | 160(83%) | 21(17%) | 41(78%) | 12(22%) |

**Table 2:** Laparoscopy Findings

| Findings | Primary(125) | Secondary(53) | Total |
|---|---|---|---|
| Endometriosis | 20(16%) | 04(8%) | 24 |
| Adenaxal adhesions | 09(7%) | 08(15%) | 17 |
| Tubal pathology | 07(6%) | 06(11%) | 13 |
| Ovarian pathology | 09(7%) | 01()2% | 10 |
| Myoma | 02(1.6%) | 01(2%) | 03 |
| Uterine anomaly | 03(2.4%) | - | - |

**Table 3:** Hysterscopy Findings

| Findings | Primary | Secondary | Total |
|---|---|---|---|
| Myoma | 4 | 3 | 7 |
| Polyp | 7 | 6 | 13 |
| Septum | 8 | 11 | 19 |
| Synechiae | 0 | 1 | 1 |

**Table 4:** Presence of complete tubal block

| Findings | Primary | Secondary |
|---|---|---|
| Unilateral | 11 | 9 |
| Bilateral | 8 | 14 |

## Discussion

Infertility affects about 10-15% of reproductive age couples. The prevalence of infertile individuals is increasing globally. Tuboperitoneal pathology is responsible for 40-50% cases of infertility [5]. The ability to observe and treatment the uterus, fallopian tubes, and ovaries during laparoscopy has made it a gold standard to evaluate pelvic pathology [6] Similarly, visualizing the uterine cavity and identifying the possible pathology has made hysteroscopy an essential part of infertility evaluation. The abnormalities of pelvic and uterus can resolved in combined hysteron laparoscopy, such as the lesion of tubal morphology and patency, ovarian morphology, and uterine cavity abnormalities at the same time [7]. 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]. Dysfunctional uterine contractility interfering with ovum or sperm transport or embryo implantation, and poor regional blood flow resulting in focal endometrial attenuation or ulceration [9]. The incidence of asymptomatic endometrial polyps in women with infertility has been reported to range from 10% to 32% [10]. A prospective study of 224 infertile women who underwent hysteroscopy observed a 50%pregnancy rate after polypectomy [11].

Diagnostic hysteron-laparoscopy is a very safe procedure. Other than mild abdominal pain, there were no major surgical or anesthetic complications in any of our patients.

Goldman *et al*. found that in the absence of findings during an unexplained infertility evaluation, routine laparoscopy was not necessary. The majority of patients who proceed to treatment will become pregnant. However, this study compared pregnancy outcomes in women with unexplained infertility rather than findings at laparoscopy [12].

Shimizu *et al*. concluded that diagnostic laparoscopy should be offered as an option for younger patients who desire spontaneous pregnancy because no significant difference was found in the cumulative pregnancy rate between patients proceeding to direct IVF and those doing so after laparoscopy. In the latter, however, the chance of spontaneous conceptions was higher [13].

## Conclusion

Diagnostic hysteron laparoscopy is an effective and safe tool in comprehensive evaluation of infertility, particularly for detecting peritoneal endometriosis, adnexal adhesions, and septum in the uterus. These are correctable abnormalities that are unfortunately missed by routine pelvic examination and usual imaging procedures.

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