

ORIGINAL RESEARCH

Assessment of role of HSG and hysteroscopy in infertility

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ABSTRACT

Background: Infertility has a negative effect on the psychological well-being and sexual relationships of couples. The present study compared and evaluated the role of HSG and hysteroscopy in infertility. **Materials & Methods:** 100 patients in the department of Obstetrics and Gynaecology, at SMGS Hospital, Government Medical College Jammu were asked about the duration of infertility as well as about all the tests and procedures they have had undergone in the past. per vaginal examination was done. Laparoscopy was performed following hysteroscopy. **Results:** Uterus was centralized in 91% of patients. Uterus was mobile in 83% study patients whereas uterine mobility was restricted in 17% study patients. In 87% study patients, uterus was anteverted whereas in 13% patients, the uterus was retroverted. On HSG, 17% patients had some sort of filling defect. In 47% of patients, some sort of spillage of dye was present whereas 53% patients had no spillage of dye on HSG. 30% patients had tubal factor for infertility identified upon diagnostic laparoscopy. The most common finding was that of hydro/hematosalpinx which was present in 12% patients, followed by excessive tortuosity/sacculation/elongation of tube in 9 % patients leading to infertility. **Conclusion:** Hysteroscopy gave a dynamic overview of various factors of infertility and came out as a complete investigatory as well as therapeutic modality for managing female infertility. Also, routine hysterosalpingography is associated with a lot of pain and discomfort to the patient whereas hysteroscopy is performed under suitable anesthesia.

Key words: Hysteroscopy, infertility, female

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INTRODUCTION

Infertility is defined as not being able to get pregnant (conceive) after one year (or longer) of unprotected regular intercourse. Infertility is divided into primary & secondary.¹ Primary infertility is defined as failure of clinical pregnancy within 12 months of exposure to pregnancy (sexually active, non-contracepting and non-lactating) among women 15 to 49 years old. Secondary infertility refers to inability to conceive following a previous pregnancy. All over the world, around 60 to 80 million couples are estimated to be suffering from the problem of infertility.²

There is evidence that infertility has a negative effect on the psychological well-being and sexual relationships of couples, but the evidence is inconclusive for the effect on marital relationships and quality of life.³ The diagnosis of unexplained infertility is one of exclusion and is made only when tests for infertility evaluation fail to reveal any significant abnormality. The Practice Committee of the American Society for Reproductive Medicine (ASRM) has published guidelines for a standard

infertility evaluation. It includes a semen analysis, assessment of ovulation, a hysterosalpingogram, and, if indicated, tests for ovarian reserve and laparoscopy.⁴ When the results of a standard infertility evaluation are normal, practitioners assign a diagnosis of unexplained infertility. Although estimates vary, the likelihood that all such test results for an infertile couple are normal (i.e., that the couple has unexplained infertility) is approximately 15% to 30%.⁵ Hysterosalpingography (HSG) has become a commonly performed examination due to recent advances and improvements in, as well as the increasing popularity of, reproductive medicine. Hysterosalpingography (HSG) plays an important role in the evaluation of abnormalities related to the uterus and fallopian tubes.⁶ The present study was conducted to assess

MATERIALS & METHODS

The study was conducted on 100 patients in the department of Obstetrics and Gynaecology, at SMGS Hospital, Government Medical College Jammu over a

period of 1 year after obtaining clearance from ethical committee.

Relevant parameters were recorded in a set proforma. Detailed clinical history was taken and complete clinical examination and investigations were done. A detailed history about infertility was taken. Participants were asked about the duration of infertility as well as about all the tests and procedures they have had undergone in the past. per vaginal examination was done to look for vaginal discharge, uterine size, position, mobility, any palpable mass,

fornicial fullness/tenderness, status of parametrium and POD. To see for any cervical motion tenderness as in PID. Laparoscopy was performed following hysteroscopy. Upon laparoscopy, all the pelvic organs and peritoneal cavity was examined. During this procedure, chromopertubation (CPT) was also performed to know about the patency of fallopian tubes using 20 mL 0.5% methylene blue dye. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of study patients as per type of infertility

| Type of infertility | Number | Percentage |
|-----------------------|--------|------------|
| Primary Infertility | 65 | 65% |
| Secondary infertility | 35 | 35% |

Table I shows that 65% cases were of primary infertility and 35% of secondary infertility.

Table II Findings on per vaginal examination in study patients

| Findings | Number | Percentage |
|---------------------------------|--------|------------|
| Uterus centralized | 91 | 91% |
| Uterus deviated | 9 | 9% |
| Retroverted uterus | 13 | 13% |
| Uterus Multiparous/bulky | 8 | 8% |
| Restricted mobility of uterus | 17 | 17% |
| Tenderness in POD | 5 | 5% |
| Anteverted uterus | 87 | 87% |
| Forniceal fullness – left side | 4 | 4% |
| Forniceal fullness – right side | 2 | 2% |
| Mass around uterus | 2 | 2% |
| Normal size uterus | 92 | 92% |

Table II shows that uterus was centralized in 91% of patients. Uterus was mobile in 83% study patients whereas uterine mobility was restricted in 17% study patients. In 87% study patients, uterus was anteverted whereas in 13% patients, the uterus was retroverted.

Table III Findings on hysterosalpingography

| | Present | Absent |
|-------------------------------|---------|------------|
| 1. Filling defect | 17 | 83 |
| 2. Dye spillage | 47 | 53 |
| | NUMBER | PERCENTAGE |
| a. Unilateral spillage of dye | 27 | 27% |
| b. Bilateral spillage of dye | 20 | 20% |
| c. Bilateral block | 53 | 53% |
| 3. Intravasation of dye | 1 | 1% |

Table III shows that on HSG, 17% patients had some sort of filling defect. In 47% of patients, some sort of spillage of dye was present whereas 53% patients had no spillage of dye on HSG.

Table IV Uterine factors of infertility on diagnostic laparoscopy

| Uterine factors | Number | Percentage |
|-----------------|--------|------------|
| Fibroids | 9 | 9% |
| PID | 3 | 3% |
| Unicornuate | 2 | 2% |
| Bicornuate | 1 | 1% |
| Adhesions | 2 | 2% |
| TOTAL | 17 | 17% |

Table IV shows that 17% patients had a uterine cause of infertility identified upon laparoscopy, most common being fibroid uterus 9% followed by PID which was 3%.

Table V Tubal factors of infertility on diagnostic laparoscopy

| Tubal factors | Number | Percentage |
|---|--------|------------|
| Peritubal adhesions | 2 | 2% |
| Hydro/hemato salpinx | 12 | 12% |
| Endometriosis | 3 | 3% |
| Tubo-ovarian mass | 2 | 2% |
| Excessive Tortuous/sacculation/elongation | 9 | 9% |
| Lead pipe appearance | 2 | 2% |
| Total | 30 | 30% |

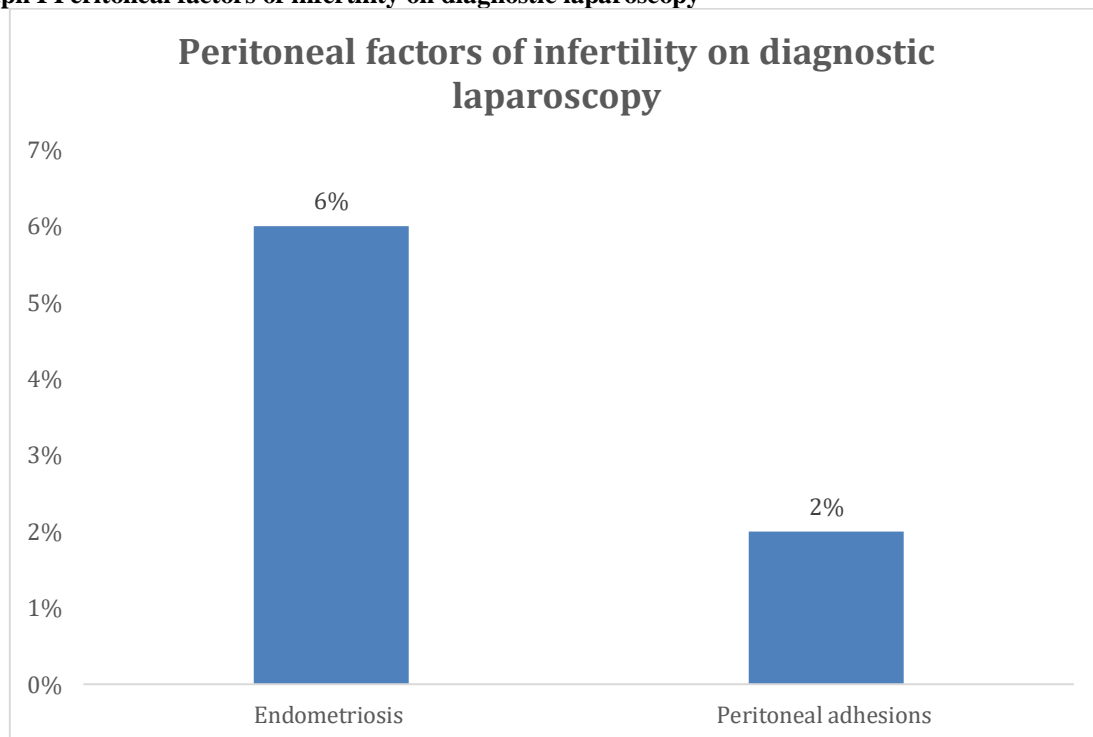
Table V shows that 30% patients had tubal factor for infertility identified upon diagnostic laparoscopy. The most common finding was that of hydro/hematosalpinx which was present in 12% patients, followed by excessive tortuousness/sacculation/elongation of tube in 9 % patients leading to infertility.

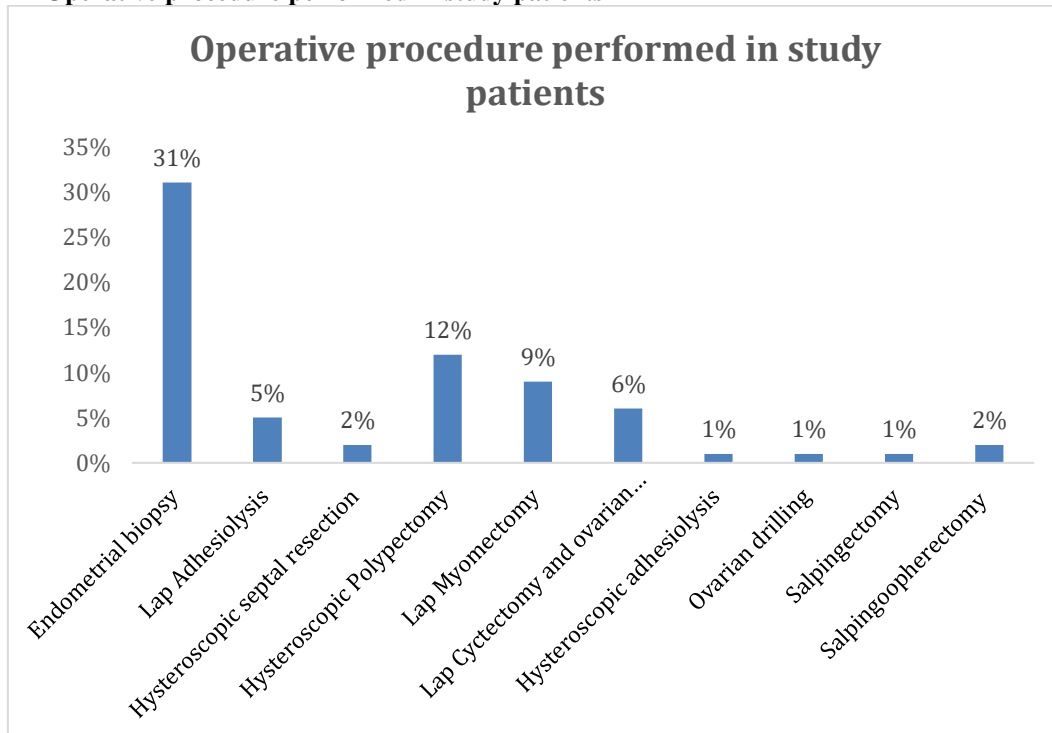
Table VI Ovarian factors of infertility on diagnostic laparoscopy

| Ovarian factors | Number | Percentage |
|---------------------|--------|------------|
| Endometriotic cysts | 4 | 4% |
| Enlarged | 4 | 4% |
| Polycystic | 10 | 10% |
| Total | 18 | 18% |

18% patients showed an ovarian cause of infertility identified upon laparoscopy. The most common cause was polycystic ovaries 10%.

Graph I Peritoneal factors of infertility on diagnostic laparoscopy



Graph II Operative procedure performed in study patients

Endometrial biopsy (31%) was the commonest operative procedure performed followed by hysteroscopic polypectomy (12%).

DISCUSSION

Infertility is a very serious medical condition and the procedures that a patient endures for its treatment are known to be testing mentally, physically and economically. Hysterosalpingography and hysterolaparoscopy are procedures which if done at right time gives important base for infertility treatment.⁷ The diagnostic work up should be started in couple as soon as possible.⁸ Women reach maximum fertility potential at the age of 24 and it starts to decline from the age of 30. So, diagnosis and treatment should be quick and meticulous.⁹ The present study compared and evaluated the role of HSG and hysterolaparoscopy in infertility.

In our study, HSG was done in the proliferative phase after cessation of menstruation and before ovulation, between days 7 and 11, to avoid any early pregnancies which was consistent with Unlu BS et al.¹⁰ In our study, hysterolaparoscopy was done in the follicular phase which is consistent with Jirange et al.¹¹ Ideal time for testing patency of the tubes is post menstrual because false tubal blocks are less likely in the post menstrual phase as valve like action of endometrial growth at the cornual end doesn't occur.

We found that 65% cases were of primary infertility and 35% of secondary infertility. We found that uterus was centralized in 91% of patients. Uterus was mobile in 83% study patients whereas uterine mobility was restricted in 17% study patients. In 87% study patients, uterus was anteverted whereas in 13% patients, the uterus was retroverted. We found that on HSG, 17% patients had some sort of filling defect. In

47% of patients, some sort of spillage of dye was present whereas 53% patients had no spillage of dye on HSG. Onwuchekwa CR et al¹² found that seventy percent of the cases for infertility had abnormalities on the HSG. Normal uterine cavity was found in 123 (49.2%) cases. Uterine filling defects were the most common uterine abnormality. Fallopian tube occlusion, loculated contrast material spillage and hydrosalpinx were more common on the right, and bilateral tubal occlusion was seen only in 11.2%. All cases of intravasation were associated with either unilateral or bilateral fallopian tube blockage or irregularity of the uterus.

We found that 17% patients had a uterine cause of infertility identified upon laparoscopy, most common being fibroid uterus 9% followed by PID which was 3%. 30% patients had tubal factor for infertility identified upon diagnostic laparoscopy. The most common finding was that of hydro/hemosalpinx which was present in 12% patients, followed by excessive tortuousness/sacculaton/elongation of tube in 9% patients leading to infertility. We found that 18% patients showed an ovarian cause of infertility identified upon laparoscopy. The most common cause was polycystic ovaries 10%. Endometrial biopsy (31%) was the commonest operative procedure performed followed by hysteroscopic polypectomy (12%). Haydardedeoglu B et al¹³ evaluated the reproductive outcomes of metroplasty via office hysteroscopy in unexplained infertile women with dysmorphic uteri. Of all the patients, 162 had primary infertility, and 110 had secondary infertility. In the

primary infertility group, the clinical pregnancy rate was 45.68% (74/162) and the live birth rate was 38.9% (63/162), and in the secondary infertility group, the clinical pregnancy rate was 55.45% (61/110) and the live birth rate was 49% (54/110) after metroplasty. In the secondary infertility group, the miscarriage rate and especially the ectopic pregnancy rate declined dramatically (from 84.5% (93/110) to 9.8% (6/61) and from 15.5% (17/110) to 1.6% (1/61), respectively).

CONCLUSION

Hysterolaparoscopy gave a dynamic overview of various factors of infertility and came out as a complete investigatory as well as therapeutic modality for managing female infertility. Also, routine hysterosalpingography is associated with a lot of pain and discomfort to the patient whereas hysterolaparoscopy is performed under suitable anesthesia. During hysterolaparoscopy, one can also perform various therapeutic interventions which ultimately improve the pregnancy outcome in the patients. Hence, hysterolaparoscopy should always be offered and remain the mainstay of investigation as well as therapeutic intervention if required aiding the infertility workup and management.

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