International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Bhatia R et al. Int J Reprod Contracept Obstet Gynecol. 2019 Oct;8(10):4066-4070
www.ijrcog.org

pISSN 2320-1770 | eISSN 2320-1789

DOI: http://dx.doi.org/10.18203/2320-1770.ijrcog20194382

Original Research Article

Laproscopic evaluation in primary female infertility

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Received: 05 August 2019
Accepted: 05 September 2019

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ABSTRACT

Background: Infertility is defined as inability to conceive within one or more years of regular unprotected coitus. Infertility has now a days not only a medical but a social problem as well. Ignorance and illiteracy, coupled with hesitancy to discuss the problem, complicates the matter further. WHO has listed infertility as a global health issue.
Methods: The present study was conducted on 64 patients with female factor primary infertility admitted in department of obstetrics and gynecology at Rajendra Hospital, Patiala over a duration of 1 year (December 2013-November 2014). All the patients had normal semen study of their partner.
Results: In our study mean age was 27.87±4.57. No patient was above 40 years of age. Duration of infertility between 1-5 years was in 47 patients (73.43%), nine patients (14.06%) were infertile for 6-10 years. Out of 64 patients of primary infertility, majority of patients were of endometriosis 15(23.43%), followed by pelvic inflammatory disease 14(21.87%), tubal blockade in 7(10.9%), PCOD in 6(9.37%). 14.08% patients had normal laproscopic study. 34 patients (53.12%) had bilateral spill while no spill was seen in 12 patients (18.75%). Unilateral spill was seen in seven patients (10.93%) while six patients (9.37%) had delayed spill.
Conclusions: Prevalence of infertility is increasing, so is the awareness and treatment seeking behavior. The present study assures that in evaluation and workup of primary infertility patients, after baseline noninvasive investigations, endometrial sampling and HSG, the diagnostic and operative laproscopy is an excellent tool for evaluation of tubal factor. Least expected conditions like endometriosis on clinical evaluation, can be diagnosed and treated with ease on laproscopy. Although tubal factor has been considered to be responsible for a large percentage of cases with female secondary infertility since decades, but in present study laproscopic evaluation confirmed tubal factor in 85.01% cases with female factor infertility.

Keywords: Endometriosis, Infertility, Laproscopy, Female factor infertility, PCOD, Tubal factor

INTRODUCTION

Infertility is defined as inability to conceive within one or more years of regular unprotected coitus.[1] Infertility has now a days not only a medical but a social problem as well.[2] Ignorance and illiteracy, coupled with hesitancy to discuss the problem, complicates the matter further.[3] WHO has listed infertility as a global health issue. Dr. Mahmoud Fathalla in his opening remarks at WHO international meeting argued that a major millennium development challenge will be to make management of infertility more accessible to the estimated 80 million couple in world who are unable to conceive.[4]

Infertility is classified into two types.

Primary infertility: in which no previous pregnancy has occurred.

Secondary infertility: in which a prior pregnancy, although not necessarily a live birth, has occurred, including ectopic gestation.[5]

The incidence of infertility in any community varies between 5% and 15%. Both partners in relationship contribute to potential infertility and both may be subfertile. The female factor contribute most (i.e 40-55%) in the etiology of infertility followed by male factors (i.e 30-40%), both partners (10%) and unexplained (10%).[6]

Female factors.[7]

Factor	=	Incidence
Tubal and peritoneal	=	25-35%
Ovulatory	=	15-25%
Cervical	=	3-5%
Other	=	1-5%

Any infertile couple should be investigated after one year of regular unprotected exposure with adequate frequency. The interval is however, shortened to 6 months after the age of 35 years of women and 40 years of man.[1] Any infertility evaluation begins with a complete history and physical examination of both partners. The following six parameters should be assessed as these are responsible in majority of infertility cases.

- Male factor
- Cervical factors
- Endometrial-uterine factor
- Tubal factor
- Peritoneal factor
- Ovulatory factor.

The distribution of different causes varies among centres, partly because of difference in referral population. Also, in a significant number of patients, infertility will have multiple causes, and thus every couple must have a complete evaluation even if one problem area is readily identified.[8] A systematic approach to diagnose pathology requires the careful integration of both invasive and non-invasive tests.[9] Tubal and peritoneal pathology is among the most common causes of infertility, being primary diagnosis in approximately 30-35% of both younger as well as older infertile couples. Laproscopy is generally regarded as the definitive test for evaluation of tubal factors.[10]

Laproscopy and chromopertubation is widely considered the gold standard test for investigating tubal patency. Additionally, it allows assessment for chronic pelvic inflammatory disease (peritubal disease and adhesions) and endometriosis. This has led to recommendation by NICE (UK) that women suspected of having comorbidities such as endometriosis and pelvic inflammatory disease should undergo laproscopy so that pelvic and tubal pathology both can be assessed.[11] The ability to see and manipulate the uterus, fallopian tube and ovaries during laproscopy has made it an essential part of infertility evaluation.[12]

Most importantly, laproscopy offers the opportunity to treat disease at the time of diagnosis. Lysis of flimsy or focal adhesions, excision or ablation of superficial and deep endometriotic implants and ovarian drilling in PCOS are relatively simple procedures well within capabilities of most surgeons.[10] Laproscopy is a minimally invasive technique that provides a panoramic and magnified view of the pelvic organs.[13]

Laproscopy is basic and necessary current diagnostic method of obtaining real notion for the state of internal genital organs especially for tubal factors in female infertility and furthermore also evaluation for the necessity and possibility of microsurgical reproductive operations.[14]

The objectives of this study were to evaluate causes of primary infertility by diagnostic laproscopy. To visualize tubal morphology and patency by chromopertubation. To study the external surfaces of internal pelvic organs and identify local pathology of uterus, tubes, ovaries, peritubal and periovarian adhesions responsible for infertility by laproscopy. To do minimal operative procedures like adhesiolysis, excision and ablation of endometriotic implants, ovarian drilling and aspiration of fluid from pouch of doughlas for biochemical analysis to diagnose or rule out genital tuberculosis.

METHODS

The present study was conducted on 64 patients with female factor primary infertility admitted in department of obstetrics and gynecology at Rajendra Hospital, Patiala over duration of 1 year (December 2013-November 2014). All the patients had normal semen study of their partner. All infertility investigation CBC, BT, CT, urine complete examination, serum FSH, LH, AMH, blood sugar, serum prolactin, ESR, chest X ray, pre-menstrual endometrial sampling were done in all patients. The patients were counseled for the procedure and informed consent was taken after explaining all the complications.

Inclusion criteria

- Females with primary infertility in age group of 20-40 years.

Exclusion criteria

- Male factor infertility
- Infections
- Severe cardiopulmonary disease
- Haemodynamically unstable patient
- Generalized peritonitis
- Significant haemoperitoneum
- Previous periumblical surgery
- Extreme obesity.

A detailed history, physical examination and laboratory workup was done in all patients, patients were subjected to laproscopy and chromopertubation under general

anaesthesia in post menstrual phase. A two port approach was used, wherever required, three or more port approach was done.

Pelvic organs were inspected for any evidence of adhesions, PID, endometriosis, PCOD or ovarian cysts, presence of altered blood/ straw coloured fluid. Ablation of endometrial implants and adhesiolysis, ovarian drilling and aspiration of fluid from pouch of doughlas, if any, were performed as per need. Chrompertubation was done for confirmation of tubal patency. The data was collected, compiled and analyzed statistically.

RESULTS

The present study was carried out in department of obstetrics and gynecology, Government Medical College, Patiala. A total of 64 patients with primary infertility were taken for study. Following observations were made during study.

Table 1: Age distribution in primary infertility.

Age groups (years)	Number of cases	Percentage
20-25	24	37.5
26-30	22	34.4
31-35	14	21.9
36-40	4	6.25
>40	0	0

In our study mean age was 27.87±4.57. No patient was above 40 years of age. Maximum patients i.e 37.5% were in age group of 20-25 years (Table 1).

Table 2: Distribution according to duration of primary infertility.

Duration of infertility (years)	Number of cases	Percentage
1-5	47	73.43%
6-10	9	14.06%
11-15	5	7.81%
>15	3	4.86%

Duration of infertility between 1-5 years was in 47 patients (73.43%), nine patients (14.06%) were infertile for 6-10 years. Only three patients (4.86%) were infertile for >15 years (Table 2).

Table 3: Presenting complaints.

Presenting compliant	Percentage
Inability to conceive	64%
Menstrual irregularity	19%
Congestive Dysmenorrhea	17%

Primary infertility was the presenting complaint in 64% women while menstrual irregularity and congestive dysmennorhea were chief complaints in 19% and 17% patients respectively (Table 3).

Table 4: Laproscopic findings.

Laproscopic finding	Number of cases	Percentage
Normal study	9	14.08%
Endometriosis	15	23.43%
Pelvic inflammatory disease	14	21.87%
Adhesions	2	3.12%
Fibroids	3	4.68%
Pelvic tuberculosis	3	4.68%
Tubal blockade	7	10.9%
PCOS	6	9.37%
Ovarian enlargement	1	1.56%
Hydrosalpinx	2	3.12%
Mullerian anomaly	2	3.12%

Out of 64 patients of primary infertility, majority of patients were of endometriosis 15(23.43%), followed by pelvic inflammatory disease 14(21.87%), tubal blockade in 7(10.9%), PCOD in 6(9.37%). 14.08% patients had normal laproscopic study (Table 4).

Table 5: Chromopertubation findings.

Spill	Number of cases	Percentage
Bilateral spill	34	53.12%
Delayed spill	6	9.37%
No spill	12	18.75%
Unilateral spill	7	10.93%
Extravasation of dye	5	7.81%

Out of 64 patients, 34 patients (53.12%) had bilateral spill while no spill was seen in 12 patients (18.75%). Unilateral spill was seen in seven patients (10.93%) while six patients (9.37%) had delayed spill. Extravasation of dye was seen in five patients (7.81%) (Table 5).

Table 6: Operative procedure.

Procedure	Number of cases	Percentage
Adhesiolysis and ablation of endometriotic implants	8	11.7%
Ovarian drilling	2	3.1%
Diagnostic aspiration of fluid from POD	8	11.7%
Cystectomy for endometrioma with adhesiolysis	7	10.9%

Adhesiolysis, ablation of endometriotic implants and diagnostic aspiration of fluid from POD was done in eight (11.7%) cases each, cystectomy for endometriomas with adhesiolysis was done in seven (10.9%) cases and ovarian drilling in two (3.1%) cases (Table 6).

DISCUSSION

The desire to procreate is a universal phenomenon, both partners have level of potential fertility and it is combination of their potential that determines fertility. Female infertility is a commonly encountered problem that presently accounts for a significant percentage of women seeking gynecological services. Evaluation is the starting point for treatment of infertility as it may suggest specific cause and appropriate treatment modalities. Although history and physical examination provide significant information, specific tests are required to evaluate infertility. Diagnostic laproscopy is normally the standard procedure performed as the final test in infertility work up before progressing to infertility treatment. It is the gold standard in diagnosing tubal pathology and other intraabdominal causes of infertility. Although tubal factor has been considered to be responsible for a large percentage of cases with female secondary infertility since decades, but in present study laproscopic evaluation confirmed pathology in 85.01% cases with female factor infertility.

In the present study, most cases were in age group of 21-25 years (37.5%). In a study by Shamim et al, maximum number of patients were in age group of 26-30 years (47.4%), Shetty et al also observed same distribution (32.35%).[11,15] Kanal et al (45%) and Bhatia et al observed maximum cases in age group of 21-25 years (49.4%).[6,16]

Bhatia et al (51.51%) and Kanal et al (47%) had maximum patients with 1-5 years of infertility.[6,16] Shetty et al also observed that most of patients of primary infertility had duration of 1-5 years (67.6%).[11] In the present study also duration of infertility was 1-5 years in 73.53% cases.

Haider et al, found menstrual irregularity in 45% cases of primary infertility.[17] In a study by Aziz et al, 29.1% patients of primary infertility had menstrual irregularity.[18] In our study 19% patients of primary infertility had menstrual irregularity.

In a study by Kanal et al, out of 40 patients studied, 30% patients had normal laproscopy finding while 70% had abnormal findings.[6] Butt et al studied 40 patients and observed normal laproscopic findings in 37.5% and abnormalities in 62.5% patients. Haider et al had 6.66% patients with normal laproscopy findings and 93.3% with abnormal findings out of 30 patients studied.[17,19] Shamim et al observed 54 patients out of them 29.6% patient had normal laproscopic findings and 70.3% had abnormal finding.[15] In our study bulk of patients (85.92%) had abnormal findings and only 14.08% patients had normal study on laproscopic evaluation.

Kanal and Sharma did a study of primary infertility in females by diagnostic laproscopy, found tubal blockage in 22.5% cases, pelvic TB, fibroid, ovarian enlargement and hypoplastic uterus in 5% each and normal study in 30%.[6] Shamim et al observed 22.22% cases of tubal blockage, 18.5% with adhesions, 9.25% of PCOD, 7.4% each had endometriosis and fibroid, 3.7% each of hydrosalpinx and mullerian anomalies while 29.6% patients had normal study.[15] Butt et al in her study observed tubal blockage in 47.5% patients, 7.5% each of adhesions and mullerian anomalies, 2.5% each of pelvic TB, fibroid and ovarian enlargement while 37.5% patients had normal study.[19]

In a study by Tsuji et al endometriosis was identified in 63.2% cases, 8.8% had adhesions, 10.5% patients had fibroid, 5.3% cases had tubal occlusion while 1.8% cases had ovarian enlargement.[20] Aziz et al study had majority of patients with tubal occlusion 26% followed by PCOD in 10%, adhesion and endometriosis in 12%, pelvic inflammatory disease in 8%, fibroid 6%, ovarian enlargement 4% and normal laproscopy finding in 20% cases.[18]

Haider et al in her study found endometriosis in 43.33%, tubal blockage in 16.66%, PCOD in 13.3%.[17] 6% patients had pelvic inflammatory disease and 6% cases had normal study. Periera et al had observed 24.4% cases of endometriosis and 18.6% of pelvic inflammatory disease in her study.[21] Shetty et al studied 50 patients and observed endometriosis in 24% patients, fibroid 36%, pelvic inflammatory disease 6%, mullerian anomalies 2% and 16% patients with normal findings.[11] In our study 23% had endometriosis, 21.87% had pelvic inflammatory disease, 10% had tubal blockage, 9.37% with PCOS, while fibromyoma uterus and genital tuberculosis was reported in 4.68% each. 3.12% had hydrosalpinx and mullerian anomalies each while small number (1.56%) had ovarian enlargement. The normal findings were present in 14.08% cases.

Bhatia et al studied 346 patients of infertility in India and observed bilateral spill in 58.4% patients, 17.3% with unilateral spill and 12.2% each with bilateral block and delayed spill.[16] Kanal et al studied 40 patients of infertility in Jhansi, India and observed both tubes patent in 50% patients, bilateral blocked tubes in 40% patients and unilateral tubal blockage in 10% patients.[6] Odusoga et al, conducted her study in 215 patients in Nigeria and observed bilateral tubal patency in 39.1% patients, bilateral block in 31.6% patients and unilateral block in 29.3% patients.[22] Periera et al studied 86 patients of infertility in Portugal.[21] She observed both tubes patent in 53% patients, unilateral block in 20.5% patients and bilateral block in 20.5% patients.

Shetty et al, conducted her study in 50 patients of infertility in Manglore, India.[11] She observed 56% patients with both tubes patent, 28% with unilateral block and 8% patients had bilateral blocked tubes. In our study bilateral tubes were patent in 53.12% patients, bilateral block in 18.75% patients, 10.93% patients with unilateral blockage.

CONCLUSION

Prevalence of infertility is increasing, so is the awareness and treatment seeking behaviour. The present study assures that in evaluation and workup of primary infertility patients, after baseline non-invasive investigations, endometrial sampling and HSG, the diagnostic and operative laproscopy is an excellent tool for evaluation of tubal factor. Least expected conditions like endometriosis on clinical evaluation, can be diagnosed and treated with ease on laproscopy. Although tubal factor has been considered to be responsible for a large percentage of cases with female secondary infertility since decades, but in present study laproscopic evaluation confirmed tubal factor in 85.01% cases with female factor infertility. The diagnosis and operative procedure for treatment can be accomplished in same sitting. Thus, laproscopy with chromopertubation remain gold standard procedure for evaluation in female infertility and before planning further management for artificial reproductive technique.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Bhatia R, Kaur P, Kaur G, Mor S. Laproscopic evaluation in primary female infertility. Int J Reprod Contracept Obstet Gynecol 2019;8:4066-70.