

LAPAROSCOPIC FINDINGS OF FEMALE INFERTILITY – A STUDY OF 186 CASES AT A TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: To study the various causes of female infertility, diagnosed at laparoscopy.

Study Design: Descriptive study.

Place and Duration of Study: The study was conducted at Military Hospital Rawalpindi, Pakistan from April 2008 to December 2010.

Patients and Methods: A series of 186 patients, having either primary or secondary infertility admitted through gynae outpatient department undergoing diagnostic laparoscopy and meeting inclusion criteria were studied. The data was collected prospectively and analysed in the form of frequency and percentages by using SPSS version 10.

Results: Amongst the cohort of 186 patients, 148 (79.6%) had primary and 38 (20.4%) had secondary infertility. Their ages ranged from 20 to 43 years. Mean age of study participants was 30.14 ± 4.04 years. Mean duration of infertility was 9.5 years. No laparoscopic abnormality was found in 51 (27.9%), while there were abnormal findings in 135 (72.6%) patients.

Conclusion: Commonest etiological factor was tubal blockade in both types of infertility. Other factors were endometriosis, pelvic adhesions and fibroids. Laparoscopy is minimally invasive yet a reliable procedure for visualization of internal architecture of the female pelvis.

Keywords: Endometriosis, Fibroid, Hysterosalpingography, Infertility, Laparoscopy, Polycystic ovarian disease.

INTRODUCTION

The common definition of infertility is the inability of a couple to conceive following 12-24 months of unprotected intercourse. Infertility can be primary where a couple has never been able to conceive and secondary, following a pregnancy. The chance of pregnancy in a normal fertile population is 85% after 1 year of unprotected intercourse and 92% after 2 years¹.

Infertility affects both males and females. Factors contributing to a couple's infertility are male factors 30%, female factors 30%, combined 10%, unexplained 25% and 5% other causes².

There are various causes of male infertility, 90% of them are due to biological reasons causing deficiencies and abnormalities in sperm count,

motility and quality, 10% causes are due to less testosterone production.

Hypothalamic pituitary factors include hypothalamic pituitary dysfunction, hyperprolactinemia. Ovarian factors are polycystic ovarian disease (PCOD), anovulation, luteal dysfunction, poor ovarian reserve and gonadal dysgenesis. Tubal factors are endometriosis, pelvic adhesions, tuberculosis and pelvic inflammatory disease (PID). Uterine factors are malformations, fibroids, Asherman's syndrome. Cervical factors are stenosis and antisperm antibodies. In vaginal factors obstruction and age play a role in female infertility.

Apart from detailed history, general physical and pelvic examination, various investigations specifically employed for female infertility are, hormonal assays, pelvic ultrasound and hysterosalpingography (HSG) for assessment of tubal patency³. Although HSG is an accurate way of showing tubal patency but laparoscopy is

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a reliable method for evaluation of internal architecture of female reproductive tract^{4,5}. It can give an overview of uterus, ovaries and fallopian tubes simultaneously⁶. The first laparoscopy in humans was performed in Sweden by Christian Jacobaeus in 1910. In the ensuing several decades numerous individuals refined the approach further. The first publication on diagnostic laparoscopy by Raoul Palmer appeared in 1950s, followed by Frangheim and Semm. In 1975, Tarasconi in Brazil started salpingectomy. This was the first laparoscopic organ resection reported in medical literature⁷. Over the past several decades, a lot of advancement has taken place in this field and in present era laparoscopy has revolutionized the diagnosis and treatment of infertility.

PATIENTS AND METHODS

This descriptive study was carried out in female patients of infertility admitted through gynae outpatient department of Military hospital Rawalpindi from April 2008 to December 2010. A series of 186 patients selected through purposive sampling technique were included in our study. The patients selected for diagnostic laparoscopy underwent a detailed pre-operative workup; including history, physical and pelvic examination, pelvic ultrasound, laboratory investigations, husband semen analysis and HSG, followed by detailed pre-anaesthesia evaluation. The patients of all age groups with either primary or secondary infertility, having blocked tubes on HSG or unexplained infertility, having no risk factor for general anaesthesia were included in the study.

Patients with history of abdominal surgeries or carrying high risk factors for general anaesthesia (ASA grade III or IV), were excluded from the study. Patients where husband semen analysis was grossly abnormal in terms of azospermia or severe oligozoospermia were also excluded.

Apparatus used for diagnostic laparoscopy consisted of a laparoscope with 00 lens (Carl Zeiss), insufflator (Storz) and light source (Storz).

Procedure was performed by different surgeons under general anaesthesia using "Single Port" technique but accessory port had to be used in some cases.

Table-1: Distribution of laparoscopic findings according to the type of infertility.

Laparoscopic findings	n (%)
Normal findings	51 (27.4%)
Pelvic adhesions	46 (24.7%)
Tubal blockade	82 (44.1%)
Pelvic inflammatory disease (PID)	17 (9.1%)
Endometriosis	30 (16.1%)
Polycystic ovarian disease (PCOD)	25 (13.4%)
Tuberculosis (T.B)	6 (3.2%)
Fibroid	20 (10.8%)
Uterine anomalies	3 (1.6%)

The patients were usually admitted a day prior to the procedure and discharged on the 2nd post operative day as per policy of the institution.

The data was analyzed by using SPSS 10.0. For categorical variables, frequencies and percentages were calculated, while for continuous variables, mean and standard deviation were calculated.

Variables on which information was collected were age of the patient, type of infertility whether primary or secondary and findings whether normal or abnormal. The abnormal finding variables were tubal blockade, pelvic adhesions, PCOD, uterine anomalies, tuberculosis, PID and presence of multiple factors.

RESULTS

During the study period, 186 patients were selected for diagnostic laparoscopy. Their ages ranged from 20 to 43 years with mean 30.14 years (SD \pm 4.04 years). The mean duration of infertility was 9.5 years. Among these patients 148 (79.6%) presented with primary infertility, while 38 patients (20.4%) presented with secondary infertility (table-1).

Normal pelvic findings on laparoscopy were found in 51 (27.4%) cases. Abnormal findings were seen in 135 (72.6%) cases. Out of which tubal blockade was the leading cause of infertility in 82 (44.1%) cases followed by pelvic adhesions in 46 (24.7%). Endometriosis was found in 30 (16.1%), PCOD in 25 (13.4%) and fibroid in 20 (10.8%) cases. Multiple factors contributing to infertility were found in 28 (15%) cases. Other findings like PID, tuberculosis and uterine anomaly seen in small percentages.

There was no mortality in our study. None of the patients in our study had any intra or post-operative complications and their condition at the time of discharge was satisfactory.

DISCUSSION

Infertility is a common problem encountered in couples of reproductive age. According to 2009, UNICEF Pakistan demographic data, the total infertility rate is 3.9%. Infertility devastatingly affects the life of a couple both socially and psychologically.

Through our study we tried to evaluate various etiological factors leading to either primary or secondary infertility and to design a suitable future management plan according to the causes found.

In our study the leading cause for both types of infertility was tubal blockade, followed by pelvic adhesions contributing to infertility. The same observations were made by Usmani et al and Ashraf et al^{8,9}. Few more studies conducted at different centres across Pakistan show almost the same results in terms of type, presentation, mean age and causes of infertility¹⁰⁻¹³. Over the years the infections contributing to tubal occlusion and pelvic adhesions have been the main etiological factor responsible for infertility. The poor socio economic profile of our patients, illiteracy and lack of awareness compel the patients to take treatment from various quacks and unqualified people making them more susceptible to infections. At grass root level steps are needed to be taken for improvement of health facilities provided to the masses.

Another local study carried out in recent past also showed the same results but ovarian causes were only seen in primary infertility¹⁴. That is in contrast to our study where PCOD was also found in many patients with secondary infertility.

A study carried out at Siberia few years back showed the tubal blockade as the leading factor contributing to infertility as in our study but their secondary infertility incidence dominated in contrast to our study¹⁵. The reason probably is the late age at presentation and history of interventions in those patients.

A study from Bangladesh for laparoscopic assessment of infertility showed PCOD as the leading factor for infertility¹⁶.

Endometriosis was found in (16.1%) patients, mainly with unexplained infertility. Tsuji et al found a higher incidence of endometriosis found in patients with unexplained infertility¹⁷. Same was observed in a teaching hospital study at Sindh¹⁸.

Frequency of fibroids in our study was (10.8%). Olive et al reported that fibroids mainly sub mucous and intramural are frequently found in infertile patients¹⁹.

Small number of our patients showed PID (9.1%) and tuberculosis (3.2%). Riffat et al also highlighted the prevalence of genital tuberculosis in infertile women²⁰. Genital tuberculosis should also be anticipated as a cause of infertility in patients in developing countries.

A number of patients in our study were having normal pelvic findings (27.4%). Patients with blocked tubes at HSG belonged to that group, i.e. probably related to tubal spasm at HSG. None of the studies except Usmani et al showed a small number of patients (13) with normal findings⁸.

CONCLUSION

Laparoscopy is an invaluable yet reliable, minimally invasive technique for direct internal architecture visualization of the female pelvis. Tubal occlusion had been the leading cause in all

types of infertility in our study. The pelvic infections if timely treated at basic health care level can prevent serious crippling effects like tubal blockade. More over it is need of the time that masses should be given awareness regarding personal hygiene, prevention of STDs and infections through media and health department to reduce the incidence of infertility.

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