Original Article

LAPAROSCOPIC EVALUATION OF TUBAL PATHOLOGY IN CASES OF INFERTILITY

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Abstract

Infertility is a public health problem in developed and developing countries. Diagnostic laparoscopy is a generally accepted procedure to detect pelvic organ pathologies affecting fertility. This study was undertaken to find out the tubal pathology contributing to primary and secondary infertility by laparoscopic examination. The study was carried out in the department of Gynaecology and Obstetrics, BIRDEM during the period of January 2001 to December 2001. The study group comprised of 100 cases of infertile patients of age between 20 to 40 years. Sixty seven percent patients had primary infertility and 33% patients had secondary infertility. Size and shape of the uterus was normal in 69% cases and bicornuate uterus was found in 2% cases. Out of total cases, 71% and 69% had normal right and left fallopian tubes respectively. Patency of right and left fallopian tube was normal in 90% and 89% cases respectively while 11% and 10% had peritubal adhesions.

Laparoscopy examination is an important tool for evaluation of tubal pathology contributing to infertility and might play a major role in infertility management.

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Key Words: Infertility, Laparoscopy, Tubal factors.

Introduction

Infertility is a public health problem, both in developed and developing countries, affecting 10 to 15% of couples.[1] It is defined as the inability of a couple to conceive after one year of unprotected and adequate sexual intercourse. It can be primary in which case the woman has never conceived before or secondary when there is prior conception irrespective of the outcome. Diagnostic laparoscopy is generally accepted as the most accurate procedure to detect pelvic organ pathologies like tubal pathology, endometriosis, PID and other conditions which can affect fertility.[2] Less invasive diagnostic tests such as chlamydia antibody testing (CAT), ultrasonography and hysterosalpingography (HSG) are available, but it is still a matter of debate how the value of these tests compares with laparoscopy in the infertility work-up.[3] Several studies describe risk factors for tubal pathology such as previous abdominal surgery and previous pelvic inflammatory disease (PID). However, up to 68% of patients without any of these risk factors can still possess abnormalities as shown by laparoscopy.[4-7] Several studies describe the accuracy of HSG with diagnostic laparoscopy (DLS) as gold standard. A meta-analysis of studies comparing chlamydia antibody titres and laparoscopy for tubal patency and peritubal adhesions has shown that the discriminative capacity of chlamydia antibody titres in the diagnosis of any tubal pathology is comparable to that of HSG in the diagnosis of tubal occlusion.[8] Although chlamydia antibody titre can be determined at low cost, it fails to provide information about the severity of tubal pathology, which is of importance to fertility prognosis and subsequently, to infertility treatment. Furthermore, it cannot detect tubal pathology due to other causes or endometriosis.

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With this background the present study was undertaken to assess different anatomical and pathological conditions of fallopian tubes by laparoscopy in infertile female patients.

Materials and Methods

In this study, the patients with complaints of infertility who were admitted and treated in the Department of Gynecology and Obstetrics in BIRDEM, Dhaka during the period of January 2001 to December 2001 were enrolled. Patients suffering from both primary and secondary infertility were included in this study. Age of the patients who participated in this study was between 20 to 40 years. Semen analysis reports of their husbands' were reviewed.

Before admission, detailed history was taken and clinical examination was done. A set of basic investigations were carried out for fitness of anesthesia before laparoscopy. In suspected cases of thyroid disease serum thyroid stimulating hormone level was performed. To evaluate any follicular phase defect serum follicular stimulating hormone, luteinizing hormone and serum prolactin level were done. Finally, patients selected for laparoscopy were admitted on 18-21 days of their menstrual cycle.

The information collected from the patients and the findings of laparoscopy were put together in the data sheet which was analyzed manually.

The study protocol was approved by the Ethical Committee of Bangladesh College of Surgeons and Physicians. Informed consent was taken from the participants before enrollment.

Results

The study group comprised of 100 cases of infertile patients of which 81% were having normal regular menstrual cycle. Out of 100 cases, 67% and 33% had primary and secondary infertility respectively. Patients with secondary infertility reported 9% stillbirth, 18% spontaneous abortions, 21.5% menstrual regulations, 9% ectopic pregnancy while 42.5% patients had previous successful pregnancy. Laparoscopic examination revealed that 9% and 2% cases had fibroid and bicornuate uterus respectively while 18% had bulky uterus. In 2% cases uterus could not be visualized (Table-1). It was found that 11%-10% cases had either right or left sided tubal adhesions. The single tubal block in either right or left side was found in 8%-9% cases respectively while bilateral tubal block was present in 2% cases. The detail laparoscopic findings of both fallopian tubes are shown in Table-2.

Table-1: *Laparoscopic Findings of Uterine Size and Shape (n=100)*

Laparoscopic findings	No of cases (n=100)
Normal Size	69
Fibroid	9
Bicornuate Uterus	2
Bulky Uterus	18
Non visualization of uterus	2

Regarding complications of laparoscopy, one patient had post-operative abdominal distension. Uterine perforation occurred during tubal patency test in 1% cases. Patients with complications were managed appropriately.

Discussion

Introduction of laparoscopy has tremendously improved the ability to investigate long standing infertility. Uterus, tubes and ovaries can be visualized by laparoscopy directly and full information about concurrent pelvic pathologies can be obtained.

Table-2: *Laparoscopic finding of fallopian tubes (n=200)*

Laparoscopic findings	Right tube (n=100) No of case	Left tube (n=100) No of cases
Normal	71	69
Peritubal adhesion	11	10
Tubo-ovarian mass	1	3
Hydrosalphinx	5	6
Kinking	6	5
Tortuous	3	3
Not visualized	3	4
Patency of fallopian tube		
Normal	90	89
Block*	08	09

*Note: * Two cases had bilateral tubal block.*

A normal fallopian tube is needed for ovum transport, fertilization and transport of fertilized ovum to the uterus. Any abnormality of fallopian tube interferes with fertility. Function of the tube may be impaired due to peritubal adhesion, hydrosalphinx, too long or short tube, kinking and increased tortuosity of tubes. In a study by Hamid *et al*[9] in Pakistan reported 15% tubal block in their cases. But in the present study bilateral tubal block was found only in 2% cases. Lavy *et al*[10] evaluated and compared the diagnostic value of hysterosalpingography (HSG) and laparoscopic chromotubation (LCP) in the diagnosis of fallopian tube patency. Among 23 patients with suspected bilateral tubal occlusion by HSG, 16 patients were found to have an abnormal bilateral tubal adhesion by laparoscopy which necessitated changing the treatment plan indicating the importance of laparoscopic examination. The rate of hydrosalpinx in the present study was comparatively low than the earlier reported studies from Bangladesh and the adjoining countries.[11,12] This could be due to the difference in case selection and types of patients.

In addition to the above, abnormalities of the uterus may cause infertility. In this study, fibroid uterus was found in 9% cases and bicornuate uterus was found in 2% cases which could be the contributing factors for infertility.

The present study showed that laparoscopy is a valuable tool for proper evaluation of pelvic organs. It is an important tool for diagnosing anatomical and pathological abnormality of internal genital organs in female patients which plays a major role in the management of infertility. Therefore, laparoscopy should be performed in infertile female patient with suspected pelvic organ abnormality. At present in Bangladesh, laparoscopy is available only in few tertiary care centers. Laparoscopy should be made available and affordable at a lower cost at different level of health care facilities so that infertile couples can get benefit of it.

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