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Laparoscopic Evaluation of the Tuboperitoneal Factors in Infertility

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Abstract:

Objective: The aim of the study is to describe the tuboperitoneal findings in selected infertile patients by laparoscopy.

Methods and Materials: This cross-sectional study was carried out at the infertility center in BIRDEM during the period of September 2002 to February 2003. A total of 50 patients were selected for laparoscopy and dye test. Those patients who had medical disorder and contraindications for laparoscopy were excluded from the study. Patients with infertility due to male factors were also excluded from this study. Laparoscopy was scheduled in secretory phase of menstruation.

Results: Among the study population, 35 (70%) patients were primary infertile group while 15 (30%) patients were secondary infertile group. According to age distribution, 20 (57%) patients of primary infertility and 8 (53%) patients of secondary infertility belonged to age group 25-30 years. Duration of infertility was between 2 yrs to 5 yrs in 45% of patient where 30% cases had been infertile for 5 yrs to 10 yrs. Laparoscopy revealed normal findings in 14 (28%) patients and ovarian cause like chocolate cyst and polycystic ovary in 21 (42%). Peritoneal pathology like adhesion or endometriosis was detected in 19 (38%) cases. Bilateral tubal occlusion was found in 4 (8%) cases and unilateral tubal occlusion in 7 (14%) cases.

Conclusion: Laparoscopy is a necessary diagnostic tool for evaluation of tubo-peritoneal pathology in infertile women.

Key words: Infertility, laparoscopy, chromopertubation, peritoneal factor, tubal factor.

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Introduction:

Infertility is defined as the inability of a couple to conceive with one year regular unprotected intercourses.[1] The prevalence of women diagnosed with infertility is approximately 13% with a range from 7-28%[2] in world wide.

About 25% of cases of infertility are attributed to male factors. In female infertility, untreated infection, anovulation and endometriosis are major causes. Tubal and peritoneal factors are responsible for 30% to 40% cases of female infertility.[1] Tubal disease affects approximately 25% of infertile couples ranging from mild adhesion to complete tubal blockage. Proximal, distal and peritubular damage may be due to infection, previous surgeries or endometriosis. The incidence of tubal damage after one episode of pelvic infection is approximately 12%, 23% after two episodes and 54% after three episodes.[3] Adhesions due to infection, endometriosis or previous surgery can prevent normal tubal movement, ovum pick up and transport of the fertilized egg into the uterus. Tubal pathology impairs function of the fallopian tube.[3] The evaluation of the peritoneal and tubal factors are necessary to determine the management plan of infertility.

Laparoscopy and chromopertubation are widely considered the gold standard tests for investigating tubal patency. They also allow direct visualization and assessment for peritubal disease, adhesion and endometriosis

The aim of this study was to evaluate the tubo-peritoneal factors for management plan of infertility more specifically.

Material and Methods:

This cross-section observational study was carried out from September 2002 to February 2003, at infertility center in Bangladesh Institute of Research &

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Total 100 infertile patients who did not receive any previous treatment attended for first time at BIRDEM infertility center. A complete and relevant history regarding any systemic disease like hyperthyroidism or hypothyroidism or any other endocrine disease and clinical examination were carried out. Thorough physical examination was done in female partner to exclude any apparent anatomical abnormality. Baseline investigations were done for diagnosis of any medical disorder and for pre-operative fitness for anaesthesia. A complete hormone profile including follicule stimulating hormone, luteinizing hormone, prolactin, testosterone, progesterone, thyroid stimulating hormone, and oral glucose tolerance test, was done to exclude any endocrine disease. Ultrasonography was done to exclude any abnormal anatomical factors, fibroids, ovarian tumour, polycystic ovary etc. Hysterosalpingography was done to see the shape and size the uterine cavity and to detect precisely the site of blockage in the tube. Semen analysis was performed to exclude male factors. Fifty patients out of 100 patients were selected for laparoscopy and dye test who were suspected case of endometriosis, abnormal hysterosalpingogram, age > 35yrs, age > 25 yrs with unprotected coitus for 2 yrs and unexplained infertility. Couples with male factor infertility and patients with contraindication for laparoscopy i.e. any pre-existing cardiovascular or respiratory disease, generalized peritonitis were excluded in this study

Fifty infertile women underwent laparoscopy under general anesthesia for infertility after taking informed written consent. Laparoscopy was scheduled in secretory phase of menstruation. During the procedure, the pelvis was inspected including uterus, fallopian tubes, ovaries, uterosacral ligaments and pouch of Douglas (POD). Peritubal, periovarian and omental adhesions, tubo-ovarian mass, endometriotic deposits, fibroids, presence of fluid in pouch of Douglus (POD) or any other pathology were screened out. Both ovaries were examined for evidence of ovulation and their relationship with fimbrial end of the fallopian tubes.

The patency of fallopian tube was checked by injecting methylene blue into the uterine cavity and to see for spillage through the fimbrial ends. Dilatation and curettage was carried out and endometrium was sent for histopathology.

Data collected from the couples were recorded on pre-designed data collection form. Collected data were complied and necessary calculations were made using scientific calculation.

The study protocol was approved by the ethical committee of Bangladesh College of Surgeons & Physicians (BCPS) as a requirement of fulfillment of examination of fellow of BCPS.

Results:

Total 50 patients were selected for laparoscopy out of 100 infertile patients. In this series, thirty five (70%) patients were in primary infertile group and fifteen (30%) patients were in secondary infertile group . According to age distribution, 20 (57%) patients of primary infertility and 8 (53%) patients of secondary infertility belonged to age group 25-30 yrs (Table-I). Duration of infertility was between 2^+ to 5 yrs in 46% patients whereas 30% patients had been infertile for 5^+ to 10 yrs (Table-II).

Table-I

Age group of women with infertility at time of laparoscopy (n-50)

Age group (years)	Primary infertility n-15	Secondary infertility n-35	No. of cases	Total %
18-24	7 (20%)	2 (13%)	9	18%
25-30	20 (57%)	8 (53%)	28	56%
31-35	6 (17%)	4 (27%)	10	20%
36-40	2 (6%)	1 (7%)	3	6%

Table-II

Duration of infertility (n-50)

Duration (years)	No. of Patients	Percentage
1-2	12	24%
2^+-5	23	46%
5^+-10	15	30%

Table-III

Pelvic pathology in laparoscopy (n-50)

Findings	No. of patients	Percentage
Endometriosis	5	10%
Adhesion	14	28%
Between tubes and uterus	4	
Ovarian and lateral pelvic wall	2	
Obliteration of pouch of Douglas	8	
Ovarian pathology		
Polycystic	18	36%
Chocolate cyst	3	6%
Fibriod	2	4%
Normal	14	28%

Laparoscopy revealed normal pelvic organ in 14 (28%) cases, ovarian pathology in 21 (42%) cases, fibroid was seen in 2 (4%) cases, 5 (10%) cases had endometriosis and 14 (28%) cases showed adhesion in between tubes with uterus, ovaries and lateral pelvic wall. Due to severe adhesion, there was obliteration of pouch of Douglas in 8 (16%) cases (Table-III). In addition, pelvic fluid collection was found in POD in 2 (4%) cases. Moreover, there was more than one pathological condition in a group of patient.

Table-IV

Findings of Chromopertubation (n-50)

Findings	No. of patients	Percentage
Healthy and free spillage of dye	37	74%
Peritubal adhesion but spill seen	2	4%
Absence of dye spillage on both side of the F. tubes	4	8%
Absence of dye spillage on one side of the F. tube%	7	14

Findings of chromopertubation showed (table-IV) 4 (8%) cases had bilateral tubal block, 7 (14%) cases had unilateral tubal block and about 37 (74%) cases had healthy and patent tubes. In addition, 2 (4%) cases had peritubal adhesion but spillage of dye was seen.

Discussion:

It is widely accepted that infertility is a common medical problem. So, the best treatment plan must be offered to infertile couple. The role of laparoscopy in the diagnosis and management of infertility is established beyond any doubt. Our study includes patients mostly from urban area. In the present study, peritoneal pathology like endometriosis was detected in 5 (10%) cases and adhesion was detected in 14 (28%) cases, whereas N. Aziz reported endometriosis in 6 (12%) cases and peritubal and periovarian adhesions in 6 (12%) cases.[4] In another similar study Shetty SK et al showed endometriosis in 12 (24%) cases and peritubular adhesion in 4 (8%) cases where endometriosis was higher but adhesion was lower than our study.[5] Gulfarreen Haider et al observed endometriosis in 13 (43%) cases which was also higher than our study.[6] The higher rate of endometriosis may be due to delayed marriage, postponement of first conception and increased use of diagnostic laparoscopy. In a prospective study, Boricha Y. G. et al evaluated 50 cases of laparoscopy in female infertile patients. In their study, endometriosis was seen in 11 (22%) cases and there was dense adhesions with obliteration of pouch of Douglas in only one case whereas in our study obliteration of pouch of Douglas observed in 8 cases .[7] Peritoneal factors like adhesions were observed in 14 (28%) cases for which endometriosis along with previous pelvic inflammatory disease were implicated as the common etiological factors.

Tubal occlusion, peritubal and periovarian adhesion are factors responsible for inhibition of ovum pick up and transport. In developed countries, the major cause of tubal infertility is pelvic inflammatory disease. Tubal pathology in this series was detected in 13 (26%) cases, out of these bilateral tubal block in 8% cases ,unilateral tubal block in 14% cases and peritubal adhesion with patent tube in 4% cases. In 37 (74%) cases, the tube was healthy looking and patent. In a study conducted by G. Haider in Pakistan the incidence of tubal occlusion was 20%.[6] A prospective study conducted by Boricha Y. G. showed 10 (20%) cases out of 50 had tubal pathology, 7(14%) cases had unilateral block and in 3 (6%) cases both tubes were blocked which was similar to our study.[7] Another study done by Shetty SK et al show, bilateral tubal block in 8% and unilateral tubal block in 28% cases which were higher than our study.[5] Ikechebelu JI and Mbamara SU reported a higher

incidence of tubal pathology, that is 60.5% had tubal pathologies will bilateral tubal occlusion in 38.3% and unilateral occlusion in 27.5% cases whole normal patent tubes were in 39.5%.[8] Higher incidence of tubal pathology might be due to sexual attitude as presence of multiple sexual partners resulted increased incidence of sexually transmitted disease and PID.

In our country, most of the patients usually go to untrained health practitioners for infertility treatment which leads to further delay in proper management. Laparoscopy not only helps in identification of unsuspected pathology but also contributes to decision making. So, it should be considered as an initial and important investigation for the evaluation of infertile couple.

Conclusion:

From this study, it can be concluded that tubal blockage, endometriosis and pelvic adhesion are important tubo-peritoneal factors in infertility and laparoscopy appears to be an important diagnostic tool.

BIRDEM is a referral hospital. The cases collected from this hospital came mostly from urban areas. So, it cannot reflect a true picture of the whole community. Further larger study is needed to evaluate both the diagnosis and management of patient with infertility.

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