LAPAROSCOPIC EVALUATION OF TUBAL FACTORS IN CASE OF PATIENTS WITH SUB FERTILITY

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Summary

In this prospective study was carried out in the department of Obstetrics and Gynaecology (infertility) Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, during the period of September 2010 to February 2011. For this purpose total number of 80 female partner of subfertile couples undergoing laparoscopy in the above centre. Patients have been evaluated in the infertility out patient department with the detailed history of both husband and wife and also evaluated clinically. Patient suffering from both primary and secondary subfertility have been included in this study with the inclusion criteria women age 20-40 years. Male partners having normal semen analysis. Female partner tried unsuccessfully for 1 year and female partner having any pelvic pathology suggest by history and physical examination. They are selected for the diagnostic laparoscopy. Laparoscopy findings will be carefully recorded and showing in primary subfertility normal looking 30 (55.5%), peritubal adhesion 8 (14.8%), signs of endometriosis 10 (18.5%), hydrosalphinx 6 (11.1%) and in secondary subfertility normal looking 10(38.5%), peritubal adhesion 4 (15.4%), signs of endometriosis 4 (15.4%), hydrosalphinx 8 (30.8%). In this study normal looking fallopain tube is more common in primary subfertility and hydrosalphinx is more common in secondary subfertility. Laparoscopic evaluation of fallopian tube among the patient with primary subfertility showing the condition of the fimbria normal looking 50 (92.6%), indrowing 2 (3.7%), not visualized fimbria 2 (3.7%) and in secondary subfertility normal looking 18 (69.2%), indrowing 6 (23.1%), not visualized fimbria 2 (7.7%). Fimbria normal looking more in primary subfertility and indrawing more in secondary subfertility. In peritubal adhesion 34pt among them 30 (88.2%) are dye test negative. In endometriosis 30 patients among them 12 (40%) are dye test negative. In pulnonary TB, salphingitis and ectopic pregnancy (100%) are dye test negative. In tubal patency test of the study patients were observed in case of primary and secondary subfertility. In primary subfertility both tube patent 24 (44.4%), unilateral block 20 (37%) and bilateral block 10 (18.5%) and in secondary subfertility both tube patent 12 (46.2%), unilateral block 8 (30.8%), bilateral block 6 (23.1%). Bilateral block more in secondary subfertility. No difference in case of both tube patent.

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Key words

Laparoscopic evaluation; tubal factors; in subfertile patients.

Introduction

Infertility is defined as inability of couple to conceive with in a certain period of time of one year of frequent unprotected intercourse. Sterility implies an intrinsic inability to achieve pregnancy, where as infertility implies a decrease in the ability to conceive. Infertility is synonymous with sub fertility. The prevalence of infertility ranges from 7 to 28% depending on the age of the women. Sterility affects 1 to 2% couples[1].

The main etiological factor is found in about 40% of female and 35% in male. In 10 to 20% cases both husband and wife are responsible for infertility and rests have unexplained infertility[2].

The assessment of female reproductive problems is diverse, relatively expensive and time consuming. Ultrasonography, endometrial biopsy, hormone assay, laparoscopy, hysteroscopy, hystero-sulphingography all these may be needed to identify or pinpoint the factor or factors contributing to infertility in the majority of the cases[3].

Impaired tubal functions include defective ovum pick up, impaired tubal motility, loss of cilia and complete obstruction at the tubal lumen. The impaired function of any one of these functions is related to tubal infection, surgery or endometriosis[4].

Hystero salphingography, sonohysterography after inflation of uterus and fallopian tube with saline and it is performed to see whether the tube is patent or not.

In fact, by laparoscopy an infertility factor will be found in 30% - 50% of women previously regarded as having normal genitalia. For this reason, investigations of infertility is not completed without laparoscopic examination, although it is relatively expensive and invasive procedure.

The indications of laparoscopy are abnormal hysterosalphingography findings, unexplained infertility and failure to conceive after reasonable period even with normal hysterosalphingography. Sometimes a diagnostic laparoscopy is carried out as a first line of investigation in a woman who is above 35 yrs, and the couple has had unprotected coitus for at least 2 years.

In laparoscopy examination we can see directly the pelvic anatomy, tubo peritoneal relationship, tubo ovarian relationship, the condition of fimbriae and tubal patency. Laparoscopy is done preferably in the secretary phase, as a result a recent corpus luteum may be visualized and endometrial biopsy can be taken in the same sitting. Hence laparoscopy is considered as a gold standard diagnostic tool in the management of infertility.

Materials and methods

This prospective study was carried out in the dept of obs & gynae (Infertility) BSMMU, Dhaka. during the period of Sep' 2010 to Feb' 2011. For this purpose total number of 80 female partner of subfertile couples undergoing laparoscopy in the above center. Patients have seen evaluated in the gynaecology out patient department with the detailed history of both partner and also evaluated clinically. Patient suffering from both primary and secondary subfertility have been included in this study with the inclusion criteria women age 20-40 years. Male partners having normal semen analysis. Female partner tried unsuccessfully for 1 year and female partner having any pelvic pathology suggest by history and physical examination. They are selected for the diagnostic laparoscopy.

Male partner suffering from oligozoospermia, teratozoospermia, azoospermia and female partner suffering from age more than 40 years, morbid obesity, premature ovarian failure and history of laparatomy with bad scar were excluded in this study.

A brief history of the couple will be taken and laparoscopic findings will be carefully recorded. Data was recorded on a pre-designed data collection sheet. Collected data will be analyzed using computer-based software SPSS for window. P value < 0.05 will be considered as minimum level of significance. The term laparoscopy means inspection of the pelvic organs with an illuminated telescope through a small incision in the gas distended abdominal cavity. By this procedure we can have a direct view on the anatomy of the female reproductive organs and can easily diagnose the uterine , tubal, ovarian and as well as pelvic factors for fertility.

Results

Table I shows the primary infertility in 54 (67.5%) patients and secondary infertility in 26 (32.5%) patients out of 80 patients in this study population.

No significant ($p>0.05$) difference was observed between patients with primary infertility and secondary infertility regarding the presenting complains except pelvic pain & menstrual cycle. Shows the presenting complains of the study patients and observed that pelvic pain 8(14.8%) in patients with primary infertility and 10(38.5%) in patients with secondary infertility. Which was statistically significant ($p<0.05$). The menstrual history of the study patients and observed that regular menstrual history was 46(85.2%) and 12(46.2%) in patients with primary & secondary sub fertility respectively. Which was statistically significant ($p<0.001$). Results are depicted in the above table II.

In primary and secondary subfertility shows normal looking, peritubal adhesion, signs of endometriosis, hydrosalphinx 30 (55.5%), 8 (14.8%), 10 (18.5%), 6 (11.1%) and 10(38.5%), 4 (15.4%), 4 (15.4%), 8 (30.8%) respectively. In this study normal looking fallopain tube is more common in primary subfertility and hydrosalphinx is more common in secondary subfertility (Table III).

In primary and secondary subfertility normal looking fimbria, indrowing and not visualized fimbria 50 (92.6%), 2 (3.7%) 2 (3.7%) and 18 (69.2), 6 (23.1%), 2 (7.7%) respectively. Fimbria is indrowing more in secondary subfertility (Table IV).

In peritubal adhesion 34 patients among them 30 (88.2%) were dye test negative. In endometriosis 30 patients among them 12 (40%) were dye test negative (Table V).

In tubal patency test of the study patients was observed in case of primary and secondary subfertility. Both tube patent, unilateral block and bilateral block are 24 (44.4%), 20 (37%), 10 (18.5%) and 12 (46.2%), 8 (30.8%), 6 (23.1%) respectively. Bilateral block more in secondary subfertility. No difference in case of both tube patent (Table VI).

Table I : Type of infertility of the study patients (n=80)

Type of Infertility	Frequency (n=80)	Percent (%)
Primary	54	67.5
Secondary	26	32.5
Total	80	100.0

Table II : Distribution of the study patients according to their complains (n=80).

	Primary Sub fertility (n=54)		Secondary Sub fertility (n=26)		P value
	n	%	n	%	
Pelvic pain	8	14.8	10	38.5	0.017^{s}
Dysmenorrhoea	26	48.1	14	53.8	0.633^{ns}
Dyspareunia	12	22.2	12	46.2	0.286^{ns}
White Discharge	8	14.8	6	23.1	0362^{ns}
Menstrual cycle					
Regular	46	85.2	12	46.2	0.969^{ns}
Irregular	30	55.6	14	53.8	

S= Significant NS= Not Significant P value reached from chi square test

Table III : Distribution of the study patients according to morphological changes of fallopian tube (n=80)

Laparoscopic evaluation	Primary Sub fertility (n=54)		Secondary Sub fertility (n=26)	
	n	%	n	%
Normal looking	30	55.5	10	38.5
Peritubal adhesion	8	14.8	4	15.4
Signs of endometriosis	10	18.5	4	15.4
Hydrosalphinx	6	11.1	8	30.8

Table IV : Distribution of the study patients according to condition of the fimbria (n=80)

Condition of the fimbria	Primary Sub fertility (n=54)		Secondary Sub fertility (n=26)	
	n	%	n	%
Normal	50	92.6	18	69.2
Indrowing	2	3.7	6	23.1
Not visualized	2	3.7	2	7.7

Table V : Distribution of the study patients according to dye test in relation to the morphological changes of the tube (n=80)

Findings	No. of patient	Dye test positive	Dye test negative
Peritubal adhesion	34	4 (11.7%)	30 (88.2%)
Endometriosis	30	18 (60%)	12 (40%)
Pulmonary TB	2	0	2 (100%)
Appendicitis	4	2 (50%)	2 (50)
Salphingitis	2	0	2 (100%)
Ectopic pregnancy	2	0	2 (100%)

Table VI : Distribution of the study patients according to tubal patency (n=80)

Findings	Primary Sub fertility (n=54)		Secondary Sub fertility (n=26)	
	n	%	n	%
Both tube patent	24	44.4	12	46.2
Unilateral tubal block	20	37	8	30.8
Bilateral tubal block	10	18.5	6	23.1

Discussion

Infertility is a common problem all over the world. Though Bangladesh is one of the densely populated countries of the world, the infertility is increasing in the middle and higher socioeconomic group. Among the causes of female infertility, tubal factors play an important role. This study showed the number and the nature of different tubal factors in case of primary and secondary infertility. Laparoscopy is the best method for evaluation of tubal anatomy. In this study out of 80 infertile patients about 45(67.5%) had primary and 26 (32.5%) had secondary infertility. A study performed by R Gulshan 2003 also showed 56% had primary and 24% had secondary infertility[5]. People are becoming more and more conscious now a days and reporting to their physicians for treatment earlier. In tubal patency test of the study patients was observed that both tube patent were 24(44.4%), 12(46.2%) in primary and secondary infertility respectively. In unilateral tubal block 20 (37%), 8 (30.8%) in primary and secondary infertility respectively. In bilateral tubal block was found 10(18.5%), 6(23.1%) in primary and secondary infertility respectively. A similar study was done by Chowdhury S and Chowdhury T A[6] where tubal blockage was found in 15% cases of primary infertility and 17.5% cases of secondary infertility. This finding is much lower than the series by Coellet M[7] where the study was done in Eastern Gabon in the infertility belt, where the tubal occlusion was present in 82.2% cases. This high prevalence, of tubal occlusion in Africa was probably due to premarital sexual intercourse and sexual promiscuity, which play a major role in primary and secondary subfertility. Salphingitis due to sexually transmitted diseases in the early teen ages would lead to infertility early in reproductive life. So, tubal factors are much higher in African and many other western countries.

In primary and secondary subfertility shows normal looking, peritubal adhesion, signs of endometriosis, hydrosalphinx 30 (55.5%), 8 (14.8%), 10 (18.5%), 6 (11.1%) and 10(38.5%), 4 (15.4%), 4 (15.4%), 8 (30.8%) respectively. In this study normal looking fallopain tube is more common in primary subfertility and hydrosalphinx is more common in secondary subfertility[8].

Review of medical and surgical history showed that, in 4cases [5%] there was a history of appendicitis, 2 cases [2.5%] had ectopic pregnancy with right sided salphingo-Oophorectomy. In the group of primary subfertility two patients had history of pulmonary tuberculosis and on laparoscopy in case of both the patients both fallopian tubes were blocked. their menstrual cycle was also irregular. In the study conducted by Khatun H[9] 6% cases had a past history of pulmonary tuberculosis and all of them were in primary infertility group and among them bilateral tubal blockage was seen in 2 patients.

Shah SM etal[10] in 2005 compared the diagnostic value of hysterosalpingography (HSG) and laparoscopic chromopertubation (LCP), in the diagnosis of fallopian tube patency. In this study, out of 50 patients HSG diagnosed bilateral proximal bilateral distal and mixed (i.e. one side proximal and other distal) tubal occlusion in 15 (40.5%), 13(35.1%) and 5(13.5%) cases respectively. Diagnostic laparoscopy confirmed the above sites of occlusions in 9(24.3%) 7(45.9%) and 3(8.1%) patients, in whom HSG had diagnosed tubal occlusion.

Sinawat S etal[11] in 2005 used laparoscopy, HSG or both to determined the prevalence of tubal abnormalities among infertile patients attending the clinic at Sringarind Hospital, Thailand. 740 patients were recruited, 533 cases (72.03%) were diagnosed as primary infertility and rest 207 cases (27.97%) were as secondary infertility. The mean infertile period of all study subjects was 4.68 years.

Conclusion

Infertility definitely has some tragic dimension in the family life of many couples. The causes of infertility vary from country to country and in different social groups. The main variable is the incidences of tubal occlusion caused by infection after child birth or abortion and tuberculosis. This can be prevented by extending medical services where they are not readily available. It has also been found that in this country many infertile couples reported very late for investigation because of ignorance, poverty and poor communication facilities.

BSMMU is a referral hospital situated in Dhaka City and cases of this study were collected from this hospital, so it cannot reflect a true picture of the whole community, though some causes of infertility were diagnosed with available measures.

Without laparoscopic examination, investigation of female sub-fertility is incomplete. In our country laparoscopic facility is available only in few centers as its use requires considerable expertise. So there should be more supports and opportunities for making enough competent laparoscopists. Then the infertile couples will be benefited from it and achieve their goals of fertility.

Disclosure

All the authors declared no competing interestes

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