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ORIGINAL ARTICLE

LAPROSCOPIC EVALUATION OF PRIMARY INFERTILITY CAUSES AND POST PROCEDURE COMPLICATIONS AMONG INFERTILE FEMALES FROM A TERTIARY CARE HOSPITAL OF KARACHI

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ABSTRACT

Background: Infertility is a common problem globally affecting a large proportion of world population. Laparoscopy provides meaningful information regarding different factors that may cause infertility.

Objective: To determine the frequency of causes of primary infertility in women by diagnostic laparoscopy.

Study Design: Cross sectional study design

Setting: Study was performed at the Department of Obstetrics and Gynecology, Jinnah Postgraduate Medical Centre, Karachi

Duration: September 2011 to February 2012

Subjects and Methods: 86 patients with primary infertility were included in the study and underwent laparoscopy for determining causes of infertility. Data was analyzed on SPSS, frequencies and percentages were determined for qualitative variables while mean and standard deviation was determined for quantitative variable.

Results: Eighty six females were included in the study with mean age of 28.6 + 5.2 years and mean duration of infertility was 4.9 + 1.9 years. Findings on laparoscopy were analyzed and 51.2% of females were found with tubal blockage, while other findings were; hydrosalpinx in 25.6%, PCOs in 22.1%, Ovarian abnormalities in 38.4%, Pelvic adhesions in 38.4% and uterine congenital anomalies in 3.5%.

Conclusion: Tubal diseases found to be one of the major factor causing primary infertility and diagnostic laparoscopy will play a valuable role in early and prompt diagnosis and management of causes leading primary infertility.

Key Words: Primary Infertility, Diagnostic Laparoscopy, Tubal Blockage, PCOs, Pelvic Adhesions, Hydrosalpinx.

INTRODUCTION

Infertility is a unique medical condition because it involves a couple, rather than a single individual. It is defined as failure of a couple to conceive after 12 months of regular intercourse without use of contraception.[1] Incidence of infertility appears to be increasing in developed communities for reasons different from those causing infertility in less advanced countries.[2] The World Health Organization (WHO) has reported major causes of infertility in females on a global scale as being largely due to four disorders: pelvic tuberculosis, post abortal and post partum infections leading to tubal blockade and malnutrition.[3]

Physicians can use multiple modalities to assess the tubes. Direct visualization on laparoscopy (LS) is often used as primary and reference procedures for diagnosing tubal dysfunction. In a local study diagnostic laparoscopy was done and it was found 53% of patients had tubo-peritoneal disease out of these 32% had peritoneal adhesions along with tubal blockage while 21% cases had only pelvic adhesions, Polycystic Ovarian disease was present in 15.7% of patient and endometriosis was found in only 9% of patients. Fibroids of uterus was found in 6% of patients and 16.5% had no abnormality.[4]

Laparoscopy (peritoneoscopy) is a transperitoneal endoscopic technique that provides excellent visualization of pelvic structures and often permits the diagnosis of gynecologic disorders and pelvic surgery without laparotomy. [5] Laparoscopy was the final diagnostic procedure of the female fertility exploration, as outlined by the American Fertility Society in 1992 and by the WHO guidelines (Rowe et al., 1993). In 1997, Glatstein et al. (1997) reported that 89% of all reproductive endocrinologists in the USA routinely performed a laparoscopy in the diagnostic work-up of infertility.[6]

Advantages include the possibility to perform both

diagnostic and therapeutic procedure at the same time, all as part of day care surgery.[6] Local data is deficient on this topic, especially on diagnostic findings of laparoscopy for causes of infertility in women. Therefore this study will be undertaken to see the burden of causes of infertility. This data could be utilized for resource allocation & improvement in management strategies. This study is planned with the objective of highlighting the relative importance of laparoscopic evaluation in the etiology of primary infertility in women. Infertility is a major problem affecting women's health and quality of life leading to social and psychological upsets and bringing misery and insecurity to many women.

METHODS

This Cross Sectional study was conducted from September 2011 to February 2012 at the Department of Obstetrics & Gynecology, Jinnah Post Graduate Medical Center-Karachi. The sample size was calculated by using WHO sample size determination software with 80% power of the test and 95% confidence interval. Taking anticipated population proportion (P) of fibroids of uterus in 6%4 of sub-fertile women & margin of error (d) of 5% the sample size was calculated as (n) 86 women. Data was collected by Non-probability (purposive) sampling technique. All females of child bearing age with infertility presented in infertility clinic with negative pregnancy test were included in the study while those females were excluded who had recent history of salpingitis or other infections, obvious hormonal problems, sever cardio pulmonary diseases, large abdominal mass, massive absolute or relative contraindications for laparoscopy, diaphragmatic hernia, massive intraperitoneal hemorrhage, paralytic ileus, generalized peritonitis, male factor infertility, bowel obstruction and gross obesity. Pregnant females were also not included in the study.

The sample subjects were selected through outpatient department or infertility clinic of Gynaecology and Obstetrics Unit of JPMC. The patient who fulfilled the inclusion criteria was enrolled in the study. The purpose, procedure, risks and benefits were explained and informed consent was taken. All the patients were admitted a day before the procedure, preferably in the pre-menstrual phase. Pre-anesthetic evaluation was carried out in the evening. Prophylactic antibiotic was injected and diagnostic laparoscopy was carried out under general anesthesia. The patency of the fallopian tubes was ascertained by injecting methylene blue dye into the uterine cavity through uterine cannula or a Foley's catheter and observing its spill through fimbrial ends. Dilatation and curettage was carried out in patients with menstrual abnormalities or suspected endometrial tuberculosis and endometrium was sent for histopathology. All information was entered on a predesigned proforma.

Data was entered and analyzed by SPSS version 17. Mean ± standard deviation was calculated for age of the patient. Frequencies and percentages were calculated for causes of infertility found on diagnostic laparoscopy. Stratification was done with regards to age of women and duration of infertility to see the effect of these on outcomes. Chi square test was applied to find association between categorical variables and p- value less than 0.05 was taken as significant.

RESULTS

Eighty six primary infertile females were included in this study and underwent diagnostic laparoscopy. Ages of patients investigated were ranging from 20 – 40 years and mean age was 28.6 + 5.2 standard deviation. Patients were arranged into groups according to age and 29 (33.7%) of the females were in age group 25-29(Table 1)

Duration of infertility among females was ranging from 2 to 10 years with mean of 4.9 + 1.9. Patients were also grouped according to duration of infertility (Table 2). Out of 86 females 24 (27.9%) had regular menstruation and 62 (72.1%) had irregular menstruation.

Causes of primary infertility investigated by laparoscopy were PCOs, tubal blockage, hydrosalpinx, ovarian abnormalities, pelvic adhesions and uterine congenital anomalies, among them most common finding was tubal blockage which account for 44 (51.2%). Other findings are presented in Table 2.

Among ovarian abnormalities most of the abnormalities were hemorrhagic cyst and endometriotic cyst while congenital anomalies were absent uterus, didylphus uterus and two uteri.

Out of 44 patients with tubal blockage, 10 (22.7%) had unilateral tubal blockage and 34 (77.3%) had bilateral tubal blockage. Hydrosalpinx was found in 22 (25.6%) patients and of those 17 (77.3%) had bilateral hydrosalpinx and 5 (22.7%) had unilateral hydrosalpinx.

Out of 44 (51.2%) patients who had tubal blockage and 22 (25.6%) who had hydrosalpinx, 19 (22.1%) were those who had both tubal blockage and hydrosalpinx. Chi square test was applied on these two categorical variables and p-value was found significant as it is 0.000 which is <0.05. (Table 3)

Association between tubal blockage and pelvic adhesions was also analyzed Out of 44 (51.2%) patients who had tubal blockage and 33 (38.4%) who had pelvic adhesions, 27 (31.4%) were those who had both tubal blockage and pelvic adhesions. Chi square test was applied and p-value was found significant as it is 0.000 which is <0.05. (Table 3)

There were no complications in 78 (90.69%) patients, while other complications were fever, shoulder tip pain and abdominal pain. (fig 1)

Table 1. Age groups and Infertility duration of women with infertility at the time of laparoscopy

		Number of Cases (n=86)	Percentages (%)
Age Groups	20 – 24 years	14	21.1
	25 – 29 years	29	33.7
	30 – 34 years	22	25.6
	35 – 39	12	14
	40 – 45	4	4.7
Duration of Infertility	2 – 4	41	47.7
	5 – 7	36	41.8
	8 – 10	9	10.5

Table 2: Laparoscopic findings among Primary Infertile Females

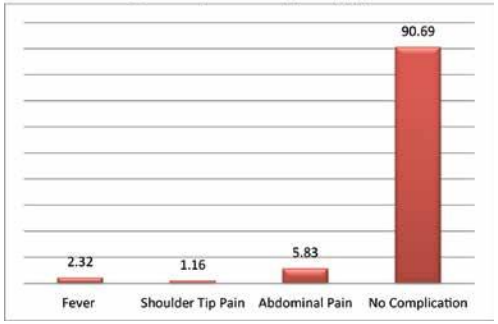
Laparoscopic Finding	Number of Cases (n=86)	Percentages (%)
Tubal Blockage	44	51.2
Ovarian Abnormalities	33	38.4
Pelvic Adhesions	33	38.4
Hydrosalpinx	22	25.6
PCOs	19	22.1
Uterine Congenital Anomalies	3	3.5
Normal Findings	9	10.7

Table 3. Association of Tubal Blockage with Hydrosalpinx and Pelvic Adhesions

	Tubal Blockage		
	Number of Cases (n=86)	Percentages (%)	P-Value*
Hydrosalpinx	19	22.1	0.0001
Pelvic Adhesions	27	31.4	0.0001

P-value <0.05 is considered significant. Chi square test was applied for categorical variable

Figure 1: Complications of Laparoscopy (%)



DISCUSSION

Infertility is among one of those medical problem which mostly a challenging task for gynecologists. Laparoscopy is a mandatory and essential procedure for complete and detailed assessment as well as treatment of infertility. [7,8,9]

This technique is successfully investigate and provide information about tubal condition, pelvic adhesions, ovaries, uterine pathologies and so replaced certain old procedures like gas insufflations and even HSG in assessing the tubal patency. [10,11]

Infertility may be due to primary and secondary reasons. Most of the studies till now investigate both primary and secondary infertility and used laparoscopy as one mean of investigation. In this study the primary focus was only assessing causes of infertility among primary infertile patients with the help of laparoscopy.

Female age is one of most important determinant of spontaneous as well as treatment related conception.[12] NICE recommendations states that women over age of 35 years should be referred early from primary care for investigation and treatment. [13,14]

Mean age of females diagnosed at the time of research was 28.6 + 5.2 years and Aziz N in her research at LUMHS also mentioned mean age as 28 years.7, [11, 12] In this research primary infertility was found more in age group between 25 to 29 years i.e. 33.7% and other research also showed the prevalence of infertility more in this group[12] but in another research primary infertility was more in age group 18 to 25 i.e. 55%.[15]

In this research mean duration of infertility found 4.9 + 1.9 years and it was found as 3.7 years in one research and 3.2 years in another research.[8, 12] Duration of primary infertility was more from 2 to 4 years and it was also stated by Aziz N and Naz T that duration of infertility was more from 5 to 10 years.[15,16]

Most common finding on laparoscopy in this study was tubal blockage (51.2%) while in other studies Aziz N also reported it was most common cause (21.9%) [15]. Haider G reported tubal blockage in only 10% cases and Naz T also reported it only in 6 % cases.[15] In a study conducted at Mayo hospital Lahore and at Holy Family Hospital Rawalpindi the incidence of tubal factor was 30% and 47.8% respectively.[17] In this study it was noticed that those who had tubal blockage were also had hydrosalpinx and pelvic adhesion, so to find out association test of significance was applied and according to p-value < 0.00 for both cases tubal blockage is associated with hydrosalpinx and pelvic adhesions. Hydrosalpinx was found in 25.6% of cases and it was observed that both tubal blockage and hydrosalpinx was 77.2% presented as bilateral.

Other findings on laparoscopy were ovarian abnormalities and pelvic adhesions, both were found in 38.4% females. PCOs was also found in 22.1% females and other studies also mentioned it as one of the common cause among primary infertile patients.[18,19]

Interestingly 3 cases were found with uterine congenital anomalies that were absent uterus, didylphus uterus and two uteri. Congenital uterine abnormalities were more frequent in primary infertility and Naz T; et al. also reported 2 cases of double uterus in their study.

Most of the cases were found without any abnormalities and many studies showed that there were certain unexplained reasons for primary infertility as their laparoscopic findings were normal.[20, 21]

In this study only 10% were found with normal physiology while others were found with some pathology whether they were uterine, tubal or ovarian. Laparoscopy is a very powerful tool that not only helps in early diagnosis of primary infertility but also help in management of infertility.

CONCLUSION

Among various causes of primary infertility, tubal disease found to be the commonest factor responsible for primary infertility.

Laparoscopy is a valuable, more convenient, more precise technique and is a mandatory procedure for detailed and complete assessment and diagnosis of female infertility. In primary infertility this technique should be pertain properly and promptly, without delay in trials and blind management.

More effective treatment decisions and interventions can be made according to the particular cause of infertility in the light of laparoscopy findings.

CONFLICT OF INTEREST

Author declares no conflict of interest

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