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DIAGNOSTIC LAPAROSCOPY FOR INFERTILITY;
AN ACCURATE TECHNIQUE FOR EVALUATION

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ABSTRACT… Objective: To assess the causes of infertility by laparoscopy. **Study design:** Observational study. (Prospective). **Place & Duration of study:** Imdad hospital & Mahnaz Laparoscopy Center, Quetta from 1st Jan 2013 to 31st Dec 2013. **Methodology:** All the infertile patients either with primary or secondary infertility was included after thorough evaluation. Diagnostic laparoscopy was done on these patients. Different causes were seen like tubal blockage, T.B, Endometriosis, adhesion of previous abdominal surgery, polycystic ovaries. **Results:** The study group consisted of 35 cases of infertile patients' aged between 16 to 46 years. 19 (54.3%) patients comprised primary infertility and 16 (45.7%) patients had secondary infertility because of tuberculosis (TB), pelvic inflammatory disease, endometriosis, polycystic ovaries and previous surgery. 37.1% were asymptomatic, while irregular cycles, discharge and dysmenorrhea were common symptoms Normal findings were in 3(8.6%) women. 8.5% had unilateral blockage and 14.3% had bilateral blockage. 22.9% (8) cases had pelvic tuberculosis and endometriosis was found in 3(8.6%) patients.11.4% (4) had pelvic adhesions. No major complication occurred except nausea, vomiting, pain and mild fever. **Conclusion:** Pelvic tuberculosis was most common pathology detected followed by Endometriosis, Pelvic inflammatory disease and adhesions.

Key words: Diagnostic laparoscopy, Infertility, Pevlic Tuberculosis, Endometriosis, Pelvic inflammatory disease, Pelvic Adhesion

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INTRODUCTION

Infertility is a common and public health problem. It is defined as the inability to conceive after one year of frequent unprotected regular intercourse.[1] 60-80 million couples all over the world are sub-fertile. 10-15% of reproductive – age married couple are considered infertile. The prevalence of infertility in industrial countries is 20%.[2] 21.9% of infertility cases are observed in Pakistan 3.5% primary and18.4% secondary infertility.[3] According to one study 8% population in Pakistan is facing fertility issue, while 90% causes are curable and only 10% are complicated.[4] In developed countries only 56% couples seeks medical care and 51.2% in developing countries The causes of infertility are generally classified as male factors, female factors and unidentified or combined. Approximately 25-40% cases are due to male factors and 50% of infertility is related to female factor.

Infertility can be primary" in which case the woman has never "conceived" before or "secondary" when there is prior conception irrespective of the outcome of the pregnancy.[4-5-6] Etiologies for infertility in women are tubal and peritoneal factor, endometriosis, anovulatory disorders, fibroids, infections, adhesions, and cervical factors.[2-3]

Hysterosalpingography (HSG) was common traditional method to assess the tubal patency and uterine cavity but it has now become largely replaced by easy procedure e.g laparoscopy due to its benefits and less complications.

Laparoscopy is a minimally invasive technique and alternative option for carrying out many operations that previously required an open approach. But diagnostic laparoscopy is most appropriate and acceptable procedure to detect

abdominal and pelvic pathology.

Diagnostic laparoscopy also termed as exploratory laparoscopy is usually established as the most perfect and accurate procedure to detect pelvic organ pathologies likes tubal pathology, endometriosis, fibroids, ovarian cysts and other conditions influencing fertility[1-8] and it allows intra-abdominal examination of appendix, gallbladder, stomach and liver. It is useful in taking biopsies of abdominal and pelvic growth as well as lymph nodes and culture acquisition and variety of therapeutic intervention.

Diagnostic Laparoscopy is a minimal invasive technique that gives magnified view of internal pelvic organs and provides information on the status of the fallopian tubes, ovaries and uterus. It is considered as gold standard for the diagnosis of various diseases e.g; pelvic inflammatory disease, endometriosis, cysts, pelvic congestion, fibroids and tuberculosis.[7.] Laparoscopy is used to determine the cause of pelvic pain, acute abdomen or gynecological symptoms that cannot be confirmed by physical examination or ultrasound. It is useful staging tool for certain cancers.

Because of the cost and invasive nature of laparoscopy it should not be the first test in the couple's diagnostic evaluation. In general semen analysis, hysterosalpingogram (HSG), assessment of ovarian reserve and documentation of ovulation should be assessed prior to consideration of laparoscopy. However, diagnostic laparoscopy is final step in determining the optimal management plan for infertility after standard infertility screening tests.

With the recent advances in fibro-optics and techniques the results of laparoscopy are encouraging.

The main advantages of diagnostic laparoscopy over the traditional open laparotomy are reduced mortality, decreased postoperative pain and shorter hospital stay.

The objective of our study was to observe and enumerate the role of diagnostic laparoscopy in female infertility in establishing the cause.

This study was carried out to find the different causes of female infertility whether primary and secondary and their relative prevalence.

METHODOLOGY

This observational study was conducted at Imdad hospital and Mehnaz laparoscopy center Quetta from 1st January 2013 up to 31st December 2013.

Cases were selected from the outpatient department and all cases of infertility were admitted for diagnostic laparoscopy. Informed written consent was taken from patients. Thorough history including demographic information, menstrual, obstetrical & gynecological, medical and surgical and of parameter was taken. General & physical examination of patient including pulse, blood pressure, height, weight, hirsuitism, galactorrhea carried out. Baseline investigations, hormonal profile (FSH, LH, TSH) and semen analysis were carried out. Chest X-ray and ECG were performed, needed for pre-anaesthetic evaluation. Male factor was excluded. Female with previous laparocopy, non-compliant with procedure and unfit for anesthesia were excluded from study group.

Laparoscopy patients were admitted in morning with 8 hours fasting before surgery in post menstrual phase. Diagnostic laparoscopy performed by standard technique under general anesthesia in lithotomy position. Laparoscopic findings were noted on predesigned Performa. Tubal patency was confirmed by dye test. Total 150 patients of infertility attended clinic. Out of these only 35 cases admitted for diagnostic laparoscopy and dye test.

The laparoscope was introduced through sub umbilical incision and after CO2 insufflations, thorough assessment was performed and findings recorded. Any ascitic fluid was aspirated and sent for cyto-chemical analysis in all cases. Peritoneal lavage was done through irrigation

with one liter normal saline 0.9%. After 10 minutes the fluid aspirated in sterile container and sent for analysis and AFB (acid fast bacillus) staining. In those patients who had typical appearance of tuberculosis with adhesions, hydrosalpinx, pyosalpinx and tubal blockage with tubercles, the tissue biopsy was taken for histopathology.

Methylene blue was used to check tubal patency. Patients were discharged on next day morning. Complications were noted.

The data were analyzed manually. Results were described by calculated percentages and frequencies.

RESULTS

Total 150 cases of infertility were investigated. Among these 35 cases were selected for diagnostic laparoscopy. Ages varied from 16 to 46 years. The mean age was 28 years. Out of 35 cases 80% were having normal regular menstrual cycle. 54.3% (19) patients were observed with primary and 45.7% (16) secondary infertility. Ten (52.6%) patients comprised of primary infertility associated with age group of 16-25 years while 7 (43.8%) of secondary infertility. 10 (28.6%) patients belonged to the age of 26-35 years and 8 (22.9%) patients had age range of 36-46 (table-I).

Duration of infertility was 1-8 years in 10(28.57%) in primary and 12(34.29%) in secondary infertility cases. While only 5(14.29%) had duration of 12-16 yrs (table-II).

In our study 37.1% patients were asymptomatic. 7(20%) patients had menstrual irregularity .7(20%) patients presented with dysmenorrhea, 6(17.14%) with dysparunea, 6(17.14%) with excessive weight gain, 6(17.14%) with discharge, 3(8.6%) of hair growth, 2(5.7%) with pelvic pain. Majority patients had multiple symptoms. (table III)

While performing laparoscopic procedure, only 2(10.5%) and 1(6.3%) had normal findings in primary and secondary infertility respectively. 2(10.5%) in primary and 1(6.3%) in secondary infertility had bilateral tubal blockage while 2(10.5%) and 3(18.7%) had unilateral blockage in primary and secondary infertility respectively. Uterus could not be seen due to adhesion in 5.7% cases. Among all the cases, 5.6%patients had fibroids. Simple cyst seen in 2 cases, while endometriosis was found in 3 patients (table IV)

In our study the most important finding was pelvic tuberculosis which was found in 8 cases of infertility. 15.8% (3) cases with primary and 31.3% (5) cases with secondary infertility had TB on laparoscopic findings (table IV).

There was no major complication except pain in 28.6%, nausea & vomiting in 14.3% cases while 37.1% were asymptomatic postoperatively (table V).

Age group Years	Primary infertility n=19(54.3%)	Secondary infertility N=16(45.7%)
16-25	10(52.6%)	7(43.8%)
26-35	5(26.3%)	5(31.3%)
36-46	4(21.1%)	4(25%)

Table-I. Age distribution group of patients with primary and secondary infertility

Duration in years	Primary infertility Number (%)	Secondary infertility Number (%)
1-4	5 (14.29%)	7 (20%)
5-8	5 (14.29%)	5 (14.29%)
9-12	6 (17.14%)	2 (5.7%)
12-16	3 (8.57%)	2 (5.7%)
Total	19(54.3%)	16 (45.7%)

Table-II. Duration of infertility

Symptoms	Primary infertility	Secondary infertility
Asymptomatic	7 (36.8%)	6 (37.5%)
Irregular cycle	4 (21.1%)	3 (18.8%)
Dysmenorrhea	3 (15.79%)	4 (25%)
Dyspaunea	4 (21.1%)	2 (12.5%)
Weight gain	4 (21.1%)	2 (12.5%)
Hair growth	2 (10.5%)	1 (6.25%)
Pelvic pain	1 (5.26%)	1 (6.25%)
Discharge	3(15.79%)	3(18.8%)

Table-III. Symptoms of patients

Laparoscopic findings	Primary infertility N=19	%	Secondary infertility N=16	%
Normal findings	2	10.5	1	6.25
Bilateral blockage	2	10.5	1	6.25
Unilateral blockage	2	10.5	3	18.8
Infections, TB	3	15.8	5	31.3
Polycystic ovaries	2	10.5	1	6.25
Endometriosis	2	10.5	1	6.25
Adhesions	2	10.5	2	12.5
Simple cyst	2	10.5	0	0
Fibroid	1	5.26	0	0
others	1	5.26	2	12.5

Table-IV. Laparoscopic findings of infertility patients (n=35)

Complications	No. of patients	Percentages (%)
No complication	13	37.1%
Pain	10	28.6%
Nausea/Vomiting	5	14.3%
Pyrexia	6	17.1%
Wound infection	1	2.9%

Table-V. Complications of laparoscopy

DISCUSSION

Laparoscopy is an obligatory method for full evaluation of the infertile pair. Infertility is one of the difficult problems for gynecologists. It requires multidisciplinary approach for management. About 40% of infertile couples do not attend a health care center for treatment illustrating lack of education and awareness and also potential for error in hospital based statistics.[9]

In this study 54.3% patients had primary and (45.7%) patients presented with secondary infertility. 8 (22.9%) were above 36 year age. According to NICE guidelines women over 35 years of age should be referred early for investigation and treatment.[10] In the current study the mean age of cases was 26.9 years in primary infertility and 28.7 years in secondary infertility, as Talib et al., reported previously mean age of 22.1 years and 29.4 years in primary and secondary group respectively.[9]

Duration of infertility was 1-8 years in 52.6% and 75% of primary and secondary infertility case. None had infertility of more than 15 years. Similar results were found in study at Lahore e.g 58% and 71% had infertility of over 5 years.

In our study 37.1% patients were asymptomatic. Major symptoms were irregular cycles, dysmenorrheal, dysparunea, weight gain and discharge.

In our study, normal pelvic results were found on laparoscope in 10.5% and 6.3% cases of primary and secondary infertility, respectively. The most frequently observed findings were tuberculosis, polycystic ovarian disease, endometriosis and pelvic adhesions.

Pelvic tuberculosis was found in 15.7% and 31.2% cases of primary and secondary infertility, which shows high rate of tuberculosis in Balochistan.

Polycystic ovarian disease was observed in 10.5% in primary and 6.3% in secondary infertility. Malinowski et al., reported 28% incidence of polycystic ovarian disease in diagnostic laparoscopy.[11]

Laparoscopic result analyzed 19 primary and 16 cases of primary and secondary infertility out of 35 cases of infertility in this study. Such worth of laparoscopy as diagnostic tool has been observed in other studies too. Postoperative complications with laparoscopy are very low which corresponds with the findings of few other national and international studies.[12]

CONCLUSION

Diagnostic laparoscopy is minimally invasive, more accurate and convenient procedure for diagnosis of infertility. It has revolutionized the management of infertility. Good direction and education are needed among infertile women to consult earlier at infertility clinic especially those who are symptomatic. Laparoscopy is helpful in diagnosing tubal diseases, adhesions, and blockage, infections, T.B, endometriosis and most worthy in secondary infertility with no risk factors.

Due to safety, high yield, lower complications and cost effectiveness laparoscopy should be recommended in all cases of infertility. There is a need for further studies to be carried out in our setup where public awareness is very less due to social and political factors.

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"Height of control is over temper."

Shuja Tahir

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
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2	Dr. Zaibunnisa	Data collection & writing	
3	Dr. Firdous Ara	Laparoscopic Surgeon & Laproscopic Diagnosis	
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