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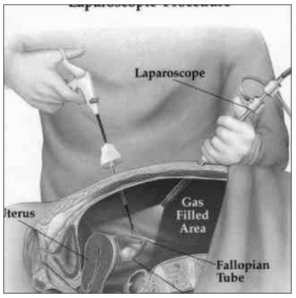
LAPAROSCOPY;
DIAGNOSTIC ROLE IN INFERTILITY



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ABSTRACT ... In 1902 Kelling described his first diagnostic laparoscopy. There after the procedure was modified. Laparascopic surgery has changed the way of conventional approach & reduced the complications of procedure. **Design:** Descriptive study. **Setting:** Officers family ward and other ranks Gynae ward II CMH Lahore **Period:** From March 2001 to February 2002 **Material & Methods:** Fifty (50) patients from officers family gynae ward and other ranks families gynae ward II, who had undergone laparoscopy. were included in this study. They included cases of both primary and secondary infertility. The patients were divided into two groups. **Group I:** This group included 36 patients who had no history of pregnancy. **Group II:** This group included 14 patients who gave history of infertility following one or more pregnancies. **Results:** In this study 50 patients were admitted with infertility. Out of 50, 36 were having primary infertility and 14 secondary infertility. The laporascopic findings in primary infertility were tubal occlusion 27.77%, adhesions 19.44%, PID 8.33%, endometriosis 5.55% and failure to visualize tubes and ovaries 2.77%. Whereas the laporscopic findings in secondary infertility were tubal occlusion 35.71%, adhesion 21.42%, endometriosis 14.28%, fibroid 14.28%, polycystic ovaries 7.14%. **Conclusions:** The benefits of the laporoscopic approach to conventional surgery included less pain, less scarring, less disability and quicker recovery. It has more advantages than disadvantages when compared with laparotomy as an alternative.

INTRODUCTION

Laparoscopy is a technique in the routine investigation and treatment of infertility. It allows a complete and detailed examination of the pelvic organs, peritoneum and superficial examination of the bowel, liver and diaphragm.

In female infertility, tubal diseases remain the most important factor. Tuboscopy[1-3] is useful during laparoscopy especially in studying the quality of the tubal mucosa. In hydrosalpinx with obstructive tubes, a neosalpingostomy[4] can be performed. Singhal et al[5] demonstrated that there was a significant reduction in the live birth rate of a group with hydrosalpinx $\geq$ 20mm in diameter compared with a group with hydrosalipnx $\leq$ 20mm in diameter. Laparoscopic peri tubal adhesiolysis and salpingostomy as a laparoscopic procedure as effective as microsurgery but with out the disadvantages of major abdominal surgery[6,7] Ovarian endometriosis[8] can be excised or opened, drained and

then the capsule removed with a CO, or KTP laser.[9] Fibroids can be excised with this technique or may be reduced in size using a thermocoagulative necrosis technique called myolysis.[10-12] With laparoscopic technique whole uterus with or without appendage can be removed.

The main advantages of this technique are shorter hospitalization, decreased morbidity, less post-operative pain, early recovery and better aesthetic results[7]. The main goal of the therapy is to eradicate the endometriotic lesion, to reconstruct normal pelvic anatomy, and to restore the peritoneal environment in order to cure infertility. There are different methods and techniques for testing endometriosis by laparoscopy either electro coagulation or laser may be used. In the surgical approach laparoscopy has proven its worth over laparotomy[13] .

Complication of laparoscopy are major vessel trauma, bladder perforation, gut perforation, incisional hernia, wound infection, surgical emphysema, ureteric damage, and pulmonary embolism[14,15] .

The mean world wide incidence of infertility has been reported to be 16.7%. On the basis of demographic and health services data, the number of infertile women in the world has been approximated to be 90 millions[16]. Its incidence is the same if not more, in Pakistan as any where else but desire to conceive and give birth is much more intense here than in any other part of the world.

MATERIAL & METHODS

In this study 50 patients from officers family ward and other ranks gynae ward II were included and laparoscopy done from March 2001 to February 2002 (one year at CMH Lahore). They included cases of both primary and secondary infertility. The patients were divided into two groups. **Group I** This group included patients who had no history of pregnancy. It included a total of 36 patients. **Group II** This group included patients who gave history of infertility following one or more pregnancies. It included a total of 14 patients.

Detailed history of the patients on first visit taken and following data collected. Age, duration of the married life, duration of infertility, previous pregnancies, occupation and history of previous marriage. Gynaecological history, age of menarche, vaginal discharge, menstrual pattern, use and any type of contraceptives e.g. IUD, pills and douchers etc. Pregnancy and success of coitus and use of lubricants. Correlation of intercourse with time of ovulation. Medical history of tuberculosis, DM, HTN, Hypo and hyperthyroidism. History of drug intake like anti-HTN, anti-depressants, tranquilizers and tobacco. History of frequency of intercourse and its normality. Surgical history of previous appendicectomy, oophorectomy, cystectomy, dilatation and evacuation (D&E), laparoscopy or other operation.

Family history of HTN, DM, TB, and congenitally abnormal children.

A general physical examination was done with special attention to signs of endocrine disturbances e.g. distribution of facial hair, body pains, pigmentation or striae. Pulse, blood pressure, height and weight of the patients was recorded. During the examination, cervix was examined for infection or stenosis. Uterine size, uterine anomalies or presence of fibromyomata, pelvic organ mobility, tubo-ovarian masses, uteroscacral nodularity were noted. Blood examination include Hb%, TLC, DLC, ESR. Routine urine examination was performed to rule out diabetes mellitus and UTI. Blood grouping for ABO and Rh, types. Mantoux test, VDRL, screening for lungs (X-ray chest PA view) serum T3, T4, and TSH was also performed.

All patients were admitted one day before procedure and they were instructed to take light evening meal. Fitness for general anaesthesia was assessed by anesthesiologist in the evening. Consent from the patient and husband was taken. After midnight they were kept NPO. Perineum were shaved. Dress was changed early in the morning. General anaesthesia with endotracheal intubation was needed in all of them. Modified lithotomy position was made.

Abdomen, perineum and vagina were cleaned. The patients were drapped in towel. Bimanual examination was performed following anaesthesia. Surgeon stood on the left of the patient. An assistant held anterior lip of the cervix with tanaculum and uterine elevator was introduced.

A 2mm small nick was given at inferior margin of the umbilicus. Abdominal wall was lifted up with the left hand while inserting verres needle directing it towards the centre of the uterus. Pneumoperitoneum apparatus was attached to the needle through a rubber tubing and gas source was turned on. Pressure less than 15mmHg indicated free flow of gas and about 2 liters of gas was introduced and verres needle then removed. The incision was extended to 2cm in size and abdominal wall was lifted with left hand and a trocar with a sleeve was introduced through the incision directed towards the hollow of the sacrum. The fibre optic light cable was attached to the laparoscope and it was introduced through the canula into the peritoneal cavity.

All the pelvic organs were inspected thoroughly starting from anterior surface of uterus, uterovesical space, both ovaries with tubes, both surfaces of broad ligaments, posterior surface of uterus, pouch of Douglas and uterosacral ligaments. Adhesions were also noted. In patients in which visualization of inferior aspect of ovaries and fimbrial end of tube was not possible with single puncture, a double puncture laparoscopy was done. The second incision of 5mm was made in mdline above the pubic hair line.

To evaluate the patency of the tubes, 10 to 15ml of methylene blue was injected by the assistant and surgeon inspected the dye entering in the tubes and its free spill through fimbrial end.

RESULTS

In our study a total of fifty patients under went laparoscopy for investigation of infertility from March 2001 to February 2002. The result of this study are: There were 36 patient who have never conceived and 14 patients who had conceived once or more. They had secondary infertility. Therefore the percentage of patients in case of primary infertility was 72% and in case of secondary infertility it was 28%. The duration of infertility was 2-5 years in majority of patients (58%) of primary infertility, where it was more than five years in 13 patients (36%) and less than 2 years in 2 patients (6%). In contrast to this the duration of infertility was more than five years in 10 patients (71%) while it was 2-5 years in 4 patients (29%) of secondary infertility. No patients had less than 2 years of duration in case of secondary infertility.

On laparoscopic examination of primary infertility, 11.11% of patients were found to have normal tubes and ovaries. 27.77% had tubal occlusion, 19.44% had peri-tubal and peri-ovarian adhesions, 5.55% had endometriosis and fibroid uterus and 8.33% had PID. In 16.66% patients, no sign of ovulation was seen. In this study failure rate to visualize ovaries and tube was 2.77% (Table I).

Table-I. Laparoscopic findings in primary infertility

Laparoscopic Findings	No of patients	%age
Tubal occlusion	10	27.77%
Adhesions	7	19.44%
PID	3	8.33%
Endometriosis	2	5.55%
Fibroid & uterine abnormality	2	5.55%
No signs of ovulation	6	16.66%
Failure to visulize	-	-
Tubes & ovaries	1	2.77%
Normal tubes & ovaries	4	11.11%

During laparoscopic examination of secondary infertility, tubal occlusion was found in five patient, adhesions in three patients, endometriosis in two patients and fibroid in 2 patients. One patient had normal tubes and ovaries

whereas polycystic ovaries were found in one patient (Table II).

As illustrated in Table III, 41 patients had no complication and recovery was smooth. Two patients had fever, two had abdominal pain whereas shoulder tip pain was noted in four patients and wound infection was observed in one patient.

Table-II. Laparoscopic finding in sec infertility		
Laparoscopic finding	**No. of patients**	**% age**
Tubal occlusion	5	35.71%
Adhesions	3	21.42%
Endometriosis	2	14.28%
Fibroid	2	14.28%
Polycystic ovaries	1	7.14%
Normal tubes & ovaries	1	7.14%

Table-III. Complication of Laparoscopy		
Complications	**No. of patients**	**% age**
No Complications	41	82%
Fever	2	4%
Abdominal pain	2	4%
Shoulder tip pain	4	8%
Wound infection	1	2%
Total	50	100%

DISCUSSION

The role of laparoscopy in diagnosis of infertility both primary as well as secondary is established beyond any doubt[2,10,11,16-19.] Our study included patients from urban and rural areas. All 50 patients had experienced one year of adequate coital exposure and majority had infertility evaluation by their local doctors.

In our study tubal factor was the most common cause of infertility and its incidence was 27.77% in case of primary infertility and 35.71% in case of secondary infertility as compared to one study conducted at Mayo Hospital Lahore and another at Holy Family Hospital Rawalpindi[20,21] where the incidence of tubal factor was 30% and 47.8% respectively.

The results of diagnostic laparoscopy conducted at University College Hospital IBADAN, Nigeria[19] has shown tubal occlusion in 31.5% which is quite close to the incidence in our study. However a study done by Zargar at Siringar showed tubal disease in 11.6% of infertile patients[22].

The incidence of infertility varies widely among different studies. In a large study conducted by Lunfeld and Insler the incidence of tubal factor ranged from 11% to 76.7%, ovulation failure from 9% to 42%and cervical or uterine causes from 3.2% to 48%. In 3.5-22% patients, cause was not known. In our study, results are similar to the above results.[23]

Tubal occlusion, peri tubal and peri ovarian adhesion and endosalpinx destruction are responsible factors which inhibit ovum pickup and transport. In Pakistan no study is available to show the magnitude of the pelvic inflammatory diseases. It is anticipated that the tubal factor may be involved in a relatively larger proportion of cases. In developed countries, the major cause of tubal infertility are diseases due to liberal sexual practices and multiple sex partners. Our religion and the family set up disallows liberal attitudes and multiple sex partners.

Other important cause of infertility are peri tubal and peri ovarian adhesion. The incidence of these adhesions was 19.44% in case of primary infertility and 21.42% in case of secondary infertility.

In another study, incidence of adhesion around tubes and ovaries were found to be 21.8% [22]. it is close to the incidence of peri tubal, peri ovarian adhesions in our study.

The incidence of unexplained infertility was 11.11% in

case of primary infertility and 7.14% in case of secondary infertility. These patients had normal tubes and ovaries and they had no sign of pelvic pathology. The incidence of unexplained infertility was 0.26% in a study conducted by Collins and Rowe.[24]

As far as the complication of laparoscopy are concerned, 41 patients had no complication. After the procedure only 09 patients had minor problems which were resolved in short period of time. The complication rate for the procedure was 29.9/1000 at Royal College of Obstetrician and Gynaecologist [25].

In another study by Chapron et al, the incidence of complications was 28.6%[14]. The common complications were haemorrhage and failure of procedure. Inferior epigastric haemorrhage can be avoided by knowing the anatomy of artery[26]. The pain is due to peritoneal irritation by carbon dioxide and creation of space between liver and diaphragm. The frequency of pain after laparoscopy can be halved by simple use of open drain through umbilicus for an hour to release residual gass from the abdomen.

CONCLUSION

The benefit of the laparoscopy to open surgery include less pain, less scarring, less disability and quicker recovery. It has more advantages than disadvantages for complete assessment of female infertility. If the modern technology and health care facilities are available, a woman need not to have a laparotomy for the gynaecologic conditions. Almost any thing can be done by mean of laparoscopy but we must not forget the golden rule that good clinical judgement is always more important than technical skill.

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