Diagnostic Laparoscopy in Gynaecological Problems: A Retrospective Study

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Abstract

- **Objective**: To study the findings obtained by diagnostic laparoscopy in gynaecological problems in order to re-assess the role of laparoscopy in the diagnosis of gynaecological problems during the study period.
- **Patients & Methods**: A retrospective study for cases of diagnostic laparoscopy that have been carried out in the Department of Endoscopy and Microsurgery Unit of Al-Azhar University Hospitals, during the period between January 1993 through December 1994. Laparoscopic technique employed, in this study was performed under general endotracheal intubation anaesthesia with controlled ventilation.
- **Results**: Six hundred cases were included in this study. The mean age was 28, 56 years ± 5.54 S.D. Of these, 383 cases (64.77%) had normal peritoneal and uterine findings. Pelvic adhesions were seen in 150 cases (25.17%). Uterine pathology were seen in 28 cases (4.69%) in the form of uterine myoma 22 cases (3.69%) and pelvic tuberculosis was suspected in 10 (1.68%) of cases. Periovarian adhesion was observed in 120 (20.13%) on right ovary, 142 (23.02%) on left ovary and 104 (17.44%) on both ovaries. Polycystic ovaries observed in 48 (8.05%) of cases. In 244 (40.93%) of these patients there were normal findings on both tubes, 352 (59.06%) normal findings were observed in the right tube and 338 (60.06%) normal findings were observed in the left tube. Ectopic pregnancy was found in 16 patients (80%) (figures 12, 13 & 14), normal pelvic findings in one patient (5%) and 3 patients (15%) with pelvic inflammatory disease.
- **Conclusion**: Laparoscopy is a reliable procedure which improve diagnostic accuracy in pelvic disorders and can reveal information which may make laparotomy unnecessary.

Introduction

Laparoscopy is one of the most gynaecological operative procedures performed today and is being done with increasing frequency and safety [1].

The introduction of a 2 mm laparoscope for diagnostic and minor procedural work may represent a technologic advance. Before such system are used widely, their diagnostic accuracy must be validated [2].

In the past 5 years the emphasis shifted to major procedures being performed laparoscopically with advantages for patient for a decrease in hospitalization time and post-operative pain, and subsequently a faster return to normal activity [3].

Aim of the Work

To study the findings obtained by diagnostic laparoscopy in gynaecological problems in order to re-assess the role of laparoscopy in the diagnosis of gynaecological problems during the study period.

Patients and Methods
This is a retrospective study for cases of diagnostic laparoscopy that have been carried out in the Department of Endoscopy and Microsurgery Unit of Al-Azhar University Hospitals, during the period between January 1993 through December 1994.

Assessment of these patients was carried out carefully before starting the endoscopic procedures. A full history was taken, this was followed by thorough general, abdominal and pelvic examination.

All infertile patients, in this study, underwent infertility work-up. This included evaluation of ovulation, evaluation of tubal patency and evaluation of male factor. In addition, in some patients, postcoital test was performed to evaluate cervical factor.

Laparoscopic technique employed, in this study was performed under general endotracheal intubation anaesthesia with controlled ventilation. The patient was placed in a modified lithotomy position and then 15-20° trendelenburg position was added. The patient was appropriately prepared and draped. The bladder was catheterized, and a pelvic examination was carried out. The uterine cannula was secured to the cervix by means of single toothed tenaculum. After induction of proper pneumoperitoneum laparoscopy was performed using an intra-umbilical entry. A multiple puncture technique was employed. The peritoneal cavity including the upper abdomen, was inspected, the pelvis then was inspected (fallopian tubes, ovaries, uterus, peritoneal flimsy adhesions, and other abnormalities).

For infertile patients methylene blue dye solution was used for laparoscopic hydrotubation, to the observation of tubal patency with free spill of methylene blue in the peritoneum, then the instruments were removed and pneumoperitoneum was deflated, and the umbilical incision is closed with a 4-0 vicryl sutures opposing deep fascia and skin dermis.

**Results**

Six hundred cases were included in this study. The mean age was 28, 56 years ± 5.54 S.D. (ranged from 18 to 43 years).

**Table 1** showed the indications for diagnostic laparoscopy in 600 cases there were 530 cases of infertility (88.3%), the cases of primary infertility were 176 (29.3%) and secondary infertility were 354 (59.0%) of cases. The acute abdomen was the second in Rank in the indications for diagnostic laparoscopy it formed 32 (5.3%) of these cases, where suspected ectopic cases were 12 (3.3%) and pelvic inflammatory diseases cases were 12 (2.0%).

Chronic pelvic pain cases were 18 (3.0%), missed IUD cases were 8 (1.33%) of this cases, primary amenorrhoea cases were 6 (1.0%) and in this study laparoscopy was indicated for pre-operative evaluation of patients with previous tubal sterilization were 6 (1.0%). Four cases excluded because of failed pneumoperitoneum. So, these study really included 596 cases.

**Table 2** showed that 383 cases (64.77%) had normal peritoneal and uterine findings. Pelvic adhesions were seen in 150 cases (25.17%). Uterine pathology were seen in 28 cases (4.69%) in the form of uterine myoma 22 cases (3.69%) and pelvic tuberculosis was suspected in 10 (1.68%) of cases.

**Table 3** represents data concerning the ovarian pathology observed at laparoscopy, in 294 (49.32%) of cases, there were no abnormalities on both ovaries, in 344 (57.71%) of cases, there were no abnormalities on right ovary and in 330 (56.71%) of cases, there were no abnormalities on left ovary.

Periovarian adhesion was observed in 120 (20.13%) on right ovary, 142 (23.02%) on left ovary and 104 (17.44%) on both ovaries. Polycystic ovaries observed in 48 (8.05%) of cases. In 44 (7.38%) of cases the right ovary was not seen. In 40 (8.05%) of cases the left ovary was not seen and in 20 (3.35%) of cases both ovaries were not seen.

Right tubo-ovarian mass (**figure 1**) was seen in 18 (3.02%) of cases, left tubo-ovarian mass was seen in 12(2.01%) of cases and bilateral tubo-ovarian masses were seen in 4 (0.67%) of cases. Right
ovarian cyst (figures 2, 3 & 4) was seen in 16 (2.88%) of cases and left ovarian cyst (figures 5, 6 & 7) was seen in 6 (1.01%) of cases. Miliary nodules were seen in (1.01%) of cases in the right ovary 4 (0.67%) of cases in the left ovary and 4 (0.67%) of cases in the both ovaries. Gonadal dysgenesis was observed in 4 (0.67%) of cases.

Table 4 represented data concerning the tubal pathology diagnosed by laparoscopy. In 244 (40.93%) of these patients there were normal findings on both tubes, 352 (59.06%) normal findings were observed in the right tube and 338 (60.06%) normal findings were observed in the left tube. In 112 (18.79%) of these patients there were peritubal adhesions on right side, 120 (20.13%) of these patients there were left peritubal adhesions and 74 (12.75%) of these patients there were peritubal adhesions on both side. In 44 (7.38%) of these patients there were right fimbral block, 74 (12.41%) of them there were left fimbral block and bilateral fimbral block were observed in 16 (2.68%) of cases. In 64 (10.37%) of these patients there were right cornual block, 54 (9.06%) of these patients there were left cornual block and 22 (3.69%) of these patient there were bilateral cornual block. In 44 (7.38%) of these patients there were right fimbrial block, 74 (12.41%) of them there were left fimbrial block and bilateral fimbrial block were observed in 16 (2.68%) of cases. In 64 (10.37%) of these patients there were right hydrosalpinx, 30 (5.03%) of these patients there were left hydrosalpinx (figure 8) and bilateral hydrosalpinx were observed in 10 (1.67%) of cases. In 18 (3.02%) of these patients there were right tubo-ovarian mass, 12 (2.01%) of these patient there were left tubo-ovarian mass and bilateral tubo-ovarian masses were observed in 4 (0.67%) of cases. Picture of tuberculosis was seen in 12 (2.01%) of these patients in the form of miliary nodules on right tube, 6 (1.01%) of these patients on left tube and 6 (1.01%) on both tubes. In 10 (1.67%) of these patients there were right tubal pregnancy and 6 (1.01%) of these patients there were left tubal pregnancy. In 36 (6.04%) of these patients there were the right tube not seen and in 26 (4.86%) of these patients there were the left tube not seen.

Regarding the tubal patency in 526 cases of infertility, examined by laparoscopy, in 352 (66.92%) of these cases there were positive hydrotubation test in right tube, 358 (68.06%) of these cases positive hydrotubation test in left tube and bilateral tubal patency were observed in 244 (46.38%) of cases.

Regarding the degree of pelvic adhesion in 185 cases with pelvic adhesions (figures 9, 10 & 11). In 105 (56.75%) of these cases there were mild pelvic adhesion, 54 (29.10%) with moderate pelvic adhesions and severe pelvic adhesions in 26 (14.05%) of these cases.

In 108 cases with previous laparotomy included in the study, 80 (74.07%) had prior pfannenstiel incisions and 28 (25.93%) had prior midline incisions.

Adhesions to omentum and bowel were found in 18 women (22.5%) in the pfannenstiel group, 16 women (57.14%) in the midline incision. Twenty patients with clinical picture compatible with ectopic pregnancy were examined. Ectopic pregnancy was found in 16 patients (80%) (figures 12, 13, 14 & 15), normal pelvic findings in one patient (5%) and 3 patients (15%) with pelvic inflammatory disease. adhesions to omentum and bowel were found in 18 women (22.5%) in the pfannenstiel group, 16 women (57.14%) in the midline incision.

Discussion

Since the 1960 when safe techniques for induction of pneumoperitoneum were developed and fiber-optic system for light transmission become available, laparoscopy has gained widespread popularity in gynaecologic practice, it has been used to diagnose unknown problems, to follow the course of a known disease and to modify therapy. Furthermore, some surgical procedures such as biopsy, lysis of adhesion, and tubal sterilization have been performed through laparoscopy. So, the laparoscopy achieved widespread use as a valuable diagnostic aid in gynaecology.

In this retrospective study, laparoscopy was done in 176 (29.3%) of patients with primary infertility and 347 (59.0%) of patients with secondary infertility. On the other hand the indication for laparoscopic examination given by Chang et al., (1989) represents 37.8% of the studied cases for primary infertility and represents 33.0% of the studied cases for secondary infertility as the indication for laparoscopy.

Laparoscopy is also discovers unsuspected pelvis pathology especially pelvic adhesions. Laparoscopy is superior in evaluation of proximal tubal obstruction, pelvic adhesions and
endometriosis (7). In the current study, the pelvic adhesions were found in 35.23% of studied cases. This is noticeably less than the 50% given by Chang et al., (1987) (5) & Duigunan and Coughlan (1972) (8), and similar to the results of Musich and Behrman (1982) (9), who found that 35% of patients had pelvic adhesions.

Laparoscopy is an essential step prior to any tubal surgery as it may not only preclude the unnecessary operation but may also provide essential information regarding the nature and extend of future surgery (5). With regarding the tubal patency test done during laparoscopy, the test was positive in 66.92% of studied cases in the right tube, 60.06% in the left tube, and 46.06% of studied cases with bilateral tubal patency.

This is less than the result of Adelusi et al., (1995) (10), who found that, 52% of the patients with both tubes patent, 89.0% of the patients with right tube patent and 85% of the patients with left tube patent, and also less than the result given by Saliman et al., (1995) (11), who found that tubal patency in 71.0% of his patients who reported. The magnification offered by the laparoscope may also aid in the diagnosis of endometriosis use of laparoscope has dramatically increased over the last couple of decades (12).

Pelvic endometriosis was present in 3.69% of studied cases. This is higher than the results given by Adelusi et al.; (1995) (10), who reported, the presence of pelvic endometriosis in 1.9% of patients, and slightly higher than the result given by Chang et al., (1987) (5), who reported, the presence of pelvic endometriosis in 2.1%, and less than the results given by Peterson and Behrman (1970) (13), Templeton and Kerr (1977) (14) & Musich and Behrmal (1982) (9). Most ovarian abnormalities can be managed laparoscopically and often a laparoscopic examination of the adnexae will enable the gynaecologist to decide if laparotomy is indicated (15).

In the current study, the incidence of polycystic ovarian disease was 8.05%, which is noticeable slightly higher than the result of Adelusi et al., in 1995 (10), they found the incidence of polycystic ovarian disease as 6.7% in their series. In this study the incidence of ovarian cyst was 3.89% of the patients. This is less than the result of Adelusi and co-workers (10), where they found that 7.7% of their patients have had ovarian cyst.

The incidence of post-operative intra-abdominal adhesions has been examined previously in several studies, in the present study 108 patients with previous laparotomy has been examined for the presence of intra-abdominal adhesion. The incidence of adhesion to the bowel and omentum were more likely to occur after a midline incision 57.14% of patients, in patients with previous Pfannenstiel incision we noted 22.5% of patients with bowel and omentum adhesions.

Brill et al., (1995) (16), studied a group of 360 patients for the presence of intra-abdominal adhesions after abdominal surgery during a variety of laparoscopic procedures; and found adhesions to bowel and omentum in 70 women, 27 & in Pfannenstiel group, 48 women, 55% in the midline below the umbilicus group, and 10 women 67% in the midline above the umbilicus group.

Nezhat and Nezhat (1990) (17), stated that at laparoscopy, the location, the size and the nature of the tubal pregnancy are ascertained, ruptured tubal pregnancies can be treated successfully endoscopically if the bleeding has ceased or can be arrested adequately, laparoscopy is valuable for establishing a definite diagnosis in clinically suspected ectopic pregnancy and preventing the unnecessary surgery which carries an increased morbidity.

In this study laparotomy was avoided in 20% of patients with clinically suspected ectopic pregnancy and in 10% of patients early diagnosis and treatment of unruptured ectopic pregnancy prevented the catastrophic bleeding seen after rupture.

Chang et al., (1987) (5), reported the laparotomy was avoided in 32.4% of patients with clinically suspected ectopic and in 42.6% of patients early diagnosis and treatment of unruptured ectopic pregnancy settled down and obviously these results are much higher than the results of the current study because number of patients were much more than our patients and the frequency of using the laparoscopy for the diagnosis of clinically suspected ectopic pregnancy cases are more than other diagnostic tools.
The pre-operative evaluation to determine the feasibility of reversing previous tubal sterilization procedures has been gradually increased. In this study laparoscopy was indicated for pre-operative evaluation of patients with previous tubal sterilization was done in 1% of patients, which is less by far than the cases done by Chang et al., (1987) who has had 30% of his cases underwent pre-operative laparoscopic evaluation prior to tubal reverse of sterilization.

In conclusion: laparoscopy is a reliable procedure which improve diagnostic accuracy in pelvic disorders and can reveal information which may make laparotomy unnecessary. On the other hand will decrease any diagnostic pitfalls before any decision about surgical therapy.

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