

## Consecutive 300 Diagnostic Laparoscopies at Arif Memorial Teaching Hospital, Lahore

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### ABSTRACT

**Objective:** To evaluate the etiological factors of primary and secondary infertility through laparoscopy.

**Design:** Case series.

**Material and Methods:** 300 diagnostic laparoscopies during a period of 18 months were done primarily to evaluate the infertile patients between Feb 2011- Aug 2012 at Arif Memorial Teaching Hospital Lahore.

**Results:** Of 300 infertile women who underwent laparoscopy, 189 had (63%) primary infertility. While 111 (37%) had secondary infertility. 86 (45.5%) patients with primary and 26 (23.42%) patients with secondary infertility had no visible abnormality. The common finding was tubal blockage in 5 (2.64%) and 15 (13.51%) cases of primary and secondary infertility respectively. 34 (17.99%) cases of primary infertility were detected as polycystic ovaries which was found in 5 (4.50%) cases of secondary infertility. Endometriosis was found in 9 (4.76%) cases of primary infertility and none with secondary infertility. Pelvic inflammatory disease was found in 11 (5.8%) and 19 (17.12%) cases of primary and secondary infertility respectively. Multiple factors including adhesions were detected in 28 (14.81%) cases with primary infertility and 40 (36.03%) cases with secondary infertility. Fibroid was found in 10 (5.29%) and 4 (3.60%) cases of primary and secondary infertility respectively. The ratio of positive findings in secondary infertility was significant in comparison with positive findings in primary infertility.

**Conclusion:** The ovulatory disorders were common in primary infertility, while secondary infertility had multiple factors involved. And the data obtained strongly recommends laparoscopy as an integral part of the infertility investigations.

**Key words:** Laparoscopy, primary infertility, secondary infertility.

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### INTRODUCTION

Infertility is a problem of global proportions. An accurate diagnosis is the key to successful treatment. Experience has shown that pelvic abnormality in the infertile patient is frequently not appreciated by pelvic examination and by the usual diagnostic studies<sup>1</sup>. For this reason, direct visualization of the pelvic organs by an endoscopic technique has been advanced as a routine component of the complete evaluation of the infertile patient<sup>2</sup>.

Since the infertility in itself, or unsuspected endometriosis or tubal disease, does not represent an immediate health hazard, laparoscopy is performed to enhance the chances for pregnancy. If the patient is made aware of this and if she is presented a fair description of her potential chances for pregnancy, she can then decide if the laparoscopy and risks and discomforts of a possible surgical procedure are warranted. In our experience most women in this situation elected to undergo

laparoscopy, although several did not.

To advocate a purely elective operative procedure, two criteria must be fulfilled. First, pertinent information must be obtained, which can not be gained by other standard diagnostic means and second, morbidity must be a minimal and should have infrequent complication rate<sup>3</sup>. Besides, this is the most useful method of assessment of the tubal patency. In 21.6% cases, laparoscopy reveals abnormal findings after normal hysterosalpingography<sup>4</sup>. Several studies reported that the incidence of unsuspected pelvic pathology found at laparoscopy is approximately 50%<sup>5-6</sup>.

During the past 18 months, 300 laparoscopies were done at our hospital to investigate primary and secondary infertility cases. The mean age of presentation was 25.4 years in primary infertility and 32 years in secondary infertility. It is reasonable to assume that mechanical problems are more frequent in secondary infertility than in primary infertility couples that have no ovulation and sperm defects. However, we failed to find reports that make a distinction in the frequency of positive pathology findings at laparoscopy between primary and secondary infertility.

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We have reviewed and presented our experience to determine the different causes of primary and secondary infertility in women. The purpose of this report is to analyze our material to date and to determine the efficacy of this approach.

**MATERIALS AND METHODS**

Three hundred women underwent diagnostic laparoscopies from February, 2011 to August, 2012 at AMTH. All the women who failed to conceive after regular intercourse of 12 months were included. Those with male factor infertility and the patients with relative or absolute contraindication for laparoscopy i.e., an pre-existing cardiovascular or respiratory condition, generalized peritonitis, intestinal ileus or abdominal hernia, were excluded.

Records, including relevant history, clinical examination, hormone profile, ultrasound and semen analysis were reviewed on all infertile patients. That reflects the fact that many couples had been referred after they had been evaluated elsewhere. The median duration of infertility was 4.2 years. Laparoscopy was done as day surgery .It was performed under general anaesthesia with endotracheal intubation using the double puncture technique to maximize the exposure. All laparoscopies were performed by senior physicians. Antibiotics for Chlamydia and bacterial vaginosis cover were administered as a routine.

During the procedure, the pelvis was inspected including uterus, ovaries, fallopian tubes, round ligaments, uterovesical pouch, uterosacral ligaments and pouch of Douglas (POD). Peritubal, periovarian and omental adhesions, tubo- ovarian masses, endometriotic deposits, fibroid, presence of fluid in POD and sigmoid colon. The patency of fallopian tubes was ascertained by hydrotubation using methylene blue dye.

The laparoscopic data sheets were completed on all patients. In addition, all charts were reviewed to define demographic parameters, indications, preoperative diagnoses, laparoscopic findings regarding primary and secondary infertility and post operative course. The data was analysed on SPSS package for windows version 10.

**RESULTS**

In this study 300 consecutive diagnostic laparoscopies were reviewed over a period of 18 months w.e.f 1-2-2011 to 31-8-2012. There were 189 cases of primary infertility (63%) and 111 cases of secondary infertility (37%). As Table 1.1 shows, in the cases of primary infertility, normal laparoscopic findings were most common 86/189=45.50%.

Followed by PCOs 34/189=17.99%, multiple factors 28/189 = 14.81%, PID 11/189=5.8%, fibroids 10/189 = 5.29%, endometriosis 9/189=4.76%, blocked tubes 5/189=2.64% and uterine and adenexal anomalies 3/189=1.59%. In 3 cases laparoscopy failed (1.59%).

Table 1: Causes of primary and secondary infertility found through laparoscopy.

Causes	Primary Infertility	Secondary Infertility
Normal findings	86/189(45.5%)	26/111(23.42%)
PCO	34/189(17.99%)	5/111 (4.50%)
Multiple factors	28/189(14.81%)	40/111(36.03%)
PID	11/189 (5.8%)	19/111(17.12%)
Fibroid	10/189 (5.29%)	4/111(3.60%)
Endometriosis	9/189 (4.76%)	
Blocked tubes	5/189 (2.64%)	15/111(13.51%)
Ut & adenexal anomaly	3/189 (1.59%)	

Cases with secondary infertility were 111(37 %). Out of them multiple factors were the most common laparoscopic finding 40/111 = **36.03 %**, followed by normal findings 26/111 = **23.42 %**, PID 19/111 = **17.12 %**, tubal blockade 15/111= **13.51 %**, PCOs 5/111 = **4.50 %**, fibroids 4/111 = **3.60%**. There was no case of endometriosis and in 2 patients laparoscopy failed (**1.80 %**) technically. Although a simple technique in skilled hands, laparoscopy is not without complications such as infections, haematoma and injury to bowel or great vessels.

Table 1.2 shows incidence of complications of procedure.

Complications	Qty
Failed procedure	5/300(1.66%)
Failed dye instillation	3/300(1%)
Uterine perforation	1/300(0.33%)
Proceed laparotomy	1/300 (0.33%)
Vomiting/abd. Pain	5/300(1.66%)
Serous discharge from wound	3/300 (1%)

As shown in Tables 1&2, 18 cases suffered from various complications. There were 10 intra operative complications: 5 laparoscopies failed due to difficulty to traverse thick abdominal wall or faulty trocar. In 3 women, dye instillation couldn't be done. In one patient, uterus was perforated by uterine sound at fundus but no significant postoperative symptoms occurred. 1 laparoscopy was converted to open laparotomy to remove ovarian mass. There were 5 cases of post operative complications: 1 had vomiting, 1 had abdominal pain and 3 had both symptoms. 3 women developed serous discharge from wound which settled by repeated dressings.

## DISCUSSION

The use of laparoscopy in routine infertility workup has been a subject of debate. In various studies, routine laparoscopy for direct visualization of the pelvis indicates that 6 out of 10 "normal" women with unexplained infertility have abnormal findings which might well be related to their inability to conceive. In most patients this represents either endometriosis tubal disease or adhesions involving the pelvic organs<sup>7</sup>.

In a prospective study by Bonneau *et al*<sup>8</sup>, from November 2003 to October 2009, including 114 patients of unexplained infertility explored the same fact. Following laparoscopy they observed and treated endometriosis, pelvic adhesions and tubal disease in 72, 46 and 24 patients respectively. They observed pregnancy in 77 out of 102 patients who tried to conceive after surgery, 35 of whom conceived using their own tubes. So they strongly recommended diagnostic laparoscopy in unexplained infertility workup.

Studies have shown that the history of dysmenorrhea or dyspareunia increased the likelihood of detecting endometriosis from 41% to 64% and 69% respectively. The presence of both symptoms increased the likelihood to 83%<sup>9</sup>.

In most of the cases, the extent of the endometriosis is minimal and cannot be detected by pelvic examinations or suspected from the patient's history. Though the exact mechanism by which endometriosis affects fertility remains obscure. Cahill DJ *et al*<sup>10</sup> at Rotunda hospital Dublin 1991, reported 31% of patients having pelvic inflammatory disease (10% in our study) and 5% had endometriosis (3% in our study). Management got altered in 39(43%) patients. When reviewed, the incidence of PID was increased and of endometriosis was unchanged from their previous reports. In our patients, it seldom appeared to affect either tubal patency or tubo-ovarian function. The treatment of even minimal endometriosis by progestational agents and adhesiolysis, however, has been claimed to improve fertility by 15% (30% improvement in 50% cases)<sup>11</sup>.

In our study, one of the most frequent uses of laparoscopy was to assess tubal patency. Although concordant findings of tubal blockage has been found by Vasiljevic *et al*<sup>12</sup> between hysterosalpingography and laparoscopy. Yet the advantage of laparoscopy is identified by the possibility of visualization of some other pelvic abnormalities too. Though there is growing tendency to bypass laparoscopy after a normal HSG for the indications such as unexplained infertility, male subfertility and cervical hostility.

In our experience, laparoscopy revealed abnormalities that resulted in changed treatment

decisions in 25% of the patients who would normally have been scheduled for IUI if laparoscopy had not been performed. So in our study, we had considered to do it prior to the initiation of therapy with human menopausal gonadotrophins and intra uterine insemination /IVF. Laparoscopy in these women was justified by the potential morbidity and expense of the proposed treatment. Since the morbidity and expense of clomiphene treatment is much less, prior laparoscopic tubal evaluation in anovulatory women undergoing treatment with this drug is not always justified especially in cases of primary infertility where we have found tubal blockade in 2.64% only. Same conclusion we inferred from the study carried out by Tanahatoe SJ *et al*<sup>13</sup> 2003, in which they included diagnostic laparoscopy as a standard procedure to perform in infertility work up programme in patients undergoing IUI.

Though none of the laparoscopies were performed for the purpose of evaluating ovarian morphology in women with amenorrhea or anovulation despite numerous reports describe this indication for laparoscopy<sup>5</sup>. In concordance to study by Naz T *et al*<sup>6</sup>, the ovarian pathology was found in 18(13.23%) primary and 4 (7.01%) cases of secondary infertility. Polycystic ovaries were detected in 34(17.99%) and 5(4.50%) cases of primary and secondary infertility respectively in our study. They found endometriotic cysts in 15(10.29%) cases of primary and 3(5.26%) cases of secondary infertility while we found in 9(4.76%) cases of primary infertility and none of secondary infertility cases.

In 35 women who had totally negative evaluation, including a normal HSG, a laparoscopy identified other pelvic disease in about half of the patients. This figure is substantially higher than commonly reported and similar reports were referred by al-Badawi IA *et al* 1999<sup>14</sup>. In their study, they found endometriosis, adenexal adhesions, sub serosal myomas, ovarian neoplasm, distal phimosis and salpingitis isthmica nodosa. Similarly we found multiple unsuspected anatomical factors including adhesions in 22.6% cases overall. Although not all were causally related to infertility but 7% needed standard operative laparoscopy or laparotomy.

In similar context, the patient management decisions were affected by laparoscopy in a number of women who had evidence of pelvic disease either by examination, hysteroqram, or a previous exploration. For this reason, we feel that laparoscopy should generally be performed prior to contemplate laparotomy for suspected or previously demonstrated pelvic disease too. And it should also be considered earlier as part of the infertility evaluation in women with a history of pelvic inflammatory disease, pelvic surgery and chronic pelvic pain.

Our morbidity from laparoscopy was acceptably low and complications were infrequent. So we feel that the reported and theoretical hazards of laparoscopy are sufficiently uncommon and it justifies its use in view of the information that can be obtained by this procedure.

## CONCLUSION

The ovulatory disorders were common in primary infertility and the tubal factor was one of the commonest factors in both types of infertility in the present study. Diagnostic laparoscopy is a valuable technique for complete assessment of female infertility and helps in making treatment decisions according to the cause.

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