LAPAROSCOPIC EVALUATION OF FEMALE INFERTILITY

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Background: Sub-fertility is inability to ensure child bearing when it is wanted. Prevalence of sub-fertility in industrialised countries has been quoted as 20%, and seems to be on the rise. Traditional way to assess the uterine cavity, tubal structure and tubal patency was hysterosalpingography but it has now been largely superseded by laparoscopy and hysteroscopy. The objective of this study was to highlight the role of laparoscopy in establishing diagnosis of female infertility. **Methods:** This descriptive study was conducted in Gynaecology Unit of Liaquat University of Medical Health Sciences, Hyderabad, Pakistan from 28th August 2000 to 1st July 2001. Total 200 sub-fertile patients attended the gynaecology OPD. Out of these 30 patients were selected for laparoscopy and dye test who were suspected cases of endometriosis, abnormal HSG and unexplained infertility. Those patients who had medical disorders and contraindication for laparoscopy were excluded from study. Detailed history of every patient was recorded on a proforma and physical examination was performed. Laparoscopy was scheduled in proliferative phase of menstrual cycle. Data were analysed using SPSS 11. Frequency and percentages were calculated to describe the results. **Results:** Out of 200 sub-fertile patients total 30 patients were selected for laparoscopy. Twenty (66%) patients were in primary infertility group while 10 (33%) patients were in secondary infertility group. Eleven (55%) patients of primary infertility belong to age group of 18-25 years while 6(60%) patients of secondary infertility belong to age group of 26-33 years (TABLE 1). Mean duration of sub fertility at time of presentation in primary infertility group was 1.95 years while in secondary infertility was 2.70 years (Table 2). In primary infertility group main associated symptoms were dysmenorrhoeal in 8 (40%), irregular cycles 5 (25%), and dyspareunia in 4 (20%). In secondary infertility group 3 (30%) patients had dysmenorrhoeal and dyspareunia while 2 (20%) had irregular cycles. The commonest cause observed in patients with primary infertility was endometriosis spots which accounted for 11 (55%). In secondary infertility tubal occlusion was more common which accounted for 3 (30%). **Conclusion:** Laparoscopic procedures are less invasive, more convenient and more precise for diagnosis of sub-fertility in women.

Keywords: Laparoscopy, Primary infertility, Secondary infertility, Complications

INTRODUCTION

Sub-fertility is inability to ensure child bearing when it is wanted.[1] There is a wide variation in defining sub-fertility in terms of duration.[2] It is best defined as the inability to conceive after one year of unprotected regular intercourse.[3,4] Based on this, 60–80 million couples all over the world can be labelled as suffering from subfertility[5]. The prevalence of sub-fertility in industrialised countries has been quoted as 20%, and seems to be on the rise.[1]

About 25–40% of cases of infertility are attributed to male factor.[6] In female infertility, untreated infections, anovulation and endometriosis are major causes in our social setup. As most of our patients are illiterate and from low socioeconomic class, they usually go to *Hakeems* and *Dias* for treatment of their infertility which leads to further worsening and delay in their proper management.

In this scenario, the role and place for a newer and high-tech method like laparoscopy needs to be adequately established, so that it is neither overused nor the patients who can really benefit from it are deprived of it. Traditional way to assess the uterine cavity, tubal structure and tubal patency was hysterosalpingography but it has now been largely superseded by laparoscopy and hysteroscopy. In one study, in presence of normal HSG, laparoscopy identified pelvic disease in about half of patients.[7]

The objective of our study was to highlight the role of laparoscopy in establishing diagnosis of female infertility.

MATERIAL AND METHODS

This descriptive study was conducted in gynaecology ward of Liaquat University of Medical and Health Sciences, Hyderabad, Pakistan from 28th August 2000 up to 1st July 2001. Total 200 sub-fertile patients attended the gynaecology OPD. Out of these, 30 patients were selected for laparoscopy and dye test who were suspected case of endometriosis, abnormal HSG and unexplained infertility. Those patients who had medical disorders and contraindication for laparoscopy were excluded from study. After taking informed consent, patients' detail was collected on pre-designed proforma regarding age of marriage, duration of infertility, associated sign and symptoms, provisional diagnosis, intraoperative laparoscopic complications etc.

Laparoscopy was scheduled in proliferative phase of menstrual cycle. Patients were admitted one day prior to surgery. Apart from complete history, general physical examination, baseline investigations and semen analysis were performed. The ECG and chest X-ray were done if required for pre-anaesthetic evaluation. All data were analysed using SPSS-11. Frequency and percentages were calculated to describe the results.

RESULTS

Total 30 patients were selected for laparoscopy out of 200 sub-fertile patients. Twenty (66%) patients were in primary infertility group and 10 (33%) patients were in secondary infertility group. Eleven (55%) patients of primary infertility belong to age group of 18–25 years while 6 (60%) patients of secondary infertility belong to age group of 26–33 years, (Table-1).

Mean duration of subfertility at time of presentation in primary infertility group was 1.95 years while in secondary infertility was 2.70 years (Table-2).

In primary infertility group main associated symptoms were dysmenorrhoea in 8 (40%), irregular cycles in 5 (25%), dyspareunia in 4 (20%), chronic pelvic pain in 2 (10%), and hirsutism in 1 (5%), and 8 (40%) patients in this group showed no signs on examination. However, 7 (35%) patients had adnexal mass, 3 (15%) had retroverted uterus, and 2 (10%) had nodularity in pouch of Douglas.

In secondary infertility group 3 (30%) patients had dysmenorrhoea and dyspareunia while 2 (20%) had irregular cycles and other less common symptoms were pelvic pain and hirsutism (10% each).

No sign was observed in 4 (40%) patients, 2 (20%) patients had retroverted uterus and adnexal mass, and 1 (10%) patients had bulky uterus and cervical polyp.

The commonest finding by laparoscopy in patients with primary infertility was endometriotic spots which accounted for 11 (55%) while in secondary infertility tubal occlusion was more common which accounted for 3 (30%), (Table-3).

There were no complications in 25% and 30% patients of primary and secondary infertility groups respectively (Table-4). The complications were pyrexia, shoulder tip pain, nausea and vomiting.

Table-1: **Age groups of women with infertility at time of laparoscopy**

Age group	Primary infertility (n=20) Number (%)	Secondary infertility (n=10) Number (%)
18–25	11 (55%)	3 (30%)
26–33	5 (25%)	6 (60%)
34–41	4 (20%)	1 (10%)

Table-2: Duration of infertility at time of presentation

Duration of infertility	Primary infertility (n=20) Number (%)	Secondary infertility (n=10) Number (%)
<2 year	6 (30%)	1 (10%)
2–4 year	10 (50%)	2 (20%)
5–7 year	3 (15%)	6 (60%)
8-10year	1 (5%)	1 (10%)
Mean	1.95	2.70

Table-3: Laparoscopic findings

Laparoscopic findings	Primary infertility Number (%)	Secondary Infertility Number (%)
Tubal occlusion	2 (10%)	3 (30%)
Polycystic ovaries	4 (20%)	00
Peritubal/periovarian adhesion	1 (5%)	2 (20%)
Endometriosis spot	11 (55%)	2 (20%)
Pelvic inflammatory disease	00	2 (20%)
Normal tubes and ovaries	1 (5%)	1 (10%)
Failure to visualise	1 (5%)	00

Table-4: Complications of laparoscopy

Complications	Primary infertility Number (%)	Secondary Infertility Number (%)
Pyrexia	6 (30%)	2 (20%)
Right shoulder tip pain	3 (15%)	1 (10%)
Nausea/ vomiting	6 (30%)	4 (40%)
No complications	5 (25%)	3 (30%)

DISCUSSION

It is widely accepted that infertility is a common medical problem. The role of laparoscopy in the diagnosis of primary and secondary infertility is established beyond any doubt. Our study includes patients from both rural and urban areas. Unfortunately majority of patients delay seeking expert advice till they are in their late thirties and forties. In almost every case, it is the wife who first approaches to doctor as there is mistaken notion that sexual potency of a man is equivalent to fertility. As failure to have a child is such an important and emotional matter, the approach to the sub-fertile couple must always be sympathetic.

The prevalence of primary infertility in our study is 66.6% and of secondary infertility is 33.3%. Usmani[8] in Rawalpindi reported 62% of patients with primary infertility and 38% of patients with secondary infertility. In our patients primary infertility presented earlier than secondary infertility. Same results were reported by Usmani[8] who reported that patients with primary infertility presented earlier, i.e., mean of 3.2 years than secondary infertility.

Major symptoms in our study were dysmenorrhoeal, dyspareunia and irregular cycles which are in accordance with other infertility studies at national and international level. The symptoms (dysmenorrhoeal, dyspareunia, and irregular cycles) are found to be frequently associated with organic pelvic pathology.[9]

Retroverted uterus and bulky uterus are 20% and 10% respectively in patients with secondary infertility while a study conducted by Usmani[8] they are 16% and 11% each which is identical with our study.

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.[10] In our study the incidence of tubal occlusion was 10% in case of primary infertility and 30% in case of secondary infertility. Zarger *et al* at Sirinagar reported tubal disease in 11.6% of infertility patients.[11]

Tubal occlusion, peritubal and periovarian adhesions are factors responsible for inhibition of ovum pickup and transport. In developed countries the major cause of tubal infertility is pelvic inflammatory disease. We found incidence of peritubal and periovarian adhesions as 5% in case of primary infertility and 20% in case of secondary infertility. Duignan and Jordan reported peritubal and periovarian adhesions to be in 21.8% of cases.[12]

In our study the incidence of endometriosis was 55% in case of primary infertility and 20% in case of secondary infertility. Najmi SR reported a higher incidence (54.16%) of infertility among patients of endometriosis.[13]

Garry *et al*[14] in his study concluded that meaningful improvements in clinical symptoms of quality of life can be obtained by laparoscopic excision of endometrioma and endometriosis with acceptable levels of operative morbidity.

Polycystic ovarian disease was found in 20% of our patients in primary infertility and none was found in secondary infertility. Malinowski and colleagues reported 28% occurrence of polycystic ovarian disease in 133 patients undergoing diagnostic laparoscope.[15]

Laparoscopy diagnosed 19 cases of primary and 10 cases of secondary infertility out of 30 cases of infertility in the present study. Such usefulness of laparoscopy as diagnostic tool has been found in other studies as well.[16] The incidence of postoperative complications with laparoscopy is very low which corresponds with the findings of few other national and international studies.[17–19]

CONCLUSION

Laparoscopic procedures are less invasive, more convenient and more precise for diagnosis. There should be proper guidance and education of infertile women to consult earlier at proper infertility clinic, especially those having dysmenorrhoeal, dyspareunia, irregular cycles and vaginal discharge. There is need to establish the role of laparoscopy in both the diagnosis and management of patients with infertility and larger studies need to be carried out.

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