

Laparoscopic Outcome of Infertility

Um-e-Salma Rizvi¹, Tallat Iftikhar², Naheed Bano³

¹Postgraduate Resident, ²Senior Registrar, ³Assistant Professor, Department of Obstetrics and Gynaecology Unit-I, Holy Family Hospital, Rawalpindi.

Correspondence: Dr. Um-e-Salma Rizvi, Postgraduate Resident, Department of Obstetrics and Gynaecology Unit-I, Holy Family Hospital, Rawalpindi. (Now in Saudi Arabia)

Email: usrizvi_96@yahoo.com

Abstract

Objective: To find out the aetiology of infertility and to make the accurate diagnosis that will further help in treating the patient accordingly.

Study Design: Descriptive study.

Setting: Obstetrics/Gynae Unit I, Holy Family Hospital, Rawalpindi.

Duration of study: July 1st 2003 to June 30th, 2004.

Sample size: 100 women.

Sampling technique: Non probability consecutive sampling.

Results: Total number of cases was 100, the frequency of primary infertility was 66% and that of secondary infertility was 34%. Overall in both groups 38% cases had duration of infertility between 2 to 5 years, 42% between 6 to 10 years whereas percentage of cases with above 10 years duration was 20%. Amongst abnormalities detected on laparoscopy, the most common abnormality in primary infertility group was bilateral tubal blockade 36.66%, followed by extensive adhesions 16.66%, endometriosis 13.33%, polycystic ovaries 13.33%, unilateral tubal blockade 13.33% and fibroid uterus 6.66%. In secondary infertility group polycystic ovaries were most common 28.57%, unilateral tubal blockade 21.42%, adhesions 14.2%, endometriosis 14.2%, fibroid uterus 14.2% and bilaterally blocked tubes in 7.14%. Regarding menstrual abnormalities it was found that in oligomenorrhoea group 63.33% of the patients had abnormal findings, most common cause found was polycystic ovaries, while in 36.66% no visible abnormality was found. In menorrhagia cases 43.75% had normal while 56.25% had abnormal results.

Conclusion: It was concluded that laparoscopy made it possible to make accurate diagnosis, thus leading to more appropriate and specific treatment.

Key words: Laparoscopy, Infertility and Investigation.

Introduction

Formerly Infertility meant that the couple is unable to conceive despite cohabitation for a period of two years.¹ Now this period is reduced to one year.²

Laparoscopy is an essential procedure for the investigation of infertility.³ It is a transperitoneal endoscopic technique that provides excellent visualization of the peritoneal cavity through the anterior abdominal wall after establishing a pneumoperitoneum.

The practical value of laparoscopy is the observation of lesions that would not be discovered by other investigations.⁴ In the last 20 years laparoscopy has become the pre-eminent method for the diagnosis of various gynecological disorders and approximately 20% of all gynecological operations are laparoscopies. Studies show that laparoscopy fills up the space between the clinical investigations and laparotomy. Diagnostic laparoscopy has a high overall diagnostic yield, an excellent safety record in the hands of a well-trained operator and is cost effective.⁵

Diagnostic laparoscopy is commonly performed on patients as part of a complete infertility work up. Laparoscopy is the best possible investigation to detect the accurate aetiology of infertility, by providing an overall view of the pelvic organs for evidence of any pathology that may be a factor responsible for infertility.

Not only can it confirm patency of the tubes but also gives information about other pelvic organs and substantiates the diagnosis of sub-clinical PID, endometriosis and adhesions. It is instrumental in the assessment of the feasibility of tubal surgery also.⁶

Furthermore it is expected that in the future, remote handling technology will overcome the manipulative restriction in the current instruments. There is no doubt

that 20 years from now some surgeons will be operating exclusively via a computer interface controlling a master-slave manipulator.⁷

The objective of this study was to stress the importance of laparoscopy in evaluation of infertility, so that the findings of the study may be used to suggest the aetiology of primary or secondary infertility and to make the accurate diagnosis that will further help in treating the cases of infertility accordingly.

Methodology

Inclusion criteria: All the patients irrespective of their age complaining of non-conception for more than 12 months were included in our study. The women were segregated into two groups. Group A with primary infertility and Group B with secondary infertility.

Exclusion criteria: All the patients who had undergone some abdominal subumbilical surgical procedures were excluded from our study.

Procedure: In this study laparoscopies were performed as a part of work up of infertility. The obvious pathologies seen, such as tubal adhesions, uterine pathologies, ovarian pathologies, endometriosis or tubal blockade were charted down. The patients were admitted through Gynaecology out patient department. Detailed history of the couple was taken, emphasis was given to the medical history of the patient like history of previous cardiac or respiratory problems and to previous surgical history like the history of abdominal or pelvic surgery. Complete examination and evaluation of the patients was done. Pre-requisites for laparoscopic procedure were fulfilled. General anaesthesia was used in all patients.

Data Collection and Analysis: All the data was collected through structured Proforma and it was analyzed

through SPSS version-10.0. Frequencies and percentages were computed to present all categorical variables including type of infertility, laparoscopic findings, symptoms, abnormal findings and menstrual cycle. Quantitative variables including age of the patients and duration of infertility were presented by Mean \pm SD.

Results

The total number of cases studied was 100, the incidence of primary infertility was 66% (66 patients) and that of secondary infertility was 34% (34 patients) as shown in Table I.

The number of patients in the age group between 25 to 30 years was 32 in both primary and secondary infertility group (Table II).

At the commencement of investigations for infertility, 40.90% of the patients with primary infertility had been infertile for 2 to 5 years on the contrary 47.06% of the patients with secondary infertility had been infertile for more than 6 to 10 years. Detailed distribution of patients according to duration of infertility is shown in Table III.

Table I. Frequency of Primary and Secondary Infertility (n = 100)

Type of infertility	Number	Percentage (%)
Primary	66	66
Secondary	34	34
Total	100	100

When laparoscopic findings of all the patients were studied it was found that 56 patients out of one hundred were found to have normal pelvic findings, 36 patients were with primary infertility and 20 patients were with secondary infertility. While 44 patients were found to have abnormal pelvic findings, out of which 30 patients

were of primary infertility and 14 patients were with secondary infertility. This distribution in association with symptomatology is shown in Figures 1 and Figure 2.

Table II. Frequency of Primary and Secondary Infertility (n = 100)

Age (Years)	Primary	Percentage (%)	Secondary	Percentage (%)
≤ 18	3	4.55	-	-
19-24	14	21.21	3	8.82
25-30	32	48.48	15	44.12
31-40	16	24.24	12	35.30
>40	1	1.52	4	11.76
Total	66	100.00	34	100.00

Table III. Distribution According to the Duration of Infertility (n = 100)

Duration of infertility (Years)	Primary Infertility		Secondary Infertility		Total	
	Number	%Age	Number	% Age	Number	% Age
2-5	27	40.91	11	32.35	38	38.00
6-10	26	39.39	16	47.06	42	42.00
>10	13	19.70	7	20.59	20	20.00
Total	66	100.00	34	100.00	100	100.00

Amongst abnormalities detected on laparoscopic examination, the most common abnormality in primary infertility group was bilateral tubal blockade 36.66% (11 cases), followed by extensive adhesions 16.66% (5 cases), endometriosis 13.33% (4 cases), polycystic ovaries 13.33% (4 cases), unilateral tubal blockade 13.33% (4 cases) and fibroid uterus 6.66% (2 cases). In secondary infertility group polycystic ovaries were most common 28.57% (4 cases), unilateral tubal blockade 21.42% (3 cases), adhesions 14.2% (2 cases), endometriosis 14.2% (2 cases), fibroid uterus 14.2% (2 cases) and bilaterally blocked tubes in 7.14% (1 case).

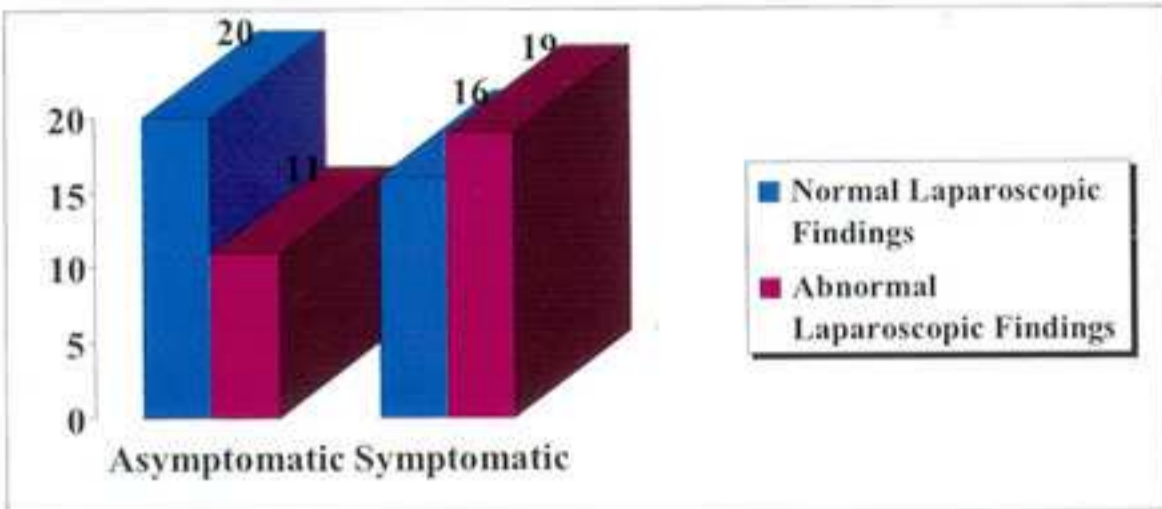


Figure 1. Association of symptoms with the Laparoscopic Findings in primary Infertility (n=66)

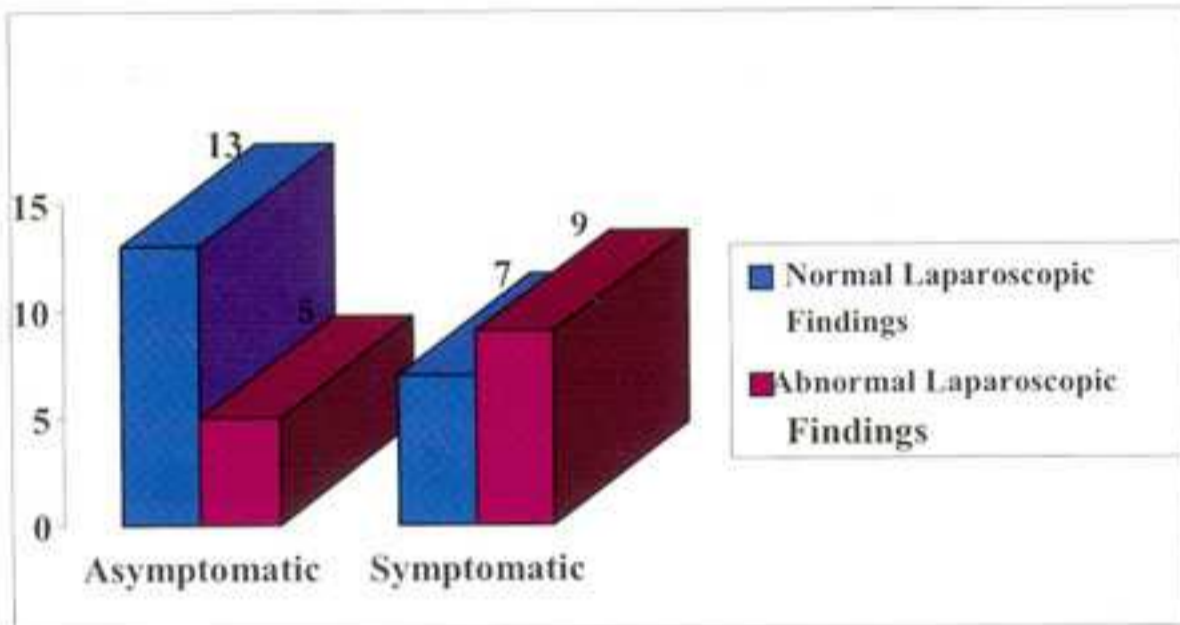


Figure 2. Association of symptoms with the Laparoscopic Findings in primary infertility (n=34)

When laparoscopic findings were seen in relation to menstrual cycle it was found that 54% of the patients had normal cycle and 46% of the patients had abnormal cycle. The major complaint was oligomenorrhoea while interestingly no patient came with the complaint of amenorrhoea. In oligomenorrhoea group 19 patients (63.33%) had abnormal findings the most common amongst which was polycystic ovaries, while 11 patients (36.66%) had normal results. In menorrhagia group 7 patients (43.75%) had normal while 9 patients (56.25%) had abnormal results the most common amongst which was dysfunctional uterine bleeding.

Discussion

The incidence of infertility is as high in Pakistan as all over the world and that is 15 %. Infertility creates psychological, emotional and social problems for the women, especially in our society.⁸

Currently, the infertility is defined as failure to conceive over twelve months of exposure.² Early detection of intractable lesions help in planning IVF etc, which are integral part of modern infertility management (WR Jones, 1995).⁹ Though invasive yet laparoscopy is the final investigative procedure in the investigation of infertility without which a woman cannot be labeled as sub-fertile.¹⁰

This study was conducted as a part of work-up of infertility and to chart-down obvious pathologies seen with the help of the laparoscope, such as tubal adhesions, uterine pathologies, state of the ovaries or any associated pathology, endometriosis¹¹ or tubal blockade. The findings suggested the aetiology of primary or secondary infertility that helped in making accurate diagnosis that would further help in treating the case accordingly.

Direct visualization of the pelvis provided a complete view of cul-de-sac, pelvic sidewalls and pelvic viscera, with ease like in Shivde study.¹² Laparoscopy was used to determine the causes of infertility like in Hovav study,¹³ it also revealed information like pelvic adhesions (Peritubal, Periovarian, Uterine) asymptomatic endometriosis, occult tuberculosis, any uterine or ovarian pathology such as fibroids, adhesions, ovarian cysts and Polycystic ovaries etc. It was also helpful in assessing the severity of pelvic adhesions, extent of endometriosis and the selection of appropriate treatment.

Our results showed that 66% of the females were with the complaint of primary infertility and 34% with that of secondary infertility. This is contrary to Khurshid N¹⁴

study which shows that the incidence of secondary infertility is higher than primary infertility, but these are the community-based figures and ours were hospital-based figures of urban population.

Patients who came for infertility investigations and had laparoscopies, amongst them 48.48% of the patients belong to primary group and 44.11% belong to secondary infertility group and they were in the age ranging from 25-30 years, while in age group ranging from 31-40 years, these cases were 25% and 30% respectively. Regarding the duration of infertility it was seen in this study that almost 40% of the patients with primary infertility came with the duration of infertility between 2-5 years and 47.06% of the patients with secondary infertility came with the duration between 6-10 years. This can be criticized, knowing that the patients who become secondarily infertile, it's hard for them to believe for the first 2 to 5 years that the failure of conception may be due to any pathology, but after 5 years they start thinking that they should seek some medical advice. Contrary to that in primary infertility patients are usually conscious to get pregnant soon and they also have a lot of social pressures that pushes them to get investigated at an earlier stage.

The most common abnormality in primary infertility was bilateral tubal blockade which was 36.66% (11 patients). And the second common finding was extensive adhesions; like in Moore J study.¹⁵ Such adhesions contribute to infertility or chronic pelvic pain and are associated with PID or pelvic tuberculosis. This is supported by the study of Prentice A as well.¹⁶ In Osuga Y study, at laparoscopy 31% of patients had evidence of PID and 5% had endometriosis.¹⁷

This is also true for the study done in Layari general hospital by Khurshid N¹⁴ showing the tubal factor is the most common cause and the pelvic adhesions come after it. This was also shown in the study conducted in

the department of Obstetrics and Gynaecology, B unit Lady Reading Hospital Peshawar from 1990 to 1999, that the tubal patency disturbances were responsible for infertility in more than half of the females being investigated for infertility.¹⁸ Similarly a study carried out in Holy Family Hospital by Asma Tanveer Usmani¹⁹ showed that tubal factor predominated the aetiology accounting for 37.6 % of the cases. The incidence of endometriosis appeared to be increasing possibly due to most widespread use of diagnostic laparoscopy (Frobes K.L 1987).²⁰ The reported incidence in Frobes study is 15%. It was 13.33% in primary infertility and 14.2% in secondary fertility in our study.

Laparoscopy helped us in finding the cause of infertility in 16 patients who were otherwise asymptomatic hence laparoscopy unaccounted for the lower figures for unexplained infertility and most clinics now report incidences of 20 – 30%.²¹

Patients of infertility presenting with normal regular cycles should not be assumed to have normal pelvic organs and laparoscopy should not be delayed for a long period assuming that everything is normal, as it was seen in this study that 2 patients (40%) of those with regular cycles had abnormal laparoscopic findings. Oligomanorrhoea indicates the problem to be more of hormonal imbalance than anatomical causes like in this study 57.14% (8 patients) of Oligomanorrhoea had abnormal laparoscopic findings and the commonest abnormality associated with it was polycystic ovaries. Although laparoscopy is an invasive procedure and is associated with certain risk factors and complications like intra-operative and post-operative complications, the usually quoted rate of which in the literature is 0.9% to 1.8%, but it is even less in experienced hand and in our study we had no complication of the procedure except post-operative nausea and vomiting in 5 % of cases and that was because of General anaesthesia.

When the results of a standard infertility evaluation are normal, practitioners assign a diagnosis of unexplained infertility. Although estimates vary, the likelihood that all such test results for an infertile couple are normal (i.e. that the couple has unexplained infertility) is approximately 15% to 30%.²²

Conclusion

Laparoscopy is a gold standard for diagnosing infertility. It gives accurate diagnosis, which leads to more appropriate and specific treatment.

It was concluded that laparoscopy made it possible to make accurate diagnosis in 44 patients out of 100 who were otherwise found to be normal, and treatment could be offered to these patients on the basis of aetiology of primary and secondary infertility made by laparoscopy.

Laparoscopy should be considered earlier even in patients with primary infertility if they have been thoroughly investigated and the duration of infertility is more than 2 years in spite of having regular cycles as the early treatment of pelvic pathology and the earlier detection of intractable lesions may be there requiring assisted reproduction, as an integral part of modern infertility management.

References

1. WHO Scientific Group FIGO. Manual of human reproduction 1990.
2. Mark Hamilton. Disorders and investigation of female reproduction. In: Gynaecology. 4th ed. China, CN: Churchill livingstone Elsevier; 2011. P 278.
3. Benifla JL, Madelenat P. Role of diagnostic laparoscopy within the framework of infertility evaluation. *Gynaecol Obstet Fertil* 2001; 29: 161-5.
4. Hawe JA, Garry R. Laparoscopic hysterectomy. *Semin Laparosc Surg* 1999; 6: 80-9.
5. Saeed S, Rana S. Prevalence of infertility factors in Pakistan. *Pakistan J Obstet Gynaecol* 1993; 6: 17-34.
6. Barei G. Elective and emergent laparoscopy. *World J, Surg.* 1993; 17: 8-15.
7. American College of Obstetricians and Gynaecologists. Chronic pelvic pain. ACOG Practice Bulletin No. 51.2004; 103:589-605.
8. Mishra RK. Minimal access surgeon. In: *Laparoscopy Hospital* 2001.
9. Jones WR, Cohen J, Hamberger L. Dewhurst's Textbook of obstetrics and gynaecology: Infertility. 6th ed. London: Blackwell Science, 1999: 432-40.
10. Leon Speroff, Robert H, Glass K, Nathan G, Kase R. Investigations of the infertile couple: In *gynaecol endocrinol infert* 4th ed. 1989: 513-40.
11. Mishell DR. Endometriosis and adenomyosis. *Comprehens Gynaecol* 2001: 531-64.
12. Shivde SR, Eden CG. Retroperitoneal laparoscopy. *Br JU Int* 2000; 85: 777.
13. Hovav Y, Homstein E, Almagor M, Yaffe C. Diagnostic laparoscopy in primary and secondary infertility. *J Assist Reprod Genet* 1998; 15: 535.
14. Khurshid N. Prevention and management of infertility. In: *Conference on Reproductive Health at CPSP*: 1995: 88-90.
15. Moore J, Kennedy S. Causes of chronic pelvic pain. *Bailliere's Clinical Obstet Gynaecol* 2000; 14: 389-402.
16. Prentice A. Medical management of chronic pelvic pain. *Bailliere's Clinical Obstet gynaecol* 2000; 14: 495-9.
17. Osuga Y, Koga K, Tsutsumi O, Yano T, Maruyama M, Kugu K, et al. Role of laparoscopy in the treatment of endometriosis associated infertility. *Gynaecol Obstet Invest* 2002; 1: 33-9.
18. Rahim R, Majid SS. Aetiological factors of infertility. *J Postgrad Med Inst* 2004; 18: 166-71.
19. Usmani AT, Shaheen F, Waheed N. Laparoscopic evaluation of female infertility. *Pak Armed Forces Med J* 1995; 45: 63-5.
20. Forbes KL. Endometriosis and infertility: treatment is always necessary 1987 Aug;5(4):153-66.
21. Hamilton MPR. The initial assessment of the infertile couple. *Current obstetrics and Gynaecology* 1992; 2:2-7.
22. The Practice Committee of the American Society for Reproductive Medicine, authors. Effectiveness and treatment for unexplained infertility. *Fertil Steril.* 2006;86(5):S111-S114.