

Diagnostic Laparoscopic Findings in Infertile Patients in the Saudi Population

SAMINA SHAMIM, MUHAMMAD FAROOQ, RUBINA SHAMIM

ABSTRACT

A study was carried out at King Khalid University Hospital, Riyadh and King Abdul Aziz Armed Forces Hospital, Dhahran, Saudi Arabia over a period of three months from 1.5.06 to 1.8.2006 in which fifty female Saudi patients presenting with infertility were subjected to pelvic laparoscopy. The findings of both primary and secondary infertility were evaluated in relation to the patient's age, symptoms and laparoscopic findings.

Key words: laparoscopy; infertility.

INTRODUCTION

Infertility is defined as failure to conceive during one year of unprotected frequent intercourse¹. Leading causes of infertility include tubal disease, ovulatory disorders, uterine or cervical factors, endometriosis and male factor infertility^{1,2,3}. Major causes according to WHO on a global basis are malnutrition, pelvic tuberculosis and puerperal infections leading to tubal blockage⁴.

Laparoscopy is an essential step and a standard procedure in the investigation and evaluation of infertile females before initiating infertility treatment^{5,6}. In the absence of clinical signs and symptoms suggestive of a diagnosis, laparoscopy offers an excellent means through direct visualization to elucidate the hidden pathology.

These cases are referred to tertiary referral centers in Saudi Arabia. King Khalid University Hospital (KKUH), Riyadh and King Abdul Aziz Armed Forces Hospital, Dhahran are catering for a large number of such patients.

AIMS AND OBJECTIVES

This study is destined to evaluate laparoscopy as a diagnostic procedure in infertile females. The relative frequency of various causes of infertility detected through laparoscopy were ascertained. The occurrence of various complications was also to be noted and analysed.

MATERIALS AND METHODS

Laparoscopies were conducted as a part of work-up for investigating infertility in patients attending Obstetrics and Gynaecology Department KKUH,

Riyadh and King Abdul Aziz Hospital, Dhahran, Saudi Arabia. Detailed history and physical examination was conducted in the out-patient clinic. After evaluating the report of the semen analysis, haemoglobin level and urinalysis were carried out. Sickle test was performed to detect sickle cell disorder. Patients were booked for laparoscopy in the post menstrual phase.

Usual procedure for laparoscopy was carried out. Pelvic organs were inspected thoroughly from anterior surface of uterus, uterovesical space, both tubes and ovaries and both surfaces of the broad ligament. The posterior surface of the uterus, pouch of Douglas and uterosacral ligament were also inspected. To note the extent of adhesions the laparoscope was moved upwards in upper part of the peritoneal cavity. If adhesions were encountered the laparoscope was tilted upwards towards the diaphragm to see Fitz- Hugh adhesions (violin string adhesions between the anterior surface of the liver and the anterior abdominal wall, the condition being seen in gonococcal and chylamidial pelvic inflammatory disease⁷. If endometriosis was encountered it was evaluated according to the American Fertility Scoring System. After having seen the pelvic organs chromotubation of the fallopian tubes was done transcervically by the use of methylene blue to evaluate patency. The assistant as well as the surgeon would analyse the findings on a video screen.

Laparoscopic entry site was closed with a single sub-cuticular Vicryl suture after releasing the gas from the abdomen. All the findings were recorded in operation notes in the patient's file.

RESULTS

Diagnostic laparoscopy was conducted in fifty-four infertile patients in the Gynaecology Department of KKUH, Riyadh and King Abdul Aziz Military Hospital,

Department of Gynaecology & Pathology, King Khalid University Hospital, Riyadh/ King Abdul Aziz Armed Forces Hospital, Dhahran, Saudi Arabia.

Correspondence to: Dr. Samina Shamim, e-mail: saminashamim@hotmail.com

Dhahran. Among these fifty-four patients, thirty-eight (70.4%) had primary infertility and sixteen (29.6%) suffered from secondary infertility.

Seven (18.4%) of the primary infertile patients belonged to age group 20-24 years, eighteen (47.4%) to the age group 25-29 years, twelve (31.6%) to age group 30-34 years whereas one (2.6%) was above thirty five years of age.

Among those having secondary infertility, no one was less than twenty-five years of age. Six (37.5%) patients belonged to age group 25-29 years, eight (50%) to age group 30-34 and two (21.5%) to age group 35 years and above.

The menstrual history in primary infertile patients showed dysmenorrhea in five (13.2%), menorrhagia in two (5.2%), prolonged cycles in two (5.2%) and primary amenorrhea in one (2.6%) case. Twenty-eight (73.7%) cases gave history of normal menses.

The secondary infertile group had history of dysmenorrhea in three (18.8%) while one (6.2%) had prolonged menstrual cycles. History of any menstrual disturbances was absent in twelve (75%) of the cases with secondary infertility.

Forty-four (81.5%) of the patients were housewives, whereas only eight (14.8%) were working women, whereas two (3.7%) were college students.

Those belonging to the affluent class of the society were six (11.1%) of the total fifty-four cases, thirty (55.6%) belonged to the middle class and eighteen (33.3%) belonged to the lower socio-economic group.

Excess weight (BMI >25) was a problem in nine (16.7%) whereas eight (14.8%) were underweight (BMI <19) and thirty-seven (68.5%) had a normal physique.

Twenty (52.6%) primary infertile patients had no other symptom, while six (15.8%) complained of pelvic pain, one (2.6%) had dysmenorrhea and eleven (29%) had menstrual disturbance along with primary infertility.

The secondary infertile patients presented with pelvic pain in eight (50%) cases and menstrual disturbance in three (18.7%). Five (31.3%) patients in this group were otherwise asymptomatic.

Haemoglobin investigation in primary infertile patients revealed that two (5.3%) of the patients were in the range of 8.5-10.4g/dl whereas five (13.2%) of the patients were in the range of 10.5-12.4g/dl, twenty-four (63.1%) had a level between 12.5-14.4g/dl and only seven (18.4%) had haemoglobin level above 14.4g/dl.

One (6.3%) patient with secondary infertility had range between 8.5 to 10.4g/dl of haemoglobin. The range of 10.5-12.4 was present in four cases (25%), 12.5-14.4g/100ml in seven (43.7%) cases and

14.5g/dl or above level of haemoglobin in four (25%) cases.

Laparoscopic findings: Of the fifty-four cases laparoscopic findings were normal in seventeen (31.5%) and showed some pathology in 37 (68.5%) cases.

Amongst the **primary** infertility patients ten (26.3%) revealed no abnormal laparoscopic findings. Blocked tubes were found in eight (21.1%) cases. Six of these had bilateral blockade whereas two had unilateral one. Hydrosalpinx was observed in two (5.3%) patients and pelvic adhesions were encountered in seven (18.4%). Adhesions were extensive in five of these seven and mild in the remaining two. Endometriosis was seen in four (10.5%) cases. Fibroid uterus was revealed in two (5.3%) cases. Ovarian pathology was found in four (10.5%) patients. One of these patients had absent ovulation, another had polycystic ovaries and the remaining two had ovarian cysts. A rudimentary uterus was found in only one (2.6%) of the cases. The patients having **secondary** infertility showed normal findings in six (37.5%) cases. Tubal block was present in four (25%) which was bilateral in all these cases. Three (18.7%) cases had pelvic adhesions which were extensive in two cases and mild in one. Fibroid uterus was encountered in two (12.5%) cases and they were multiple. One case (6.3%) was found to have an ovarian cyst.

Among the seventeen patients having normal laparoscopic findings, three (17.6%) belonged to age group 20-24 years, eight (47.1%) to age group 25-29 years, five (29.4%) to age group 30-34 years and one (5.9%) to age group 35 years and above.

Those showing some abnormality on laparoscopic examination had four (10.8%) patients in age group 20-24 years, sixteen (43.2%) patients in age groups 25-29 years, fifteen (40.5%) in 30-34 years age group and two (5.4%) patients in 35 years and above age group. Menstrual history was normal in thirteen (76.5%) cases.

Among the patients who did not reveal any abnormality on laparoscopic examination, one (5.9%) patient complained of having dysmenorrhea, two (11.8%) had menorrhagia and another one (5.9%) had history of prolonged cycles with oligomenorrhea.

Twenty-seven (73%) of the patients who exhibited abnormal findings on laparoscopy had no menstrual disturbance whereas four (10.8%) gave history of dysmenorrhea, three (8.1%) of menorrhagia, two (5.4%) complained of prolonged cycles with oligomenorrhea and one (2.7%) had primary amenorrhea.

The group of patients who had normal laparoscopic findings comprised of fifteen (88.2%) housewives and two (11.8%) working women. Twelve

(70.6%) of these had normal physique, two (11.8%) were overweight and three (17.6%) were underweight. Two (11.8%) of the cases in this group belonged to rich class, twelve (70.6%) were of middle class and three (17.6%) came from lower socio-economic background.

The group with abnormal laparoscopic findings consisted of twenty-nine (78.4%) housewives, six (16.2%) working women and two (5.4%) college students. Twenty six (70.3%) of these were having normal weight, whereas seven (18.9%) were overweight and four (10.8%) were underweight. Four (10.8%) came from affluent class, eighteen (48.6%) from middle class and fifteen (40.6%) from lower socio-economic group.

Amongst the seventeen patients having *normal* laparoscopic findings, ten (58.8%) did not have any other presenting symptom other than infertility. However two (11.8%) amongst this group presented with pelvic pain, one (5.9%) with dyspareunia and four (23.5%) with menstrual disturbance along with infertility.

The number of asymptomatic patients in the group showing abnormal laparoscopic findings was fifteen (40.5%). Twelve (32.4%) patients in this group presented with pelvic pain, one (2.8%) with dyspareunia and nine (24.3%) with some sort of menstrual disturbance.

One (5.9%) of the patients in the group with normal laparoscopic findings had haemoglobin level in the range of 8.5-10.4g/dl, five (29.4%) in the range of 10.5-12.4g/dl, nine (52.9%) were in the range 12.5-14.4g/dl and two (11.8%) had 14.5g/dl and above.

The group with abnormal laparoscopic findings showed two (5.4%) of the patients in haemoglobin range 8.5-10.4g/dl, four (10.8%) in the range 10.5-12.4 g/dl., twenty two (59.5%) in the range 12.5-14.4g/dl and nine (24.3%) in the range 14.5g/dl and above.

There were no major complications encountered due to the laparoscopic procedure in all the fifty-four patients. However, thirty-two of these had some degree of pain in the shoulder region and/or the abdominal region on the first post-operative day. This number reduced gradually to eleven (20.4%) on second day and two (3.7%) on third day.

Table 1: Distribution of primary and secondary infertility in various age groups

Age group	Primary infertility	%age	Secondary infertility	%age
20-24	7	18.4	0	0
25-29	18	47.4	6	37.5
30-34	12	31.6	8	50.0
35 & above	1	2.6	2	12.5
Total	38	100	16	100

Table 2: Laparoscopic findings in infertile patients

Laparoscopic findings	Primary infertility	%age	Secondary infertility	%age
Normal findings	10	26.3	6	37.5
Blocked tubes	8	21.1	4	25
Unilateral	2		0	
Bilateral	6		4	
Hydrosalpinx	2	5.3	0	0
Adhesions	7	18.4	3	18.7
Extensive	5		2	
Mild	2		1	
Endometriosis	4	10.5	0	0
Fibroid uterus	2	5.3	2	12.5
Ovarian problems	4	10.5	1	6.3
absent ovulation	1			
polycystic ovaries	1			
ovarian cyst	2	1		
Congenital anomalies	1	2.6	0	0
Rudimentary uterus	1			

Table 3: Complications of laparoscopy in 54 cases

Complications	No	%age
DAY:1		59.3
Shoulder /abdominal pain	32	
Any other	0	
DAY:2		22.4
Shoulder/abdominal pain	11	
Any other	0	
DAY:3		3.7
Shoulder/abdominal pain	2	
Any other	0	

DISCUSSION

The problem of primary infertility was most common in patients in the age group 25-34 years. Same age group was most commonly encountered in cases of secondary infertility. However, in the latter, most of the cases were between 30-34 years age group. The frequency of positive laparoscopic findings corresponded to the number of patients in each age group without any difference.

The menstrual history revealed that dysmenorrhea was the commonest complaint in primary infertility, whereas menorrhagia was the most commonly encountered disorder in secondary infertility. However, no specific menstrual disorder had any bearing upon the yield of positive laparoscopic findings.

Most of the victims of infertility were housewives but this factor corresponded to the fact that most of the married females in Saudi Arabian society are house-wives. Middle class constituted the commonest group in our study. Whereas profession did not show to effect the yield of laparoscopic findings, these were more commonly found positive in the lower socio-economic group. Endometriosis was more commonly encountered in the affluent

class and blocked tubes were more commonly found in the lower socio-economic group.

Most of the cases in our study were having a normal physique and variation in the weight of the patients did not seem to effect the out-come of the laparoscopy in terms of abnormal findings.

Most of the patients with primary infertility were asymptomatic whereas majority of the patients with secondary infertility had accompanying pelvic pain. The symptomatic group of patients yielded more abnormal laparoscopic findings than the asymptomatic ones. There was not much difference in haemoglobin levels in primary and secondary infertile patients. Similarly haemoglobin level had no effect on laparoscopic findings.

In our study the procedure of lapaoroscopy did not result in any major complication..

CONCLUSION

Laparoscopy is used world-wide to investigate infertility. It is an essential part of full assessment and treatment of infertility^{2,6}.It provides direct visualization of the pelvic organs, ovarian and tubal status and can elucidate the site of tubal obstruction^{3,4}.

. It has got an advantage of direct visualization of the pelvic organs and the peri-tubal status resulting in greater information as compared to hysterosalpingography and ultrasonography⁸. The advance in instrument technology has made this procedure more productive and less hazardous. Laparoscopy is the most dependable tool to investigate pelvic pathology⁹..

The role of laparoscopy in diagnosis of infertility both primary as well as secondary is established beyond any doubt.(10-17).

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