DIAGNOSTIC LAPAROSCOPY IN 300 CASES OF INFERTILITY

by

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Introduction

Infertility is much prevalent in Rajasthan, and a study of infertility would be of great help in solving the social problems of these barren women. Laparoscopy has therefore gained increasing importance in the last few years as an important diagnostic measure in infertility, be it of tubal, uterine or ovarian origin.

Material and Methods

Three hundred cases of primary and secondary infertility attending the Gynaecological Out-Patient Department of the Obstetrics and Gynaecology at State Zenana Hospital, Jaipur, were studied. After a thorough history taking and examination, they were subjected to routine and specialised investigations of blood, urine, semen analysis, chest skiagram, post-coital examination, endometrial biopsy, tubal insufflation, hysterosalpingography and last of all laparoscopy was done. Pelvic organs were visualised and chromopertubation test was done by injecting methylene blue through the uterine cannula.

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Observations

Three hundred cases (165 cases of primary infertility—Group-I and 135 cases of secondary infertility—Group-II) were studied. The age of the patients ranged from 18-38 years, most of them being Hindus that too of urban settings belonging to socioeconomic groups II & III (ICMR Classification).

Pain in abdomen was a major complaint in these patients of grorup-I and group-II. Duration of marriage ranged from 1½ to 25 years. Maximum patients consulted within 15 years of their married life in both the groups.

In group-I the duration of infertility was calculated from the onset of menarche in child marriages and also from the time of marriage in other cases. The use of contraceptives by these patients had been exluded. In group-II, it was calculated from the time of last delivery or abortion. Maximum number of the patients (220) in both the groups had duration upto 10 years.

Past history of tuberculosis was found in 10 cases of group-I and in 5 cases of group-II. Ten patients of group-II had a history of puerperal sepsis—all of them had had difficult home deliveries conduct-

ed by TBAs (Traditional Birth Attendants). History of septic abortion was obtained in 10 cases of group-II.

Pelvic examination revealed no gross abnormality in these patients. Because of the possibility of latent tubercular endometritis, endometrial biopsy was a routine procedure in every case of infertility along with laparoscopy. Twenty of the patients revealed tubercular endometritis in both the groups (I and II) (Table-I).

Post-menstrual tubal insufflation revealed bilateral tubal patency in 85 patients, bilateral occlusion in 70 patients and unilateral occlusion in 10 patients of group-I. In group-II (Secondary infertility—45 patients had bilateral patency, 75 had bilateral occlusion and 15 had unilateral occlusion (Table II).

Hysterosalpingography performed post-menstrually showed the status of tubes and uterus (Table III).

TABLE I

Endometrial Patterns in 300 Cases of Infertility

Endometrial Biopsy	Total Cases 300 Gr. I & II	
	No.	%
Secretory	230	76.6
Proliferative	45	15.0
Tubercular	20	6.8
Chronic	5	1.6
Total	300	100.0

Laparoscopy (Table IV)

In group-I normal pelvic findings were seen in 65 cases, peritubo-ovarian adhesion with patency in 15, pelvic adhesions

TABLE II

Showing Tubal Insufflation Results in 300 Cases of Infertility

Tubal Status	Distribution of Cases				Total Cases
	Group—I		Group—II		
	No.	%	No.	%	
Bilateral Tubal Patency	85	51.5	45	33.3	103
Bilateral Tubal Occlusion	70	42.44	75	55.5	145
Unilateral Tubal Occlusion	10	6.06	15	11.2	25
Total	165		135		300

TABLE III

Status of Tubes and Uterus on Hysterosalpingography

	Group-I (165)		Group-II (135)	
	No.	%	No.	%
Bilateral tubal patency	85	51.50	45	33.3
Bilateral cornual block	15	9.09	20	14.8
Unilateral cornual block	5	3.03	10	7.4
Bilateral fimbrial block	15	9.09	15	11.2
Unilateral fimbrial block	10	6.06	10	7.4
Bilateral mid-tubal block	30	18.18	25	18.5
Uniateral hydrosalpinx	10	6.06	15	11.1
Synechia in uterus	0	0.00	5	3.7
Arcuate uterus	5	3.03	0	0.0
Bicornuate uterus	5	3.03	0	0.0

TABLE IV
Laparoscopic Findings in 300 Patients of Infertility

Laparoscopic Findings	Total Cases			
	Group-I		Group-II	
	No.	%	No.	%
1. Normal pelvic organs	65	39.30	50	37.3
2. Pelvic adhesions with tubal block	30	18.18	25	18.5
3. Peritubo-ovarian adhesions with patency	25	15.15	15	11.2
4. Tubercular T.O. masses salphingitis and block	20	12.12	15	11.2
5. Bilateral cornual block	10	6.06	20	14.8
6. Unilat. cornual block	0	0.00	5	3.7
7. Bilateral fimbrial block	15	9.09	10	7.4
8. Bilateral Mid-tubal block	25	15.15	25	18.5
9. Unilateral fimbrial block	5	3.03	15	11.2
10. Unilateral partial fimbrial block	10	6.06	0	0.0
11. Unilateral hydrosalpinx	0	0.00	15	11.2
12. Bilateral hydrosalpinx	0	0.00	5	3.7
13. Excess peritoneal fluid	5	3.03	10	7.4
14. Absent tube (Salpingectomy)	0	0.00	10	7.4
15. Ovarian cyst	10	6.06	0	0.0
16. Polycystic ovaries	5	3.03	0	0.0
17. Ovarian endometriosis	0	0.00	5	3.7
18. Uterine fibroids	10	6.06	0	0.0

with block in 30, bilateral tubercular tubo-ovarian masses in 30, bilateral fimbrial block in 15, bilateral cornual block in 10 patients, ovarian cyst in 10, chronic bilateral salpingo-oophoritis in 5, uterine fibroid in 10, Stein-Leventhal/polycystic ovaries in 5 patients.

In group-II norrmal pelvic findings were observed in 50 cases, pelvic adhesions in 25, peritubo-ovarian adhesions with patency in 15, tubercular salphingitis and tubo-ovarian masses in 15, absent tube (salphingectomy done) in 10, and hydrosalphinx in 20 patients.

Thus, 160 patients (53.3 per cent) exhibited bilateral tubal patency on laparoscopy, bilateral cornual block in 30 (10.0 per cent), unilateral cornual block in 5 (1.6 per cent), mid-tubal blocks in 50 (16.6 per cent), fimbrial block in 45 (15.0 per cent) and partial unilateral fimbrial block in 10 (3.3 per cent) patients. Incidence of tubal blocks was in 140 (46.6 per cent) patients. Extensive pelvic adhesions were the most common findings on laparoscopy in group-I and group-II (18.34 per cent), peritubo-ovarian adhesions came next (13.7 per cent), hydrosalphinx (6.6 per cent) and tubercular tubo-ovarian masses and pelvic inflammation (11.66 per cent) were important findings.

Complications on laparoscopy were minimal. Failed pneumoperitoneum was encountered in 5 patients who have not been included in the study. There were no major/lethal complications.

Discussion

The present study of 300 cases of infertility was conducted with a view to enumerate the incidence and nature of various pelvic factors involved in clinically normal patients of infertility.

Out of 300 patents of infertility, 20 patients (6.60 per cent) showed tubercular endometritis on endometrial biopsy. Higher incidence (6.6 per cent) of tubercular endometritis in our series is because patients in India live in an environment where pulmonary tuberculosis is rampant and because of a high incidence of primary complex in the young age group.

Tubal insufflation was undertaken because tubal factors are one of the easily diagnosed and treatable causes of infertility. Also, by insufflation, patency of the tubes may be restored.

Hysterosalpingography, it was found: (i) not only confirmed the findings of tubal insufflation but (ii) also demonstrated any uterine abnormalities, and (iii) probably had a superior therapeutic effect in opening up tubes by removing inspissated mucus and breaking down adhesions, and (iv) determined the site of block.

Laparoscopy in 300 patients of infertility revealed normal pelvic findings in 38.3 per cent of patients. These had no demonstrable pelvic pathology. This is in agreement with Cohen (1968) 37.0 per cent and Neuwirth's (1970) findings (38.0 per cent) while Mehra *et al* (1981) found normal pelvic organs in 16 per cent of her cases.

The pelvic pathologies observed in the present series were pelvic adhesions (other than TB) with tubal block in 18.34 per cent, peritubo-ovarian adhesion with patency in 13.17 per cent, TB of genital organs in 11.66 per cent, unilateral hydrosalpinx in 5.0 per cent, ovarian endometriosis in 1.6 per cent, bilateral hydrosalpinx in 1.6 per cent, uterine fibroids in 3.3 per cent, ovarian neoplasm in 3.3 per cent, excessive peritoneal fluid in 5.2 per cent and unilateral absence of tube in 3.3 per cent of cases.

Approximately, in 46.6 per cent of cases tubal factor has been the primary cause of infertility. The highest incidence in our series is of cases of TB (11.6 per cent) and extensive pelvic adhesion (18.34 per cent). Tuberculosis as cause of pain and infertility has been reported high (Sheth and Krishna, 1979 and Coltart, 1970). The lowest incidence is of endometriosis (1.6 per cent). High incidence of pelvic adhesion reported by other authors—Mahmud *et al* (1978) 30.3 per cent, Liston *et al* (1977) 35.0 per cent, Anteby *et al* (1973) 33.5 per cent, Peterson and Behrman (1970) 20.0 per cent, Steptoe (1965) 24.0 per cent in comparison to the present series can be explained due to inclusion of all adhesions into one group. Incidence of tubal block/damage (46.6 per cent) and peritubal adhesion (13.7 per cent) is the highest in the present series, probably because of higher incidence of septic abortion, puerperal sepsis, pelvic peritonitis and previous surgical trauma. Similar incidence (48.0 per cent) of tubal damage was reported by Mehra *et al* (1981). Tubal damage includes both or one tube blocked, damaged fimbrial ends, small T.O. masses.

The findings of hysterosalpingography and laparoscopy in the present series are in agreement in 78.3 per cent of cases which are comparable to Moghiss and Sen (1975)—53.0 per cent and Kierse and Vanderweller (1973)—76.0 per cent. Many additional findings were obtained by laparoscopy in both groups which could not be detected on hysterosalpingography. Fifteen patients exhibiting cornual block on hysterosalpingography were found to have patent tubes on laparoscopy and 10 patients with tubal patency on hysterosalpingography showed rigid tubes with absence of peristalsis on loparoscopy. In 250 cases of infertility studied by Mehra *et al* (1981), 15 cases were of cornual

block in salphingographies but had normal tubes at laparoscopy. Similarly, in Sheth's series (1981) 17 of the 48 patients, had one or both tubes patent though found to be blocked on hysterosalpingography.

Low complication rate in our series is identical with that of Seigler's (1974). Shinde *et al* (1981) had a complication rate of 2.2/1000. Laparoscopy has proved of great value in infertile patients in the present study because of:

(1) Low complication rate

(2) Conclusive and easy to interpret findings

(3) Tubal, uterine and ovarian factors investigated at one session only

(4) Functional tubal spasm eliminated on laparoscopy (not so with hysterosalpingography)

(5) Unnecessary laparotomies avoided which would have been undertaken after hysterosalpingography.

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