

DIAGNOSTIC VALUE OF LAPAROSCOPY IN INFERTILITY

by

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Laparoscopy plays a valuable role in diagnosis of infertility. In the past we were badly handicapped as there were no reliable instruments to assess satisfactorily, the patency and state of fallopian tube and the operability of the tubal disorders. The diagnostic laparoscopy is the answer to-day.

Tubal insufflation and hysterosalpingography are known to give number of false negative results (Stallworthy 1948). Peterson (1970) and Jhaveri (1972) reported that tubal insufflation and hysterosalpingography are not definite diagnostic methods in every instance of infertility. The occluded tubes due to spasm appear patent by endoscopy, because tubal spasm rarely occurs under general anaesthesia. Thankam *et al* (1978) reported laparoscopy affords an excellent assessment of tubal patency, it is valuable when finding at hysterosalpingography is not conclusive. Krishna *et al* (1979) concluded that pelvic inflammatory disease is the largest single factor to cause tubal infertility and obscure the results of treatment. Seih *et al* (1970) concluded that at times proved hysterosalpingogram findings are

wrong and laparoscopic examination becomes a must in infertility of long standing or where other findings are unrewarding or conclusive.

Material and Methods

Present study was carried out on 320 infertile women admitted to the Department of Obstetrics and Gynaecology, SMS Medical College, Jaipur. All women had primary or secondary infertility for 2 or more years were investigated. Hysterosalpingography was performed by using aqueous contrast media, taking 2-3 films. Laparoscopy was performed under general anaesthesia by standard technique as described by Steptoe (1967) along with chromopertubation test.

Observations and Discussion

Three hundred and twenty patients were investigated. Two hundred and sixteen had primary and 104 had secondary infertility. Eighty per cent of cases were between 21-36 years of age. The duration of infertility was less than 3 years in 70% of cases, between 5-7 years in 22% and more than 10 years in 8% of cases.

Out of 204 cases of unexplained infertility 26 patients conceived within 3-6 months of laparoscopy. Peterson and Behrinan (1973) and Padma Rao (1972)

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also concluded that unexplained infertility contributes about 60% of cases.

Over all the incidence of pelvic tuberculosis was high in present series (Table I) 11.562%, (primary 9.062% and secondary 2.50%). In these cases tubercles and caseation was seen. Tubes were rigid, pipe-like and fixed, did not move with uterine movements. Blue uterus was noticed in 3 cases. The tubercular endometritis was diagnosed in 6% of total tubercular cases. The incidence of tuberculosis is high in our series, it may be because our institution is draining patients from low socio-economic group and slum areas as well. In spite of early diagnosis and management of pelvic tuberculosis, not even a single patient conceived in our series.

Laparoscopy plays an important role in detecting pelvic inflammatory disease. Pelvic inflammatory disease is single largest factor to cause tubal infertility. Post-abortal infection and gonococcal infections are leading causes of pelvic inflammatory disease among present series (Table I) P.I.D. causing tubal blockage was 21.56%. Tubal blockage responsible for infertility in 32.839% of cases in present series. These findings coincides with Krishna *et al* (1979) which was about 26%.

Adhesions both dense and flimsy were noticed in present series, 11.77% flimsy and 9.68% dense adhesions our findings coincide with Padma Rao (1972) 23.45% and Thankam (1978) 23.98%.

Hydrosalpinx was diagnosed in 3.437% (Table I) findings does not coincide with Padma Rao (1972) 20% and Thankam (1978) 15%. Their incidence is too high in comparison to our finding and the reason may be, they have taken selected group of patients and in their series total number of patients is comparatively less to give conclusive results.

Tubo-ovarian masses were diagnosed in 4.687% (Table I).

Patency of tubes diagnosed by laparoscopy and chromopertubation test (Table II). Bilateral patency was detected among 66.78% of cases (Primary 41.875% and Secondary 19.37%) unilateral patency was diagnosed in 6.25% of cases (Primary 5% and 1.25% to Secondary Infertility). Bilateral tubal blockage was diagnosed in 32.839% of infertile cases (Primary 14.687% and Secondary 18.152%). Hysterosalpingography can diagnose blocked tubes, as well as intrauterine leiomyoma. It can also help in the diagnosis of pelvic tuberculosis if intravasation of dye occurred and more than four films

TABLE I
Pelvic Findings at Laparoscopy

	Primary Infertility		Secondary Infertility		Total	
	No.	%	No.	%	No.	%
Normal pelvic findings	160	50.00	44	14.25	204	64.25
Pelvic Tuberculosis	29	9.062	8	2.50	37	11.562
Flimsy adhesions	14	4.377	24	7.50	38	11.877
Dense adhesions	1	0.312	10	9.375	11	9.687
Hydrosalpinx	8	2.50	6	1.875	11	3.437
Tubo-ovarian mass	3	0.937	12	3.750	15	4.687
Endometriosis	1	0.312	0	0.00	1	0.312
Total	216		104		620	

TABLE II
Tubal Patency Diagnosed by Laparoscopy and Chromopertubation Test

Infertility	Bilateral Patency				Unilateral Blockage	Bilateral Blockage		
	Immediate spill		Delayed spill					
Primary	142	41.875%	11	3.437%	16	5.00%	47	14.687%
Secondary	38	19.375%	8	2.50%	4	1.25%	54	18.152%
Total	180	61.250%	19	5.937%	20	6.25%	101	32.839%

are taken. Thankam *et al* (1978) concluded that laparoscopy affords an excellent assessment of tubal patency. It is valuable when finding at hysterosalpingogram is not conclusive. Hysterosalpingogram can not satisfactorily demonstrate peritubal or periovarian adhesions which may prevent fertilization even though fallopian tubes are patent.

Krishna *et al* (1979) concluded that laparoscopy is much more informative than hysterosalpingography. The additional information regarding tubal patho-

logy like hydrosalpinx I.T.I. mass, P.I.D. and endometriosis can easily be detected by laparoscopy.

In present series, while comparing laparoscopy and hysterosalpingography (Table III), the patency of tubes diagnosed by laparoscopy in 73.5% and occlusion of tubes in 32.839% of cases, while by hysterosalpingogram patency could be detected only in 55.625% and occlusion of tubes among 41.25% of cases. The false negative results are quite high in comparison to hysterosalpingography.

TABLE III
Comparative Study of Laparoscopy and Hysterosalpingography

Infertility	Laparoscopy				Hysterosalpingography			
	Patency		Occlusion		Patency		Occlusion	
Primary	169	50.312	47	687.000	152	44.375	64	20.00
Secondary	50	23.175	54	18.152	36	11.250	68	21.25
Total	219	73.5	101	32.839	188	55.625	132	41.25

TABLE IV
Laparoscopy vs Hysterosalpingography Showing Site of Blockage

	Primary infertility				Secondary infertility			
	Laparoscopy		Hysterosalpingography		Laparoscopy		Hysterosalpingography	
Cornual Block	7	2.187	21	6.562	8	2.50	22	6.877
Isthmic Block	14	4.377	18	5.625	22	6.877	17	5.312
Fimbrial Block	26	8.125	32	10.00	24	7.50	38	19.375

There were definite discrepancies when laparoscopy was compared to hysterosalpingography. Coltrate *et al* (1970) mentioned that in his series 30 patients had bilateral tubal blockage in hysterosalpingogram and 50% of these cases had either bilateral or unilateral patency of tubes proved by laparoscopy. Krishna *et al* (1979) found radiologically diagnosed blocked tubes in 48 patients and out of these 17 patients had unilateral or bilateral patency of the tubes detected on laparoscopy. In present series also about 41.25% of cases diagnosed as tubal occlusion on hysterosalpingography and 8.4% of tubal occlusion were found to be patent on laparoscopy. Laparoscopy proved that tubal occlusion was present only in 32.839% of cases and 8.4% occluded tubes were wrongly diagnosed by hysterosalpingography.

Fimbrial block was diagnosed in 19.375% of cases but when laparoscopy done fimbrial block was diagnosed in 10% of cases, among rest 9% cases either unilateral or bilateral patency was detected.

It is important that several factors may contribute to the discrepancy. Delicate fimbrial adhesions may be broken by the passage of dye, while performing hysterosalpingography. The lower specific gravity of aqueous methylene blue is (1.000) when compared to sodium acetazole solution (1.300). The lower specific gravity also favours the free flow of the dye along the tube. Seth *et al* (1979) concluded that most of the anaesthetic agents produce relaxation of tubal mus-

culature and in this way assisted the passage of dye at the time of laparoscopy.

The false negative results are much common in hysterosalpingography, because it is done without anaesthesia. Dye used for procedure have higher specific gravity. Sometimes hysterosalpingography itself may help in breaking up the adhesions.

Laparoscopy is definitely a better choice when compared to hysterosalpingography. Laparoscopy must be used to confirm the tubal pathology and it plays a unique role in diagnostic and prognostic way of infertility.

References

1. Coltrat, T. M.: J. Obstet. Gynec. Brit. Commonwealth. 77: 69, 1970.
2. Jhaveri, C. L., Shankari, K. and Patel, S. C.: Precedings of the XVIth All India Gynec. Congress held at New Delhi 10-12 March, 1972, p. 86.
3. Krishna, U. Seth, A. V. and Purandare, V. N.: J. Obstet. Gynec. India. 26: 663, 1979.
4. Padma Rao—Precedings of the XVIth All India Gynec. Congress held at New Delhi 10-12 March, 1972, p. 94.
5. Peterson, S. P. and Behrinan, S. J.: Obstet. Gynec. 36: 363, 1973.
6. Schaefer, G. S.: Clin. Obstet. Gynec. India. 26: 511, 1979.
7. Steptoe, P. C.: Laparoscopy in Gynaecology, E. S. Livingston Edinburgh, p. 51, 1967.
8. Seth, S. S. and Krishna, U.: J. Obstet. Gynec. India. 26: 511, 1979.
9. Stalworthy: J. Obstet. Gynec. Brit. Emp. 55: 171, 1948.
10. Thankam R. and Verma, M.: J. Obstet. Gynec. India. 28: 128, 1978.