

Laparoscopic evaluation of tubal factor in cases of infertility

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Summary: Diagnostic Laparoscopy and chromopertubation was done in 156 cases of primary and secondary infertility to evaluate tubal factor at Sinha Nursing Home, Darbhanga, Bihar from March 1991 to August 1992. Tubal pathology was detected in 37.8% (59/156) cases. Bilateral tubal block was observed in 20.5% (32/156) and unilateral block in 8.9% (14/156) cases. Genital tuberculosis was detected in 11/59 (18.6%), endometriosis in 6/59 (10.2%) and congenital anomalies in 4/59 (6.7%) cases. These observations demonstrate that there is a high incidence of tubal disease in infertile women in our community and diagnostic laparoscopy should be considered early to evaluate these infertile women.

Introduction:

The prevalence of tubal disease in infertile women varies between countries and even regions and a knowledge of local disease pattern is essential for the appropriate management of the infertile couple. A multicentric study sponsored by W.H.O. conducted between 1979 and 1985 in 33 medical centres of 25 countries revealed that the rate of tubal occlusion in Africa was more than three times that of all regions except the East Mediterranean and that the rate of infection-attributable diagnosis twice as high in Africa as elsewhere. The non-African developing areas also had higher rates of tubal occlusion than developed countries (Cates et al, 1985). In India too, this incidence of tubal block secondary to pelvic inflammatory diseases is high and, Sheth & Krishna (1979) report it to be 40%. Genital tuberculosis, a chronic infectious disease is still prevalent in our country and is also an important etiologic factor of tubal disease.

Diagnostic laparoscopy coupled with chromopertubation is an invaluable test to evaluate tubal factor in infertile women. It provides an opportunity not only to determine tubal patency but also to inspect the fallopian tubes, ovaries, uterus and the pelvic cavity.

In the present communication we present our findings of diagnostic laparoscopy done in women who presented with infertility.

Material and Method:

One hundred & fifty six married women presenting with complaints of primary or secondary infertility were investigated for tubal disease by laparoscopy at Sinha Nursing Home, Darbhanga, Bihar, from March 1991 to

August 1992.

The male partners of all these women had normal report of seminal fluid analysis (sperm count $\geq 20 \times 10^6$ /ml, motility $\geq 50\%$ and normal morphology of sperm $\geq 50\%$; W.H.O 1987 criteria). There were 5 women who had secondary amenorrhoea but their serum FSH, prolactin and TSH, T_3 , T_4 hormones were within the normal limits. A 10mm laparoscope was used and proper visualisation of ovaries, tubes and pelvic cavity was done with the help of a probe inserted via a second portal. Chromopertubation using methylene blue dye was done to establish tubal patency. All these cases were done under general anaesthesia.

Observation:

There were 119 (76.2%) cases of primary infertility and 37 (23.7%) cases of secondary infertility. 82% women were in the age group 21 to 30 years (Table I). In 33.3% of women the duration of infertility was between 1 to 5 years whereas 39.1% cases had been infertile for 6 to 10 years (Table II), 72% women had regular menstruation while 24% women had irregular cycle (Table III).

Table-I
Age distribution of cases of primary and secondary infertility

Age (in years)	Primary Infertility	Secondary Infertility	Total	
			No.	Percentage
21-25	41	7	48	30.7
26-30	61	20	81	51.9
31-35	14	9	23	14.7
36-40	3	1	4	2.5
	119	37	156	

Table-II
Duration of infertility

Duration (in years)	Primary Infertility	Secondary Infertility	Total No.	%age
1-5	38	14	52	33.3
6-10	42	19	61	39.1
11-15	29	4	33	21.1
16-20	10	0	10	6.4

Table-III

Menstrual pattern of women investigated

Menstrual Cycle	No.	Percentage
Regular Cycle	113	72.4
Irregular Cycle	38	24.3
Secondary Amenorrhoea	5	3.2

Table-IV

Findings of diagnostic laparoscopy

Findings	No.	Percentage
Normal pelvic organs	84	53.8
Chronic pelvic Inflammatory Disease	48	30.7
Endometriosis	13	8.3
Congenital anomalies of uterus and tubes	6	3.8
Fibromyoma	3	1.9
Ovarian Cyst	1	0.6
Ectopic Pregnancy	1	0.6
	156	

Table-V

Findings of chromopertubation

Findings	No.	Percentage
Bilateral Block	32	20.51
Unilateral Block	14	8.97
Peritubal Adhesion (Spill Seen)	12	7.69
Healthy and Patent Tubes	97	62.17
	155	

Chromopertubation not done in case of ectopic pregnancy.

Table-VI

Details of tubal pathology detected in cases of primary and secondary infertility

Tubal pathology	Primary Infertility n = 119	Secondary Infertility n = 37	Total n = 156
	No.	% age	No. % age
Nonspecific pelvic inflammatory disease	29	24.36	8 21.62 37 23.71
Tuberculous Salpingitis	8	6.72	3 8.10 11 7.05
Endometriosis	1	0.84	5 13.51 6 3.84
Congenital anomalies	4	3.36	- - 4 2.56
Ectopic Pregnancy	1	0.84	- - 1 0.64
	43	36.13	16 43.24 59 37.82

n = total number of cases.

Table VII

Details of congenital anomalies noted

Congenital Anomaly	No.
1. Septate uterus with normal and patent tubes	1
2. Unicornuate uterus with one tube (right fallopian tube absent)	1
3. Planiform uterus with normal and patent tubes	1
4. Uterus bicornis unicollis (Both tubes ligamentous)	1
5. Uterus normal, right tube ill developed (left tube normal and patent)	1
6. Double uterus, right uterus rudimentary and separate from the well developed uterus. Both the tubes were of normal length but the right tube attached to the rudimentary uterus (non functioning). The left tube patent and attached to the well developed uterus.	1

Diagnostic laparoscopy revealed normal pelvic organs in 84 (53.8%) cases, Chronic pelvic inflammatory disease in 30.7%, endometriosis in 8.3% and congenital anomalies of uterus and fallopian tubes in 3.8% cases (Table IV).

Findings of chromopertubation are shown in Table V. 20.5% cases had bilateral tubal block, 8.9% had unilateral block and in 7.6% women though the tubes were found patent significant peritubal adhesions were noted.

Details of tubal pathology detected in cases of primary and secondary infertility are shown in Table VI. Tubal pathology was detected in 36.1% cases of primary infertility and 43.2% cases of secondary infertility. Among those who had tubal pathology nonspecific pelvic inflammatory disease was noted in 62.7% (37/59) and genital tuberculosis was diagnosed in 18.6% (11/59) cases, 4 of which had presented with secondary amenorrhoea. Various forms of congenital anomalies observed are summarized in (Table VII).

Discussion:

Laparoscopy is very useful in evaluation of infertile women. In the present series tubal pathology was detected in 37.8% cases and bilateral tubal block in 20.5% cases. These observations illustrate that the prevalence of tubal disease in women complaining of infertility is high in our community. Zargar et al (1998) have reported 24.73% incidence of tubal disease in cases of primary infertility, whereas Sharma et al (1997) detected tubal pathology in 28.5% cases of primary infertility and in 63.5% cases of secondary infertility by laparoscopy.

Studies from U.S.A. and Australia reveal lower incidence of tubal pathology. From Australia, Thomas & Forrest (1980) in their study of 291 infertile couples reported that tubal disease alone caused infertility in 6.5% while in another 4.5% it was one of the causes of infertility. Jones & Toner (1993) in U.S.A. observed tubal damage in only 12% infertile women. In contrast to these observation Yang et al (1996) from China have reported that tubal infertility diagnosed by laparoscopy accounted

for 32.8% of infertile patients. Among them, pelvic tuberculosis occupied 63.6%, while nonspecific inflammatory disease (NSID) 36.4%. In our series nonspecific pelvic inflammatory disease was the commonest pathology observed. Gogate et al (1994) detected P.I.D. in 39% of infertile women by laparoscopy. Overall, sexually transmitted diseases underlie about three quarters of all the cases of pelvic inflammatory disease. A single episode of disease is associated with 6 to 10 times the risk of a new episode and a 1 in 6 chance of tubal infertility.

In the present group of infertile women, the diagnosis of genital tuberculosis was made by laparoscopy in 11 (7.05%) cases. All these cases had bilateral tubal block with adhesions and tubercles were seen. Laparoscopy helps in the diagnosis of genital tuberculosis, a disease still prevalent in our country. Parikh & Naik (1997) evaluated 300 women between the ages of 25 and 35 years with tubal factor as a cause of their infertile state and found 117 women had tuberculosis as the cause of tubal blockage. On laparoscopy, 49.5% were found to have simple tubal blockages, 15.3% showed tubo-ovarian masses and 23.9% had a frozen pelvis. 75 percent complained of menstrual irregularity. Yang et al (1996) have described 4 types of tuberculous lesions noted during laparoscopy in infertile women : miliary ascites (9.4%), adherent mass (35.8%), adhesion and calcification (43.1%), nodular sclerosis (11.7%). The positive rate of pelvic lesion biopsy and endometrial biopsy was only 59.1% and 20.5% respectively.

Endometriosis was detected in 13 (8.3%) cases in the present group of infertile women but in only 6 women it was associated with significant peritubal and periovarian adhesions. Endometriosis has been reported in 2% fertile women in U.S.A. compared with 21% among infertile group (Strathy et al, 1982). Whether endometriosis is a cause or consequence of childlessness remains a subject of debate. In its more advanced stage when pelvic anatomy is distorted it undoubtedly prevents conception but the importance of mild disease is less clear. Thomas and Cooke (1987), in their randomized double blind placebo control trial failed to show any impact of treatment or the absence or presence of asymptomatic

endometriosis on future fertility.

It was interesting to note various congenital anomalies in these women. While the true incidence of uterine anomalies is difficult to ascertain as many of these conditions fail to present clinically, rates of incidence ranging from 0.1% to 1% have been reported in the general population, with a significantly higher rates associated with infertility and reproductive wastage.

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