

## TUBAL FACTOR IN STERILITY—EVALUATION BY LAPAROSCOPY

by

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### SUMMARY

The present study lists the tubal involvement as detected by laparoscopic examination in patients of primary and secondary infertility. Out of 431 cases of sterility investigated by laparoscopy, tubal involvement was detected in 76 (17.63%) cases. Ten (13.1%) cases showed unilateral block, while 48 (63%) cases showed tubal pathology and unsuspected pelvic pathology was detected in 54 (70.9%) cases. Pelvic inflammatory disease appears to be the largest single factor causing tubal involvement in infertility. It is emphasized that tubal factor cannot be completely studied by laparoscopy alone, but in occasional cases requires other investigations like hysterosalpingography and cervical smear culture.

### Introduction

The fallopian tubes are mainly affected by pelvic infection. The common bacterial causes of salpingitis are the gonococcus, the pyogenic organisms—basically the gram negative bacilli and gram positive cocci and others among which the bacterioids and other anerobic species have been cultured from tubo-ovarian inflammatory disease. This is frequently associated with postpartum or postabortal sepsis, it may also follow surgical procedures, such as cauterisation of the cervix or uterine curettage, result-

ing in tubal damage either extrinsic or intrinsic, making conception either difficult or impossible. The tubercle bacillus, a common problem in adolescent and in young infertile women, is a frequent cause of salpingitis.

In recent literature, reports by Moore *et al* Paavonen (1980) have linked chlamydia trachomatis infection with infertility and reproductive problems.

### Material and Method

The present study lists the tubal involvement as detected by laparoscopic examination in patients of primary and secondary infertility over a period of 5 years, from January 1980 to April 1985,

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### Results

Four hundred thirty-one cases of sterility were investigated by laparoscopy. Out of these tubal factor was found to be present in 76 cases giving an incidence of 17.63% of tubal involvement.

Table I shows that maximum number of cases were in the age group of 20-24 years, and in all the age groups there were more cases of primary sterility as compared to secondary sterility given a ratio of 2.45:1.

TABLE I  
Age and Type of Sterility

| Age in years        | 20-24 |       | 25-29 |       | 30 |       |
|---------------------|-------|-------|-------|-------|----|-------|
| Primary sterility   | 25    | 32.9% | 20    | 26.3% | 8  | 10.5% |
| Secondary sterility | 8     | 10.5% | 10    | 13.1% | 5  | 6.5%  |

Table II shows unilateral patency in 10 (13.1%) and in 11 (14.4%) the tubes were patent, but involved in adhesions.

TABLE II  
Tubal Involvement

|                                   | No. | %     |
|-----------------------------------|-----|-------|
| Unilateral Block                  | 10  | 13.16 |
| Bilateral Block                   | 55  | 72.36 |
| Tubes Patent<br>(Perisalpingitis) | 11  | 14.48 |

The site of the block could only be determined in 28 (36.8%) of cases (Table III).

TABLE III  
Site of Block

|             | No. | %    |
|-------------|-----|------|
| Cornual     | 20  | 26.3 |
| Mid-portion | 5   | 6.6  |
| Terminal    | 3   | 3.9  |

About 48 (63.2%) of cases showed obvious tubal pathology (Table IV).

TABLE IV  
Block with Other Pathology

|                         | No. | %    |
|-------------------------|-----|------|
| Hydrosalpinx            | 17  | 22.4 |
| Convolutd, beaded tubes | 16  | 21   |
| Tubo-Ovarian Masses     | 15  | 19.8 |

Unsuspected pelvic pathology was detected in 54 (70.9%) of the cases (Table V).

TABLE V  
Associated Pelvic Pathology

|                    | No. | %    |
|--------------------|-----|------|
| Endometriosis      | 3   | 3.9  |
| Tuberculosis       | 3   | 3.9  |
| Hypoplastic Uterus | 2   | 2.6  |
| Adhesions          | 46  | 60.5 |

### Discussion

Before the advent of laparoscopy, investigation of tubal factor meant a Rubin's patency test and a hysterosalpingography. With a laparoscope, one can now visualise the whole pelvis, the complete tube with its fimbrial end and in a large number of cases, the exact site of the block and also whether one or both tubes are involved. As can be seen from Table II, 55 (72.3%) of the patients had bilateral block, but 10 (13.1%) of the

patients had unilateral block. It is probable that unilateral patency was produced either by the dye breaking thin intramural adhesions or pushing out a mucus plug or possibly a functional block, following ciliary damage. Mackey *et al* (1971) had a conception rate of 50% with unilateral patency. However, Wahby *et al* (1966) report only 23% pregnancy rate with unilateral patency. In 11 (14.4%) of cases, although the tubes were involved in adhesions, the dye was seen in the pouch of Douglas, sterility may have been due to kinking of the tube, interfering with ovum pick up and transport.

The cases were also viewed with respect to future tubal surgery. Seen from Table III, 20 (26.3%) cases showed cornual block which has relatively poor surgical prognosis, 3 (3.9%) had terminal block which carry the best surgical prognosis with operative treatment. About 48 (63%) of the cases showed obvious tubal pathology like hydrosalpinx, beaded tubes or tubo-ovarian masses (Table IV). Large number of these findings were missed on clinical examination, which would have gone undetected but for laparoscopy. It was possible to pick up cases not only for tuboplasty, but also for other surgical treatment for relief of symptoms, where medical therapy alone was not sufficient.

Table V shows pelvic pathology detected in these sterility cases. Endometriosis was seen in 3 (3.9%) of the cases. Endometriosis said to be uncommon in India. However, now more cases are being detected mainly due to advent of laparoscopy. In a similar study Rajan *et al* detected 12 cases of endometriosis amongst 81 infertile women on laparoscopic examination. 3 (3.9%) of this series showed pelvic tuberculosis, Rajan *et al* (1984) in their study discovered

only 1 case of genital tuberculosis amongst 81 sterility cases examined. Infertility may be the only symptom of genital tuberculosis, occasionally discovered at laparoscopy or after a curettage but otherwise the diagnosis of genital tuberculosis remains notoriously elusive. Incidence of genital tuberculosis in an Endocrine Clinic—reported by Sathe *et al* (1979) was 3.32%, while Anjaneyulu (1959) quotes figures in women attending gynaecology OPD to be 0.76%. Schafer (1976) quoting world figures gives selective incidence of genital tuberculosis as follows:

- |                                    |        |
|------------------------------------|--------|
| (1) In the tube removed surgically | 2%-20% |
| (2) In sterile patients            | 5%-10% |

In our lower socio-economic class of patients, tubercular and gonococcal infections seen commonly in the younger age group play an important role in infertility. Gonococci account for a certain number of cases of salpingitis. Two thirds of our cases had pelvic adhesions with tubal involvement. Gonococcal infection can only be diagnosed by smear and culture, which are not done routinely in most hospitals. Deshmukh *et al* (1985) report the incidence of gonorrhoea in leucorrhoea cases in gynaecological O.P.D. to be 0.7%. National survey in the U.S.A. have indicated that prevalence of gonorrhoea varies from 1-2% in women seeking care from private practitioners to approximately 5% in those seeking health care at hospital based gynaecological clinics.

Pelvic inflammatory disease is therefore, the largest single factor causing tubal involvement in infertility.

Laparoscopy now appears indispensable in evaluating tubal factor in infertility. Apart from unexpected pelvic pathology which may be detected,

laparoscopic examination has other advantages, where one can help the patient, by lysis of minor adhesions, fulguration of endometrial implants, and biopsy of suspected lesions like tuberculosis.

It is however, necessary to emphasize that tubal factor cannot be completely studied by laparoscopic examination alone, but also requires biopsy of the pelvic tissues through the laparoscope whenever necessary. In occasional cases hysterosalpingography to study the nature of the tubal lumen and cervical smear and culture to rule out gonococcal and chlamydial infections.

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