

## TUBAL FACTOR IN INFERTILITY ENDOSCOPIC AND MICROBIOLOGICAL EVALUATION

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### SUMMARY

**Pelvic inflammatory disease and its sequelae are responsible in 40% women with infertility, apart from the high risk of ectopic pregnancy. In many cases, due to lack of systemic symptoms and ignorance on part of the patients, the diagnosis is reached very late, by which time the damage is irreparable.**

**A high index of suspicion, public awareness, liberal use of endoscopy and microbiological screening tests used for an early diagnosis, followed by an appropriate aggressive antimicrobial treatment will be helpful in prevention and minimizing the damage caused by pelvic inflammatory disease.**

### INTRODUCTION

Incidence of sexually transmitted diseases is on the rise universally. Various factors like early sexual exposure, multiple sexual partners, rising incidence of pregnancy terminations and intrauterine device usage have contributed to this rise. Apart from conventionally accepted diseases like gonorrhoea, syphilis etc., many more diseases have been included as sexually transmitted diseases. (Chow et al 1979)

Sexually transmitted diseases cause genital infections as well as pelvic inflammatory disease. Henry-Suchet et al (1980) reported direct or indirect contribution of pelvic inflammatory disease to female infertility in 27-64% patients. (Henry-Suchet et al 1980)

However, due to lack of awareness and paucity of diagnostic methodology, pelvic inflammatory disease and its causative organisms are not isolated in a great majority of cases.

Our study is an attempt to gauge the place of pelvic inflammatory disease in

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the causation of female infertility and to isolate the organisms responsible.

#### MATERIALS AND METHODS

A total of 2150 cases were investigated for female infertility over 5 years in our private clinic. Of these, 68% were of primary and 32% of secondary infertility. 927 cases were subjected to diagnostic laparoscopy out of which 362 (39%) were diagnosed as pelvic inflammatory disease.

The minimum criteria for diagnosing pelvic inflammatory disease on laparoscopy were taken as -

- (1) tubal erythema,
- (2) tubal edema and swelling, and
- (3) serosal surface or fimbrial end seropurulent exudate

The cases were scored as -

- (1) Mild : congested tubes with inflammatory exudate but patent tubes,
- (2) Moderate : peritubal/ovarian adhesions; distorted, inflamed tubes; hydrosalpinx; tubal patency impaired.
- (3) Severe : Severely damaged tubes with tuboovarian masses; frozen pelvis, bilateral tubal block.

In 90 cases, laparoscopic aspirates were obtained from pouch of Douglas, hydrosalpinx or tuboovarian masses or abscesses. The aspirates were subjected to culture and isolation of various microorganisms, serological testing and acid-fast staining. Cervical and vaginal swabs were also collected for microbiological culture and chlamydia antigen detection by inclusion body studies.

#### OBSERVATIONS AND RESULTS

Table I and II given details of pathology

detected at diagnostic laparoscopy and severity of pelvic inflammatory disease.

In majority of cases, the infection is polymicrobial.

The major causative organisms were chlamydia and anaerobes, with mycoplasma running a close third.

Lower genital tract infection was present in 40% patient with infertility. Multiple organisms were responsible for this (Table III).

Table IV gives details of organisms obtained from lower genital tract.

Genital tuberculosis was diagnosed in 43 cases. Only in about 50% cases it was suspected clinically and in the rest, it was diagnosed by history of endometrial, tubal or peritoneal biopsy collected at the time of diagnostic lapa-

Table I

#### Pathology detected at diagnostic laparoscopy

	No.	%
Negative findings	413	45
Pelvic inflammatory disease	362	39
Endometriosis	23	02
Ovarian disorders	129	14
Total	927	100

Table II

#### Severity of pelvic inflammatory disease

Severity	No.	%
Mild	137	38
Moderate	134	37
Severe	091	25
Total	362	100

roscopy. Confirmation was also sought by detection of tuberculous antigen by ELISA technique. Tubal and peritoneal fluid was also subjected to these tests.

All the cases diagnosed as pelvic inflammatory disease clinically, laparoscopically and by microbiological screening were subjected to complete course of suitable antibiotics, including metronidazole and antiinflammatory agents. A follow up hysterosalpingogram was done for reevaluation and when its findings confirmed tubal factor responsible for infertility, corrective surgery was offered by conventional or microsurgical techniques. Results were uniformly poor in moderate

and severe cases of pelvic inflammatory disease (success rate less than 10%), whereas mild cases had better results (success rate 28%). The accords well with Hoyme's data (Hoyme 1990).

### DISCUSSION

Pelvic inflammatory disease is the most significant consequence of sexually transmitted diseases in the industrialized world. The toll pelvic inflammatory disease extracts from young female population and from the society in general, is enormous in terms of acute morbidity, mortality, hospital and medical facility utilization, economic drain and long term effects like infertility.

The risk factors have now been established as younger age group, multiple sexual partners, usage of intrauterine devices, operative interference, previous episodes of genital infections, postmenstrual period and low socioeconomic status (Chow et al 1975).

It has now been established that low grade ("silent") pelvic inflammatory disease, which results in infertility due to tubal obstruction, may not always be detected clinically, hence goes untreated and does more damage than expected. The organism responsible in majority of "silent" cases is chlamydia (Hoyme 1990, Gjonnaess et al 1982).

Chlamydia was detected to be the most prominent causative agent in our study, as well as those of Henry-Suchet et al and Hoyme.<sup>5,6</sup> It is three times more common in infertility (Henry-Suchet et al, 1980; Hoyme 1990) patients (54%) than in control population.

The low percentage of gonococcal

Table III

Organisms cultured from Laparoscopic aspirates (More than one in many cases)  
(n = 90)

Organisms	No.	%
Gonococci	03	03
Chlamydia	32	36
Mycoplasma	23	25
Anaerobes	31	35
Tuberculosis	11	12

Table IV

Organisms obtained from lower genital tract  
(n = 90)

Organisms	No.	%
Candida	31	35
Trichomonas	12	13
Mycoplasma	07	08
Ureaplasma	24	26
Gonococci	03	03
Gardnerella	14	15

detection in our study and also in Monif's study support the theory of anaerobic superinfection following initial gonococcal infection (Monif et al 1976). Anaerobic infections account for 35% cases in both studies.

Genital tuberculosis, though rare in the Western world, accounts for a significant proportion of cases in our population. Since it affects most commonly in teenage years, but is diagnosed and treated later on in the reproductive years, the damage is already for more advanced and irreversible (Balloon et al 1975).

Human immunodeficiency virus may be responsible for decreasing the local immunity and therefore, increased risk of pelvic inflammatory disease.

Laparoscopy has been found to be the superior method of bacteriological sampling since samples collected by cervical swab and culdocentesis do not always correlate and since laparoscopic collection is done under direct vision, thus simul-

taneously providing visual grading of severity of the disease (Sweet et al, 1979; Wolner-Hanssen et al, 1983). Serological techniques do not differentiate between pelvic and extrapelvic infections and also, not always, between current and past infections (Hoyme 1990).

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