

LAPAROSCOPIC DETECTION AND MANAGEMENT OF SUBTLE FIMBRIAL ABNORMALITIES AMONG INFERTILE WOMEN

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ABSTRACT

Objective : To detect subtle fimbrial abnormalities by laparoscopy in infertile women and consequently to manage such cases.

Material and Methods : Two hundred and eighty five patients with infertility underwent laparoscopy as a part of infertility evaluation at Mansoura University Hospital. During laparoscopy, fimbrial grasping by non-traumatic forceps and a probe were undertaken to evaluate the fimbrial end of the tube to detect any abnormalities. Serological testing for Chlamydia trachomatis was done in cases of fimbrial abnormalities and then following up pregnancy rate for at least one year.

Results : Among 285 patients; 41(14.3%) patients had been found to have subtle fimbrial abnormalities in the form of fimbrial phimosis and agglutination. The technique was performed without significant complications. Chlamydia serology was observed in 26.8% of cases with subtle fimbrial abnormalities. The overall pregnancy rate was (36.5%).

Conclusions : Laparoscopy still has its place for diagnosis and management of tubal factor infertility. Surgical correction of subtle fimbrial lesions may improve the fertility potential and increase pregnancy rate in infertile women.

Key words : Subtle fimbrial abnormalities, laparoscopy, infertility.

INTRODUCTION

Infertility has always been considered as a disaster. Tubal factor infertility (TFI) is implicated in up to 40% of female infertility.⁽¹⁾ In the presence of tubal pathology, where pregnancy rate is significantly reduced. IVF-ICSI offers the main line of treatment which is expensive.⁽²⁾

Tubal abnormalities, very often secondary to

sexually transmitted diseases, are one of the main causes of tubal factor infertility (TFI). Chlamydia trachomatis is one of the most prevalent causes of sexually transmitted infection globally. It has been shown to cause salpingitis followed by tubal occlusion and was isolated from the women with acute salpingitis.^(3,4)

Laparoscopy continues to be the mainstay of therapy for the diagnosis and treatment of tubal factor

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infertility. Endoscopic techniques applied to infertility for a decade report encouraging results for the treatment of distal tubal lesions. (1, 2, 5&6)

The purpose of our study was to detect subtle fimbrial abnormalities which are frequently missed during laparoscopy in infertile women, and to trace any relation with the serological testing for Chlamydia trachomatis and consequently offering a causal therapy.

MATERIALS & METHODS

We studied (285) infertile women at the Obstetrics & Gynecology Department, Faculty of Medicine, Mansoura university, during the period of January 2005 to February 2008.

Cases included in this study were infertile women aged between 20-40 years. After complete clinical examination of the couple, the following investigations were requested: semen analysis, hysterosalpingography (HSG) to assess the uterine cavity and tubal permeability, and day 21 serum progesterone. Hormonal assay was only done for disturbed menstrual cycles, signs of hyperandrogenism and galactorrhea. Written informed consent was obtained from each patient.

The laparoscopic procedure was carried out under general anesthesia. The patient was installed with cannulation, the pneumoperitoneum created, the laparoscopic and suprapubic trocars introduced (three-puncture technique), laparoscopic evaluation of the ovaries, appearance of the tubes, fimbrio-ovarian relationship and any pelvic adhesions. Once this assessment was completed, a simple test was applied by fimbrial grasping by non-traumatic forceps and a probe to evaluate the fimbrial end to detect any abnormalities while performing the methylene blue test.

Two types of subtle fimbrial abnormalities were

detected, fimbrial phimosis and agglutination. Laparoscopic correction of subtle fimbrial lesions by dilatation in cases of phimosis and fimbrioplasty in cases of agglutination (uni- or bilateral). At the end of the procedure, tubal permeability was assessed by chromo-tubation test.

Post-operatively we prescribed Doxycycline 200 mg per day for 10 days.

Chlamydia trachomatis (ELISA):

For cases with subtle fimbrial abnormalities (41 cases), 3 ml blood was aspirated into plain tube for quantitative determination of serum Chlamydia trachomatis, the resulting sera were collected into aliquots, stored at -70 °c till time of assay.

Quantitative determination of serum Chlamydia trachomatis_IgG was done by ELISA technique using Chlamydia trachomatis IgG_ELISA_ plus medac Kit. Cat No.: 497. Plus medac, Germany. It is based on synthetic peptide from the immunodominant region of the major outer membrane protein that was used to examine the level of anti- Chlamydia trachomatis IgG antibodies in the patient's serum.

Samples with unit values below 22 AU/ml were considered negative. Samples with unit values range: 22-28 AU/ml were considered borderline (equivocal) and Samples with unit values above 28 AU/ml were considered positive. (7)

Pregnancy rate:

Post treatment fertility was assessed for 24 months; follow up was carried out for at least one year. Patients lost to follow up were considered as failures.

RESULTS

Two hundred and eighty five patients with infertility evaluated by laparoscopy and 41 cases (14.3%) were diagnosed to have subtle fimbrial

abnormalities. Serological test for Chlamydia trachomatis was done for such in these cases and follow up for pregnancy rates for at least one year.

Table (I) shows the epidemiology and clinical data of the patients (n=285) who underwent laparoscopy as regards to: age (ranged between 20-40 years with a mean of 31.1 ± 4.3 years, body mass index (B.M.I) ranged from 18-25 kg/m², the mean length of the cycle was 29 ± 5 days, the duration of infertility was 2-10 years). Primary infertility in the study was present in 105 cases and secondary infertility in 180 cases, and a history of abortion was present in 10.2% of cases.

Table (II) shows subtle fimbrial abnormalities (41 cases) and co-existence of Chlamydia trachomatis, in cases of fimbrial phimosis (5 cases, 20.8%) & in cases of fimbrial agglutination (6 cases, 35.2%).

Table (III) shows the overall pregnancy rate in different types of subtle fimbrial abnormalities. The overall pregnancy rate was 36.5%. p value significant for cases with intra-uterine pregnancy, in fimbrial phimosis (10 cases) as compared to fimbrial agglutination (4 cases).

Figure (1) shows cumulative pregnancy rates for different types of subtle fimbrial abnormalities. Pregnancy rate was increased in the first year then became more or less stationary.

DISCUSSION

Laparoscopy continues to be the mainstay of diagnosis and treatment of tubal factor infertility (TFI) especially distal tubal abnormalities, where pregnancy rate is significantly reduced. (1, 2&5) To our knowledge, no information has been reported about subtle fimbrial abnormalities.

The quality of the fallopian tube remains a decisive factor for fertility because it is possible that poor tubal quality is the main reason for the obtained

results; also, fimbrio-ovarian relationship could play an important part in the fertility process. (8)

In this study, among 285 patients who underwent laparoscopy, 41 patients were diagnosed by a simple technique without significant complications. We found two types of fimbrial abnormalities in the form of fimbrial phimosis in 24 cases (58.5%) and fimbrial agglutination in 17 (41.5%) as in table (II). When there are non-obstructive lesions in the infundibulum or intrinsic lesions in the fimbrial end or adhesions we can detect the type of fimbrial abnormalities; moreover, appropriate technique on the tube can be performed to increase the chance of pregnancy.

In the present study, laparoscopic treatment was done in cases with fimbrial abnormalities by dilatation for phimosis and fimbrioplasty for agglutination (uni or bilateral). At the end of the operation, tubal permeability was assessed with methylene blue test. Recent studies suggested that laparoscopy continues to be undertaken in selected patients with mild distal tubal disease with good results. (2, 9)

Chlamydia trachomatis was a common pelvic pathogen in our study. Chlamydia serology which was used as an indicator of tubal abnormalities, was observed in 26.8% of our cases. These findings were similar to the results of previous studies. (4, 10) When the tube is damaged by infection, it is also accompanied by adverse effects on the tubal epithelium and physiology. (11) Treatment of infection with Chlamydia could have an influence on the prognosis of distal tubal abnormalities and improvement of pregnancy rates.

The overall pregnancy rate obtained (36.5%) is encouraging; it may occur sooner or later according to the type of tubal abnormalities. For fimbrial phimosis, it was about (41.6%) compared to those for fimbrial agglutination (29.4%), because in cases of agglutination, affection of fimbrial function may be

the cause of compromization of chances of pregnancy leading to a reduction in pregnancy rates in such cases. These results were more or less similar to those cited in different studies for laparoscopic management of distal tubal abnormalities. (1, 2, 5, 9&12)

In conclusion, laparoscopy still has its place for diagnosis and management of tubal factor infertility. Meticulous laparoscopic evaluation of the fallopian tubes helps in detection of subtle fimbrial abnormalities. The quality of the fallopian tube remains a decisive factor for fertility. Surgical correction of subtle fimbrial lesions may improve the fertility potential and increase pregnancy rates in infertile women.

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Table I : Epidemiology and clinical data of the patients (285) who underwent laparoscopy.

Variable		Mean \pm SD_%
1- Age (years)	20 - 40	31.1 \pm 4.3
2- B.M.I (kg/m ²)	18 -25	21.9 \pm 3.1
3- Cycle length(days)	22 - 34	29 \pm 5
4- Duration of infertility(years)	2 - 10	4.6 \pm 3.6
5- Type of infertility	1ry 105	36.8 %
	2ry 180	63.2 %
6- History of abortion	29	10.2 %

B.M.I : Body Mass Index.

Table II : Subtle fimbrial abnormalities (41 cases) and co-existence of Chlamydia trachomatis.

Type of abnormality	No of patients	C.T. antibodies
1- Fimbrial phimosis	24 (58.5 %)	5 (20.8 %)
2- Fimbrial agglutination	17 (41.5 %)	6 (35.2 %)

C.T. : Chlamydia Trachomatis

Table III : Overall pregnancy rates in different types of subtle fimbrial abnormalities.

Type of abnormality	No of patients	IUP	EP	P value
1- Fimbrial phimosis	10/24 (41.6%)	10	0	< 0.05
2- Fimbrial agglutination	5/17 (29.4 %)	4	1	

IUP: Intra-uterine pregnancy EP: Ectopic pregnancy

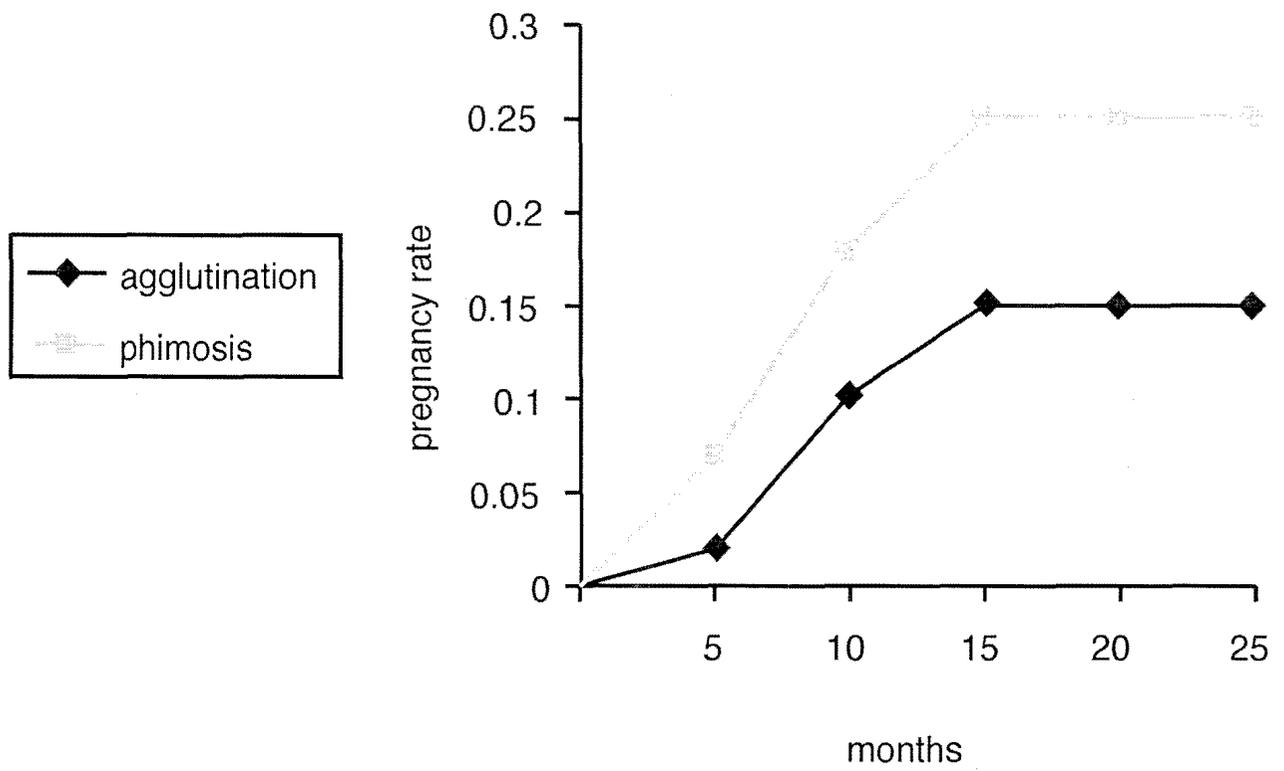


Fig. 1. : Cumulative pregnancy rate for different types of subtle fimbrial abnormalities.