STUDY AND EVALUATION OF TUBOPLASTY OPERATIONS IN CASES OF STERILITY

by

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Introduction

About 30 per cent of gynaecological outdoor patients complain of sterility and in one out of every six sterile couples the cause is tubal obstruction (Johnstone, 1955). Surgical restoration of tubal patency is thus a very important problem in operative gynaecology. The present study was undertaken to find out, as to how far the tuboplasty operations can help to improve the fertility.

Material and Methods

Forty-five patients were operated on for blocked fallopian tubes from 1st January 1960 to 31st December 1963 at the K.E.M. Hospital, Bombay. During the same period there were 4701 gynaecological operations, thus giving an incidence of 0.9 per cent. Both partners were thoroughly investigated for sterility prior to operation and the cases were followed up from 3 to 7 years after operation.

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Results

Types of operations: Table 1 shows the various operations performed in our cases. Salpingostomy was the commonest operation performed.

TABLE 1

Types of operation

Types of operation		Number of operations
1	Salpingolysis	5
2	Salpingostomy	26
3	End to end anastomosis	1
4	Utero-tubal implantation	10
5	Combination of any two	3
	Total	45

Out of 45 cases, 27 were operated on for blocked tubes while 18 cases were operated on for some other pelvic pathology and tubes were found blocked incidentally. The associated pelvic pathology was ovarian cyst, fibromyoma of the uterus, chronic appendicitis, and ectopic pregnancy.

Sterility

Twenty-eight patients suffered from primary sterility while 17 patients had secondary sterility.

The duration of sterility is shown in Table 2. It is interesting to note

TABLE 2
Duration of Sterility

Duration of sterility	Number of cases
2— 5 years	6
6—10 years	23
11—15 years	13
16—20 years	3
Total	45

that there were 3 patients who were sterile for periods of 16 to 20 years.

Age Incidence

All the patients were in the child-bearing age. None were above 40 years. Commonest age group was between 26 to 30 years.

Aetiology

The aetiology of tubal obstruction was derived from patients' history, clinical examination, operative and histopathological examinations of the blocked tubal segment. This could be shown only in 25 cases as noted in Table 3. In the rest no probable aetiology could be found. Five cases of tuberculous aetiology were found out by histopathology of the blocked segment of the tube after operation. Normally in the presence of tubercle no tuboplasty operation is performed.

Follow-up

Out of 45 cases, 23 could be followed up. In these cases complete history and thorough clinical examination of both partners were carried out. Endometrial biopsy, husband's semen, Rubin's test, x-ray of chest were repeated. Hysterosalpingography was done where it was possible.

Social history of these patients revealed that 4 patients had since adopted children. But they still yearned for their own children.

Conception following tuboplasty

Following tuboplasty operation, 4 patients conceived. Following utero-tubal implantation one patient had two full-term normal deliveries. Following salpingostomy 3 patients had conceived but aborted in the first trimester. Incidence of successful pregnancy was thus 4.4 per cent while incidence of conception following operation was 17.3 per cent.

TABLE 3
Aetiological factors

Aetiological factors	No. of cases	Percent
1. Pyogenic (post-abortal puerperal)	12	26.6
2. Tuberculous	5	11.1
3. Gonococcal	1	2.2
4. Ovarian tumour	4	8.8
5. Fibromyoma near cornu of uterus	1	2.2
6. Sterilisation operation	2	4.4
7. Cause not known	20	44.4

Tubal patency following tuboplasty

Long term follow up of anatomical results of tuboplasty is presented in Table 4. Both Rubin's test and hysterosalpingography revealed that 12 patients had patent tubes out of 23

TABLE 4

Follow up Rubin Test results

Operation	No. of cases	Patency shown by Rubin's test and Hysterosalpingography		Conception	
		Patent	Blocked	Full-term	Abortion
Salpingolysis	3	0	3	0	0
Salpingostomy	13	8	5	0	3
Implantation of the tube	6	3	3	1	0
Salpingostomy + implantation	1	1	0	0	0
Total	23	12 (52.1%)	11	1 (4.4%)	3 (17.7%)

i.e. 47.8 per cent. The rest of them had recurrence of blockage in fallopian tubes.

Discussion

Ever since Martin in 1885 first performed salpingostomy the incidence of successful pregnancies has remained more or less the same. Therefore, many eminent surgeons like TeLinde, B. N. Purandare have turned away from this type of surgery. Shirodkar has been very interested in tuboplasty operations and is trying to achieve better results by various modifications of the technique.

The term fallopian tube itself is a misnomer because it gives a rigid, mechanical concept of its structure and function. The fimbrial end of the tube functions as an aspirating pump creating a current in the peritoneal fluid towards its lumen thus propagating the ovum into the uterine cavity. It also secretes mucus which serves as a nutrition to the growing ovum during its 3 day stay in the tube. If the tubal structure is disorganised by infective pathology then mere restoration of tubal patency will not help to bring the ovum, which itself is non-motile, into the uterine cavity. This has given rise to the popular dictum that patent tubes and potent husbands do not assure fertility. It also warns us that dacron grafts and such other non-living structures to replace diseased tubes will rarely succeed.

No aetiological factor was found in 20 cases. Here the sterility may be due to congenital malformations of the tubes or previous abortions induced by irritating pastes. But history of the latter was not available.

The technique of tuboplasty operations is constantly being modified and new techniques are being tried out. The reamer used to make an opening in the uterine cornu for implantation is now given up because it is known to recreate tubal block by local endometriosis. This is proved by Shirodkar by histopathological study at the next operation. Putting blind sutures at uterotubal anastomosis is now replaced by fundal splitting and mucosa to mucosa suturing of uterus and tubes.

In our cases the polythene prosthesis was left in for periods of 2 to 6 months. Recently the duration of polythene prosthesis is made 4 to 6 weeks. In our cases, out of 6 utero-

tubal implantations, 4 were followed up. Two cases had recurred block while two had patent tubes. Ehrler (1963) says that polythene splints in no way guarantee the tubal patency. John Peel (1963) says that longer retention of the polythene splints is of doubtful value. Post-operatively synthetic gestogens like enavid, sacrodyl are given for 3 to 6 months to keep the women amenorrhoeic and so it is presumed that local endometriosis will not occur.

Post-operatively cortisone was given orally to all our cases but the results of post-operative follow up do not suggest that this is very helpful. We cannot expect cortisone to prevent fibrosis and stricture at implantation sites or adhesions of fimbriae while allowing uterine wound and abdominal wound to heal up well. Recently, Shirodkar (1967) is trying early removal of polythene splints and uterine lavage with hydrocortisone and antibiotic solutions.

Out of 23 cases, tubal patency was retained in 12 cases while pregnancy occurred in 4 cases only. Tuboplasty operations can give tubal patency only but cannot restore the physiology of the tubes, so nothing more could be achieved in the remaining 8 cases.

Among the various operations performed, salpingolysis is likely to give the best results because structure of fimbriae is preserved. The three patients after salpingolysis had recurred tubal block. Results of various authors are given in Table 5.

TABLE 5

Results of tubal operations by various authors

Author	Salpingolysis	Salpingostomy	Implantation	End to end aanstomosis
Hellman (1956)	29%	20%	16%	....
Palmer (1964)	58%	29%	33%	....
Puigmacia (1960)	35%	14.71%	28%	11.96%
Present series	0%	23%	16.6%	....

Delivery following tuboplasty operations

Following uterotubal implantation one of our patients successfully delivered twice vaginally. Fels (1934) has reported a case of rupture of uterus during labour. Green-Armytage and Moore White (1962) maintain that chances of uterine rupture are no more than in normal uteri because the tuboplasty operation is performed on non-pregnant uterus. One has to conduct delivery in such cases carefully, provided that there is no cephalopelvic disproportion.

We had no case of ectopic pregnancy following tuboplasty operation but it is known that incidence of ectopic pregnancy is increased four times following tuboplasty. Hellman (1956) gives it as 9.2 per cent in his cases while Shirodkar (1962) had 1 per cent incidence of ectopic pregnancy.

Summary

(1) Forty-five cases of tuboplasty operations done at K.E.M. Hospital,

Bombay, are presented.

(2) Twenty-three cases could be followed up. Twelve patients had patent tubes while the rest had recurrence of blockage.

(3) Four patients conceived after operation (17.3 per cent incidence) following tuboplasty and 1 patient (4.4 per cent) had successful pregnancy following uterotubal anastomosis.

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