

Pregnancy Outcome Following Microsurgical Tubal Reconstruction

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Summary : The present prospective study was carried out to evaluate the cases with tubal obstruction, their management and the pregnancy rates.

Laparoscopic evaluation revealed 38% cases of peritubal adhesions. Associated positive findings were present in 38% cases. Pregnancy rates following reconstructive surgery showed maximum of 88.2% cases in adhesiolysis. There was 11.7% ectopic pregnancy rate. There was overall 74.4% pregnancy success on 18 months follow up. Improved success was attributed to use of Metronidazole in standard irrigation fluid of Gomel.

Introduction:

The field of tuboplastic surgery dates a century back from ampullary cuff salpingostomy to reach the era of tubal reconstructive microsurgery. At the same time laparoscopy has greatly influenced the management of tubal problem with its diagnostic and therapeutic value.

The present prospective study was carried out to evaluate the cases with tubal obstruction, their management and the pregnancy rate.

Material and Methods

This study was undertaken in the department of Obstetrics and Gynaecology MGIMS, Sevagram, Wardha, in the cases with tubal block requiring reconstructive surgery. This includes 50 cases of tubal block of which 38 were infertility and 12 were post-tubal ligation opting reversal. Before posting for laparotomy a proper laparoscopic evaluation of pelvic organs for adhesions, endometriosis, congenital anomalies and tuberculosis was done, and retrograde dye studies for tubal functions was performed in all the cases. The routine investigations in male and female contributing to infertility as well as prolactin level and HSG in females were carried out. The cases with gross abnormalities, destructive lesion of fallopian tubes, previous history of failed tuboplasty and azoospermia were excluded from study. During laparoscopic evaluation for tubal patency chromopertubation was done by retrograde instillation of mixture of Metronidazole (500 mg) 100 ml with 80 mg of Gentamycin and sterile methylene blue.

The operative technique used was the meticulous microsurgical procedure as reported by Gomel (1980), under

operative microscope of Carl-zeiss OPM 17 P/H. Gomel's (1983) fluid was used for irrigation during surgery. We used Metronidazole 100 ml with Hydrocortisone 200 mg. for instillation in peritoneal cavity at the end of operation for prevention of adhesions. All cases had prophylactic Omnatax 1 gm just at the time of induction of anaesthesia and 1 gm after 12 hours. Injection Phenergan 25 mg and Decadron 20 mg each 6 hourly was used for 48 hours in all the cases. The suture material used was 6-0 Vicryl. In adhesiolysis cases post-operative hydrotubation was done on 7th, 9th, and 11th day. These cases were followed for 24 months for pregnancy success. They were called for HSG after one month in adhesiolysis/ salpingostomy and 3 months after tubal anastomosis.

Results

The mean age of patients requiring tubal reconstruction was 28.5 years, minimum being 20 years and maximum was 37 years of age. There were total of 200 infertility cases evaluated for tubal factor of which 38 required tubal reconstructive surgery. There were another 12 cases of poststerilization for reversal. The type of tubal factors causing obstruction is shown in Table 1.

Table 1.

Showing type of obstruction

Type	No of cases	Percentage
Peritubal adhesions	19	38
Proximal obstruction	06	12
Distal Obstruction with hydrosalpinx	10	20
Segmental Obstruction	10	20
Combinations	05	10
	50	100

The associated positive findings with tubal block is shown

in Table II. We had two cases of old healed pulmonary tuberculosis and two cases with IUCD in situ for more than 2 years.

Table II.
Associated positive findings n-19

Findings	Number	Percentage
Anovulation	4	21.05
Hyperprolactinemia	2	10.52
Endometriosis	4	21.05
Extreme oligospermia	4	21.05
Congenital vaginal septum	1	05.26
Treated Pulm Koch's	2	10.52
IUCD history > 2 years	2	10.52

The average pregnancy rate in secondary infertility was 1.6 with history of abortion in 3 cases. In post sterilization cases the average parity was two. The cause of opting for reversal in this group was remarriage or death of their children. The time interval of tubal sterilization to reversal was minimum of 20 days and maximum was 7 years. In one case the only surviving child was lost within 15 days of her MTP with tubal ligation who had opted reversal immediately. In this case reversal was done, 20 days following tubal ligation. The type of cases are depicted in Table III.

Table III.
No of cases for tubal reconstruction

Type of cases	No. of cases	Mean preg rate
Primary Infertility	11 (22%)	0
Secondary Infertility	27 (54%)	1.6
Pomeroy's method of sterilization	10 (20%)	2.4
Lap. Sterilization	02 (4%)	2
Total	50	6

Of the 50 cases seven cases did not report following treatment so analysis in 43 cases could be done. Of these 43 cases 32 (74.4%) conceived following 18 months follow up. Pregnancy rates following different procedure and type of pregnancy is shown in Table IV. Of the 17 cases of adhesiolysis, maximum of 15 (88.2%) conceived. Peritubal adhesions were present in 10 cases and 7 cases had flimsy adhesions to POB, uterus and ovary. In all these cases fallopian tube was partially blocked limiting spillage and following adhesiolysis patency was established by irrigating Gomel's fluid with addition of Metronidazole to it.

End to end anastomosis had intrauterine pregnancy (IUP) rate of 9/12 (75%). Uterotubal anastomosis case had no conception. Table V shows the time interval of surgery to conception.

Table IV

Type of tuboplastic surgery and pregnancy rates					
Type of surgery	No. of Patients	IUP		HP	
		No.	%	No.	%
Adhesiolysis	17	13	76.4	2	11.7
Fimbrioplasty	10	06	60.0	-	—
Tubal anastomosis	12	10	83.3	-	—
Salpingostomy	03	01	33.3	-	—
Total	*42	30		2	

*Of 43 cases one case on follow up, not analysed.

Table V

Time interval of surgery and pregnancy							
Time interval in months	Total patients who conceived	Adhesiolysis		Fimbrioplasty		Anastomosis & Salpingostomy	
		No	%	No	%	No	%
3-6	15	11	33.3	—	—	4	12.5
6-9	16	04	12.5	6	18.75	6	18.75
9-12	01	-	-	-	-	3	3.1
	32	15		6		11	

Discussion

Direct visualization through laparoscope and retrograde chromopertubation studies are always helpful to detect type of block, associated pelvic pathology, so that surgeon is able to decide earlier the type of correction required at the time of tubal reconstructive surgery, either in cases of infertility or post-sterilization reversal. In present study laparoscopy revealed that 38 % of cases (19) showed peritubal adhesions causing tubal block requiring adhesiolysis. In two cases there were dense adhesions following tubal ligation which could be diagnosed through laparoscope prior to laparotomy. It is not unusual to find adhesions in mid-tubal ligation (Gomel-1980) and fibrosis of fallopian tube reducing the available area of tube for anastomosis. Some times silent genital tuberculosis affecting the genital organ causing block will be there, but it is difficult to prove the lesion. We had two such cases of cornual block with isthmic fibrosis where retrospective history of treatment for pulmonary koch's was there before the marriage. In one case, history of Cu-T insertion lasting for 2 ½ years was there. In this there

was cornual block with fibrosis of isthmic area requiring necessity of uterotubal implantation. This emphasizes that one should adopt strict asepsis during insertion of IUCD to reduce the problem of tubal block as well as short term chemoprophylaxis in IUCD bearers to prevent tubal block. It was reported that pelvic inflammatory disease is increased by use of IUCD which is responsible for tubal block (Hawkins and Bourne 1994).

This study on pregnancy success showed, full term pregnancy following adhesiolysis, fimbrioplasty, tubal anastomosis salpingostomy, and uterotubal anastomosis was 76.4%, 60%, 83.3%, 33% and 0% respectively. The incidence of ectopic pregnancy was 11.7% in adhesiolysis. Gomel in 1997 had reported the full term pregnancies 41% to 57% and ectopic pregnancy 5% to 8% following salpingo-ovariolysis. Our result of pregnancy success was higher than Gomel's series (1997). Patton (1982) had reported IUP 60% and ectopic 3% in his study of 35 cases. Chadha and Gupta (1997) had reported 64% IUP and 4% ectopic gestation in their reversal of tubal sterilization cases. Partial agglutination and stenosis stands to reason that less severely damaged tubes will result in better outcome (Hunt and Diaz 1992).

We believe that the use of Metronidazole in irrigation fluid, hydrotubation and retrograde dye study in addition to standard irrigation fluid of Gomel might be the cause of improved success in adhesiolysis in our series. Metronidazole is known to prevent adhesions and anaerobic infections (Samal & Sambrey 1987).

In the 12 cases of reversal of sterilization, the IUP was

75% (10 cases following tubal anastomosis with or without adhesiolysis. Reported incidence of IUP following microsurgical reversal is found to be 64.4% (Gomel 1980). In our series ten cases had Pomeroy's method of sterilization and 2 cases were laparoscopic ring application. The two cases of laparoscopic ring application conceived following reconstructive surgery within 2 months. This indicates less tissue handling and less tissue destruction improves success rate.

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