EVALUATION OF PRESENT STATUS OF FUNCTION RESTORING SURGERY IN TUBAL FACTORS ASSOCIATED WITH INFERTILITY

by

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Introduction

At present, by far the commonest, most intractable and major unsolved problems in the management of human infertility are associated with either of the two conditions, viz. occlusive and non-occlusive salpingopathy and non-endocrinological seminopathy. So far as the tubal factor is concerned, it is now well established that not only the anatomical patency, but coordinated physiological functions of the oviducts are also intimately involved in some of the critical phases of reproduction.

With the above proviso, a brief analytical study of our experience in tuboplasty is presented, depicting our current efforts to restore adequate competence of the damaged oviducts to the extent that natural conception becomes possible.

Material

Out of 843 infertile couples investigated from January, 1975 to December, 1978, 225 were found to be essentially associated with oviductal defect. Of these, 53 were selected for tuboplasty operation.

Criteria for Selection of Cases for Reconstructive surgery

(1) Age below 35 years. (2) Acceptance by the patient about low percentage of success. (3) Reasonably normal quality of husband's semen. (4) Correctable associated pathology. (5) Elimination of cases with genital tuberculosis, dense pelvic adhesion, big hydrosalpinx and those who had previous unsuccessful tuboplasty operation. (6) Cases demanding reversal following a previous tubectomy operation.

Nature of Tubal Distortion in cases selected for Tuboplasty

Interpretation and Prognostic significance

(a) *Hysterosalpingographic observation*: (Table I)

TABLE I

Nature of Tubal Distortion: Histerosalpingographic Observations

Nature of tubal obstruction	Number	Pregnancy	Per cent
Cornual block	1	-	-
Partial block	23	7	30.4
Fimbrial block with or without fimbrial dilatation	16	3	18.7
Possible peritubal adhesion	13	7	53.8

Hysterosalpingogram report showing cornual block is sometimes probably misinterpreted. Besides extrinsic pressure and functional spasm, intrinsic cornual

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block is commonly due to synechiae,—sequele of tuberculosis or post abortal curettage and sepsis. Shirodkar's utero-tubal implantation was performed for the second indication but subsequently, Shirodkar (1968) modified his previous technique realising that in these cases it was the isthmus rather than the interstitial portion of the tube which was blocked.

Peritubal adhesion was suspected when two X-Ray plates taken at 5 minutes interval did not show any change of position of the tubes when superimposed on each other, and the peritoneal spillage was minimum and delayed. This was subsequently confirmed by laparoscopic examination.

(b) *Observation at Laparotomy*: (Table II)

Prognosis of tubal surgery seemed to be better when the tube was patent at both ends. Fimbrial destruction appears to be the greatest handicap against successful repair of tubal distortion. Uterotubal implantation in cornual block in our hands, has been most unrewarding. Winston (1977) is also of the same opinion.

Types of Operation Performed: (Table III)

The results were encouraging with salpingolysis and end-to-end anastomosis at the ampullary area.

Use of Splint:

Splint was not kept as a routine but the anastomosis was always performed over

TABLE II
Nature of Tubal Distortion (Observed at Laparotomy)

	Infection		Endometrisis		Postop. adhesion		Tubectomy	
	No.	Preg.	No.	Preg.	No.	Preg	No.	Preg.
Peritubal adhesion without fimbrial occlusion	6	3	5	3	10	3	-	-
Peritubal adhesion & fimbrial occlusion	4	-	3	1	1	Nil	-	-
Ampullary or isthmial block	20	5	-	-	-	-	3	-
Cornual block	1	Nil	-	-	-	-	-	-

TABLE III
Types of Operation

	Number	Pregnancy	Per cent
Salpingolysis	21	9	42.8
End-to-end anastomosis	23	7	30.4
Cuff salpingostomy and fimbriolysis	8	1	12.5
Uterotubal implantation	1	-	-
	53	17	

a splint. Jones and Rock (1976) also feel that a splint is necessary in isthmus to isthmus anastomosis. 2/0 monofilament nylon has been used when necessary, which is believed to be less damaging for tubal mucosa (Williams, 1976). When the medial segment of the tube was short, the monofilament nylon could be passed into the uterine cavity easily. Negotiation of splint into the uterine cavity was facilitated by distending the cornual end and the medial segment with normal saline. Nylon was passed through the lateral segment of the tube with the help of Shirodkar's guide. When the nylon could not be passed into the uterine cavity, the portion of the nylon projecting from the lateral end of the tube was fixed on the surface of the ovary with 'oo' chromic catgut and was then coiled up and placed in the subcutaneous tissue under the skin for subsequent removal. The splint was removed on the 7th postoperative day. Bhatt (1979) reporting on reversal operation by different techniques in 65 cases has recorded 5 pregnancies out of 12 cases where splint was not used.

Suture Material and Technique of sutures

Previously we were using 5/0 catgut. Now, 5/0 to 8/0 nylon is being used for tubal surgery. It has been reported that fibrosis and peritubal adhesions are less with nylon than with catgut sutures. Diamond (1977) used 10/0 monofilament nylon and reports 75 per cent pregnancies in cases of reversal operation following tubectomy.

There is difference of opinion on the point of inclusion of mucous membrane in end-to-end anastomosis. (Gomel, 1977; Winston, 1977; Diamond, 1977; Garcia, 1972 and Seki *et al*, 1977). Three to four sutures are inserted in two layers, one either mucosal or deep muscular and the other seromuscular. The gap in the mesosalpinx is closed in two layers inverting the raw edges inwards.

Haemostasis and Prevention of Postoperative Adhesions

In order to get blood-free field of operation, continuous saline irrigation in preference to swabbing has been helpful. For this purpose we usually prepare a drip of normal saline containing 2 ml. Decadron and 0.5 ml. Heparin. With operating microscope or magnifying lens, injury to minute blood vessels and use of extra ligature or microcoagulation has been considerably reduced. Often we had to put a graft on the neighbouring raw area with a piece of excised parietal peritoneum. Following the operation, the pelvis is flushed with the sterile drip solution and the fluid is aspirated by a sucker. Low molecular dextran or intraperitoneal corticosteroids have not been used by us.

Postoperative Hydrotubation

There is controversy regarding postoperative hydrotubation because of risk of ascending infection (Grant, 1971; Williams, 1973; Hodari *et al* 1977). We have used postoperative hydrotubation in cases where splint was not used. In these cases, as well as in cases where splint was used, hydrotubation was continued through in the follicular phase three menstrual cycles. At the end of the third cycle, hysterosalpingogram was performed to assess the result of the operation.

Result of Operation (Table V)

Pregnancy rate following tuboplasty operation for diseased oviduct depends on selection of cases and type of operation,

TABLE IV
Results of Operation

Number operated	Conception	Termination		
		Term delivery	Abortion	Ectopic
53	17	14	2	1

the reported figures varying between 15 to 40 per cent (Chapler, 1977).

Result in Relation to Age, Type and Period of Infertility (Table V)

much higher if more critical investigative measures (including more careful interpretation of the serial hysterosalpingograms, more liberal use of laparoscopy etc.) are taken into account for detection

TABLE V
Pregnancy in Relation to Age, Type and Duration of Infertility

		Number	Pregnancy	Per cent
Age	Less than 25 years	8	2	25.0
	26 to 35 years	45	15	33.3
Type	Primary	43	11	25.5
	Secondary	10	6	60.0
Duration	Less than 10 years	32	15	46.8
	More than 10 years	21	2	9.5

Results were worse in patients who were infertile for more than 10 years, indicating thereby that the syndrome of salpingopathy is a progressive disease. Moreover, Table V indicates that apart from tubercular and gonococcal infection, nulliparous women are not immune to have pathological lesions of the tube. This may have some relationship to late marriage and prolonged and continued cyclical retrograde menstruation which may lead to a sort of endosalpingosis or endosalpingitis converting a normal tube into a pathological oviduct.

Conclusion

Apart from deliberate tubectomy, the so called "tubal factor" is apparently involved in 25 to 30 per cent of cases of female infertility. From our study, it appears that the incidence may indeed be of structural as well as functional adequacy of apparently patent oviducts. It seems more than likely that even at present, many cases of female infertility associated with patent but incompetent oviducts are being misdiagnosed and misinterpreted.

Patients for tubal surgery should be referred to centres well equipped with the requisite expertise and experience and should be performed by those who are dedicated and determined to improve results with patience and neatness of their surgical procedures.

Technique and skill in this branch of surgery have to be improved till the alternative procedures of tubal transplantation or embryo transfer are made easily available.

References

1. Bhatt, R. V.: J. Obstet. Gynec. India. 24: 12, 1979.

2. Chapler, F. K.: Year Book of Obstet. and Gynec. Ed. Pitkin, R. M. and Scott, J. R. Roy, M. Pitkin, Chicago, Lond. P. 233-241, 1977.
3. Diamond, E.: Fertil. Setril. 28: 1203, 1977.
4. Garcia, C. R.: Presented at 28th Annual Meeting of American Fertility Society, New York, April, 1972.
5. Gomel, V.: Fertil. Steril. 28: 59, 1977.
6. Grant, A.: Fertil. Steril. 22: 496, 1971.
7. Hodari, A. and Alberto, S. and Vibhasiri, A.: Fertil. Steril. 28: 620, 1977.
8. Jones, H. W. and Rock, J. A.: WHO Symposium in advances in Infertility regulation, Moscow, USSR, 16-19, November, p. 199, 1976.
9. Seki, K., Eddy, C. A. and Paierstein, C. J.: Fertil. Steril. 28: 215, 1977.
10. Shirodkar, V. N.: Presented at XVth All India Congress in Obstet. Gynec. Goa, India. 1968.
11. Williams, E. A.: Recent Advances in Obstet. Gynec. No. 12, Churchill and Livingstone, London, P. 219, 1976.
12. Williams, G. P. J.: Brit. Med. J. 1: 599, 1973.
13. Winston R. M. L.: Lancet. 1: 284, 1977.