

A STUDY OF TUBAL LIGATION: MORBIDITY, HISTOLOGY AND BACTERIOLOGY

by

SANDHYA AGARWAL,* M.S.

B. M. AGARWAL,** M.D.

and

V. L. LAHIRI,*** M.D., M.A.M.S.

Of the various methods of permanent conception control, tubal ligation is one of the most simple, practical and effective. During recent years the use of progestational compounds and intrauterine devices for contraception have become popular. Despite the high degree of effectiveness these methods are associated with certain calculated risks and side-effects. Furthermore, in a young patient who has completed her family early but still has many more years of potential fertility the use of these methods is impractical, expensive and potentially hazardous.

A review of literature revealed a controversy regarding the interval after which tubal ligation could be safely performed after delivery and the bacteriological positivity of the genital tract in the puerperium. Earlier studies reported an increased incidence of complications as the delivery-sterilization interval increased (Skaaja, 1932; Adair and Brown, 1939; Pheutz, 1941; Te-Linde, 1962; Greenhill, 1965 and Willson *et al*, 1966).

Recent studies (Mustafa and Pinkerton, 1970; Spore *et al*, 1970; Rubin, and Czer-

nobilsky, 1970 and Telang and Dass, 1974) have not shown this progressive increase in morbidity with tubal ligation performed at increasing intervals after delivery. Non-puerperal fallopian tube can also harbour bacteria as shown by studies of Pasricha and Ghosh (1966) and Gupta *et al* (1975).

Material and Methods

A total of 1200 women who underwent tubectomy at S.N. Medical College Hospital, Agra, were selected. Of these, 700 women had postpartum abdominal tubal ligation (Group A), 200 had post-abortā abdominal tubectomy (Group B), in 100 vaginal tubectomy was done following curettage either for termination of pregnancy or for incomplete abortion (Group C) and 200 had interval vaginal tubectomy in post-menstrual phase (Group D). In all the cases the indication for tubectomy was multiparity. None of the cases under study were performed for medical or eugenic reasons. Segments of fallopian tubes from both the sides were collected separately in sterile tubes immediately after their removal. Each segment was divided in two, one for histological study and the other for bacteriological study. The tube was transferred in nutrient broth and further the cultures were followed accordingly.

*Lecturer in Obstetrics & Gynaecology.

**Reader in Pathology.

***Professor of Pathology.

From the Departments of Obst. & Gynaecology and Pathology, S.N. Medical College, Agra.

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Results

The distribution of age and parity was essentially the same for the four groups. In our experiment, the technic of vaginal tubal ligation is relatively simple requiring a minimal number of instruments, compared with abdominal tubectomy. No complications were seen at the time of operation in abdominal tubectomy. However, following were the complications in vaginal tubectomy.

TABLE I
Complications if Vaginal Tubectomy

Complications	Group C		Group D	
	No. of cases	Per-cent of cases	No. of cases	Per-cent
1. Bowel injury	2	2	-	Nil
2. Failure to perform the procedure vaginally	1	1	-	Nil
3. Excessive bleeding during operation	1	1	1	0.5

There was no maternal death. The record of 100.4°F temperature on one occa-

sion at any time was taken as an indication of pelvic infection in the absence of any other obvious cause. Seventy cases (10 per cent) in group A, 20 (10 per cent) in group B, 30 (30 per cent) in group C and 10 (5 per cent) group D developed postoperative sepsis. Headache, vomiting and neck pain were the usual complaints in 30 per cent cases of vaginal tubectomy performed under spinal anaesthesia.

The overall incidence of positive cultures in abdominal tubectomy was 18.57 per cent, 24 per cent being in group A and 15 per cent in group B. In vaginal tubectomy 18.33 per cent cultures were positive, 35 per cent being in group C and 10 per cent in group D. The commonest organisms being staphylococci, followed by E. Coli, B. haemolytic streptococci, pseudomonas pyocyaneus and Klebsiella in their order of incidence. In one tube *Claustridie tetani* was grown; on detailed interrogation this woman gave history of interference by dai (Tables II, III).

Delivery-Sterilization Interval: Puerperal sterilizations were performed between 0 to 30 days after confinement. Few

TABLE II
Distribution of Pathogenic Organisms in Different Groups

Group	Positive Cultures	Staphylococci	E. Coli	B-Haemolytic	Pseudomonas	Klebsiella	Claustridie Tetani
Group A	168	88	35	20	21	7	-
Group B	30	20	6	1	2	1	-
Group C	35	20	4	10	1	-	1
Group D	20	12	2	4	2	1	-

TABLE III
Incidence of Pathogenic Bacteria and Histologic Salpingitis in Different Groups

	Total No.	Culture Positive		Histologic Salpingitis	
		No.	%	No.	%
Group A	700	168	24.0	63	9.0
Group B	200	30	15.0	25	12.5
Group C	100	35	35.0	25	25.0
Group D	200	20	10.0	20	10.0

cases could only be included after 7 days as the patients could not be persuaded to stay longer.

The fallopian tubes seemed to be more prone to invasion by pathogenic bacteria during and immediately after delivery. However, the number of positive cultures did not rise with the increase in the interval. Postoperative morbidity or histopathological signs of inflammation in fallopian tube also did not increase when interval between delivery and operation lengthened (Table III).

without positive culture. In our series, morbidity is much higher (30 per cent) in the cases where vaginal tubectomy was performed following curettage either for pregnancy termination or incomplete abortion. The same was observed by Gupta *et al* (1975).

Pasricha and Ghosh (1966) showed evidence of organisms in fallopian tubes in 32.5 per cent of puerperal cases, Spore *et al* (1970) found only 3.8 per cent positive cultures, Rubin and Czernobilsky (1970) also found the same. In contrast,

TABLE III
Correlation of Delivery Sterilization Interval to Bacteriology, Histology and Postoperative Morbidity

Delivery Sterilization Interval (Days)	No. of Cases	Positive Tubal Cultures		Histologic Salpingitis		Post-Operative Morbidity	
		No.	%	No.	%	No.	%
0	20	5	25.0	3	15.00	4	20.0
1	150	25	16.67	12	8.0	12	8.0
2	160	30	18.75	20	12.5	20	12.5
3	120	20	16.67	15	12.5	18	15.0
4	60	15	25.0	4	6.67	4	6.67
5	60	15	25.0	3	5.0	5	8.33
6	30	6	20.0	—	—	—	—
7	20	12	60.0	—	—	—	—
8-14	20	6	30.0	1	5.0	1	5.0
15-21	20	10	50.0	1	5.0	2	10.0
22-30	40	24	60.0	4	10.0	4	10.0
Total	700	168		63		70	

Discussion

Prystowsky and Eastman (1955) reported a series of 1830 puerperal sterilizations with an incidence of puerperal sepsis in 43 per cent cases, which is much higher than our series. Pelvic sepsis was reported by Lu and Chun (1967) in 2%, by McLein *et al* (1968) in 6%. Mustafa *et al* (1970) studied 100 puerperal cases, reported the presence of organisms in 48 cases with febrile morbidity of 18 per cent in these cases and 6 per cent in cases

Russell *et al* (1973) found positive cultures in 28.9 per cent cases, Gupta *et al* (1975) reported incidence of pathogenic bacteria in 31 per cent puerperal cases. However, in our study the incidence of positive culture is higher in puerperium (24 per cent) compared with post-abortal group (15 per cent).

Pasricha and Ghosh (1966) reported presence of organisms in the fallopian tubes of 34.5 per cent non-puerperal cases, Gupta *et al* (1975) found in only 22 per cent of non-puerperal cases, while our

study showed 35 per cent in group C and hardly 10 per cent in group D. The incidence is higher in cases where it is performed following termination or incomplete abortion compared to interval vaginal tubectomy.

Pasricha and Ghosh (1966) observed histologic salpingitis in 32.5 per cent of their puerperal group. McLein *et al* (1967) found in 15.7 per cent cases. However, none of the cases showed salpingitis in the study by Gupta *et al* (1975), in contrast our study revealed 10 per cent incidence in puerperal cases and 15 per cent in non-puerperal cases.

In our study no correlation of bacteriology, histologic positivity and postoperative morbidity could be found with the increase in the sterilization delivery interval like in other recent reports. It may be concluded that there is no bacteriological or histopathological factor which can be considered to cause greater risk in tubectomy with increasing interval after delivery.

Summary

(1) Vaginal tubal ligation is relatively simple and advantageous in properly selected cases. Postoperative morbidity is higher in cases of vaginal tubectomy performed after curettage for termination or incomplete abortion. There is little postoperative morbidity in abdominal sterilization. However, patients' acceptance for vaginal tubectomy is much better compared to abdominal tubectomy.

(2) The bacteriologic evidence of pathogenic bacteria is higher in puerperal group in contrast to non-puerperal group, same is seen with histologic salpingitis.

(3) Delivery sterilization interval does not affect the postoperative morbidity, nor the bacteriologic status of fallopian tube and histologic evidence of salpingitis indicated any possible greater risk.

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