EVALUATION OF FAILED LAPAROSCOPIC LIGATION

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SUMMARY

Laparoscopic evaluation was done in 36 cases of failed laparoscopic ligation reporting in the first trimester of pregnancy during the last six years. Superficially placed silastic ring was observed in 18 such cases. Misidentification of tube accounted for 7 cases. Pregnancy occured inspite of correct placement of ring in another 7 failures. One tube was completely overlooked in 3 cases due to unexplained reasons. Malpractice might be the reason in one case in whom no ring was observed at all on either of the tubes inspite of an infra-umbilical incisional mark. Ectopic pregnancy was not observed in any case.

In order to keep the failure rate to a bare minimum, measures like careful visualisation of pelvic viscera, abondoning the procedure in favour of laparotomy in cases of oedematous and thickened tubes.

INTRODUCTION

The increasing popularity of voluntary female sterilisation during the last decade has been chiefly due to the use of laparoscopic method which is a quick, highly effective and safe outpatient procedure under local anaesthesia, enabling a woman to resume normal activity in the shortest possible time. However pregnancy after laparoscopic sterilisation has been reported in literature (Hughes & Liston, 1975 : Thompson & Wheeless, 1975; Hughes, 1977; Chi et al, 1980; Loffer & Pent, 1980).

Laparoscopic tubal occlusion can be achieved in several ways. One commonly used technique involves application of silastic rings. However, mechanical methods are reported to have a slightly higher failure rate than electrical methods (Loffer & Pent, 1980;

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Chi, et al, 1981; Bhiwandiwala et al, 1982).

The present Laparoscopic evaluation is one such study to find the cause of failure of Laparoscopic tubal ligation by silastic rings (Mechanical occlusion).

MATERIAL AND METHODS

The study comprised of 36 failure cases of laparoscopic tubal ligation reporting in the first trimester of pregnancy at our centre during the last six years, of which 15 ligations were done at our centre (Group A) and twenty one at other centres (Group B).

Before declaring ligation failure, the possibilities of a luteal phase pregnancy and pregnancy already present but undiagnosed at the time of ligation were ruled out. Such cases were not included in the study. Usual laparoscopic technique was adopted to visualise the cause of failure.

OBSERVATIONS

In 12 of the 15 cases of group A (Table I), the tubes were observed to be thick and oedematous with falope rings placed superficially. However, in rest of the 3 cases the rings were found to be correctly placed.

In 21 cases of group B in whom ligation was done at centres other than ours, the findings were as below (Table I).

(a) Superficial application of ring on normal tubes was seen in 6 cases.
(b) Ring was observed on round ligament in 6 cases and ovarian ligament in 1 case, Fallopian tubes remaining intact.
(c) Only one side of the tube was found to be occluded in 3 cases.
(d) Correct application on tubes was observed in 4 cases.
(e) Although there was an infra-umbilical incisional scar present in one case, no ring was found at all.

DISCUSSION

Probably no single method of sterilisation is suitable for all women. An important consideration for an operative technique to be widely adopted is its failure rate. Further, it is important how failures be avoided or kept to a bare minimum. Reports of failed sterilization

Table I

Laparoscopic Observations

Position of Ring	Number of Cases		
	Group A (n = 15)	Group B (n = 21)	Total (n = 36)
Superficial	12	6	18
Wrong structures	-	7	7
One tube only	-	3	3
Correct Placement	3	4	7
Absent ring	-	1	1

using different techniques such as electrocautery, spring-loaded clips and silastic bands have appeared in literature from time to time. The present study highlights the laparoscopic findings in cases of failed laparoscopic ligation by silastic ring method.

In 12 of the 15 cases of group A in whom the silastic ring was found to be superficial (Table I), the tubes were thickened and oedematous. This could be due to tubal changes in the absence of clinically evident pelvic infection (Chi et al, 1980). Tubal ligation in these cases was subsequently done by changing the approach from laparoscopy to laparotomy after medical termination of pregnancy. In the other 6 cases of group B, the ring was superficially placed on healthy tubes. However, in two of these cases the ring was applied too laterally and obviously the bigger lumen of the tube in that position was not completely occluded, resulting in failure.

Application of ring on structures other than tubes was observed in 7 cases in group B. Pelvic structures most commonly involved are round ligament, ovarian ligament and mesosalpinx. In 6 of the 7 cases, the ring was found on round ligament and in one on ovarian ligament. The main cause of misidentification could probably be improper visualisation resulting from inadequate pneumoperitoneum, clouding of telescope-optics, defective light or failure to elevate the uterine fundus properly. The uterus must be well anteflexed so that it virtually touches the anterior abdominal wall. In this is so done, round ligament is more or less hidden from view and a normal tube drops some what medially and downwards over the ovary towards the cul-de-sac so that the tube and its fimbrial end is easily identified. The ovarian ligaments can be misidentified as tubes when the cornual area alone is viewed.

There were 3 cases in whom ring was applied on one tube only, loop of the tube in one case being completely detached and fibrosed. The tube on the other side was healthy and intact in all the three cases. Yoon, et al (1977) had also found two such cases out of 7 failures where in one case the other tube was not approachable due to associated adhesions and in the other, two rings were applied on the same tube, leaving the opposite tube intact for unexplained reasons. Overlooking of one tube was also reported earlier by Corson & Bolognese (1972).

Pregnancy occurred within 6 months of correct placement of ring in 7 cases of the present study (Table I). Other authors, making similar observation, gave various reasons for the failure. Brenner et al (1976) and Loffer and Pent (1980) explained failure on the basis of pressure necrosis due to close approximation of the two segments of Fallopian tube just below the ring, resulting in fistula formation with or without recanalisation. On the other hand, Thompson and Wheeless (1975) hypothesized that perhaps conception took place prior to complete fibrosis in the lumen which has been demonstrated to take about 3 months or more (Jordan et al, 1971).

Inspite of the presence of an incisional scar in infraumbilical region in one case, laparoscopic visualisation surprisingly did not reveal in ring on either of the tube

which were normal and healthy in appearance. It could have been a rare instance of malpractice.

Pregnancies that occur after a method failure are reported to have a high risk of being ectopic (Hughes, 1977; Loffer & Pent, 1980). However, ectopic pregnancy was not encountered in any case of the present study. This was in accordance to the view that pregnancies after mechanical occlusion are more likely to be intrauterine (Palaniappan, 1984).

In order to keep failure rate to a bare minimum after laparoscopic ligation with silastic band, the following pertinent points emerge from this study.

(1) A through visualisation of pelvic viscera is necessary to correctly locate each Fallopian tube and its fimbria, avoiding misidentification.

(2) The whole-thickness of the tube, avoiding mesosalpinx as much as possible, should be grasped about 3 cm away from the utero-tubal junction.

(3) A sufficient loop of the tube should be drawn in and the laparoscope be moved towards mesosalpinx before applying the ring. This would minimise tension on the tube and its transection.

(4) The falope ring should not be old and be mounted on the laparoscope just before the procedure to avoid the ring losing its elasticity.

(5) In case of oedematous and thickened tubes, the approach should be changed from laparoscopy to laparotomy.

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