

## PREGNANCY FOLLOWING LAPAROSCOPIC STERILIZATION A CRITICAL REVIEW

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### SUMMARY

This study presents a critical evaluation of 103 patients who reported with a pregnancy after having undergone Laparoscopic sterilization at L&T Welfare Centre, Andheri, Mumbai, out of 25,197 women who underwent laparoscopic sterilization over a seventeen year and five month period from August 1979 to January 1997, thus giving an overall failure rate of 0.40%. Majority of failures (87.4%) reported within a 2 years period and of these failures 20.4% required second trimester termination, while 7.8% presented with an advanced pregnancy necessitating continuation. Missed pregnancies luteal phase pregnancies and failed M.T.P.'s accounted for 12.6% of our reported failures, 25 patients (24.3%) had an operator related cause responsible for failure while in the remaining cases method failure was held responsible. Suggestions are made for minimising the failure rate.

### INTRODUCTION

Laparoscopic tubal sterilization has gained tremendous popularity in the last few decades, as a permanent contraceptive option. By virtue of its simplicity, low morbidity and mass applicability this method

has provided a big boost to our National Family Welfare Programme.

### MATERIAL & METHOD

The present study has been carried out at the L&T Welfare Centre, Andheri, Mumbai which is a modern centre with facilities for thorough patient evaluation & investigations, ideal operating room

conditions, regular follow-up services and systematic computerized record keeping. This centre was established in 1967, & Family Welfare activities including laparoscopic sterilization were started since August 1979. Till January 1997, 25, 197 women have undergone laparoscopic sterilization at this centre of whom 103 patients reported back to us with a pregnancy, giving an overall failure rate of 0.40%. Detailed analysis of these 103 cases forms the basis of this presentation.

#### OBSERVATIONS

Among the patients who presented to the centre with pregnancy following laparoscopic sterilization 59 women had undergone medical termination of

pregnancy with laparoscopic sterilization as the primary procedure while 44 had undergone only laparoscopic sterilization (Table I).

Early failures included a number of missed pregnancies, luteal phase pregnancies or failure of M.T.P.s. majority of tubal ligation failures reported within 2 years of primary procedure as seen in Table II.

Majority (71.1%) reported with pregnancy in the 1st trimester while 8 patients came with pregnancy of more than 20 weeks and were asked to continue the pregnancy (Table III).

Of the tubal ligation failure cases 25 cases had a failure due to an operator - related cause and this included 9 cases where bands were applied to mesosal

TABLE I

Primary Procedure	N	% failure rate
MTP with Lap. T.L.	59	57.3
Only Lap. T.L.	44	42.7

TABLE II  
TIME INTERVAL BETWEEN PROCEDURE & REPORTED FAILURE

Time Interval	No. of cases	Percentage
Within 3 months	7	6.8
4 months - 2 years	83	80.6
2 years - 5 years	12	11.7
More than 5 years	1	0.9

TABLE III

Duration of Pregnancy	No. of cases	Percentage
Less than 12 weeks	74	71.8%
12 - 20 weeks	21	20.4%
More than 20 weeks	8	7.8%

TABLE IV

Causes of failure	No. of cases
Band on mesosalpingeal fold	9
Band on round ligament	4
Band not seen in close tubal proximity	12
Suspiciously small loop of tube	22
Primary thick tubes with incomplete occlusion	17
Possible recanalization	3
Tubal ectopic	1
Cause not known as patient not available for re-operation	22
Failed M.T.P.	4
Luteal phase pregnancy and pregnancy during lactational amenorrhoea	9

TABLE V

Repeat Sterilization procedure	No. of cases
Repeat band application	49
Bipolar cauterization with sectioning	11
Vasectomy	7

pingeal folds, 4 cases where round ligaments were inadvertently banded, and 12 cases where the bands were not seen in close tubal proximity. Method failures included suspiciously small knuckle of the tube within the occluding ring in 22 cases and 16 cases where the tubes were primarily thick due to tubal edema, and inflammation and were hence incompletely occluded. Tubal ectopic in 1 patient and possible re-canalization in 3 cases were also noted (Table IV).

Of the failure cases undergoing repeat M.T.P. at the Centre, 48 were subjected to repeat band application with one or two bands ensuring a good loop of the tube. In 11 cases especially those with fibrosed thickened tubes, bipolar cauterization with sectioning of the tube was carried out. 5 cases had multiple adhesions at the time of repeat scopy and their husbands were therefore advised to undergo Vasectomy (Table V).

#### DISCUSSION

Laparoscopic sterilization has gained universal acceptance as a safe and effective method of permanent contraception. With increasing popularity and usage, failure rates assume critical significance. Large studies show failure rates between 0.2% to 1.3% following laparoscopic sterilization (Mumford & Bhiwandiwalla et al - 1982, Chi et al - 1980, Vessey et al - 1983).

The physiological changes induced by pregnancy in the form of tubal edema and increased tubal vascularity make the sterilization procedure more prone to failure. The failure rate of post partum sterilization relative to that for interval

sterilization varies but may be upto three times higher (Chi et al : 1981) whether simultaneous medical termination of pregnancy confers a similar higher failure rate vis-a-vis interval tubal ligation is a fact which needs further statistical clarification.

If we exclude MTP failures, our corrected laparoscopic sterilization failure rate amounts to 0.36%. While Hughes - (1977), reported 73% of the failures to be occurring within 2 years of the primary procedures; in our series corresponding figure was 86.9%. This suggests that periodic follow-up programme for at least 2 years will enable early pick-up of failure cases. Analysis of causes of failure at time of repeat laparoscopy reveals that 25 out of 103 cases were due to operator related causes comparing well with 50% operator related failures as reported by Kochhar in 1980. Method failures especially in fibrosed edematous tubes may be eliminated by using bipolar cauterization and tubal sectioning as a primary procedure. Ectopic pregnancy, recanalization of the tube and tubo-peritoneal fistulae formation could defy even the most skillful operator.

#### CONCLUSION

To reduce failure rates careful inspection of the pelvic structures before and after band application is necessary. If possible the site and accuracy of band application may be doubly checked by another surgeon. In this regard visualization of the procedure on I.V monitor with use of Endocamera may help.

In cases undergoing interval M.T.P.



a careful and thorough evacuation of the uterine cavity with inspection of the products of conception must be carried out. Interval ligation should be posted immediately postmenstrually to avoid luteal phase pregnancies.

In cases of fibrosed inflamed tubes cauterization and sectioning should be carried out as a primary procedure rather than banding.

In most M.T.P. cases as the uterus is bulky, special efforts must be made to elevate and antevert the uterus. This enables the surgeon to avoid ligating very close to the cornu and ensures a good size loop of the tube.

In presence of edematous tubes, special efforts must be made to reduce the edema and ensure complete occlusion of the tube.

Experience of laparoscopic sterilization over a 17 years 5 months period at the L&T Welfare Centre, has shown that laparoscopic ligation has been accepted as a popular method of permanent contraception. Failure rates in our series, though comparable with other large series should motivate us to introspect and reduce it to the least possible.

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#### REFERENCES

1. Bhiwandiwalla S.B., Mumford S.D. Feldblum R.I.J. *Reproductive Medicine* 27:249; 1982
2. Chi I.C., Laufe L.E., Gardener S.D *Am. J. of Obst-Gynaec* 136:768 - 1980
3. Chi I.C., Mumford S.D. Gardner S.B. *J. Reproductive Medicine* 26:289; 1981.
4. Hughes GJ - *Brit. Med. J.* 2: 1337; 1977.
5. Kochhar. M. - *Sterilisation failure p 412. Proceedings of the 3rd International Seminar on Maternal & Perinatal Mortality, MTP and sterilisation. New Delhi. India, 1980.*
6. Vessey M. Huggins J. Lawless M - *Brit. J. of Obst-Gynaec* 90:203; 1983.