



LAPAROSCOPIC TUBAL RE-CANALIZATION - INDICATIONS AND OUTCOME

Gynaecology

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ABSTRACT

Introduction- Laparoscopic tubal re-canalization is a procedure that is done for reversal of fertility in women who have undergone tubal sterilization procedure. Laparoscopic route of this procedure has many advantages over conventionally performed tuboplasty by laparotomy.

Material And Methods- The present study is a retrospective analysis of all laparoscopic tubal reconstructive surgeries carried out during four years period from year 2015 to year 2019 at Pravara Rural Hospital, Loni.

Results- In seventy-five percent cases the indication was loss of male child following either accident or serious disease. The pregnancy rate among operable cases during follow up period was 65 percent. Success rate was more in cases who had previous laparoscopic band ligation and in isthmo-isthmic and isthmo-ampullary anastomosis.

Conclusion- Laparoscopic tubal re-canalization surgery provides a ray of hope to women who have lost their children following accident or disease. The success rate of laparoscopic re-canalization is higher than conventional laparotomy.

KEYWORDS

Laparoscopic Tubal Recanalization ,tuboplasty, Reversal Of Sterilization

INTRODUCTION-

In India, many couples opt for tubal sterilization immediately after having adequate number of children at very young age. They have a feeling that tubal sterilization is the only safe and permanent method of sterilization. They have very poor knowledge about other available methods of spacing like Intra uterine contraceptive device. They have fear and apprehension about long acting temporary methods of family planning^{1,2}. About 10% of them later regret their decision and about 1% want to restore their fertility due to various reasons like loss of only child, loss of male child, desire to have more children, remarriage and other socioeconomic factors³. These women have the option of either opting for artificial reproductive techniques or going for tubal re-canalization.

MATERIAL AND METHODS-

The present study was a retrospective analysis of all laparoscopic tubal re-canalization surgeries carried out during five years period from year 2015 to year 2019 at Pravara Rural Hospital, Loni, which is a tertiary care teaching hospital in Ahmednagar district in Maharashtra. Women were posted for laparoscopic reconstructive surgery during postmenstrual phase. During laparoscopic procedure, pelvic organs were seen for their anatomical status. The condition of tubes was assessed. Length of the tube that has been destroyed by previous tubal ligation or tubectomy procedure was assessed. Depending on pelvic findings, type of operative procedure was decided. Tubal re-canalization was performed using standard technique. End to end anastomosis was achieved by taking three sutures at 6, 12 and 3 o'clock position using five zero vicryl. Women were asked to come for follow-up personally after 2 weeks and then subsequently every 3 months or earlier if needed. All patients were followed-up for a minimum period of 2 years after re-canalization.

RESULTS-

During five years of study period, twenty women underwent laparoscopic tubal re-canalization for reversal of fertility. These women were in the age group of 20 to 40 years with mean age of 28 years. Fifty percent of women had one live baby, thirty five percent had 0 living children and fifteen percent had two living babies at the time of re-canalization operation. Sixty percent of women had undergone laparoscopic sterilization, whereas remaining 40 percent had undergone either mini laparotomy as interval procedure or postpartum procedure or concurrently got tubal ligation operation done during caesarean section. The time interval between tubal ligation and re-canalization procedure was up to three years in 45 percent, three to six years in 35 percent and more than six years in 20 percent women. The duration of follow up following re-canalization surgery was up to two years in 30 percent women, was in between 2-4 years in 50 percent women and more than four years in remaining 20 percent women. (Table 1) It was observed that women desired for reversal of

sterilization due to death of their one or more children or serious illness developing in their surviving children. The children died due to variety of accidents or diseases. The accidents included fall in well, drowning in earthen water filled container, hit and run by truck and diseases like tuberculosis, encephalitis or brain tumour, cardiac or neurological disorders. (Table 2) Site of tubal anastomosis was isthmo- isthmic in 50 percent

cases and isthmo- ampullary in 20 percent cases. In remaining 30 percent cases it was either ampullo ampullary, cornuo-isthmic or cornual implantation. Overall success rate of surgery was 70 percent. The pregnancy rate was highest following ampullo -ampullary (100 percent), followed by isthmo- isthmic (89 percent) anastomosis. The pregnancy rate was 50 percent in isthmo- ampullary and cornuo-isthmic anastomosis. There was one case of cornual implantation of tube, who did not conceive following surgery. (Table 3) There was full term normal delivery in 5 cases, caesarean section in 2 cases which was for other Obstetric indications, preterm delivery in 4 cases, spontaneous abortions in 2 cases and ectopic pregnancy in 1 case. In 4 cases, tubes were patent, but there was failure of conception and in 2 cases, tubes were blocked. (Table 4)

DISCUSSION-

Tubal recanalization is a microsurgical technique which needs special training to achieve good results. When young couple experience the loss of a child or children, if they divorce or remarry following death of husband, they may wish to restore the ability to procreate. The two most widely used methods of sterilization in India are laparoscopic sterilization where Falope ring is used, and the other is mini laparotomy either post partum or interval sterilization, where in Pomeroy's method is used. In the study conducted by Ramalingappa et al, women who had undergone laparoscopic sterilization, had better success rate of pregnancy (50 %) following reversal than patients who were sterilized by Pomeroy's method (30 %). In a study by Jain et al., patients with Falope ring showed comparatively better results (68.57 %) than Pomeroy's (40 %). Laparoscopic sterilization results in minimal injury to the tube and hence the chances of conception are better.⁵

In a study by Jaykrishnan K, overall pregnancy rate following tubal recanalization was 58.8%. The rate of conception was 40 % following Pomeroy's method and was 87.5% following laparoscopic sterilization. None of the patient with final tube length of less than 5 cm conceived. The rate of conception was 71% in women below 30 years as against 50% in women above 30 years.⁶

Koteshwar S. in their study reported that out of 10 women who underwent recanalization, overall 50% pregnancy rate was achieved. All pregnancies occurred within 1 year of procedure. When previous

sterilisation was done by laparoscopic route, after reversal all of them (100%) conceived while in those sterilised by Pomeroy's method the pregnancy rate after reversal was only 16.6%.⁷

A retrospective study was conducted during 2000–2007 at KIMS, Hubli. It was reported that out of the 25 subjects who underwent tubal recanalization, 44 % of women conceived and they were below 35 years of age. Laparoscopically sterilized patients had better chances of conception (50 %) following reversal than those who were sterilized by Pomeroy's method (30 %). With post-reversal tubal length of less than 4 cm, pregnancy rate was 50 %. Isthmus–Isthmus and Isthmus–Ampullary anastomosis have 50 % success rates.⁴

Jindal *et al* reported 60% success rate, and according to that study, the results of macroscopic method were better than microscopic method.⁸ Isthmus of the tube is considered as an ideal site for sterilization, considering the need for its reversal.⁹ Jindal *et al.* reported a success rate of 80% for bilateral isthmio-isthmial anastomosis and 50% success for bilateral isthmio-ampullary anastomosis.⁸ Spare *et al.* reported 55% success for isthmio-isthmial anastomosis and 40% success for isthmio-ampullary anastomosis.¹⁰ In this series, the maximum success rate was seen in the age group of 20–24 years (62.5%) and the least in the age group of 35 years and above (17%). This shows that success rate of reversal of sterilization decreased as the age of woman advances. This is in accordance with other studies.^{4,11,12}

If the method of sterilization had been laparoscopic falope ring application, the success rate was highest at 75% for post-abortion laparoscopy, at 54.5% for interval laparoscopy and overall success rate being 60%. The pregnancy rate of reversal after laparoscopic tubal occlusion reported by Jindal *et al.* was 62.5%. If the previous sterilization was postpartum, the success rate was the lowest at 32%. While sterilization done concurrent with LSCS had a success rate of 44%.⁸

CONCLUSION-

Laparoscopic tubal re-canalization surgery provides a ray of hope to women who have lost their children following accident or disease. The success rate of laparoscopic re-canalization is higher than conventional laparotomy. Success of re-canalization depends on many factors like condition of the tubes during surgery, length of the tube after anastomosis, condition of fimbria and skill of operating surgeon. Age of the woman, ovarian function, uterine pathology and quality of semen also determine the success of tubal re-canalization surgery.

TABLES

Table 1- Showing Profile Of Women Undergoing Tubal Re-canalization

Sr. No	General information	No. of cases (%)
1	Age group of women	
	Below 20	00(00%)
	20-25	06(30%)
	26-30	07(35%)
	Above 30	07(35%)
2	Number of living children at the time of re-canalization	
	0	07(35%)
	1	10(50%)
	2	03(15%)
	3 or more	00(00%)
3	Method of sterilization procedure	
	Mini lap/ During Caesarean Laparoscopy	08(40%) 12(60%)
4	Time since sterilization procedure	
	Up to 3 years	09(45%)
	3-6 years	07(35%)
	More than 6 years	04(20%)
5	Duration of follow up following re-canalization	
	Up to 2 years	06(30%)
	2-4 years	10(50%)
	More than 4 years	04(20%)

Table 2- Showing Indication/reason For Re-canalization Surgery

Sr. No	Indication/Reason	No. of cases (%)
1	Death of male child	2
2	Death of all children	2

3	Child died due to road traffic accident	2
4	Child died due to drowning	2
5	Child died due to snake bite	1
6	Child died due to brain tumour	1
7	Child died due to infectious disease	2
8	Child developed serious neurological/cardiac problem	3
9	Desire for additional child	3
10	Decision of re-marriage	2

Table 3- Showing Site Of Tubal Anastomosis And Pregnancy Rate

Sr. No	Site of tubal re-anastomosis	No. of cases (%)	Success Pregnancy rate
1	Cornual implantation	01(5%)	00 (0%)
2	Cornuo- Isthmic	02(10%)	01 (50%) Ectopic
3	Isthmo-Isthmic	09(50%)	08 (89%) 1 abortion
4	Isthmo-Ampullary	06(20%)	03 (50%)
5	Ampulo -Ampullary	02(15%)	02 (100%) 1 abortion

Table 4- Showing Outcome Of Re-canalization Surgery

Sr. No	Return of fertility	No. of cases (%)
1	Full term delivery	07 (35%)
	Vaginal delivery	05
	Caesarean section	02
2	Preterm vaginal delivery	04 (20%)
2	Spontaneous abortion	02(10%)
3	Ectopic pregnancy	01(05%)
4	Tubes patent but no conception	04(20%)
5	Tubal blockage	02(10%)

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