



Original Research Article

Tubal recanalization following sterilization in the era of IVF

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ABSTRACT

Introduction: Female sterilization remains the most popular contraceptive method among young Indian women. Among the age group of 15-49, 36% use female sterilization as contraception method. Early marriage, sterilization at young age, high infant and child mortality has led to increase in the need of recanalization in 1-3% of women.

Objective: To analyze the factors affecting the success rate following recanalization

Materials and Methods: A retrospective study done at LGH attached to KMC Mangalore during 2012 to 2017

Results: During the study period 30 subjects underwent tubal recanalization. 14 subjects (47%) conceived. Among the women conceived, laparoscopically sterilized had better chance of conception (78.5%) as compared to pomeroys (21.5%) technique. Residual length of the tube was more than 5cm among the women who have conceived. 2 subjects had ectopic pregnancy. Out of 14 subjects who conceived, 12 subjects (84%) had their sterilization operation within 5 years. 11 subjects (78.57%) conceived within 1 year of recanalization.

Conclusion: It is not feasible for women of low social economic status to undergo IVF following sterilization if need arises. There is definite role of tubal recanalization following sterilization even in present era of IVF in our country. Women with low parity should be motivated to undergo Laparoscopic sterilization, as tubal damage is less and success rate following recanalization is much better. Nulliparous and primi parawomen should be motivated to use temporary method of contraception.

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1. Introduction

Female sterilization is the most common contraceptive method followed by young Indian women. According to National Family health survey-4 report, female sterilization accounted for 36% of all methods of contraception used in our country. More than 45.5% of women undergoing sterilization belong to young reproductive age group of 20-25 years.¹ Many young women belonging to low socio-economic status opting for sterilization due to influence of economic compensation given by government for the procedure. Due to high infant and child mortality, remarriage 1-3% of these women subsequently demand reversal of sterilization.¹ The traditional treatment for tubal reversal is microsurgical tubal reanastomosis through

laparotomy. Microsurgical tubal reanastomosis helps young couples in regaining the chance of natural conception and gives the opportunity to have more than one pregnancy from a single surgery. The pregnancy rate following tubal recanalization results has greatly improved after the introduction of microsurgical techniques and the principle of gentle tissue handling in the early 1970s. This study aims to analyze the factors affecting outcome of pregnancy following recanalization, using principles of microsurgery done in minimal resource setting.

2. Materials and Methods

A cross sectional study was carried out in Government Lady Goschen Hospital attached to KMC Mangalore. Study duration was 5 years, from 1st January 2012 to 31st December 2016.

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Women who had undergone recanalization during the study period were included.

2.1. Inclusion criteria

Women who had undergone recanalization during study period and had come for follow up.

2.2. Exclusion criteria

Women who had undergone recanalization during study period and had lost follow up.

Data recruited from the medical records.

2.3. Statistical analysis

SPSS version 17.0 will be used for analysis; $P < 0.05$ will be considered as significant

2.4. Tubal recanalization procedure

The informed written consent was taken from all subjects after explaining the risks and benefits of the surgery to the couple.

The tubal recanalization procedure was performed by Laparotomy under spinal anesthesia Principles of microsurgery were meticulously followed throughout. Loupe or microscope was not used. Fibrosed segment of medial and lateral ends of the tubes resected. Patency of tubes checked using methylene blue dye. End to end a anastomosis of tube was done using 5-0 prolene or vicryl depending on availability. Four sutures at 12' 6' 3' and 9 o clock taken. Mesosalpinx approximated. Tissues were kept wet using continuous irrigation by ringer lactate solution. Patients were asked to resume their coital activity one month after surgery. Patient s were asked to follow up if missed their menses or unable to conceive in one year.

2.5. Outcome measure

Outcome measures studied were the technique of sterilization performed previously, interval between sterilization and reversal procedure. Residual tubal length following recanalization assessed. Outcome of pregnancy studied in the form of vaginal delivery, caesarean, ectopic, abortion, condition of other tube if done unilaterally, presence or absence of adhesions noted.

Table 1: Conception rate

| Yes | 14 (47%) |
|-----|----------|
| no | 16 (53%) |

Among the 30 women who underwent recanalization, 14(47%) conceived.

Table 2: Age distribution

| Age | No of cases | Conceived |
|-------|-------------|-----------|
| 20-25 | 4 | 2 (14%) |
| 26-30 | 16 | 9 (64%) |
| 31-35 | 6 | 1 (7%) |
| 36-40 | 4 | 2 (14%) |

Maximum women among conceived were between 26-30years. 2 of them were between 36-40years

Table 3: Type of sterilization

| Type of sterilization | No | Conceived (%) |
|-----------------------|----|---------------|
| Laparoscopic | 19 | 11 (78.5%) |
| Pomeroy's | 11 | 3 (21.5%) |

As the tubal damage is less with the laparoscopic procedure conception rate is better. Residual tubal length would be better following recanalization.

Table 4: Fertility outcome following recanalization

| | |
|-----------|----|
| FTND/LSCS | 10 |
| Ectopic | 2 |
| Abortion | 2 |

3 women had cesarean section, 2 had an ectopic pregnancy. 1 lady underwent emergency laparotomy for ectopic, other lady was managed with methotrexate. 2 spontaneous abortion were in first trimester.

3. Results

Thirty women, who underwent tubal recanalization and came for follow up during the study period were included in the study.

47% of women conceived among 30 who underwent recanalization (Table 1). Study subjects belonged to age group 20-40 yrs. Sixteen of them were between 26-30 yrs. Four women were between 36 to 40 years. Recanalization was done in these elderly women after explaining age related risk of chromosomal abnormalities in the baby. Death of a child was an indication for the surgery in these women. Two of them conceived and delivered healthy children (Table 2). Most of our women marry at young age and complete their family by 25 years. In spite of counseling for temporary methods of contraception, they opt for sterilization due to the benefits given by the government for the procedure. Unfortunately few of them demand recanalization. In the present study 86.66% subjects underwent recanalization due to loss of child. In ten percent remarriage was an indication. Among the conceived, 78.5% had undergone laparoscopic sterilization (Table 3). The duration of sterilization was less than 5yrs among 85.7%. Longer the duration, risk of fibrosis is more which might affect the success rate of surgery. 14 women had conceived in the present study. 7 had full term vaginal delivery. 3 had caesarean due to obstetric indication. 2 had spontaneous 1st trimester abortion, 2 had ectopic pregnancy. 78.5% conceived within 1 year of recanalization. Women should be counselled to resume her

Table 5:

| | Present study | Ramalingappa | Jayakrishnan | Vilvapriya | Jain and Jain |
|-----------------------------|---------------|--------------|--------------|------------|---------------|
| Conception rate | 47% | 44% | 58.8% | 46% | 60% |
| Laparoscopy | 78.5% | 50% | 85% | - | 68.8% |
| Pomeroy's | 21.5% | 30% | 40% | - | 40% |
| Indication (Death of child) | 86% | - | - | 74% | 70% |
| Residual length | <5cm (none) | >4cm (50%) | <5cm (none) | - | 8-10cm (83%) |

sexual activity after one month of surgery. Nine patients who had conceived did not have any adhesion due to previous surgery. 2 women who had ectopic pregnancy in the present study had adhesions due to previous surgery. Presence of adhesion is a risk factor for ectopic pregnancy. Among 14 who had conceived, recanalization was done bilaterally. Bilateral patency was observed intraoperatively in all the women conceived in the present study. Five women who had unilateral recanalization did not conceive in the study period. Residual tubal length varied from six to eight centimeter in women who had conceived in the present study.

4. Discussion

In the present study the most common indication for recanalization is death of a child. In a study by Jain et al² and Vilvapriya et al³ indication for recanalization was death of children followed by remarriage.

The overall conception rate was 47% in the present study, 58.8% in Jayakrishnan et al⁴ study. Recanalization following laparoscopic sterilization (78.5%) had a better conception rate compared to pomeroy's method (21.5%). Conception rate following recanalization in a laparoscopic sterilization was 50% in Ramalingappa et al⁵ and 85% in Jayakrishnan study. Recanalization to conception interval was less than 1 year in 78.57% in present study, 80% in Jain et al study. Residual tubal length is one of the important factor predicting the outcome of surgery. Tubal length was more than five centimeters in all women conceived in the present study. Pregnancy rate was 50% if tubal length was more than 4cm in Ramalingappa et al study. None conceived if residual tubal length was less than 5cm in Jayakrishnan et al study. Conception rate was 83.3% with residual length of tube 8-10cm in Jain et al study. Pregnancy rate was 85.7% in women who had sterilization to recanalization interval of less than 5 years. Conception rate was 77.27% in women who had sterilization to recanalization interval of less than 2 years in Jain et al study.

Suture material used for anastomosis in the present study was 5-0 prolene or vicryl. In Ramalingappa et al and Jain et al study, suture material used was 8-0 prolene.

5. Conclusion

Due to high cost and nonfeasibility of IVF, there is definite role of tubal recanalization following sterilization even in

present era of IVF in our country. Overall live birth rates range widely from 20-35% per cycle in IVF. Risk of hyperstimulation, multiple pregnancy and limited number of attempts in IVF make woman prefer to undergo reversal of sterilization in our country. Tubal reversal is more cost effective option. Pregnancy outcome of tubal reversal is better than from IVF technique. In our study, important factors affecting the success of recanalization procedure were, method of previous sterilization, duration between sterilization and recanalization procedure, presence of adhesions and residual tubal length. Women with low parity should be motivated to undergo Laparoscopic sterilization as success rate following recanalization is much better. Nulliparous and primipara women should be motivated to use temporary method of contraception.

5.1. Implications

This study will add to the existing data. Our own data will help us to counsel the patient in a better manner.

6. Source of finding

None.

7. Conflict of interest

Author declares that she has no conflict of interest

8. Knowledge gap identified

This study will help us to motivate young women to use long acting temporary contraception instead of permanent method.

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