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Research Article

11 year retrospective study of tubal reanastomosis by microsurgical technique

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ABSTRACT

Background: Tubal reanastomosis is a procedure to anastomose the cut ends of the fallopian tube. Laparotomy is the most frequently used microsurgical technique for this reversal, with results showing intrauterine pregnancies ranging from 50 to 80% and a rate of ectopic pregnancy less than 5% in these series. The objective of this study was to determine the pregnancy rate and live birth rate achieved through laparotomy tubal reanastomosis.

Methods: Data from 152 consecutive laparotomy tubal reanastomosis procedures done between January 2004 and December 2014 were retrospectively analyzed. All procedures were performed by the same surgeon by laparotomy using microsurgical instruments. The main outcome measures were: total pregnancy rate and live birth rate.

Results: Out of 152 women, who were willing for reversal operation, 4 had fimbriectomy, 8 had residual tube length <4 cm. Remaining 140 patients underwent tubal reanastomosis. 2 patients died, 2 patient's husband died, 22 patients were lost to follow-up, and 9 are still in follow up period. Hence 105 patients were analyzed. Total pregnancy rate was 82.8% and live birth rate 73.3%.

Conclusions: Tubal reanastomosis by laparotomy with microsurgical instruments results in a satisfactory pregnancy rate.

Keywords: Tubal reanastomosis, Microsurgery, Laparotomy

INTRODUCTION

Tubal reanastomosis is a procedure to anastomose the cut ends of the fallopian tube. Laparotomy is the most frequently used microsurgical technique for this reversal, with results showing intrauterine pregnancies ranging from 50 to 80% and a rate of ectopic pregnancy less than 5% in these series.^{1,2} 1 to 5% of all sterilised women request sterilisation reversal at some point.^{3,4} Different techniques of tubal repair have been described, such as open and laparoscopic microsurgery, conventional laparoscopy, and robot-assisted surgery.⁵ The main objective of this study was to see the pregnancy rate and live birth rate achieved by laparotomy and microsurgical technique.

METHODS

This study is a retrospective study conducted in Karnataka Institute of Medical Science, Hubli, Karnataka, India between January 2004 and December 2014, 152 women who had undergone tubal sterilization and who wished to become pregnant again were submitted to a fertility exploration which included a pelvic ultrasound and a basal hormone assessment. A diagnostic laparoscopy was a part of the regular diagnostic work-up. The data required for the study was collected from the tubal reanastomosis register maintained in the department of obstetrics and gynecology, Karnataka Institute of Medical Science, Hubli, Karnataka, India.

Exclusion criteria

- Patients who had factors for infertility other than tubal
- Male factor infertility
- Residual tubal length <4 cms
- Fimbriectomy
- Age >40 years

Based on the above exclusion criteria, out of 152 women, who were willing for reversal operation, 4 had fimbriectomy, 8 had residual tube length <4 cm. Remaining 140 patients underwent tubal reanastomosis. 2 patients died, 2 patient's husband died, 22 patients were lost to follow-up, and 9 are still in follow up period. Thus 105 patients were analyzed.

Procedure

Magnification loupe was used. Continuous irrigation done with heparinized ringer lactate solution. Adhesions if present were removed electro surgically. Bipolar cautery/laser was used. The cut ends of occluded tube were identified. The fibrosed ends of medial and lateral segment of the tube were excised. Patency of tubes checked by injecting methylene blue dye. No stent was used. Anastomosis done by using 8-0 ethilon suture material for muscular is and serosa. Mesosalpinx was sutured with ethilon number 6-0. First bite was taken at 6 o'clock position. i.e. mesenteric border and later at 3 o'clock, 9 o'clock, 12 o'clock position. Serosa was approximated similarly. Patency was checked for after anastomosis. Steroid and antihistaminic coverage was given for 2 days postoperatively. Patients were discharged on post-operative day 3. Pregnancy was diagnosed by ultrasonography.

Ethical approval for this retrospective study was given by ethical committee of Karnataka Institute of Medical Science, Hubli, Karnataka, India.

RESULTS

All 105 patients had a minimal follow-up of 24 months. The mean time elapsed between sterilisation and reanastomosis was 84 months. Methods of sterilisation were modified Pomeroy's technique in 93 patients (66.5%), Falope ring in 47 patients (33.5%). The mean operating time for the total group was 75 minutes. Intraoperative tubal patency was 100%. Mean time between reanastomosis and pregnancy was 5 months. 2 patients died, 2 patient's husband died, 22 patients were lost to follow-up, and 9 are still in follow up period. We excluded these 35 subjects from the final analysis. Data from 105 women were thus available for the final analysis of the reproductive outcome after the laparotomy tubal reversal procedure. The clinical pregnancy rate was 82.8% (87/105). The ectopic pregnancy rate was 7.6 (8/105). The abortion rate was 5.7 (6/105). The live-birth rate was 73.3 (77/105). Of the 6 patients who had

abortion, 2 had intrauterine pregnancy and delivered at term. Of the 8 patients who had ectopic pregnancy, 2 patients had intrauterine pregnancy and delivered. 8 patients conceived twice.

Table 1: Age distribution.

Age group (years)	Percentage
<20	3
20-25	17
25-30	57
30-35	14
35-40	9

Table 2: Parity distribution.

Parity	Percentage
P1L1	14.5
P1L0	6
P2L1	50
P2L2	12
P2L0	7.5
>P3	10

P-para, L-living

DISCUSSION

A study compared laparoscopic tubal re-anastomosis to a laparotomy approach in a non-matched cohort study and reported overall pregnancy rates of 80% in both groups.⁶ In a large cohort of 1600 documented cases of tubal sterilization reversal, the overall intrauterine pregnancy rate was 64% and the ectopic pregnancy rate was 4%.⁷ Rodgers et al compared robotic surgery and outpatient mini laparotomy for tubal reanastomosis and reported that there were no advantages with robotic surgery when compared to outpatient mini laparotomy for tubal reanastomosis.⁸ Total pregnancy rate achieved in our study was 82.8% and live birth rate was 73.3%. Contributory factors for successful pregnancy outcome in our study were.

- Majority of the patients seeking reversal procedure were less than 35 years
- Only those who had residual tubal length >4 cms were included
- Fimbriectomised patients were excluded
- Mini laparotomy
- Microsurgical techniques used
- Majority had isthmo-isthmic and isthmo ampullary anastomosis
- Continuous irrigation of tissues
- Steroid and antihistaminic coverage postoperatively.

The limitation of this study was retrospective study, lacks the control group and those patients with tubal length of < 4 cm or with fimbriectomy have been excluded. 15% of the patients were lost to follow up.

CONCLUSION

Tubal reanastomosis by laparotomy is a cost effective method. Tubal reanastomosis by laparotomy has resulted in promising pregnancy rates and thus can be used in people who cannot afford laparoscopic or robotic surgeries or in-vitro fertilisation (IVF) after tubal sterilisation. It can also be used in places where laparoscopic and robotic surgeries are not available, yielding pregnancy rates better than or same as these techniques.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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