

## Correlation of prognostic factors and outcome of Microsurgical Tubal Recanalisation

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### Abstract:

**Objective:1)** To study the outcome of microsurgical tubal recanalisation.

2) To analyse the various factors affecting the pregnancy rate following microsurgical tubal recanalisation.

**Method:** It is a retrospective clinical study conducted on 45 women who underwent microsurgical tubal recanalisation at Adichunchangiri institute of medical sciences from January 2006 to June 2013.

**Results:** The overall pregnancy rate after microsurgical tubal anastomosis was 55.5% with 72% of live birth rate. Loss of only child was the main reason for requesting sterilisation reversal. Pregnancy rate was noted to be significantly more statistically in women aged <30 years, interval between sterilisation and reversal of <2 years, when post reversal tubal length >5cm and isthmo-isthmic type of anastomosis. Though the pregnancy rate was more 62.9% in women who underwent reversal after laparoscopic sterilisation when compared to Pomeroy's method 44.4% there was no statistical significance.

**Conclusion:** Microsurgical reversal of tubal sterilisation is a good option for patients who want a child for various reasons after tubal sterilization and cannot afford IVF. Those with least amount of tubal destruction had better chances of pregnancy. Laparoscopic sterilisation should be preferred during sterilisation procedure, ligation should be done at isthmus and good length of tube preserved.

**Key words:** Tubal recanalisation, reversal, pregnancy rate

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### I. Introduction

Tubal sterilisation is the most prevalent family planning method practised in our country. In 2009, 48.3% of married women were estimated to use a contraceptive method and about three-fourths of them were using female sterilization<sup>1</sup>. More than 45.5% women undergoing sterilisation belong to young reproductive age group of 20 to 25 years. Approximately 1% of these women subsequently seek reversal of procedure due to unforeseen circumstances<sup>2</sup>.

The gold standard for recanalisation has been microsurgical tubal recanalisation through laparotomy. Laparoscopy can be used as an alternative route but requires high expertise<sup>3</sup>. Though an option of in-vitro fertilisation is widely available but due to economic constraints people go for microsurgical tubal recanalisation as a first option.

### II. Objectives

1) To study the outcome of microsurgical tubal recanalisation.

2) To analyse the various factors affecting the pregnancy rate following microsurgical tubal recanalisation.

### III. Materials and Methods

It is a retrospective clinical study conducted on 45 women who underwent microsurgical tubal recanalisation in OBG department at Adichunchangiri institute of Medical Sciences from January 2006 to June 2013.

A detail history taking and examination was carried out before the operation. Apart from routine investigations required for a major surgery, baseline evaluation to rule out other contributing factors for infertility including husband's semen analysis was done.

Tubal anastomosis was performed bilaterally in all cases under magnification with microsurgical instruments. The occluded ends of tube was identified and resected till there was complete excision of pathological tissue. A two-layer closure using 6 '0' vicryl was performed. First bite was taken at 6 o'clock position, i.e., mesentric border and later at 3, 9, and 12 o'clock positions. Serosa was approximated similarly. Tissue handling was atraumatic and tissues were kept moist at all times by heparinised normal saline irrigation. Unipolar electrocoagulation was used for hemostasis. Patency checked after anastomosis by methylene blue test.

#### IV. Results

45 women undergoing sterilisation reversal by microsurgical technique were included in our study. At the time of surgery the mean age of women was 27.5 years. The youngest patient was 23 year old and the oldest was of 39 years of age. The main reason for seeking reversal was death of the only child in 66% cases followed by death of male child in 22%. 25 out of 45 (55.5%) women who underwent reversal conceived out of which 72% had live birth and 12% had ectopic pregnancy.

**Table1: Patient's profile and pregnancy rate**

Profile	No. of patients(n=45)	Pregnancy (n=25)	Percentage	Statistical analysis
<b>Age (years)</b>				
<25	6	4	66.6	p value= 0.078
26-30	20	15	75	
31-35	14	6	42.8	
>36	5	1	20	
<b>Interval between sterilisation and reversal(years)</b>				
<2 yrs	12	9	75%	p value=0.078
3-5 yrs	21	13	61%	
6-9 yrs	6	2	33.3%	
>10 yrs	6	1	16.6%	

**Table 2: Operative factors affecting pregnancy rate**

Operative factors	No. of cases(n=45)	Pregnancy (n=25)	Percentage	Statistical analysis
<b>Tubal length after recanalisation</b>				
<5cm	8	1	12.5%	p value=0.008
6-8cm	25	14	56%	
>9cm	12	10	83.3%	
<b>Site of anastomosis</b>				
Isthmo-isthmic	22	17	77.2%	p value=0.028
Isthmo-ampullary	18	7	38.8%	
Ampullo-ampullary	4	1	25%	
Cornu-isthmal	1	0		
<b>Sterilisation technique</b>				
Falope ring	27	17	62.9%	p value=0.824
Pomeroy's method	12	8	44.4%	

Pregnancy rate was 83.3% when final tubal length was >8 cm and only 12.5% when the tubal length was <5cm which was statistically significant. The patients who underwent isthmo-isthmic type of anastomosis had higher chances of pregnancy (77.2%) which was statistically significant when compared to other types of anastomosis. Pregnancy rate was 75% when the mean duration between sterilisation and microscopical reversal of tubal recanalisation was <2 years which was statistically significant. Though the pregnancy rate was higher (62.9%) in women who underwent reversal after laparoscopic sterilisation when compared to Pomeroy's method (44.4%) there was no statistical significance.

#### V. Discussion

The factors that dictate success or failure of tubal recanalisation are multiple in number. In our study the overall conception rate was 55.5%(25 out of 45 cases) of which 18 had live births(72%),4 had abortion and 3 cases were ectopic pregnancies. This is comparable to study by Kim et al where overall pregnancy rate was 54.8% with a delivery rate of 72.5%<sup>4</sup>. In study done by Jayakrishnan et al overall pregnancy rate was 58.8%<sup>5</sup>. In a similar study done by Jain et al overall 60% pregnancy rate was achieved<sup>6</sup>.

Majority of women seeking tubal recanalisation were in the age group of 25 to 30 years (44.4%) which is similar to study done by Biswas and Mondal 50.8%<sup>7</sup>. A higher conception rate of 73.5 % was seen in women under 30 years which is comparable to study done by Brar et al where fertility rate was 68%. A higher conception rate in younger women may be attributed to their greater fertility potential<sup>8</sup>.

Death of only child or all children was the commonest reason for reversal of sterilisation(66%) which coincides with the study by Jain et al where 70% of women sought reversal for death of all children<sup>6</sup>.

The pregnancy rate was 75% when reversal was done within 2 years. Kalaichelvi et al found that 87% of women conceived when recanalisation was done within a year of sterilisation and the success dropped to 16.6% when the interval was more than 10 years<sup>9</sup>.

In our study the commonest site of anastomosis was isthmo-isthmic 48% followed by isthmoampullary 40% which coincides with the studies by Brar et al and Biswas et al where the commonest type of anastomosis was isthmo-isthmic in 48% and 49% respectively<sup>7,8</sup>.

Pregnancy rate was 77% in isthmoisthmic anastomosis and 38% following isthmoampullary anastomosis. 2 cases of ectopic pregnancy was seen in isthmoampullary and 1 case in isthmo-isthmic anastomosis. 72% intrauterine pregnancies were seen in women who underwent isthmo isthmic anastomosis which is similar to study by Kalaichelvi et al where 76.2% intrauterine pregnancies were seen in women with isthmo isthmic anastomosis<sup>9</sup>.

In our study about 82.2% women had final tubal length of >6cm. The pregnancy rate was 83.3% when tubal length was >8 cm and only 12.5% when it was <5 cm. Jain et al confirmed the importance of reconstructed tubal length where 83.3% pregnancy rate was noted when tubal length was >8 cm<sup>6</sup>

## **VI. Conclusion**

The factors of successful tubal recanalisation were age <30 years, the interval between sterilisation and reversal <2 years, site of anastomosis being isthmo-isthmic and length of tube >5 cm.

With the shift away from microsurgical training, the treatment trend appears to be increasingly towards IVF; however, surgery is still the preferred choice of treatment for selected cases and in those who cannot afford IVF.

Since any women undergoing sterilisation can become a candidate for reversal, laparoscopic sterilisation should be preferred, ligation should be done at isthmus and good length of tubes preserved.

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