

Open Tube Recanalisation for Those Planning Pregnancy after Tubectomy: Prospective Study

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Abstract:

Background: Tubectomy is permanent method of contraception and its about 10% people after tubectomy regret their decision and 1% want restore their fertility.

Aim: To evaluate the pregnancy rate and analyse various factors affecting pregnancy after tubal recanalisation.

Material and Methods: A prospective study was carried out on 61 patients for tubal recanalisation in the Obstetrics and Gynaecology Department of S.M.S. Medical College, Jaipur from June 2021 to May 2022. Out of which 9 patients conceived.

Results: Success rate of recanalisation is nearly 10%. Patient have better chances who have age <35yr, post reversal tubal length >4cm, gone through laproscopic sterilisation has better success rate.

Conclusion: Open tubal recanalisation remains feasible option for those planning pregnancy after tubectomy.

Keywords: Tubectomy, Contraception, Recanalisation, Sterilization.

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Introduction

In India, in a desire to limit the number of children due to various socioeconomic factors and as a family planning is often synonymous with tubal sterilization, without giving a thought on various spacing like intrauterine devices and also due to preconceived fears and myths about these methods, even young women in their twenties are opting for tubal sterilization,[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, loss of children in natural calamities, remarriage and other socioeconomic factors[3]. So they had the option of either opting for artificial reproductive techniques or going for tubal recanalization surgeries.

In recent years there is a trend for using more of ART techniques and laparoscopic techniques while training in microsurgery has taken a backseat. With booming ART technology many are opting for this option

but cost, ability to achieve more than one pregnancy are some of advantages of tubal recanalization surgery [4].

Although laparoscopic recanalization has taken over conventional open microsurgical recanalization in west [5]. Because of cost and technical restraints involved this procedure remains affordable to a few of privileged in India. According to US CREST study, of all women wishing for reversal only 1% actually had the procedure done [6]. This is because of the unavailability of the services, technical expertise needed, high cost, fear of surgery, fear of failure of procedure. The scenario is still worse in developing country.

Aim & Objectives

This study was done to find whether open method of tubal recanalization while following the principles of microsurgery can still be an option as it is done in minimal resource setting with minimal training in principles of microsurgery giving hope to many women who would have otherwise remained childless. Another motive of this study is to calculate the pregnancy rate after tubal reanastomosis and also to study various factors which affect conception rate.

Material and Methods

This is prospective observational study was conducted in the Department of Obstetrics and Gynaecology at S.M.S. Medical College, Jaipur in the period between June 2021 and May 2022. Patients who wants reversal of sterilization were investigated and operated for tubal recanalisation and were further followed up for the conception.

Inclusion Criteria:

1. women with history of sterilization
2. women who want further pregnancy
3. women with remarriage
4. women with no live issues

Exclusion Criteria:

1. women with age >40years

2. women with endometriosis
3. women with male factor infertility
4. women with premature ovarian failure
5. women with previous tubal surgeries

An informed verbal and written consent was taken from all patients after full clarification about the nature of the operation, advantages and probable complications. Enrolled patients underwent thorough history taking, clinical examination. A detailed history with special reference to reason for reversal, duration of sterilization, type of sterilization was taken. Before the procedure thorough counselling of husband and wife was done with regard to surgery, its outcome and success rate. All baseline investigations were done to rule out other causes of infertility in both the partners.

Before including patients in the study ethical committee clearance was taken and informed consent of the patients was obtained.

Procedure: The procedure is normally performed on the 8/9/10th day of a women's menstrual cycle. Through laparotomy incision abdomen is accessed. The ends of occluded tube were identified. The fibrosed end of the tube was excised. Continuous irrigation with heparinized ringer lactate solution was used to prevent formation of adhesions. Haemostasis was achieved by precise electro coagulation by bipolar cautery. Patency checked for by injecting methylene blue dye. Anastomosis was done by 6-0 vicryl suture material for muscularis. First bite was taken at 6 O'clock position, i.e., mesentric border and later at 3, 9, and 12 O'clock positions. Mucosa was avoided. Sutures were taken in such a way that knots faced the serosa. Serosa was approximated similarly. Mesosalphinx was sutured with vicryl no. 6-0. Patency checked after anastomosis. When dye leakage was present at anastomosis site additional sutures were taken. Final length of the reconstructed oviduct was measured on each side and noted. Average duration of

surgery was 40 minutes. Blood loss was minimal. Postoperative period was uneventful and patients were followed up at one, 6 month and 1 year.

Results:

A total of 61 women undergoing sterilization reversal were included in the study. Tubotubal anastomosis was done bilaterally in all patients. Patency of tube when determined by dye test was seen in all cases. Out of 61 women posted for tubal recanalization 9 women conceived giving a pregnancy rate of 14%. All were intrauterine pregnancies.

In spite of successful reanastomosis and patency of tube 15 women did not conceive.

To analyse various factors which affect pregnancy rate we divided the patients into groups and studied the factors of each one and compared their results.

Of the 61 subjects who underwent tubal recanalization, 14 % of women conceived and they were <30 years of age. Laparoscopically sterilized patients had better chances of conception (45%) following reversal than those who were sterilized by Pomeroy's method (10 %). With post-reversal tubal length of >4 cm, pregnancy rate was 40%. Isthmus-Isthmus and Isthmus-Ampullary anastomosis have 40 % success rates.

Table 1: Maternal Characteristics

Age		Conceived
Age group	Total patients=61	Total patients 61
25-30	21	8
30-35	30	1
>35	9	0

Table 2: Method of tubal ligation

Method	Total no of patients=61	Conceived
Modified pomeroys technique	37	2
Laparoscopic sterilisation	24	8

Table 3: Tubal length

Tube length	Total no of patients=61	Conceived
<4cm	32	1
>4cm	29	8

Table 4: Type of anastomosis

Type of anastomosis	Total no of patients=61	Total no of patients conceived
Isthmoisthmic anastomosis	13	1
Isthmoampullary anastomosis	27	3
Ampulloampullary anastomosis	21	5

Table 5: Outcome

Outcome	Total no of patients=61
Conceived spontaneously	9
Not conceived	15
Ectopic	4
Abortion	5
Follow up	28

Discussion

In our study there were various factors which affected the success of recanalization procedure like age of the patient, method of previous sterilization, duration between sterilization and recanalization procedure, site of anastomosis, the presence of adhesions, and post-operative tubal length. We found that the chances of conception reduce significantly as the age of the patient increases. None of the patients conceived after 35 years of age. The rate of ectopic pregnancy increases after sterilization reversal procedure. In our study, 5 pregnancies out of 61 resulted in ectopic. It is worth remembering that sterilization

that isthmus-to-isthmus anastomosis and isthmus-to-ampullary anastomosis resulted in 50 % pregnancy rate. In isthmus-to-isthmus anastomosis resulted in pregnancies in 45.33 %, and ampullary-to-ampullary anastomosis in 42.85 %, and isthmus-to-ampullary anastomosis resulted in 10 % pregnancy rate.

The two most widely used methods of sterilization in our country are laparoscopic sterilization where Falope ring is used, and the other is Pomeroy's method. In our study, laparoscopically sterilized patients had better chances of conception (50 %) following reversal than patients who were sterilized by Pomeroy's method (10 %). Similarly, patients with Falope ring showed comparatively better results (45 %) than Pomeroy's (10 %). Laparoscopic sterilization results in minimal injury to the tube and hence the chances of conception are better.

Hence, during sterilization, a surgeon should always keep the following in mind:

Site of occlusion—isthmus.

Loop should be of less than 1.5 cm in length.

Laparoscopic sterilization is preferred.

Precautions to be taken to prevent adhesions.

itself predisposes to ectopic pregnancy in case of failure of sterilization up to 7–16 %.

Among various factors that affect the success, the length of the tube after recanalization is the most important one. In our study, when the post reversal tube length was >4 cm, the pregnancy rate was 50 % but nil when the post recanalization tubal length was <4cm. The pregnancy rate being 83.33 % with 8–10 cm post-surgical tube and 9.09 % with <4 cm tube remaining after surgery.

Some important studies have suggested that isthmus-to-isthmus anastomosis has the best chances of conception. This is also proved in our study. Our results showed

Recently, tubal sterilization reversal has been done by laparoscopic procedure using titanium staples [7], with one-suture technique [8], on outpatient basis. Though laparoscopic recanalization of the tubes provide few advantages over laparotomy yet they are still in the preliminary phase and not time tested.

Young women sterilized using rings or clips and women having no other infertility factors have the best surgical prognosis; success rate are lower for older women, those sterilized by cautery and women with other infertility factors. Although conception rates are quite good (45%) after microsurgical tubal anastomosis in properly selected candidates, IVF is a legitimate alternative to surgery, particularly to older women, those with a poor surgical prognosis or preferring to avoid surgery, and women who desires only one additional pregnancy.

Conclusion

The fundamental operation for reversal of a tubal sterilization is a microsurgical anastomosis. Success of the procedure depends on extent of tubal destruction and length of the repaired tubal segments. When the couple experience the death of a child or if they divorce or remarry following death of husband, they may wish

to be able to have another child. The availability of microsurgical recanalization procedures would bring hope who are in need of these services and would improve the confidence of clients who are acceptors of voluntary sterilization.

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