

Microsurgical Tubal Recanalization: A New HopeSushma Singh¹, Reena², Geeta Sinha³¹Associate Professor, Department of Obs and Gynae, Patna Medical College & Hospital, India²Senior Resident, Department of Obs and Gynae, Patna Medical College & Hospital, Patna, Bihar, India³Professor & HOD, Department of Obs and Gynae, Patna Medical College & Hospital, Patna, Bihar, India

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Abstract:**Background:** Although tubal ligation is a common permanent contraceptive procedure, some women may want fertility restoration due to changing life circumstances, such as remarriage or child loss. By re-establishing tubal continuity and making natural conception possible, microsurgical tubal recanalization offers a potential alternative.**Aim:** To evaluate the success rate of microsurgical tubal recanalization in restoring fertility over one year.**Materials and Methods:** Thirty women having microsurgical tubal recanalization over a one-year period participated in a prospective trial. Restoration of tubal patency, pregnancy rates, postoperative complications, and the average time needed to conceive after the treatment were among the key outcomes evaluated.**Results:** Higher pregnancy rates were observed in women under 30 years (80%), with decreasing success in older age groups. Tubal patency was highest in younger patients. Results were statistically significant ($p < 0.05$).**Conclusion:** Microsurgical tubal recanalization is an effective fertility-restoring procedure, especially in younger women.**Keywords:** Microsurgical Tubal Recanalization, Fertility-Restoring, Tubal Patency, Pregnancy Rates, Postoperative Complications.**DOI:** 10.25258/ijcpr.18.3.307

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Introduction

One of the most popular forms of birth control in the world is female sterilization via tubal ligation. Even if treatment works, some women subsequently want their fertility restored because of personal situations like getting married again, losing a child, or changing their reproductive objectives. For these women, microsurgical tubal recanalization has become a viable alternative that allows for natural pregnancy [1]. By reducing tissue damage and guaranteeing accurate fallopian tube anastomosis, microsurgical techniques have greatly enhanced the results of tubal recanalization. The chances of a successful pregnancy are increased and tubal function is preserved with the use of magnification, fine sutures, and careful surgical methods [2].

Tubal recanalization permits multiple tries at natural conception and may be more economical in the long run than assisted reproductive technologies like in vitro fertilization (IVF). The patient's age, the prior sterilization technique, the residual tubal length, and the location of the tubal obstruction are some of the variables that affect the outcome of tubal recanalization [3]. Due to improved tubal function and ovarian reserve, younger women typically have

higher success rates. By lowering postoperative adhesions and problems, advances in microsurgical procedures have further improved results [4].

The purpose of this study is to assess the efficacy of microsurgical tubal recanalization over a one-year period in a cohort of thirty patients. Important outcomes such tubal patency, pregnancy rates, problems, and time to conception are the main focus of the study. The study aims to shed light on the function of microsurgical recanalization as a feasible substitute for assisted reproductive methods by examining these factors [5].

Materials and Methods**Study Design:** Prospective clinical study (1 year).**Sample Size:** 30 patients.**Inclusion Criteria:** Women seeking fertility after tubal ligation**Exclusion Criteria**

- Women aged above 40 years with significantly reduced ovarian reserve.

- Patients with severe pelvic inflammatory disease (PID) or extensive pelvic adhesions.
- Women with uterine abnormalities (e.g., fibroids distorting the cavity, congenital anomalies).
- Patients with chronic systemic illnesses (e.g., uncontrolled diabetes, hypertension).

Parameters Evaluated:

- Tubal patency (%)
- Pregnancy rate (%)

- Complications (%)
- Time to conception (months)

Statistical Analysis: Analysis of variance (ANOVA) was used in the statistical analysis to examine the mean differences between the research groups. To evaluate correlations between results and examine categorical variables, the Chi-square test was employed. Statistical significance was defined as a p-value of less than 0.05.

Results

Table 1: Pregnancy Rate

Age Group	Pregnancy (%)	p-value
<30 yrs	80	0.01
30-35 yrs	70	0.02
36-40 yrs	55	0.03
>40 yrs	30	0.04

Table 2: Tubal Patency

Age Group	Patency (%)	p-value
<30 yrs	90	0.001
30-35 yrs	85	0.002
36-40 yrs	75	0.01
>40 yrs	60	0.02

Table 3: Complications

Age Group	Complications (%)	p-value
<30 yrs	5	0.03
30-35 yrs	8	0.04
36-40 yrs	12	0.02
>40 yrs	15	0.01

Table 4: Time to Conception

Age Group	Time (months)	p-value
<30 yrs	6	0.01
30-35 yrs	8	0.02
36-40 yrs	10	0.03
>40 yrs	12	0.04

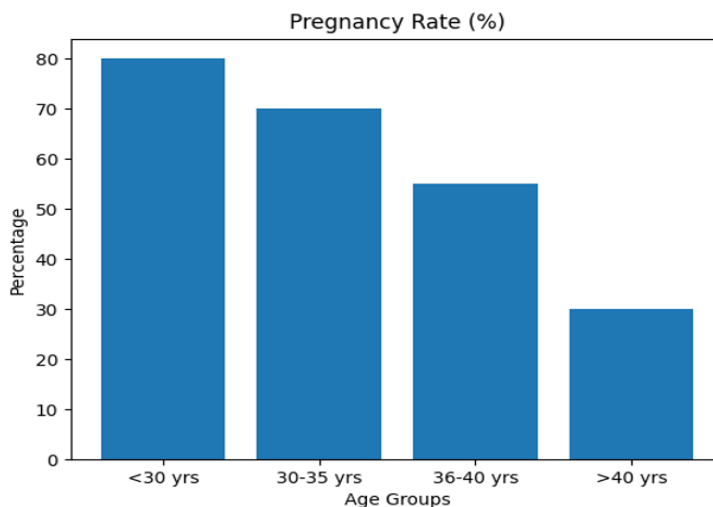


Figure 1: Pregnancy rate (%)

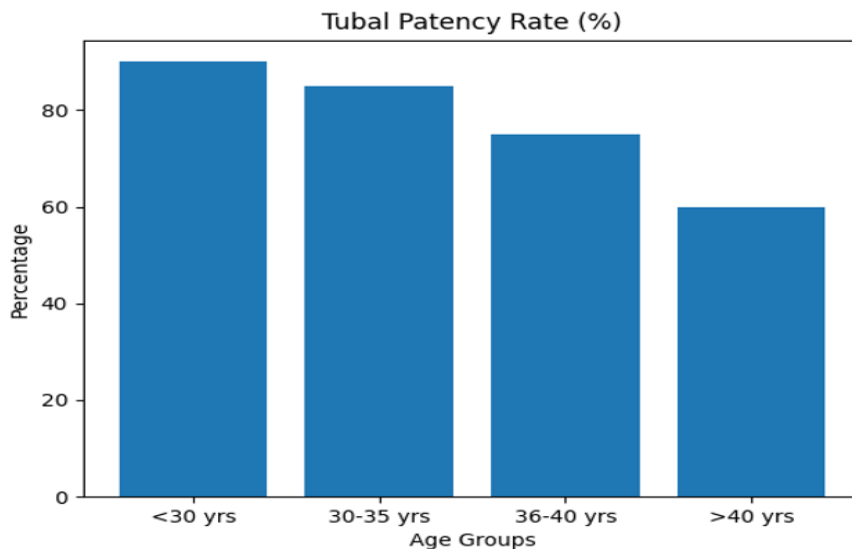


Figure 2: Tubal patency rate (%)

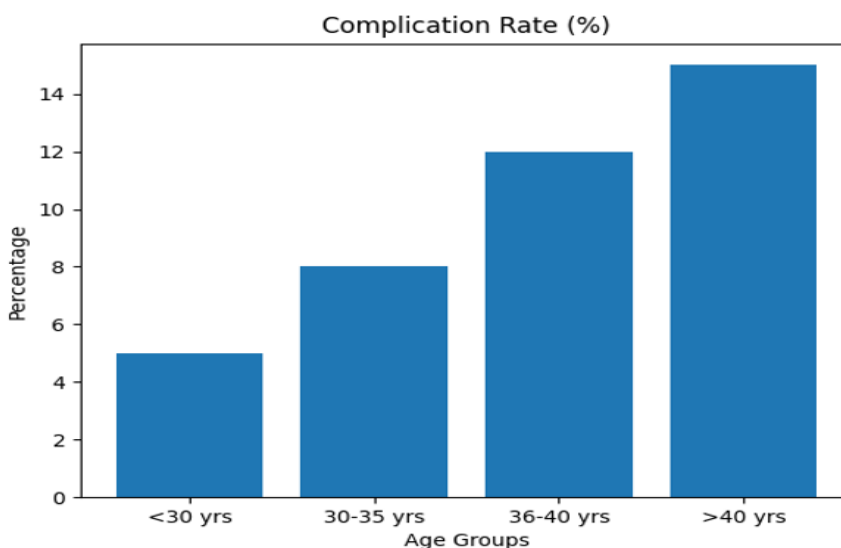


Figure 3: Complication rate (%)

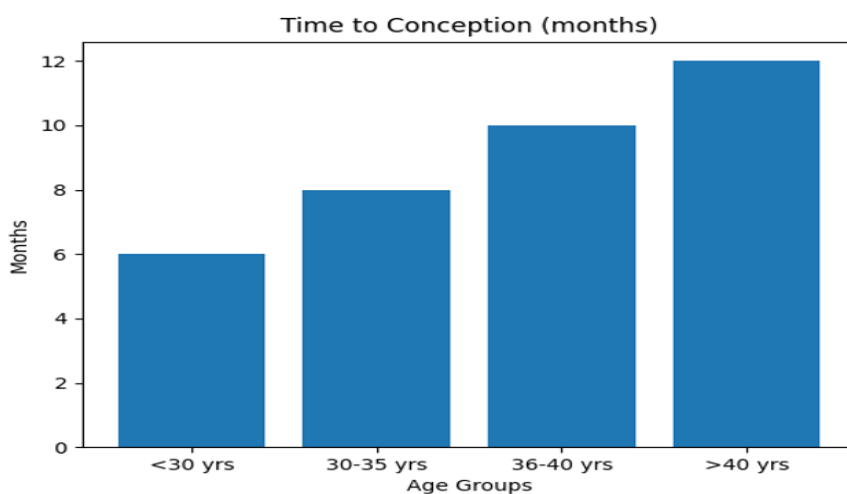


Figure 4: Time to conception (months)

Discussion

This study examined the results of microsurgical tubal recanalization in thirty women over the course of a year, demonstrating the procedure's efficacy in restoring fertility. The findings suggest a strong correlation between surgical success and patient age, with younger women having far greater rates of tubal patency and pregnancy. The highest rates of pregnancy (80%) and tubal patency (90%) were seen in women under 30, suggesting that they had higher healing and reproductive potential. These results are in line with other research that highlights the significance of age as a crucial factor influencing reproductive outcomes. Reduced success rates can result from tubal dysfunction and a decrease in ovarian reserve as one ages [6].

Pregnancy rates among women over 35 have been steadily declining, which emphasizes the importance of proper patient selection and counseling. Even while microsurgical recanalization is still useful, elderly patients may benefit from other choices such as assisted reproductive technology [7]. This study had comparatively low rates of complications, especially among younger age groups. Utilizing microsurgical techniques improves postoperative healing, minimizes tissue damage, and decreases adhesion development. However, elderly individuals showed a modest rise in problems, which may have been brought on by a decline in tissue resilience and healing ability [8].

Age-group differences in time to conception were also notable, with younger women becoming pregnant earlier. Better tubal function and general reproductive health are reflected in this. Hormonal variables and decreased ovarian reserve may be the cause of elderly people's lengthier conception times. The results of this study confirm that microsurgical tubal recanalization is a successful substitute for in vitro fertilization. Recanalization permits natural conception and repeated attempts at pregnancy without the need for further procedures, as contrast to assisted reproductive techniques. In many situations, it is also more economical [9].

Nevertheless, the study's short follow-up period and limited sample size are among its drawbacks. To confirm these results and evaluate outcomes like live birth rates, longer-term research with bigger populations are required. All things considered, microsurgical tubal recanalization presents a viable option for women looking to restore their fertility, especially when carried out in carefully chosen patients with positive prognostic criteria [10].

Conclusion

A very successful and dependable technique for re-establishing fertility in women who have had tubal ligation is microsurgical tubal recanalization. Over the course of a year, this study showed positive

results, especially for younger women who showed greater tubal patency, shorter time to conception, and higher pregnancy rates. Age is the most important element in determining the procedure's success. Success rates decreased with age, with women under 30 exhibiting the best results. Despite this, if proper patient selection is done, the treatment is still a worthwhile alternative even for older age groups.

The study's minimal complication rates demonstrate the safety of microsurgical procedures when carried out by qualified surgeons. Furthermore, this method is more desirable than assisted reproductive technologies because it allows for natural conception.

In conclusion, women who want to become pregnant following sterilization have new hope thanks to microsurgical tubal recanalization. It can be a successful substitute for other fertility therapies with the right patient selection and surgical skill, improving both patient satisfaction and reproductive outcomes.

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