

Case Report**Pregnancy after Successful Fallopian Tube Recanalization****Eka Rusdianto Gunardi^{1,2}, Trisha Alya Rahmi², Nur Fitri Fadila²**¹ *Department of Obstetrics and Gynecology
Faculty of Medicine Universitas Indonesia*² *Medical Staff Dr Cipto Mangunkusumo General Hospital
Jakarta***Abstract**

Objective: To report a pregnancy that ensued following the successful recanalization of a previously sterilized fallopian tube. The novel aspect of this report is its demonstration of a successful intrauterine pregnancy post-recanalization, despite a prior ectopic pregnancy resulting from tubal sterilization.

Methods: Case report

Case: A 35-year-old woman successfully conceived after the recanalization of a previously sterilized fallopian tube. It is noteworthy that she had previously experienced an ectopic pregnancy due to the tubal sterilization procedure.

Conclusion: This case study highlights the potential for successful pregnancy following fallopian tube recanalization, even after an ectopic pregnancy caused by a prior sterilization procedure. This report underscores the complexity of reproductive outcomes in these scenarios.

Keywords: fallopian tube recanalization, pregnancy, tube sterilization.

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INTRODUCTION

Tubal sterilization is a commonly chosen method of permanent contraception among women of childbearing age. The significance of informed consent in this procedure cannot be overstated. It is vital to underscore that tubal sterilization is an irreversible operation and not designed for reversal.^{1,2} The procedure involves the surgical cutting, tying, or blocking of the fallopian tubes to prevent pregnancy. By hindering the ascent of sperm through the fallopian tubes to the egg and obstructing the passage of eggs from the ovaries through the tubes, conception is effectively inhibited. The cumulative 10-year failure rate of tubal sterilization ranges from 7.5 to 18.5 pregnancies per 1,000 sterilization procedures^{3,4}

Fallopian tube recanalization (FTR) is a proven and secure procedure tailored for women experiencing fallopian tube obstruction. Previous

studies have shown that recanalization after tubal sterilization occurs at a mean interval of 6.10 years (SD 4.0; range 1–16). The main reason for seeking reversal of sterilization was the death (65.5%) or disability (6.9%) of one or more children.⁵ In the remaining 27.6%, a second marriage was the reason for reversal of sterilization. The technique of fallopian tube recanalization was introduced in 1987.⁶ Interventional tubal recanalization or fallopian tube recanalization (FTR) is a highly effective procedure for treating proximal tubal obstruction with technical success rates as high as 90%, with intrauterine pregnancy rates of 20-60% and 50% of pregnancies occurring within one year after recanalization.⁷ The aim of this case is to demonstrate the success of a woman who achieved spontaneous intrauterine pregnancies following the Pomeroy technique of tubal sterilization, due to a subsequent tubal recanalization.

CASE

A 35-year-old woman presented to the obstetrics and gynecology outpatient clinic at YPK Hospital, Jakarta, Indonesia, seeking to conceive after a 5-year history of tubal sterilization performed using the Pomeroy technique. The patient has three children, with previous Cesarean sections conducted in 2012, 2014, and 2016 at a private hospital in Central Java. Shortly after the sterilization, the patient divorced and subsequently remarried.

Prior to recanalization, the patient underwent HSG (hystero-salpingo-graphy) examination and showed nonvisualized both fallopian tubes and the levo-retroflexed position of the uterus. Isthmi-Isthmica recanalization through laparotomy surgery will be carried out in June 2021 and both tubes are declared patent. In this patient, laparotomy was performed due to the limitations of laparoscopic equipment. The patient was asked by the doctor to do a post-recanalization HSG, but the patient did not do it.

On April 20th, 2022 she complained of acute abdominal pain not accompanied by vaginal bleeding. The patient at that time did not realize that she was pregnant. The patient at that time was at work and experienced severe abdominal pain, then the patient was taken to Hermina Daan Mogot Jakarta Hospital and an ultrasound was performed with the result of a ruptured ectopic pregnancy. The patient underwent an emergency salpingectomy laparotomy in one of the fallopian tubes and the patient was discharged in good condition.

In February 2023, she revisited the obstetrics and gynecology outpatient clinic with the chief complaint of amenorrhea with a positive result of home pregnancy test. An ultrasound confirmed the pregnancy, revealing a gestational sac and fetal heart rate. The patient gave birth to a healthy baby girl by cesarean section on October 26th, 2023.

DISCUSSION

Tubal sterilization is a common method of contraception preferred by women of childbearing age who desire permanent contraception. The combined cumulative failure rate for all sterilization methods is 18.5 per 1,000, depending on the technique used. In this patient, tubal sterilization was performed after a cesarean delivery, with the abdomen already open. The

Pomeroy technique was used for sterilization, which is known for its potential for recanalization. During the Pomeroy procedure, the mid-isthmic portion of the Fallopian tube is elevated and folded at the midpoint. One or two rapidly absorbable sutures are tied around the double thickness of the tube, and the folded portion is then sharply excised.⁸

Informed consent for tubal sterilization is of paramount importance and must explicitly state that the procedure is permanent and not intended to be reversible. It is crucial to discuss the potential for regret and the associated risk factors, which include young age at the time of sterilization (under 30 years), low parity, sterilization performed immediately postpartum, and changes in marital status such as divorce or remarriage. Young age at the time of sterilization is the most significant predictor of regret. In this particular case, the patient reported that she had not received informed consent, although her family had provided it on her behalf. Additionally, the patient experienced divorce and subsequent remarriage, leading her to request recanalization.³

In this patient, prior to recanalization, a hysterosalpingography (HSG) examination was performed, which revealed no contrast filling in the right and left fallopian tubes, indicating an obstruction at the isthmus of both tubes.

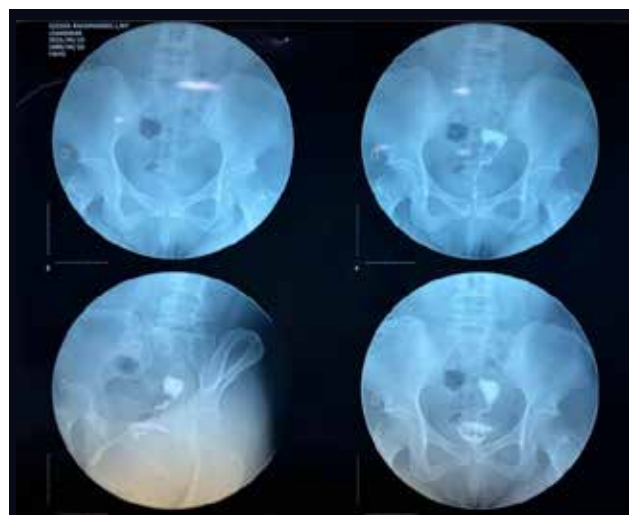


Figure 1. HSG examination was performed before recanalization which showed no visible picture of contrast filling into the right and left fallopian tubes according to the obstruction in the projection of the isthmus of both tubes

Fallopian tube recanalization (FTR) is a safe and effective procedure for women with fallopian tube obstruction caused by tubal sterilization. The current application of FTR, first described in the

literature, can be performed via laparotomy or laparoscopic surgery. In this patient, recanalization was performed by laparotomy using isthmo-isthmic recanalization at the Pomeroy sterilization site. Initially, a catheter was inserted through the cervix into the uterus for a methylene blue test. After identifying the fallopian tube, any adhesions were released, and excision was carried out at the proximal end of the tube until a healthy lumen was found, confirmed by the methylene blue test. The distal end of the tube was then excised until a healthy lumen was identified with the help of a tubal sound inserted from the fimbrial end. The anatomy of a healthy tube segment was clearly visualized with methylene blue drops, allowing the lumen with cilia, tunica muscularis, and tunica serosa to be accurately identified.

Following this, the tunica muscularis is sutured at the 6 o'clock and 12 o'clock positions using monofilament thread number 7, as additional stitches can lead to contracture. Next, the two tube fragments are closed with several stitches in the tunica serosa. The procedure concludes with a methylene blue test to assess tubal patency. If there is a leak in the recanalization area but the methylene blue reaches the fimbrial end, the tube is considered patent. The same technique and procedure are then performed on the contralateral tube.

Interventional tubal recanalization, also known as fallopian tube recanalization (FTR), is a highly effective procedure for treating proximal tubal obstruction. It boasts technical success rates as high as 90%, with intrauterine pregnancy rates ranging from 20% to 60%, and 50% of pregnancies occurring within one year after recanalization.^{9,10}

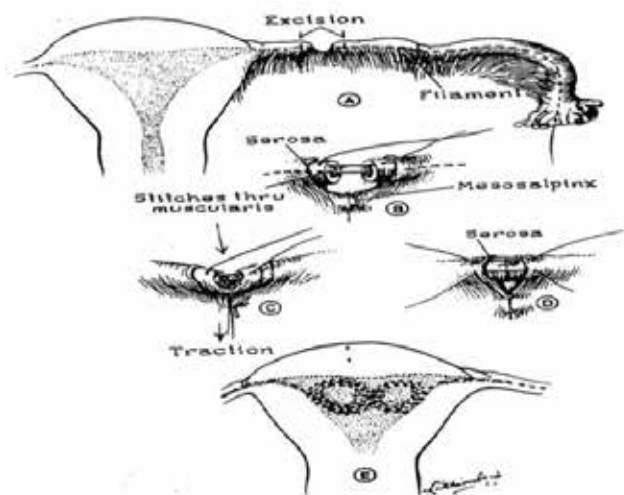


Figure 2. Isthmi-isthmica Procedure

FTR complication rates are low, with studies showing tubal perforation, infection, and ectopic pregnancy occurring in 1% to 9% of cases. This patient experienced an ectopic pregnancy 10 months after fallopian tube recanalization, necessitating a laparotomy salpingectomy. Previous studies have reported ectopic pregnancy rates ranging from 0% to 13%. The occurrence of ectopic pregnancies after FTR may be attributed to peritubal adhesions, which are not visible during FTR but can be easily identified during diagnostic laparoscopy.¹¹

Although the risk of ectopic pregnancy is higher in patients who have undergone FTR, this risk is primarily associated with the pre-existing tubal abnormalities rather than the procedure itself. Therefore, FTR is considered a therapeutically valuable and effective method for managing fallopian tube obstruction.⁶

The patient achieved a spontaneous pregnancy 10 months following fallopian tube recanalization, but experienced an ectopic pregnancy despite the methylene blue test confirming tubal patency. One year later, the patient had another spontaneous pregnancy. She has not encountered infertility for over 5 years. Data indicate that spontaneous pregnancy rates are higher in individuals with a shorter history of infertility (<5 years) compared to those with a longer history (>5 years) (68.4% vs. 31.6%). A prolonged duration of infertility may be associated with chronic tubal inflammation, potentially damaging the tubal mucosa and cilia. These findings align with the reported outcomes of fallopian tube recanalization (FTR), which shows intrauterine pregnancy rates ranging from 20% to 60%, with 50% of pregnancies occurring within one year following the procedure.^{9,10}

CONCLUSIONS

In conclusion, tubal sterilization is a widely utilized contraceptive method favored by women of childbearing age seeking permanent birth control. This case highlights the successful outcome of a woman who achieved spontaneous intrauterine pregnancies following a Pomeroy technique tubal sterilization, due to subsequent tubal recanalization.

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