Eastern Journal of Medicine 18 (2013) 195-197

Case Report

Recurrent intrauterine pregnancy due to tubal recanalization after tubal sterilization by pomeroy technique

Cihangir Mutlu Ercan*, Mehmet Sakıncı, Seyit Temel Ceyhan, Hakan Coksuer, Ugur Keskin, Kazım Emre Karasahin, Iskender Baser

Department of Obstetrics and Gynecology, Gulhane Military Medical Faculty, Etlik, Ankara, Turkey

Abstract. Tubal sterilization is a widely used permanent contraceptive method for women who had completed their desired childbearing. If a pregnancy occurs after tubal sterilization, it is expected to be ectopic in most of the cases. However encountering an intrauterine pregnancy after Pomeroy tubal sterilization is extremely rare. A second time intrauterine pregnancy occured in a 34-year-old woman who had undergone tubal sterilization by Pomeroy technique in her last caesarean section. We are pointing out the failure risk of tubal sterilization with its possible mechanisms which might result in a viable intrauterine pregnancy.

Key words: Pomeroy technique, tubal sterilization failure, intrauterine pregnancy after pomeroy sterilization

1. Introduction

Today female sterilization is a widely used contraceptive method, preventing pregnancy by occluding or disrupting tubal patency. Tubal ligation accounts for approximately 10% to 40% of contraceptive methods throughout the world (1,2). Although several techniques have been defined, Pomeroy technique of tubal sterilization is a well-known and widely preferred procedure which is considered to be highly effective. In spite of its very low failure rate, extrauterine pregnancies have been reported due to recanalization or fistula formation (3). However, a spontaneous, viable, intrauterine pregnancy seen after failure of Pomeroy's technique sterilization due to recanalization or fistula formation is very rarely reported in the literature (4, 5). We present a patient who had two spontaneous intrauterine pregnancies arisen after Pomeroy technique of tubal sterilization due to a tubal recanalization.

*Correspondence: Cihangir Mutlu Ercan, MD
Department of Obstetrics and Gynecology, Gulhane Military Medical Faculty, 06018, Etlik, Ankara, Turkey
Phone: +903123045809, +905422462401
E-mail: ercanmutlu@yahoo.com
Received: 23.12.2012
Accepted: 23.12.2012

2. Case report

A viable intrauterine pregnancy at 7th gestational week was detected in a 34 years old woman with gravida 5 para 3, five years after her tubal sterilization by Pomeroy technique. Her anamnesis revealed that three consequent caesarean sections (C-section) and one dilatation and curettage (D&C) due to an unwanted pregnancy which occurred two years after her sterilization. Postpartum tubal sterilization was performed in another health care facility, in 2005 when she was 29 years old. Pomeroy tubal sterilization technique was confirmed from her last C-section operation records. The patient's second unwanted intrauterine pregnancy was discussed in detail with the family. She decided to terminate her pregnancy and requested permanent sterilization. Laparoscopic bilateral salpingectomy and a D&C procedure was performed concurrently (Figure 1). Postoperative course of the patient was uneventful and she was discharged from the hospital in the next day.

3. Discussion

We presented a very rare case of recurrent, viable, intrauterine pregnancy occurred after Pomeroy's technique tubal sterilization. According to our knowledge, this is the third reported case of Pomeroy's technique sterilization failure, ending up with a viable

intrauterine pregnancy in the English-language literature (4,5). Moreover, this is the first case of notifying two successive intrauterine pregnancies after Pomeroy tubal ligation failure due to tubal recanalization.

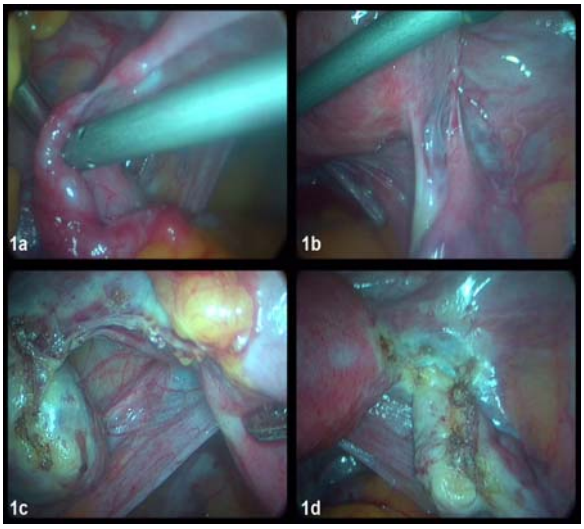

Fig. 1. Laparoscopic view of;(a). Left fallopian tube where tubal recanalization was confirmed by histopathological examination;(b). Right fallopian tube;(c) and (d). Left and right adnexa after salpingectomy, respectively.

Tubal sterilization is a common contraceptive method preferred by women of child-bearing age who desire permanent contraception. There is a combined cumulative failure rate of 18.5 per 1.000 for all sterilization methods (6). The lifetime risk of pregnancy is reported to be 1 in 200 after laparoscopic tubal sterilization and 1 in 100 after tubal ligation at C-section (2).

The Pomeroy technique is performed by identifying and grasping the fallopian tube in the isthmic portion with a Babcock clamp, then ligating the loop with 0 or 2.0 plain catgut suture which then will be excised (7). It can be carried out with mini-laparotomy or at the time of C-section (1). The preferred suture has a critical role at this stage since the plain catgut suture will resorb in three or four days allowing the tubal lumina to separate. Using a suture material that takes longer to resorb will increase the chance of fistula formation and/or sterilization failure. There is good evidence that diathermy should not be used as the primary method of tubal occlusion since it increases the risk of subsequent ectopic pregnancy and is less easy to reverse than mechanical occlusive methods (1,6,8).

Although pregnancy is uncommon after tubal sterilization, we should be familiar with the risk of failure. If a pregnancy results from a failed female sterilization, the likelihood of being an ectopic pregnancy is reported to be 30% to 80% (2,9). The most conclusive medical study evaluating the female sterilization and its effects is the CREST study (6). This was a prospective, multicenter, observational study conducted by Centers for Disease Control among 10.685 women who underwent tubal sterilization. In the same cohort, 143 sterilization failures were identified of which one-third were ectopic. The cumulative 10-year probability of pregnancy and ectopic pregnancy was calculated as; 18.5 and 7.3 per 1000 procedures, respectively. It was highest after clip sterilization (36.5/1000 procedures) and lowest after unipolar coagulation (7.5/1000) and postpartum partial salpingectomy (7.5/1000) (6).

In a study by Spitaleri et al. (10) the failure rate of Pomeroy method performed via minilaparotomy was found as 0.3%. Ayhan et al. (11) compared different tubal sterilization

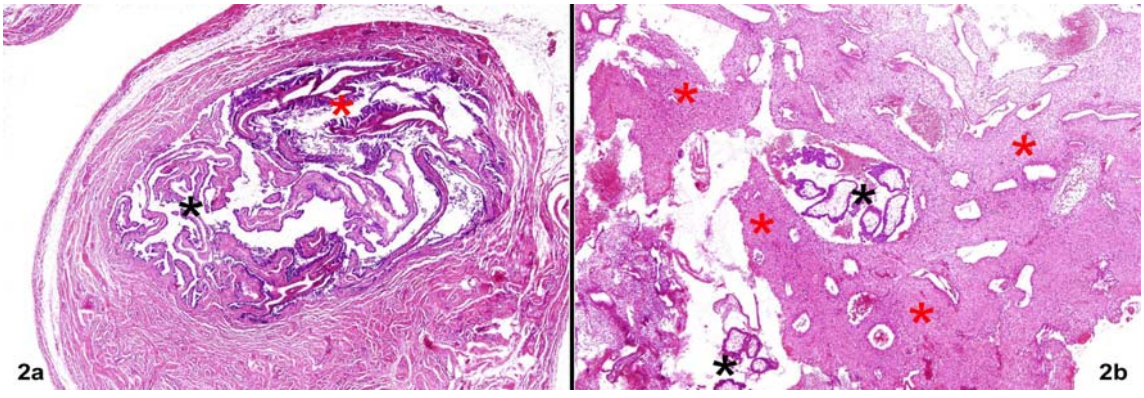

Fig. 2. Histopathological pictures taken from the left fallopian tube and the D&C material of the patient. (a): Histopathological section taken from the possible recanalization area of the left fallopian tube. *Black Asterisk;* normally grown structure of the recanalized fallopian tube. *Red Asterisk;* distorted histological structure of the recanalized area without a clearly identified lamina propria (HEx50). (b): Placental (*black asterisks*) and desidual (*red asterisks*) areas are clearly visible in the D&C material of the patient (HEx50).

methods (Pomeroy, bilateral partial salpingectomy, electrocauterization and silastic ring methods) and reported the failure rate of Pomeroy method as 0.94%. In another study, Pomeroy method was compared with fimbriectomy in which the failure rate of Pomeroy technique was found 11.22 per 1000 operations (12). Oligbo et al. (1) reported that Pomeroy technique have a lower risk of sterilization failure than Filshie clips if used at the time of C-section. Although possible, it is very rare to observe two consequent viable intrauterine pregnancies following Pomeroy technique as reported in our case.

Three mechanisms have been accounted for most of the tubal sterilization failures: 1. Pregnancy at the time of sterilization (luteal phase pregnancy), 2. Operator's error, and 3. Technique failure. If sterilization is performed in the luteal phase; an already existing and/or undiagnosed pregnancy might result in failure of the procedure. Current evidence suggests that sterilization failure pregnancies occuring in one year after sterilization are usually a result of operator’s fault (tubal non-occlusion) which are more likely to be intrauterine (13). Operator's error may include misidentification of the fallopian tube, misuse of the equipment, or misapplication of surgical techniques. Resection methods failed most frequently because of spontaneous reanastomosis or fistula formation. Therefore sterilization failure pregnancies seen after one year are more likely resulting from tubal recanalization or fistula formation, and are more likely to be ectopic pregnancies (13). In our case intrauterine pregnancies seen after Pomeroy tubal sterilization was due to a tubal reanastomosis on the left fallopian tube (Figure 1a). We detected a viable intrauterine pregnancy after genuine failure of Pomeroy Technique apart from luteal phase pregnancy or operative errors. As we performed salpingectomy, we had the opportunity to confirm our intraoperative diagnosis with histopathological examination (Figure 2).

If the surgeon is requested to perform a repeat sterilization after a sterilization failure, it is important to document the operative findings (7,13). In the repeated attempts of these patients an alternative surgical contraceptive method or a definitive re-sterilization technique may be carried out. At this point bilateral salpingectomy may be a good surgical alternative in determining the recanalization or fistula formation in the ligated fallopian tubes by histopathological examination (7).

Consequently, all health care professionals should counsel their patients about the possibility of sterilization failure which might result in a viable pregnancy. Therefore a clinician should be aware of the cumulative failure rate of tubal sterilization procedure regarding the risk of future pregnancies.

References

1. Oligbo N, Revicky V, Udeh R. Pomeroy technique or Filshie clips for postpartum sterilisation? Retrospective study on comparison between Pomeroy procedure and Filshie clips for a tubal occlusion at the time of Caesarean section. Arch Gynecol Obstet 2010; 281: 1073-1075.
2. Ryder RM, Vaughan MC. Laparoscopic tubal sterilization. Methods, effectiveness, and sequelae. Obstet Gynecol Clin North Am 1999; 26: 83-97.
3. Berker B, Kabukcu C, Dokmeci F. Tubal pregnancy after pomeroy sterilization. Arch Gynecol Obstet 2002; 266: 56-57.
4. Annunziata N, Zarcone R, Scotto di Tella L, Dorato F, Vicinanza G. A case of failure of tubal sterilization using Pomeroy's technique. Panminerva Med 1997; 39: 315-316.
5. Ruminjo JK, Chabari C. Twice-failed tubal ligation: a case report. East African Medical Journal 1993; 70: 528-530.
6. Peterson HB, Xia Z, Hughes JM, et al. The risk of pregnancy after tubal sterilization: findings from the U.S. Collaborative Review of Sterilization. Am J Obstet Gynecol 1996; 174: 1161-1168.
7. Surgical sterilization of women. In: UpToDate, version 19.2, Stovall TG, Mann WJ; 2011.
8. Royal College of Obstetricians and Gynecologists, Male and female sterilization. Evidence-based clinical guideline number 4. 2004, London. ISBN 1-900364-93-X.
9. Mol BW, Ankum WM, Bossuyt PM, Van der Veen F. Contraception and the risk of ectopic pregnancy: a meta-analysis. Contraception 1995; 52: 337-341.
10. Spitaleri JF. A second look at the Pomeroy method of tubal sterilization. New York State Journal of Medicine 1984; 84: 157-158.
11. Ayhan A, Kisnisci H, Saracoglu OF. Failures following tubal sterilization. Acta Reproductiva Turcica 1983; 5: 5-8.
12. De Villiers VP. Sterilization failure. An analysis of 27 pregnancies after a previous sterilization procedure. South African Medical Journal 1982; 61: 589-590.
13. Varma R, Gupta JK. Failed sterilization: evidence-based review and medico-legal ramifications. BJOG 2004; 111: 1322-1332.