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# Controversies in Family Planning: Timing of ovulation after abortion and the conundrum of post-abortion IUD insertion

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*Questions*: When does ovulation occur after an induced abortion? Is it different with regard to medical versus surgical abortion? Does ovulation occur at a different time point if the woman had a first versus second trimester abortion? If one is unable to provide an immediate post- abortion intrauterine device (IUD), when is the ideal time to insert the IUD and be sure your patient is not pregnant? What if the patient reports an act of unprotected intercourse between the abortion and her return for IUD insertion? Can one be certain she has not just conceived if her return for the IUD is 7 days post-abortion? What if it was 10 versus 14 or more days post- abortion?

*Respondent #1*: Most data support three weeks for ovulation, therefore insertion within two weeks with no bridge method is fine. That said, about a third of women will not come back so some method right away might be a good idea.

*Respondent #2*: I used to do one week for first trimester patients and two weeks for second trimester patients before we could do immediate insertion. We are currently working on an analysis of nearly 200 women who got IUDs at two weeks after first trimester abortion and there were no complications. These women received the IUD at two weeks, not before. There were no pregnancies with IUD in place. Most women reported they were abstinent or used condoms. Our expulsion rate was low at about 2.5% at 6 months.

*Respondent #3*: Our beliefs that ovulation occurs one to two weeks earlier post-abortion than after delivery are based on some older studies. I think the best time for a post-abortion visit is within one week because that is when the problems occur. One study showed higher IUD expulsion at two weeks than right after first trimester abortion, so one week might be better. The date of post-abortion visit return for contraception is sometimes determined by how long after the abortion insurance will pay. It used to be we had to wait two weeks for post-abortion IUD insertion where I work but now it is as soon as the patient is not pregnant, which means now we can insert IUDs immediately.

*Respondent #4*: I would keep in mind the range, not just the average date of ovulation after abortion. Some papers show ovulation occurring as early as six days post-abortion.



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## Review

Several studies performed predominantly in the 1970s and early 1980s have addressed the question of when ovulation occurs after abortion. Boyd and Holstrom et al. [1] were the first to examine this question by using endometrial biopsy in 72 women at the time of first menses following therapeutic abortion. In the patients where secretory endometrial changes were identified, a standardized luteal phase of 14 days was assumed and this number was subtracted from the first day of the onset of menstruation to determine the day of ovulation. Their study showed mean time to ovulation of 22 days with a range of 10 to 72 days. Eighty-five percent of the women ovulated prior to their first menses based on this analysis.

Lahteenmaki et al. [2] looked at 18 women following first trimester therapeutic abortion via vacuum aspiration. Serum estradiol and progesterone as well as urine LH were assessed by radioimmunoassay. Criteria for ovulation included: (1) biphasic rise in estradiol concentration, (2) mid-cycle LH peak, (3) plasma progesterone increase during the luteal phase. They concluded that 15 of the 18 (83%) patients had ovulated prior to their first menses after abortion, with the day of ovulation ranging from 16 to 28 days post-procedure. A later publication based on the same cohort of 18 women looked at the progesterone levels after abortion as a marker of ovulation [3]. Using a cut-off for ovulation of serum progesterone >2 ng/mL, they showed that 34% of women had ovulated by three weeks following their procedure and that 78% of women had ovulated by six weeks following their procedure.

Data on whether or not there is a difference in time to ovulation following medical abortion versus surgical abortion are limited. Cameron and Bair [4] evaluated 32 patients undergoing first trimester abortion via either suction D&C versus menstrual induction with 16,16 dimethyl-trans-$\Delta_2$PGE$_1$ methyl ester pessary. By following urinary estrogen, pregnanediol (progesterone metabolite) and hCG—as a surrogate for LH—they found that mean time to ovulation was 29 (range 16–37) days in the surgical group as compared to 24 (range 16–32) days in the medical group. This difference was not statistically significant. Overall, 91% of the women ovulated before their first menses after the abortion. More recently, in a study evaluating 27 women undergoing medical abortion with mifepristone followed by vaginal misoprostol, Sober et al. [5] have shown that ovulation occurs on average 20.6 ± 5.1 (range 8–36) days following administration of mifepristone. The authors followed serum progesterone levels twice weekly to assess for ovulation.

Ovulation after spontaneous abortion has also been evaluated using urinary radioimmunoassays for LH and estrogen and progesterone metabolites [6]. Donnet et al . [6] compared six women who experienced a spontaneous abortion before 9 weeks estimated gestational age versus 12 women who were 9 to 12 weeks at the time of their early pregnancy failure There was no difference in the return to ovulation based on estimated gestational age. They demonstrated the median day of ovulation was the 20$^{th}$ day after the spontaneous abortion whereas mean day of ovulation was 29 days (range 13–103) with 100% of their 18 participants ovulating before the subsequent menses.

All of the studies described thus far have been on patients undergoing first trimester induced or spontaneous abortions. Knowing that the time to ovulation is greater after term delivery than it is after first trimester abortion [7], one wonders where the time to ovulation following second trimester abortion falls between the two. The one study that evaluates ovulation following second trimester procedure, compared the time to ovulation among women undergoing first trimester D&C (n=4) versus second trimester labor induction (n=5) versus gravid hysterectomy (n=4) [8]. The patients in the first trimester group ovulated 20–25 days following their procedure, as determined by increase in LH followed by increase in serum

progesterone. Six out of the nine (66%) patients in the second trimester group ovulated at or before post-procedure day 22. This study was mainly designed to evaluate the time to disappearance of hCG following first and second trimester abortion procedures and thus was not powered to find a statistically significant difference in their secondary outcome of time to return to ovulation.

The rapid return of ovulation illustrates the importance of initiating contraception at the time of induced abortion regardless of abortion method or gestational age. Based on the available evidence, the best time to insert IUD appears to be immediately following the abortion procedure. The woman is not pregnant and her motivation to use contraception is high. If asked to delay IUD insertion, less than a third of women who intend to have an IUD after an abortion will actually have one inserted [9]. Recent studies have established that IUD insertion right after first trimester abortion carries no increased risk of perforation, infection or discontinuation and only a minimal increase in risk of expulsion over delayed insertion [10].

In those women who wish to have an IUD placed, and it is not possible to provide an immediate post-abortion IUD, when is the ideal time to insert a delayed post-abortion IUD and be sure the patient is not pregnant? As is noted in a number of the studies presented, [2, 4, 5, 11], women will continue to have a positive urine or blood pregnancy test at these short time points following abortion, making it difficult to be reasonably certain your patient returning for delayed contraception is not newly pregnant. As a result, we recommend that those women unable to have an immediate post-abortion IUD insertion return within 7 to 10 days, regardless of abortion method or gestational age at the time of their procedure, for IUD insertion. They are counseled regarding the potential increased risk of IUD expulsion. If the patient reports unprotected intercourse, one option to consider is insertion of a Copper T-380A, which is effective as postcoital contraception up to 5 days after unprotected intercourse [12–14] .This method would both protect against the possibility of an occult pregnancy and provide the patient with long-acting reversible contraception.

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## References

1. Boyd EF Jr, Holmstrom EG. Ovulation following therapeutic abortion. Am J Obstet Gynecol. 1972; 113:469–473. [PubMed: 4636624]
2. Lahteenmaki P, Luukkainen T. Return of ovarian function after abortion. Clin Endocrinol (Oxf). 1978; 8:123–132. [PubMed: 630723]
3. Lahteenmaki P, Yiöstalo P, Sipinen S, et al. Return of ovulation after abortion and after discontinuation of oral contraceptives. Fertil Steril. 1980; 34:246–249. [PubMed: 7409246]
4. Cameron IT, Baird DT. The return to ovulation following early abortion: a comparison between vacuum aspiration and prostaglandin. Acta Endocrinol (Copenh). 1988; 118:161–167. [PubMed: 3291533]
5. Sober S, Ratcliffe S, Creinin MD, Schreiber C. Ovulation resumption after medical abortion with mifepristone and misoprostol. Contraception. 2010; 82:207. (Abstract).
6. Donnet ML, Howie PW, Marnie M, Cooper W, Lewis M. Return of ovarian function following spontaneous abortion. Clin Endocrinol (Oxf). 1990; 33:13–20. [PubMed: 2401092]

7. Gray RH, Campbell OM, Zacur HA, Labbok MH, MacRae SL. Postpartum return of ovarian activity in nonbreastfeeding women monitored by urinary assays. J Clin Endocrinol Metab. 1987; 64:645–650. [PubMed: 3818896]

8. Marrs RP, Kletzky DA, Howard WF, Mishell DR Jr. Disappearance of human chorionic gonadotropin and resumption of ovulation following abortion. Am J Obstet Gynecol. 1979; 135:731–736. [PubMed: 495673]

9. Stanek AM, Bednarek PH, Nichols MD, Jensen JT, Edelman AB. Barriers associated with the failure to return for intrauterine device insertion following first-trimester abortion. Contraception. 2009; 79:216–220. [PubMed: 19185676]

10. Grimes DA, et al. Immediate postabortal insertion of intrauterine devices. Cochrane Database Syst Rev. 2010:CD001777. [PubMed: 20556754]

11. Lahteenmaki P. The disappearance of HCG and return of pituitary function after abortion. Clin Endocrinol (Oxf). 1978; 9:101–112. [PubMed: 568043]

12. Wu S, et al. Copper T380A intrauterine device for emergency contraception: a prospective, multicentre, cohort clinical trial. BJOG. 2010; 117:1205–1210. [PubMed: 20618314]

13. ACOG Practice Bulletin. Clinical Management Guidelines for Obstetrician-Gynecologists, Number 69, December 2005 (replaces Practice Bulletin Number 25, March 2001). Emergency contraception. Obstet Gynecol. 2005; 106:1443–1452. [PubMed: 16319278]

14. Zhou L, Xiao B. Emergency contraception with Multiload Cu-375 SL IUD: a multicenter clinical trial. Contraception. 2001; 64:107–112. [PubMed: 11704087]