



Intracesarean Insertion and Fixation of Frameless IUD for Immediate Postpartum Contraception

Wildemeersch D*

IUD Training Center, Ghent, Belgium

Abstract

Frameless IUDs have been used for interval insertion for many years in several European countries. They are well accepted as they are frameless and are well retained since they are anchored in the fundus of the uterus. Frameless IUDs can also be used for immediate post-surgical abortion, providing immediate contraception and avoiding displacement, partial and total expulsion.

When conventional IUDs are used postpartum, even higher rates of displacement, partial and total expulsion are often seen (up to 50%). Insertion of the anchored IUD in the postpartum uterus is more challenging as the fundus is soft potentially leading to early expulsion. This article describes a new technique for the anchoring of a frameless IUD during cesarean section delivery.

Introduction

The ideal time for postpartum contraception either as a precautionary measure (to prevent uterine rupture) or as a family planning tool is immediately post-delivery. Immediate contraception is convenient and timely since a woman is actively evaluating her current and future family planning options. A woman's return to fertility post-delivery is not always predictable as it can occur as soon as 3 weeks in non-lactating women and may not necessarily be accompanied by menses. The pregnancy environment represents the near ideal timing for discussions with patients in need of contraception, the nature of the products available, their individual benefit and risks. The patient's receptiveness and willingness to select a given form of contraception is a critical component in allowing a woman to adequately manage her contraception needs.

Risk of Uterine Rupture

Various contraceptive methods are available to postpartum women including hormonal, non-hormonal, barrier and injectable forms. Unfortunately, as reviewed by Trussell et al., [1] many of these methods although effective, have a high degree of failure when used imperfectly. For parous women, most clinicians and the World Health Organization recommend an interdelivery interval of 18 to 24 months, as a second pregnancy too soon after the first could have detrimental effects on the woman herself, her ability to carry the baby to term, the viability of the infant and its overall growth/development [2]. Women undergoing cesarean sections with an interdelivery interval shorter than 18 months have the added risk of possible uterine rupture [3]. Use of contraception as early as possible post-delivery would assure prevention of uterine rupture post-cesarean section allowing for the wound to heal as well as for the woman to fully recover from her pregnancy. Effective contraception in these women will not only be a valuable in reducing the risk of unintended pregnancies, but may allow for many women to have follow-on vaginal over cesarean deliveries.

Immediate IUD Insertion

Of all the available birth control methods, IUDs are felt by many to be the near ideal form of contraception being recommended by advocacy groups, physicians and gynecological organizations worldwide. Intrauterine devices have the advantage of high effectiveness as well as having an extremely low failure rate in part because of the lack of involvement by the women. Immediate postpartum intrauterine device (IUD) insertion deserve greater attention as it can provide immediate contraception, prevents repeat unintended pregnancies, and may serve to reduce the incidence or need for secondary cesarean delivery [4]. Unfortunately, insertion of conventional T-shape IUDs immediately post placenta delivery is limited by their high expulsion and displacement rates [5,6]. A study conducted by Çelen et al. [7] in Ankara in 2011 noted an expulsion rate of 17.6% at 12 months with the TCu380A IUD inserted immediately following cesarean section delivery. The inability of these devices to be retained clearly affects effectiveness but as importantly, overall patient acceptance.

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*Correspondence:

Dirk Wildemeersch, IUD Training Center, Rooseveltlaan 43/44, 9000 Ghent, Belgium,

E-mail: dirk@wildemeersch.com

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Figure 1A: Insertion apparatus for the insertion of the frameless IUD following cesarean section delivery.



Figure 1B: The insertion and fixation of the anchor has been accomplished; the anchoring knot of the frameless IUD, positioned immediately below the serosa, has been attached to the serosa with a biodegradable suture.

Women, especially those undergoing cesarean delivery could benefit from immediate post-placenta IUD insertion since it would allow a sufficient period for the uterus, as well as the woman, to recover from the surgery via a highly effective and long lasting contraceptive. In these women, a low expulsion risk is therefore paramount with women having the added benefit of the IUD being easily reversible with a rapid return to fertility.

The Challenge to Solve the Expulsion Problem

Over the past decades attempts have been made to solve the expulsion problem encountered with conventional T-shape IUDs by modifying existing devices, such as adding absorbable sutures (Delta-T) or additional appendages. These attempts were minimally successful. Expulsion rates vary from 5% at 12 months to up to 50%, and even higher if partial expulsions are included, have been reported [8-10].

Timing of insertion post-placenta delivery is of critical importance with T-shape devices. Studies have shown that if inserted at times greater than 10 min post-delivery, expulsion rates higher than those seen in normal women are produced.

Immediate Post-placental Anchoring of Frameless IUD

Anchoring of frameless design IUDs which lack conventional crossarms, to the uterine fundus has been medically and commercially



Figure 2: 2D ultrasound of the position of the frameless IUD after involution of the uterus with anchor marker in the fundus.

available throughout Europe for many years in the form of GyneFix® (Control Research, Belgium). The placement technique is simple, has minimal patient discomfort and high long term patient acceptance due to its high degree of uterine compatibility as a consequence of its small size and segmented design. Since its inception, the technology has passed through several phases of improvement, design modifications and clinical testing intended to maximize patient comfort and tolerability producing 5-year continuation rates in excess of 90%. Clinical studies were also conducted to evaluate the effects of immediate insertion of a frameless IUD during cesarean section, as well as after vaginal delivery, on the bleeding pattern, duration of lochia and healing of uterus. No significant difference in postpartum hemorrhage, continuance of lochia, and healing of uterus was normal [11]. A new minimally invasive surgical approach was devised for suspending the frameless copper IUD for intracesarean insertion which takes advantage of the full visualization and access to the uterus that is achieved during cesarean delivery.

The technique consists of the precise placement of the anchoring knot immediately below the serosa of the uterine fundus with a specially designed inserter, followed by fixing the knot in place with a conventional absorbable suture (Figure 1). In several weeks the uterus regains its normal tonicity, the suture is absorbed and the anchor retained as seen in women undergoing conventional interval insertion.

The procedure is simple and takes under 4 min with no discomfort to the patient and minimal surgical risk. The IUD tail is trimmed in the lower uterine segment and will protrude through the cervix in most cases during follow-up. The anchoring technique has shown to be easy, quick and safe in over 100 insertions with no expulsions up to 12 months. To check IUD placement, a follow-up sonography can be performed to localize the stainless-steel marker attached to the anchoring knot (Figure 2).

Removal of the IUD is like the removal after interval insertion of the device accomplished by simply pulling on the IUD string. In the rather rare event that the tail is in the cavity, it is accessible by using a thin alligator forceps if/when removal is requested.

Frameless IUDs appear to have advantages over framed T-shaped IUDs as the latter may cause discrepancy with the uterine cavity and embedment during involution of the uterus, particularly during prolonged lactation as hyper involution in these women is not uncommon [12].

The developers are also finalizing the development of a levonorgestrel-releasing frameless system which may have additional

advantages in many women. The new technique affords the patient and her physician a new, safe and effective option for long-term contraceptive control. A frameless copper version lasting 10 years is available.

Conflict of Interest

Dr. Wildemeersch has been doing IUD research since more than 25 years. He is the developer of the frameless IUD.

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