

## Prospective Study of Intraoperative Intrauterine Contraceptive Device Application during Cesarean Section

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### ABSTRACT

**Background:** intrauterine contraceptive device (IUCD) is the most widely used method of reversible fertility regulation in the world. Over 100 million women worldwide use it for contraception. Many cultures have addressed the need for successful fertility regulation by embracing and expanding IUCD. IUCD is one of the most popular methods of contraception in Europe and Latin America, ranging from 10% to 30% of women contraception. In Cuba, Egypt, and North Korea, IUCD use accounts for more than 50% of contraceptive use. In China, 83% of married women used contraception and 36% of these women used IUCDs.

**Patients and methods:** this prospective study was conducted at Al-Galaa Maternity Teaching Hospital, dated from 20/7/2016 to 20/1/2017, where 100 pregnant women attending the antenatal clinic were included according to special criteria. **Results:** according to our results, the PPIUCD was demonstrably safe, having no reported incidence of perforation, pregnancy with low rates of expulsion, pain abdomen, pelvic infection and lost strings. Continuation rate in intra-cesarean insertion was higher compared to vaginal insertion. **Conclusion:** routinely offering insertion of IUC at the time of elective cesarean section was popular among women. In addition, this study confirmed the low complication rate associated with insertion of IUCD at this time and an expulsion rate in keeping with that of insertion of IUC in women who are not postpartum

**Keywords:** prospective study, intrauterine , contraceptive, device , cesarian section.

### INTRODUCTION

Each year, more than 100 million women make decisions about beginning contraception after child birth. Proper family planning programs and adequate methods of contraception are important tools to avoid many problems in our world <sup>(1)</sup>.

Contraception, socially recognized and accepted only in the last 30 years, is both an essential and a complicated part of modern life. Contraception has separated sex from procreation and has provided couples greater control and enjoyment of their lives. It is a critical element in limiting population, thus preserving our planet's resources and maintaining quality of life for ourselves and our children. Contraception is both personal and a social responsibility. This could not be achieved by the simple contraceptive methods employed before the late 20<sup>th</sup> century. Greater effectiveness and ease of use required more complicated methods, associated with greater consequences to our health <sup>(2)</sup>. Intrauterine Contraception (IUC) is the most widely used reversible method of fertility regulation in the world. Over 100 million women worldwide use it for contraception <sup>(3)</sup>.

Cesarean delivery is defined as the birth of a fetus through incisions in the abdominal wall (laparotomy) and the uterine wall (hysterotomy). This definition does not include removal of the fetus from the

abdominal cavity in the case of rupture of the uterus or in the case of an abdominal pregnancy <sup>(4)</sup>.

### PATIENT AND METHODS

This prospective study was conducted at Al-Galaa Maternity Teaching Hospital, dated from 20/7/2016 to 20/1/2017, where 100 pregnant women attending the antenatal clinic was included according to the following criteria:

#### *Inclusion criteria*

Full term pregnant female without any medical disorders.

Planned for cesarean section.

Singleton pregnancy.

Normal findings evidenced by ultrasound scanning as regard: gestational age, uterine cavity and placental site (should be away from the scar).

No previous uterine scar.

No congenital uterine anomalies.

#### *Exclusion criteria*

Previous failed IUCD.

Rupture membrane for more than 12 hours.

Absolute contraindication of IUD e.g.:

History of ectopic pregnancy.

- Repeated pelvic infections whatever active or recurrent.
- Uterine fibroid.
- No post operative complication.

**Methodology in details**

- Lower abdominal transverse incision (pfannenstiel).
- Opening the sheath , muscle layer and the visceral peritoneum.
- After reflecting the bladder usually a transverse (kerr's) incision is made on the uterus in the lower segment. The uterus is then opened bluntly with the fingers.
- Delivery of the head in a cephalic presentation is by flexion as this will reduce the risk of lateral wall tears. If the head is high application of the forceps is often used. Breech deliveries are made by methods similar to those used in vaginal deliveries and transverse presentation is usually delivered by internal podalic version and breech extraction.
- After injection of syntocinon gentle continuous cord traction will deliver the placenta .
- The placental bed and the uterine cavity should be checked to ensure hemostasis & complete removal of all tissue including the membranes.
- Cupper T 380 IUCD is placed in the middle of the uterine cavity, the threads is bassed through the cervix after it's dilatation by one finger.
- Two layers closure of the uterus should be performed using an absorbable synthetic material. Avoiding the visceral peritoneum when closing the uterus may reduce bleeding.
- Peritoneal closure is no longer advocated a non-closure is associated with reduced operating time, less pain and less postoperative febrile morbidity.
- Routine closure of rectus sheath and skin should then be performed.
- Immediate postpartum abdominal ultrasound is done to be sure that IUCD in situ.

**METHODS**

All participating patients had the following:

- Complete history taking:
  - Full history taking.
  - Obstetric history.
  - Menstrual history.
  - Medical history.
- Proper counseling:
  - Proper counseling of each patient about different types of IUDs, the advantage and side effects of each type, explanation of the menstrual pattern changes, reassuring the patient that these changes are very

common and that it will disappear after a period of time after insertion.

- Consent: Informed consent.
  - Examination: General examination.
  - Abdominal examination.
  - Pelvic examination.
- Study protocol: Pre-insertion study:  
Pelvic Ultrasound, Uterus and Ovaries.

**Insertion of Cu T 380A IUD**

The TCU-380A is a T-shaped device with a polyethylene frame holding 380 mm2 of exposed surface area of copper on its arms and stem. The polyethylene frame also contains barium sulfate, which renders it radiopaque.

Participants were instructed to administer the two tablets vaginally containing 200 micrograms misoprostol per tablet (Misotac) or placebo three hours before IUD insertion, as deep as possible. We chose this accepted concept for logistic reasons: Patients were able to continue their daily routine without waiting in the hospital for 3 hours. No NSAIDs was administered prior to insertion.

**The outcome measures**

Outcome measures were fainting, fever, rigors,vomiting, any resistance or need for dilatation, as well as the degree of difficulty of the IUD insertion judged as the resistance of the internal cervical vs experienced by the investigator and classified as easy, moderate or difficult.

**The study was approved by the Ethics Board of Al-Azhar University.**

**RESULTS**

This study was conducted at Al-Galaa Maternity Teaching Hospital to assess the efficacy, safety, convenience and complications of copper IUCD inserted immediately after expulsion of the placenta during lower segment caesarian section. This carried out by clinical assessment and follow- up abdominal ultrasound. This prospective study was conducted at Al-Galaa Maternity Teaching Hospital, dated from 20/7/2016 to 20/1/2017, where 100 pregnant woman attending the antenatal clinic.

**Table 1: difference between infection distribution of the studied group.**

Infection	No.	%
<b>After 40 days</b>		
No	86	86
Yes	14	14
<b>After at 6 m</b>		
No	96	96
Yes	4	4

This table showed highly statistically significant difference between infection distribution of the studied group.

- **Table 2: difference between bleeding distribution of the studied group.**

Bleeding	No.	%
<b>After 40 days</b>		
No	86	86
Yes	14	14
<b>After at 6 m</b>		
No	94	94
Yes	6	6

This table showed highly statistically significant difference between bleeding distribution of the studied group.

- **Table 3: difference between place of IUDS 40 days after insertion distribution of the studied group.**

Place of IUD 40 days after insertion	No.	%
<b>Place After 40 days</b>		
In place	86	86
Displaced	14	14
<b>Expulsion at 6 m</b>		
No expulsion	82	82
Expulsed	18	18

This table showed highly statistically significant difference between place of IUDS 40 days after insertion distribution of the studied group.

## DISCUSSION

Intrauterine contraceptive devices are used by over 180 million women worldwide. The growing need for reversible contraception would be well served by increasing utilization of intrauterine contraception with the intrauterine device. The efficacy of modern IUDS in actual use is superior to that of oral contraception. Problems with IUCD use can be minimized to very low rate of minor side effects with careful screening and technique <sup>(5)</sup>.

This study was conducted at Al-Galaa Maternity Teaching Hospital to assess the efficacy, safety, convenience and complications of copper IUCD inserted immediately after expulsion of the placenta during lower segment caesarian section. This carried

out by clinical assessment and follow- up abdominal ultrasound.

Routinely offering insertion of IUC at the time of elective cesarean section was popular among women, with more than one in eight women in this cohort choose this option. In addition, the study confirmed the low complication rate associated with insertion of IUC at this time and an expulsion rate in keeping with that of insertion of IUC in women who were not postpartum . Furthermore, satisfaction rates among women with IUC insertion at cesarean were high, and satisfaction and continuation with the method remained high at 12 months post-insertion <sup>(6)</sup>.

Inserting Cu T 380A post-partum is safe leading to the expanding of the usage of IUCD meeting the unmet needs. The expulsion rate was minimal as this study showed, in contrast to previous studies. Both vaginal insertion and intra-cesarean insertion were safe in terms of complications and efficacious from contraception point of view. Only strings of IUCD after cesarean section are less to be visible at follow-up in comparison with vaginal insertion. The PPIUCD was demonstrably safe, having no reported incidence of perforation, pregnancy with low rates of expulsion, pain abdomen, pelvic infection, and lost strings. Continuation rate in intra-cesarean insertion was higher compared to vaginal insertion <sup>(6)</sup>.

There are two early problems with PPIUDCS. Initial expulsion rates, although not as high as those after vaginal birth post-partum insertion are still unacceptably high (5%–10%). This is the only time an IUD is inserted into the uterine cavity under direct vision and the use of the correct anchor has the ability to make the expulsion rate close to zero. If a method to hold the IUD in the uterus is used with suturing into the uterine muscle techniques, expulsion can be reduced to below 1%. This adds to the complexity of the procedure, and in most cases requires additional training for those inserting the devices <sup>(8)</sup>.

The second problem of importance is missing threads. In many GS situations ultrasound is often not available, making this a time-consuming problem which often mandates referral to a tertiary center. Techniques for lengthening threads to ensure their presence in the vagina exist, but often necessitate trimming and so may require an extra post-partum follow-up. However, this is easier to undertake than referral for ultrasound and post-partum evaluation should be conducted anyway, but even this can create difficulties in the G. The problem of missing strings after PPIUDCS insertion is of considerable importance with regard to advancing this method in the GS. There have been various approaches to

attempt to resolve this problem. In one study vicryl was used to lengthen the threads, the use of absorbable material which ensures that the strings remain visible, but subsequently absorb so that they are not too long, may be a solution. These techniques are among those which have the capacity to expand access in the GS and indeed worldwide<sup>(9)</sup>. **Levi et al.**<sup>(10)</sup> examined the feasibility of a larger study that could determine the expulsion rates of copper T380A IUDs placed at the time of cesarean delivery. Study objectives were to determine the feasibility of enrolling and following women who chose to use the IUD after cesarean delivery, to collect data on IUD expulsion rates within this cohort and to demonstrate that immediate postplacental IUD at the time of cesarean delivery is acceptable to women. They documented that Immediate postplacental IUD insertion at the time of cesarean delivery is safe and acceptable.

WE can conclude that inserting CuT 380 A by 10 min after placental delivery is safe and effective with high retention rate. The expulsion rate was not high and further can be reduced with practice with the high level of acceptance despite low levels of awareness. The government needs to develop strategies to increase public awareness of the PPIUCD through different media sources. It is also important to arrange for training on PPIUCD in order to increase knowledge and skills among healthcare providers. This will also further promote PPIUCD use and aid in reduction of the expulsion rates, in a nation which moves with discounts, subsidies, and incentives, cash incentives to the acceptor, motivator and of course provider would bring about a substantial progress in the PPIUCD use in developing countries like India<sup>(11)</sup>

## CONCLUSION

The high rates of unplanned pregnancies and short inter-pregnancy intervals in this country underscore a missed opportunity in the current approach to contraception and family planning. IUD placement at the time of cesarean delivery ensures that women leave the hospital with an effective form of long-acting birth control. Additionally, as the proportion of cesarean deliveries is increasing, IUD placement at the time of cesarean delivery could be an important option for postpartum contraception. More studies are needed to evaluate the efficacy and especially safety aspects of immediate post-C-section insertion of IUDs.

## RECOMMENDATIONS

At the end of this study we recommend the use of IUCD at the time of C section due to the low rate of infection ,expulsion ,bleeding and pain .

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