Original Research Article

# Clinical profile of various IUCD cases with special reference to post-placental IUCD insertion

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## Abstract

**Background:** Contraceptive use in many resource-poor nations is still not at optimal levels and in India too, 13% of currently married women have an unmet need for family planning. Post partum insertion of reversible intrauterine devices (IUDs) has re-emerged as effective, safe method of contraception. **Aims and Objectives:** To assess the clinical profile of beneficiaries accepting IUCDs (post abortal/ delayed post partum/interval) in terms of acceptance, incidence of failure, expulsions and complications with special reference to post placental IUCD cases. **Methods:** The present study was a prospective study done in Obstetrics and Gynecology department of a tertiary care institute. 200 IUCD beneficiaries either in immediate post placental period (delivered vaginally or by caesarean section) or post abortal period or interval period were enrolled in the study. All participants were asked to follow up at 6weeks and 3 months after IUCD insertion. Acceptance rate was assessed and measures assessed at each follow up visit included safety (perforation, irregular bleeding, unusual vaginal discharge, and infection), efficacy (pregnancy, expulsions, removal), incidence of undescended IUCD strings and continuation rate. **Analysis:** Statistical analysis was carried out using Statistical Package for Social Sciences (SPSS) Version 23.0. Descriptive statistics in the form of frequencies and proportions were used to express various outcome measures. Fisher's exact test or Chi square test was used for comparison in between categorical variables. **Results:** Acceptance rate was 44% and follow up was 100%. Majority of beneficiaries belonged to 21-30 years age group. Overall there was a low rate of complications. No case of perforation was reported during both follow up visits and one pregnancy occurred in the 2nd follow up visit. In the 1st and 2nd follow up visit, spontaneous expulsions rate was 2.5% and 2.10%; majority expulsions were in Post placental vaginal group ($p<0.05$). Undescended IUCD strings' incidence was 4.5% and 5.78%. Bacterial vaginosis and pelvic inflammatory disease (PID) were diagnosed in 3.67% and 2.11% women complaining of vaginal discharge. **Conclusions:** IUCD insertions during immediate Post partum period both after LSCS and vaginal delivery, post abortal and interval period are acceptable, safe, efficacious with minimal side effects and continuation rate of 90.5%.

**Key words:** Post-partum intrauterine devices IUCD (PPIUCD), acceptability, safety, efficacy, undescended strings, continuation rate.

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Received Date: 05/05/2021 Revised Date: 12/06/2021 Accepted Date: 20/07/2021
DOI: https://doi.org/10.26611/10121934


Access this article online

Quick Response Code:

Website: www.medpulse.in

Accessed Date: 14 September 2021

## INTRODUCTION

Maternal mortality in India is still unacceptably high with Maternal Mortality Ratio (MMR) of 113/100000 live births in 2016-18.[1] Risk of maternal and child mortality and morbidity is very high when pregnancy occurs in short intervals after childbirth.[2] High impact evidence-based interventions to save the lives of mothers, newborns and children are urgently needed. Among such interventions, scaling up family planning could prevent one third of maternal deaths by allowing women to delay motherhood, avoid unintended pregnancies and subsequent abortions.[3]

How to cite this article: Nandkishor V More, Ganesh R Tondge, Shailesh P Vaidya, Abhijeet S Patil. Clinical profile of various IUCD cases with special reference to post-placental IUCD insertion. *MedPulse International Journal of Gynaecology.* September 2021; 19(3): 63-67. http://medpulse.in/Gynacology/index.php

Implemention of special family planning programs for postpartum women has been recognized as the standard of care.[4] In the current scenario, among the long acting reversible contraceptives (LARC); 2 types of IUDs, containing either copper or progestin, have re-emerged as effective, safe, and acceptable methods of contraception. They are cost effective, with rapid onset of action after administration and early return to fertility after discontinuation.[5] Insertion of an intrauterine device (IUD) immediately after delivery and expulsion of the placenta has several advantages. The woman is known not to be pregnant, her motivation for contraception may be high and the setting is convenient for both the woman and her provider. However, the risk of spontaneous expulsion may be unacceptably high.[6] In spite of the above benefits; contraceptive use in many resource-poor nations is still not at optimal levels and in India too, 13% of currently married women have an unmet need for family planning, almost the same as in 2005-06 (14%).[7] There are relatively few studies on IUDs in terms of clinical outcomes and different timing of insertion especially from India. Thus, present study was conducted to assess the clinical profile of beneficiaries accepting IUCDs (post abortal/ delayed post partum/interval) in terms of acceptance, incidence of failure, expulsions and complications with special reference to post placental IUCD cases.

## MATERIALS AND METHODS

The present study was a prospective observational hospital based study conducted in Obstetrics and Gynecology department of tertiary care hospital for a period of two years from November 2018 to October 2020. Institutional Ethical committee clearance was obtained prior to commencement of the study. Sample size: 200 beneficiaries.

### Methods

Institutional Ethical committee clearance was obtained prior to commencement of the study. Consecutive women in immediate post placental period (delivered vaginally or by caesarean section), women in immediate post abortal period and women in interval period coming to OPD desiring contraception were included in the study after applying inclusion and exclusion criteria and obtaining informed consent. All beneficiaries underwent counselling prior to IUCD insertion. The IUCD used was CuT-380A. For insertion of interval IUCD "Withdrawl Technique" and "No Touch Technique" was used. For post placental insertions for vaginal insertions, IUCD was placed in uterine fundus using Kelly's Placental Forceps, within 10 minutes of removal of placenta. During caesarean section ring forceps were used to place the IUCD in fundus of uterus through the lower segment incision which was routinely closed subsequently. After IUCD insertion patients were counselled and advised to follow-up for examination after 6 weeks and 3 months. Outcome measures assessed during the follow up visits were safety (perforation, irregular bleeding, unusual vaginal discharge, and infection), efficacy (pregnancy, expulsions, removal), and incidence of undescended IUCD strings. Pelvic examination was performed to examine descent of IUCD strings into vagina and to check signs of infection and bleeding. Descended strings were trimmed approximately 2 cm beyond external os. If strings were not visible on per speculum examination, an ultrasound was performed to check for expulsions and confirm presence of intrauterine IUCD.

### Statistical Analysis

Data entry was done using MS Excel. Statistical analysis was carried out using Statistical Package for Social Sciences (SPSS) Version 23.0. Descriptive statistics were used in the form of frequencies and proportions to assess various outcomes. Continuous variables were expressed as Mean (±standard deviation). Unpaired t test was used for comparison of numerical variables between the groups. Fisher's exact test/chi square test was used for comparison between categorical variables. A P value of $< 0.05$ was considered significant and $<0.001$ as highly significant.

## RESULTS

A total of 200 eligible beneficiaries gave consent for IUCD insertion out of 450 beneficiaries who were counselled; the acceptance rate was 44.44%. The mean (± standard deviation) age of beneficiaries included in the study was 24.73±2.39 years. (Range 20-33 years). Majority of beneficiaries were in the age group of 21-30 yrs and 75% of beneficiaries had only one child. Of the total 200 beneficiaries; 34.5% were illiterate, 22.5% had attended secondary school. IUCD insertion was post placental (within 10 minutes of delivery of placenta) in 80(40%) beneficiaries. Among these; IUCD insertion was done after vaginal delivery in 60 beneficiaries and in 20 beneficiaries IUCD insertion was done after Lower Segment Caesarean Section (LSCS). Interval IUCD insertion was done in 70 (35%) beneficiaries and Post Abortion IUCD (PAIUCD) insertion was done in 50(25%) beneficiaries.

**Table1:** Socio Demographic Characteristics of Beneficiaries and Time of Insertion Of IUCD.

| Age Group (Yrs) | N | % |
|---|---|---|
| 18-20 yrs | 5 | 2.5 |
| 21-25 yrs | 126 | 63 |
| 26-30 yrs | 62 | 31 |
| 31-35 yrs | 7 | 3.5 |
| **Literacy** | | |
| Literate | 131 | 65.5 |
| Illiterate | 69 | 34.5 |
| **Parity** | | |
| Para 1 | 150 | 75 |
| Para >1 | 50 | 25 |

| Time of IUCD insertion | | |
|---|---|---|
| Post placental | | |
| 1. Vaginal | 60 | 30 |
| 2. LSCS | 20 | 10 |
| Post abortal | 50 | 25 |
| Interval | 70 | 35 |

During the 1st (100%) follow up and 2nd follow up visits; safety and efficacy of IUCD was assessed along with string visibility. Safety and efficacy parameters during 1st and 2nd follow up visits are summarized in table 2.

**Table 2:** Safety parameters during 1st and 2nd follow up visits

| Safety | 1st follow Up | 2nd follow up | P value |
|---|---|---|---|
| Unusual vaginal Discharge | 29(15.8%) | 24(13.26%) 3 (1.57%) | >0.05 |
| a) PID | 1 (0.53%) | 4(2.09%) | |
| b) BV | 3 (1.58%) | | |
| Pelvic pain | 11(5.76%) | 12(6.63 %) | >0.05 |
| Menorrhagia | 24(12.63%) | 18(9.94 %) | >0.05 |

PID: Pelvic Inflammatory Disease BV: Bacterial vaginosis

### IUCD string Visibility

In the 1st follow up visit of; IUCD string was visible in 191(94.5%) of beneficiaries and in the 2nd follow up; IUCD string was visible in 179(94.21%) of beneficiaries.

### IUCD removal:

In the 1st and 2nd follow up visit IUCD removal was done in 5(2.5%) and 4(2.11%) beneficiaries respectively. Majority belonged to Post placental LSCS group during both visits. Difference in proportion of IUCD removals across the groups was not found to statistically significant. (P>0.05) In both follow up visits, reasons for IUCD removal included diagnosis of PID, patients insistence (family pressure/psychosocial reasons), bacterial vaginosis (BV) and menstrual complaints (menorrhagia). Efficacy parameters Failure /Pregnancy, Expulsions and Removal, undescended strings and continuation rate of beneficiaries at both follow up visits are detailed in table 3.

**Table 3:** Efficacy parameters, Undescended Strings and Continuation Rate during 1st and 2nd follow up visits

| | Post Placental LSCS (N=20) | | Post placental vaginal(N=60) | | Interval (N=70) | | Post abortion (N=50) | | P Value |
|---|---|---|---|---|---|---|---|---|---|
| **Efficacy of IUCD** | 1st follow Up | 2nd follow up | 1st follow Up | 2nd follow up | 1st follow Up | 2nd follow up | 1st follow Up | 2nd follow up | |
| Failure /Pregnancy | 0(0%) | 0(0%) | 0(0%) | 0(0%) | 1(1.43%) | 0(0%) | 0(0%) | 0(0%) | >0.05 |
| Expulsions | 1(5%) | 1(5%) | 3(5%) | 2(3.33%) | 1(1.43%) | 1(1.43%) | 0(0%) | 0(0%) | |
| Removal | 1(5%) | 1(5%) | 3(5%) | 2(3.33%) | 1(1.43%) | 1(1.43%) | 0(0%) | 0(0%) | |
| **Strings not visible** | 1(5%) | 3(15%) | 4(6.67%) | 3(5%) | 3(4.29%) | 3(4.29%) | 1(2%) | 2(4%) | |
| **Continuation rate** | 19(95%) | 18(90%) | 58(98.67%) | 54(90%) | 65(92.86%) | 61(87.14%) | 49(98%) | 48(96%) | |

## DISCUSSION

The present study assessed the clinical profile of 200 IUCD beneficiaries in terms of acceptance, timing of insertion safety and efficacy with special reference to post placental IUCD cases. The acceptance rate of IUCD in the present study was 44%. Varied rates of acceptance ranging from 14-44% have been reported by similar studies.[8-10] Women undergoing caesarean section seem to have greater probability of accepting postpartum IUCD possibly due to post-caesarean conception fear.[11] Antenatal counselling helped in improving acceptability rates.[12] In the present study, majority of beneficiaries were in the age group of 21-30 yrs. Other similar studies from India have reported comparable findings with beneficiaries predominantly belonging to the 2nd decade.[8,9,13,14] Age at marriage and opting for temporary methods of contraception is lesser in India than western counterparts.

### Timing of insertion:

Post placental insertion of IUCD (PPIUCD) was done in 80(40%) beneficiaries in the present study of which majority 60 were vaginal deliveries and 20 were after LSCS. Insertion of an intrauterine contraceptive device (IUD) immediately after delivery (post placental) has been recommended as a safe, effective, long term method of temporary contraception with minimal discomfort.[15] Majority of studies have assessed Post placental insertion of IUCD[8-14] which is commonly practised in many countries.

### Follow up visits

In the present study; the follow up was 100%, it could be due to prospective study design, counselling on need for follow up and satisfaction with the care provided. Also, the study site was in rural area where patients have limited tertiary care hospitals in their vicinity. Varied follow up visit rates have been reported by other similar studies ranging from 28%-100%. [8,11,13,14,16,17] Lower rates could be due to retrospective study design and preference for follow-up in nearby hospitals.

### Literacy

In the present study 65.5% beneficiaries were literate. Higher literacy rates contribute to better acceptance and follow up with longer IUCD continuation rates as evidenced in the study done in Egypt by Safwat *et al.*[12]

where acceptance rate was 9.4% with no formal education and 19.4% among those with formal education.

**Safety:**

In the present study; there were no cases of perforation during both follow up visits. None of the studies have reported any incidence of perforations after IUCD insertion.[8-17]

**Vaginal discharge and infection:**

In the present study during 1st and 2nd follow up visits vaginal discharge reported by 29(15.18%) and 24(13.26%) patients respectively was diagnosed to be due to bacterial vaginosis (3.67%) and pelvic inflammatory disease (PID) (2.11%) in minority of patients. Varied rates have been reported by other similar studies[11,14] with some studies reporting no case of infection.[8,13] In majority of patients; vaginal discharge was physiological and beneficiaries were counselled accordingly.

Pelvic pain:

Pelvic pain was reported by 11(5.76%) and 12(6.63 %) beneficiaries in 1st and 2nd follow up visits in the present study. Varied incidence of pelvic pain from 4-18% has been reported by other similar studies.[14,18,19]

**Menorrhagia**

Incidence of menorrhagia was12.63% and 9.94% in 1st and 2nd follow up visits in the present study. Varied incidence of menorrhagia from 4.2 -22.9% has been reported by other similar studies[13,18] which could be explained by difference in types of IUCD.

**Undescended strings**

Undescended IUCD strings' incidence was 4.5% and 5.78% in 1st and 2nd follow up visits in the present study. Reason for non-visibility of strings was non-descent in all beneficiaries. Varied incidence of undescended strings ranging from 4-38% has been reported by similar studies[11,13,14,16] which could probably be due to differences in inclusion criteria and rates of caesarean sections. In intra-caesarean insertion, though at the time of insertion threads are not outside cervical os, involution of uterus makes them visible in most cases at the first visit. Reassurance of patients and confirmation of IUCD by ultrasound helps in continuation of IUCD.

**Failure rate**

In the 1st follow up visit, no pregnancy occurred. In the 2nd follow up visit, 1 pregnancy occurred and failure rate was 0.5% . Low failure rates ranging from 0.3-3% have been reported by similar studies;[10,14,17] higher rates could be due to longer follow up periods. (1 year)

**Expulsions:**

In the present study; in the 1st and 2nd follow up visit spontaneous expulsions rate was 2.5% and 2.10%; majority expulsions were in Post placental vaginal group. Expulsions are less common in post LSCS IUCD insertions as they are directly placed in fundus. Other studies have reported expulsion rates ranging from 2.5-10%,[10,11,13,18] all studies report higher expulsion rates for PPIUCD vaginal group beneficiaries. Higher expulsion rates have also been reported in immediate post-placental insertions (within 10 minutes) compared to delayed/interval IUCD insertions.

**Removal**:

Removal rate in the 1st and 2nd follow up visit was 2.5% and 2.11% in the present study. Reasons for removal were pelvic inflammatory disease; continuing menorrhagia, vaginal discharge and family pressure. Comparable removal rates have been reported by similar studies ranging from 1.7-13.4%[8-11,13,14,18,19] with comparable reasons cited for removal as the present study.

**Continuation rate:**

The overall continuation rate was 95.5% and 90.5% in the 1st and 2nd follow up visit in the present study. Similar studies [8-19] have reported varied continuation rates ranging from 59.5%-93% as period of follow up differed from 6months-1 to 2 years. The main problems reported by beneficiaries in various studies were menorrhagia, expulsion and undescended strings which led to discontinuation of IUCD use. Overcoming these drawbacks could improve IUCD continuation rates.

The present study comprehensively assessed clinical profile of 200 IUCD beneficiaries in different timing [post placental, (vaginal and after LSCS), interval, post-abortal ] of insertion which was its novelty. The present study however did not have a longer follow up period (1 year or longer) to assess long term complications and continuation rates.

## CONCLUSIONS

IUCD insertions during immediate Postpartum period both after LSCS and vaginal delivery, post abortal and interval period have good acceptance, are safe, efficacious with minimal side effects and continuation rate of 90.5%. Post-partum insertion of IUD has the additional advantages of high motivation, ease of insertion and convenience for beneficiaries.

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Source of Support: None Declared
Conflict of Interest: None Declared