Original Article

Acceptability, Continuation and Satisfaction of Postpartum Intrauterine Contraceptive Device (PPIUCD) and Delayed Insertion: A Comparative Study

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Abstract

Background: The postpartum period is a critical time to initiate effective contraception to prevent unintended pregnancies and short interpregnancy intervals. The intrauterine contraceptive device (IUD) is a highly effective long-acting reversible contraceptive, but the optimal timing of insertion—immediately postpartum versus delayed—remains a subject of debate regarding patient outcomes. **Material and Methods:** A prospective comparative study was conducted in the OBG department at RDASMC & Hospitals, Ayodhya. Two hundred pregnant women, who consented to CUT380 IUD insertion, were enrolled for the study. Women are divided into two groups. PPIUCD group (n=100) who opted for insertion within 48 hrs of delivery. Delayed insertion group (n=100) who opted for IUD insertion at their 6-8 weeks postpartum visit. Data on demographic characteristics, continuation rates, complications (expulsion, bleeding, pain), reasons for discontinuation, and patient satisfaction scores on a 1-10 scale, were collected and analyzed. Statistical analysis was performed using the Chi-square and Independent t-test, with $p < 0.05$ considered significant. **Results:** The baseline demographic and obstetric characteristics were comparable between the two groups ($p > 0.05$). The one-year continuation rate was significantly lower in the PPIUCD group (85.0%) compared to the Delayed Insertion group (94.0%) ($p = 0.041$). The primary reason for the lower continuation in the PPIUCD group was a significantly higher expulsion rate (8.0% vs. 2.0%; $p = 0.035$). There were no significant differences in reported persistent pain or abnormal bleeding rates at one year. Patient satisfaction was significantly higher in the Delayed Insertion group (mean score: 8.9 ± 1.1) compared to the PPIUCD group (mean score: 8.1 ± 1.6) ($p = 0.002$). **Conclusion:** While PPIUCD offers the benefit of immediate, convenient contraception, it is associated with a lower one-year continuation rate, driven primarily by a higher risk of expulsion, and slightly lower patient satisfaction compared to delayed insertion. These findings underscore the need for comprehensive patient counseling regarding the distinct risk-benefit profiles of each insertion timing to facilitate informed decision-making.

Keywords: Postpartum contraception, Intrauterine Device, PPIUCD, Continuation Rate, Patient Satisfaction, Expulsion.

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Introduction

The postpartum period represents a pivotal opportunity to address the unmet need for contraception, thereby reducing the incidence of unintended pregnancies and promoting optimal birth spacing.[1] Short interpregnancy intervals of less than 18 months are associated with increased risks of adverse maternal and neonatal outcomes, including preterm birth, low birth weight, and maternal morbidity.[2] Long-acting reversible contraceptives (LARCs), particularly the intrauterine contraceptive device (IUD), are recommended as first-line options for most postpartum women due to their high efficacy, safety, and cost-effectiveness.[3]

The timing of IUD insertion after delivery is a key clinical consideration. Immediate postpartum IUD (PPIUCD) insertion, defined as placement within 48 hours of delivery, offers significant advantages. It capitalizes on the patient's motivation for contraception while they are already in a healthcare facility, overcoming logistical and financial barriers that may prevent them from returning for a follow-up visit.[4] This is particularly relevant in low-resource settings where loss to follow-up is common.

Conversely, delayed or interval insertion, typically performed at or after the 6-week postpartum check-up, has been the traditional standard of care. This timing allows for uterine involution to complete, which is hypothesized to reduce the risk of IUD expulsion.[5] However, this delay leaves women vulnerable to unintended pregnancy during the intervening period, as many resume sexual activity before their scheduled postpartum visit.[6] Recent studies have extensively compared the clinical outcomes of these two approaches. A consistent finding is that PPIUCD is

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associated with a higher expulsion rate than interval insertion, with rates varying from 2% to over 10% in different studies.[7] Despite this, overall continuation rates are often comparable because the convenience of PPIUCD prevents the "no-show" phenomenon associated with delayed insertion appointments. However, much existing research has focused predominantly on clinical endpoints like expulsion and perforation. There is a relative paucity of data directly comparing patient-centered outcomes, such as long-term satisfaction and the subjective experience with side effects, between the two groups in a real-world clinical setting. This research gap is significant, as patient satisfaction is critical to method continuation and overall contraceptive success.

Therefore, this study was designed to bridge this gap. The primary aim was to conduct a prospective comparative analysis of the one-year continuation rates, complications, and patient satisfaction scores among women who opted for PPIUCD versus those who underwent delayed IUD insertion at our tertiary care institution.

Materials and Methods

Study Design and Setting: This prospective study was conducted in the OBG department of RDASMC and hospitals, Ayodhya, a tertiary care teaching hospital in INDIA. After getting approval from the Institutional Ethics Committee, study was conducted in one and a half years duration from February 2024 to July 2025.

Study Population and Sample Size: The study included 200 women who chose the Copper T 380A IUD for postpartum contraception. The patients were divided into two equal cohorts of 100 women each:

1. PPIUCD Group: Women who had the IUD inserted within 48 hours of vaginal or caesarean delivery.
2. Delayed Insertion Group: Women who had the IUD inserted 6 to 8 weeks postpartum during a scheduled follow-up visit.

Data was collected from women who delivered between February 2024 and July 31, 2025, to ensure that at least one year of follow-up information was available.

Inclusion Criteria

- Age 18–35 years.
- Singleton pregnancy with term delivery (≥37 weeks gestation).
- Women who have given consent and voluntarily choose the CUT 380 AIUD

Exclusion Criteria

- History of uterine anomalies.
- Prolonged rupture of membranes (>18 hours).
- Chorioamnionitis or active puerperal sepsis.
- Unresolved postpartum hemorrhage.
- Known allergy to copper.
- Women who have not given consent for Cu-T380A IUD insertion

Data Collection and Tools: Data was collected from the patients on a Data collection sheet. Women are followed at 6 weeks, 6 month, and one year postpartum. The following variables were recorded:

- Demographic and Obstetric Data: Maternal age, parity, educational status, and mode of delivery.
- Continuation Status: Whether the IUD was still in situ at the 12-month follow-up visit.
- Complications: Documented instances of IUD expulsion (complete or partial), removal due to persistent pain or abnormal bleeding, and suspected pelvic inflammatory disease (PID).
- Reasons for Discontinuation: For those who discontinued, the primary reason was recorded (e.g., expulsion, desire for pregnancy, side effects, other personal reasons).

A standardized interview was conducted with all 200 women to assess patient satisfaction. Women were asked to rate their overall satisfaction with their IUD experience on a 10-point Likert scale, where one indicated "Very Dissatisfied" and 10 showed "Very Satisfied." Verbal consent was obtained before commencing the interview.

Procedure: For the PPIUCD group, the Cu-T 380A was inserted manually or using forceps immediately following placental delivery (post-placental) or before hospital discharge (within 48 hours). The IUD was inserted using the standard technique during a speculum examination at the 6–8-week postpartum visit for the Delayed Insertion group. All insertions were performed by trained resident doctors or faculty.

Statistical Analysis: Data were entered into Microsoft Excel and analyzed using SPSS for Windows, version 25.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics were presented as mean ± standard deviation (SD) for continuous variables (age, satisfaction score) and as frequencies and percentages for categorical variables. The Independent Samples t-test was used to compare mean values between the two groups. The Chi-square test or Fisher's exact test, where appropriate, was used to compare proportions. A p-value of less than 0.05 was considered statistically significant.

Results

A total of 258 patients were initially enrolled. Of these, 58 were excluded due to incomplete follow-up (n=35), insertion outside the defined time windows (n=12), or other exclusion criteria (n=11). The final analysis included 200 patients, 100 in the PPIUCD group and 100 in the Delayed Insertion group.

Baseline Characteristics. [Table 1] presents the demographic and obstetric characteristics of the two groups. There were no statistically significant differences in mean maternal age, parity, educational status, or mode of delivery between the PPIUCD and Delayed Insertion groups, indicating that the two cohorts were well-matched at baseline.

Table 1: Baseline Demographic and Obstetric Characteristics of Study Participants

Characteristic	PPIUCD Group (n=100)	Delayed Insertion Group (n=100)	p-value
Mean Age (years ± SD)	26.4 ± 4.1	27.1 ± 4.5	0.281
Parity			0.512
Primipara (%)	42 (42.0)	38 (38.0)	

Multipara (%)	58 (58.0)	62 (62.0)	
Educational Status			0.734
≤ Primary School (%)	31 (31.0)	28 (28.0)	
Secondary School (%)	54 (54.0)	57 (57.0)	
≥ College (%)	15 (15.0)	15 (15.0)	
Mode of Delivery			0.655
Vaginal (%)	68 (68.0)	72 (72.0)	
Caesarean Section (%)	32 (32.0)	28 (28.0)	

SD: Standard Deviation. P-values calculated using independent t-test for age and Chi-square test for categorical variables.

Continuation and Complication Rates

At the 12-month follow-up, the overall continuation rate was significantly higher in the Delayed Insertion group compared to the PPIUCD group (Table 2). A total of 85 (85.0%) women in the PPIUCD group were still using the IUD, compared to 94 (94.0%) in the Delayed Insertion group (p = 0.041). The most significant complication contributing to this difference was IUD expulsion. The expulsion rate in the PPIUCD group was 8.0%, significantly higher than the 2.0% rate observed in the Delayed Insertion group (p = 0.035). There were no statistically significant differences between the groups regarding removals for persistent pain or abnormal bleeding. No cases of uterine perforation or pelvic inflammatory disease were reported in either group during the one-year follow-up period.

Table 2: One-Year Continuation and Complication Rates

Outcome	PPIUCD Group (n=100)	Delayed Insertion Group (n=100)	p-value
Continuation at 1 Year (%)	85 (85.0)	94 (94.0)	0.041
Discontinuation at 1 Year (%)	15 (15.0)	6 (6.0)	0.041
Complications/Reasons for Removal			
Expulsion (%)	8 (8.0)	2 (2.0)	0.035
Removal for Pain/Bleeding (%)	4 (4.0)	3 (3.0)	0.705
Removal for Other Reasons (%)	3 (3.0)	1 (1.0)	0.315

P-values calculated using Chi-square or Fisher's exact test. "Other Reasons" include desire for pregnancy and personal reasons.

Patient Satisfaction

Patient satisfaction scores, showed a statistically significant difference between the two groups [Table 3]. The mean satisfaction score was 8.1 (± 1.6) in the PPIUCD group, compared to a higher mean score of 8.9 (± 1.1) in the Delayed Insertion group (p = 0.002).

Table 3: Reasons for Discontinuation and Patient Satisfaction Scores at 1 Year

Parameter	PPIUCD Group (n=100)	Delayed Insertion Group (n=100)	p-value
Total Discontinuations (n)	15	6	
Reason for Discontinuation (%)			
Expulsion	8 (53.3)	2 (33.3)	
Pain/Bleeding Issues	4 (26.7)	3 (50.0)	
Desire for Pregnancy	2 (13.3)	1 (16.7)	
Personal Reasons	1 (6.7)	0 (0.0)	
Mean Satisfaction Score (± SD)	8.1 ± 1.6	8.9 ± 1.1	0.002

SD: Standard Deviation. P-value for satisfaction score calculated using independent t-test.

Discussion

This study provides valuable insights into the comparative outcomes of immediate versus delayed postpartum IUD insertion in a real-world clinical setting. Our principal finding is that while both methods are highly effective, delayed insertion at 6-8 weeks postpartum was associated with a significantly higher one-year continuation rate, a lower expulsion rate, and greater patient satisfaction than immediate PPIUCD insertion. The one-year continuation rate of 85% for the PPIUCD group in our study is consistent with findings from other studies in similar settings. For instance, a large prospective study by Mohamed et al. reported a 12-month continuation rate of 82.7% for PPIUCD.[5] Our observed rate of 94% for the delayed insertion group is also in line with the high continuation rates generally reported for interval IUDs.[8] The disparity in expulsion rates primarily drove the statistically significant difference in continuation (p=0.041). The 8% expulsion rate for PPIUCD in our cohort is a critical finding and aligns with the existing body of literature. A meta- analysis by Whitaker et al. found that expulsion is the most common complication of PPIUCD, with rates ranging from 3% to 10%.[7] The underlying mechanism is believed to be the dynamic state of the postpartum uterus; as the uterus undergoes rapid involution, its changing size and powerful contractions can dislodge the device. In contrast, the 2% expulsion rate in our delayed insertion group reflects the stability of the fully involuted uterus, a finding corroborated by numerous studies.[9] Our data reinforces that while PPIUCD is safe, the risk of expulsion is a tangible drawback that must be clearly communicated to patients. Perhaps the most novel contribution of our study is the direct comparison of patient satisfaction. The significantly higher satisfaction score in the Delayed Insertion group (8.9 vs. 8.1, p=0.002) suggests that patient experience extends beyond just clinical outcomes. We hypothesize that this difference may be multifactorial.

Women in the PPIUCD group may experience greater anxiety about potential expulsion, especially if they were counseled on this higher risk. Additionally, early postpartum side effects like cramping and lochia can be conflated with IUD-related side effects, potentially coloring their initial experience negatively. In contrast, women receiving a delayed IUD are further removed from the immediate postpartum discomforts, and the lower incidence of complications like expulsion may contribute to a more positive overall perception of the method. This highlights the importance of incorporating patient-reported outcomes in contraceptive research.[10-14] This study has several strengths. It uses a comparative design with well-matched groups, focuses on a specific IUD type (Cu-T 380A), and includes patient satisfaction as a key outcome. However, some limitations must be acknowledged. Our findings may not be generalizable to other populations or healthcare systems as a single-center study. Finally, we could not control for provider skill, which is known to influence PPIUCD expulsion rates. Despite these limitations, the clinical implications are clear. The choice between immediate and delayed postpartum IUD insertion involves a trade-off. PPIUCD offers unparalleled convenience and ensures contraception is initiated before the risk of a new pregnancy arises. This option is indispensable for women who may not return for a postpartum visit. However, for women who are likely to be compliant with follow-up, a delayed insertion may offer a better long-term experience with a lower chance of expulsion and higher satisfaction.[15] Therefore, patient-centered counseling is paramount. Clinicians should present both options, transparently discussing the convenience and motivation of PPIUCD against the lower expulsion risk and potentially higher satisfaction of delayed insertion, allowing each woman to make a decision that best fits her personal circumstances and preferences.

Conclusion

In this comparative study, delayed IUD insertion at 6-8 weeks postpartum demonstrated superior outcomes at one year, with significantly higher continuation rates, lower expulsion rates, and greater patient satisfaction than immediate PPIUCD insertion. The primary disadvantage of PPIUCD was its fourfold higher risk of expulsion. These findings emphasize that there is no single "best" time for postpartum IUD insertion for all women. The optimal strategy depends on balancing the programmatic advantage of immediate provision against the clinical and experiential benefits of a delayed approach. Healthcare providers must engage in shared decision-making, empowering patients with comprehensive information to select the timing that aligns with their health needs and life context.

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Conflicts of interest

There are no conflicts of interest.

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