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POSTPARTUM INSERTION OF INTRAUTERINE CONTRACEPTIVE DEVICES: A STUDY ON EXPULSION RATES, ADVERSE EVENTS, AND PATIENT COMPLIANCE.

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ABSTRACT:

Background: Postpartum intrauterine contraceptive device (PPIUCD) insertion is an effective strategy to address the unmet need for contraception and to reduce the risk of closely spaced pregnancies, which are associated with adverse maternal and neonatal outcomes. This study was conducted to evaluate the safety, efficacy, side effects, and complications of PPIUCD insertions in a tertiary care center.

Method: This prospective observational study was conducted at a tertiary care center and included 250 postpartum women who accepted PPIUCD insertion within 48 hours of delivery after counseling and consent. Women with contraindications as per WHO category 3 and 4 were excluded. CuT 380A was inserted either post-placental following vaginal delivery or during cesarean section by trained doctors using aseptic techniques. Participants were followed at 6 weeks and 3 months to assess complications, side effects, expulsions, removals, and continuation. Data were analyzed using SPSS with descriptive statistics and chi-square test, considering $p<0.05$ as significant.

Results: A total of 250 women underwent PPIUCD insertion, with a mean age of 24.1 ± 3.9 years. Follow-up was achieved in 85.6%. The most common complaints were bleeding (32.7%) and pain (18.6%). Expulsion occurred in 9.8%, mostly after vaginal delivery. Removal was done in 13.5%, mainly for side effects or preference. The 3-month continuation rate was 76.6%, significantly higher after cesarean than vaginal delivery ($p<0.001$).

Conclusion: PPIUCD is a safe and effective postpartum contraceptive with high continuation and minimal complications. Counseling, skilled insertion, and follow-up are key, and efforts should focus on reducing expulsions, especially after vaginal delivery.

Keywords: Intrauterine Devices; Postpartum Period; Postpartum; Contraceptive Devices; Expulsion of Intrauterine Devices.

INTRODUCTION

Contraception is defined as the intentional prevention of conception through the use of various devices, sexual practices, chemicals, drugs, or surgical procedures [1]. The postpartum period offers a unique opportunity for initiating contraception, as fertility may return within weeks after delivery.

One of the most practical, effective and least expensive forms of contraception is the intrauterine device (IUD), which has been endorsed as a first-line contraceptive choice by the American College of Obstetricians and Gynecologists [1]. Postpartum intrauterine device (IUD) placement provides safe and highly effective contraception at a time when women are accessing medical care [2,3]. It eliminates the need for an additional hospital visit and has been endorsed by WHO and national guidelines as an integral part of postpartum family planning.

Despite these advantages, higher expulsion rates compared to interval insertion remain a major concern. Meta-analyses report expulsion rates of 10–20% after vaginal post-placental insertion versus 2–5% with interval placement [4], while intracesarean insertion demonstrates comparatively lower expulsion rates. Other complications, such as uterine perforation and infection, are rare but relevant for clinical counseling. Patient satisfaction and continuation are influenced not only by expulsion but also by follow-up compliance, counseling quality, and management of side effects [4,5].

Although real-world evidence on postpartum IUCD use is available, most studies are derived from controlled trials that may not fully reflect routine hospital practice. Therefore, this study aims to emphasize not only expulsion rates and complications but also how well women follow post-insertion advice and attend follow-up visits. By combining clinical outcomes with patient behavior, this study seeks to improve the safety, acceptance, and overall satisfaction of postpartum IUCD services.

MATERIALS AND METHOD

The present study was a prospective observational study conducted at a tertiary care centre. A total of 250 postpartum women who accepted PPIUCD insertion within 48 hours of delivery were included after obtaining ethical clearance and written informed consent. All antenatal women admitted between 36 to 42 weeks of gestation who delivered a healthy live baby, had given prior consent for PPIUCD insertion after counseling, and were willing to have a CuT inserted with follow-up were eligible for inclusion. The exclusion criteria were based on the WHO medical eligibility criteria categories 3 and 4 for PPIUCD insertion. Women with puerperal sepsis, unresolved postpartum hemorrhage, rupture of membranes for more than 18 hours, fever above 38°C, uterine anomalies, or extensive genital trauma were excluded from the study.

All pregnant women were counseled regarding postpartum contraception options, including PPIUCD insertion, as part of routine antenatal care. The safety, effectiveness, and possible side effects of PPIUCD were explained in detail, and written informed consent was obtained from those who opted for the method. The CuT 380A IUCD was inserted either within 10 minutes of placental delivery in vaginal births or during cesarean section, by trained doctors using standard aseptic techniques in accordance with national guidelines.

Participants were followed up at 6 weeks and 3 months postpartum through clinic visits or telephone calls. At each follow-up, they were assessed for complications, side effects, expulsions, removals, and continuation of the method. Demographic details, obstetric history, and insertion-related information were recorded at baseline, while follow-up data included complications, side effects, expulsions, removals, and reasons for discontinuation. Data collection was carried out using a

structured proforma. The primary outcomes of the study were PPIUCD continuation, expulsion, and removal rates at 3 months post-insertion, while secondary outcomes included complications such as bleeding, pain, infection, and missing strings.

Statistical Analysis

Data was analyzed using SPSS software. Descriptive statistics were used to summarize demographic and clinical characteristics. Chi-square test was used to compare outcomes between vaginal and cesarean deliveries. A p-value <0.05 was considered statistically significant.

RESULTS

Table-1: Demographic and Clinical Characteristics of Study Participants

Parameter	Category	No. of Cases	Percentage (%)
Age Group	<20	51	20.40%
	21–25	106	42.40%
	26–30	84	33.60%
	31–35	9	3.60%
Age (Mean ± SD)	24.1 ± 3.9		
Socioeconomic Status	Upper Class	13	5.20%
	Upper Middle Class	88	35.20%
	Lower Middle Class	80	32.00%
	Upper Lower Class	60	24.00%
	Lower Class	9	3.60%
Parity	Multigravida	134	53.60%
	Primigravida	116	46.40%
Period Since Last Childbirth*	1–3 Years	103	41.20%
	3–6 Years	29	11.60%
	≥6 Years	4	1.60%
	Total	136	54.40%
Mode of delivery	Cesarean deliveries	160	64.00%
	Vaginal deliveries	90	36.00%

In the present study, the majority of participants belonged to the 21–25 years age group (42.40%), with a mean age of 24.1 ± 3.9 years. Most women were from the upper middle (35.20%) and lower middle (32.00%) socioeconomic classes. Multigravida cases (53.60%) slightly outnumbered primigravida (46.40%). Among women with a previous childbirth, 41.20% had delivered within the past 1–3 years. Cesarean deliveries accounted for 64.00% of insertions; while 36.00% followed vaginal deliveries.PPIUCD was inserted following vaginal delivery in 64% of cases and during cesarean section in 36% of cases.

The majority of multiparous women (76%) had their last childbirth 1-3 years ago.

Table-2: Comparison between FTND and CS on Follow Up

FTND / CS	Yes		No	
	No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
CS (n=90)	79	87.78%	11	12.22%
FTND (n=160)	135	84.38%	25	15.63%
Total	214	85.60%	36	14.40%

Follow-up was successfully achieved in 214 women (85.6%) at either 6 weeks (47.2%) or 3 months (38.4%) postpartum, while 36 women (14.4%) were lost to follow-up. The follow-up rate was slightly higher after cesarean deliveries (87.7%) compared to vaginal deliveries (84.4%). At 6 weeks, the majority returned to the clinic (92.3%), whereas at 3 months, clinic visits (85.4%) remained more common than phone follow-up (14%).

Table-3: Distribution According to Type of Complaint at Follow Up

Type Of Complaint at Follow Up	No. Of Cases	Percentage
Bleeding Problems	70	32.70%
Abdominal Pain	40	18.60%
String Problems	35	16.30%
Expulsions	21	9.80%
Displacement Of IUCD	2	0.90%
Infection	0	0%
No Complaints	46	21.40%

Among the 214 women followed up, 168 (78.5%) reported at least one complaint. The most common issue was abnormal uterine bleeding (32.7%), followed by abdominal pain (18.6%) and string-related problems (16.3%). Expulsion of the IUCD occurred in 9.8% of cases, while displacement was noted in 0.9%, 2 cases - one had malrotated IUCD and other had Impacted IUCD , required Hysteroscopic removal. Among the total of 35 individuals evaluated for string visibility during follow-up, 13 cases (37.1%) were noted to have a missing IUCD string.5 required ultrasound and confirmed PPIUCD were in situ.Rest threads were found at cervical canal . No cases of infection were reported. Notably, 21.4% of women had no complaints during follow-up.

Tale-4: Distribution According to Reason for Removal

Reason For Removal	No. of Cases	Percentage
Want other method of contraception	10	34.48%
Bleeding	8	27.59%
Pain	7	24.14%
Wants to remove	3	10.34%
Wants conception	1	3.45%
Total	29	100.00%

Among the 29 women who underwent IUCD removal, the most common reason was preference for another method of contraception (34.5%), followed by bleeding (27.6%) and pain (24.1%). Fewer women opted for removal due to personal preference (10.3%) or desire for conception (3.5%).

Table-5: Distribution According to Expulsion of IUCD

Expulsion	CS	FTND	Total
Complete	1	6	7
Partial	3	11	14
Total	4	17	21

Out of 21 expulsions, 7 (33.3%) were complete and 14 (66.7%) were partial. Expulsions were more common following vaginal deliveries (17 cases; 81%) compared to cesarean sections (4 cases; 19%).

Table-6: Continuation Rate in study

Continuation Rate	No. Of Cases	Percentage
Total Insertions	250	100.00%
Total Follow up	214	85.60%
Expulsions	21	9.81%
Removal	29	13.55%
Continuation	164	76.64%
P-value		

At 3-month follow-up, out of 214 women, the continuation rate of PPIUCD was 77% (164 cases). Expulsions occurred in 21 women (9.8%) and removals in 29 women (13.5%). Continuation was significantly higher in cesarean section cases compared to vaginal deliveries ($p = 0.000051$).

DISCUSSION:

The present study evaluated demographic characteristics, follow-up rates, complications, expulsion, removal reasons, and continuation of PPIUCD among 250 women. The mean age was 24.1 ± 3.9 years, with most participants aged 21–25 years, consistent with **Chawla et al. (2024),** showing highest PPIUCD uptake among women in early reproductive years. Similar trends were noted by **Suhag et al. [8] (2025)** and studies from India and sub-Saharan Africa, indicating that younger women are more receptive to long-acting reversible contraception immediately postpartum.

Socioeconomic distribution showed higher uptake among women from middle socioeconomic classes, aligning with **Splinter et al. (2025),** where acceptance was highest among women with moderate educational and financial backgrounds, reflecting accessibility and counseling effectiveness. Follow-up was achieved in 85.6% of cases, comparable to prior Indian studies (80–90%), with higher compliance after cesarean deliveries (87.8%) than vaginal deliveries (84.4%), suggesting that cesarean cases allow easier intraoperative placement and better string positioning [8].

Regarding complications, 78.5% reported at least one complaint, most commonly abnormal bleeding (32.7%), abdominal pain (18.6%), and string problems (16.3%), consistent with previous studies [7, 9]. No infections were reported, supporting the safety of PPIUCD insertion under aseptic precautions. Expulsion occurred in 9.8% of women, predominantly partial (66.7%), with higher rates after vaginal deliveries (81%) than cesarean sections (19%), consistent with literature [7, 8].

The removal rate was 13.5%, mainly due to preference for another method (34.5%), bleeding (27.6%), and pain (24.1%), reflecting earlier findings where side effects and method preference were primary reasons. The continuation rate at three months was 76.6%, comparable to reported rates of 70–85% at 3–6 months postpartum, with significantly higher continuation after cesarean insertion ($p = 0.000051$), supporting the benefit of intra-cesarean placement for better positioning and lower expulsion.

Cwiak C et al. [3] concluded that postpartum IUD placement remains a viable option for patients who wish to use a long-acting reversible contraceptive method and have it placed at the time of delivery. **Garmi G et al. [10]** demonstrated that IUD placement during cesarean section is effective in preventing unintended pregnancies within the first year postpartum, without affecting operative outcomes.

Overall, these findings reinforce that PPIUCD is a highly acceptable, safe, and effective postpartum contraceptive method. Optimized counseling, proper string trimming, and strengthened follow-up may further improve continuation and satisfaction rates.

CONCLUSION:

From the results of our study it was concluded that, PPIUCD is a safe, effective, and acceptable method of postpartum contraception, with minimal complications and high continuation rates. Adequate counseling, skilled insertion, and timely follow-up are essential to optimize outcomes. Future research should focus on reducing expulsion rates, particularly after vaginal delivery, and identifying factors that influence long-term continuation.

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