

1 Immediate Postpartum Insertion of Intrauterine Contraceptive 2 Device after Vaginal Delivery: It's Safety, Efficacy and Expulsion

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6 Abstract

7 Background: India is the second most populated country in the world with 1.32 billion people.
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10 **Index terms**— postpartum intrauterine contraceptive device (PPIUCD), contraception, expulsion.

11 Abstract-Background: India is the second most populated country in the world with 1.32 billion people.
12 It contributes 17.5% of the world's population by adding 25 million births annually. Family planning with
13 adequate spacing between the pregnancies can prevent about 32% of maternal deaths and 10% of child mortality.
14 Postpartum period is the ideal time for family planning. Pregnancies with less than the recommended spacing
15 can lead to obstetric complications like spontaneous abortion, preterm labour, postpartum haemorrhage and
16 maternal mortality and fetal complications like SGA babies and fetal deaths. Hence practice of contraception
17 is mandatory. Among the options available, Cu T 380A is the most cost effective, safe, rapidly reversible, long
18 acting, coital independent method of contraception with relatively few side effects.

19 Aims and Objectives: To evaluate the safety, efficacy and expulsion rate of immediate postpartum intrauterine
20 contraceptive devices (PPIUCD).

21 Materials and Methods: This is a prospective observational study to assess the safety and efficacy of PPIUCD
22 use in women inserted immediately (within 48 hours) after vaginal delivery. The study was conducted at
23 Department of Obstetrics & Gynecology, Jhalawar Medical College, Jhalawar over a period of one year from
24 November 2018 to October 2019. Ethical approval for the study was obtained from hospital ethical committee
25 prior to the commencement of the study. 203 women delivering in the hospital fulfilling the inclusion criteria
26 were included in the study. Postpartum insertion of IUCD Cu T 380A was done under sterile conditions and
27 antibiotic coverage to ensure asepsis in the mother. Informed written consent was taken from mother before
28 insertion after elaborating the possible complaints following insertion and reassurance.

29 Result: In this study, acceptance of PPIUCD was more in educated and multipara women with having at
30 least one male child. The gross cumulative removal, expulsion and continuation rates were 7.9%, 12.8% and
31 68.9%. There was one case of pregnancy with IUCD in situ and no cases of perforation or other major complications
32 were noted.

33 Conclusion: PPIUCD is a safe because there were only few complications and no case of perforation. It is also
34 effective because there was only one case of IUCD failure which results

35 1 Introduction

36 India is the second most populated country in the world with 1.32 billion people. It contributes 17.5% of the world's
37 population by adding 25 million births annually. Family planning with adequate spacing between the pregnancies
38 can prevent about 32% of maternal deaths and 10% of child mortality. 1 Postpartum period is the ideal time for
39 family planning. Pregnancies with less than the recommended spacing can lead to obstetric complications like
40 spontaneous abortion, preterm labour, postpartum haemorrhage and maternal mortality and fetal complications
41 like SGA babies and fetal deaths. ??-8. Hence practice of contraception is mandatory. In countries like India,
42 the only time a healthy woman contacts a health care provider is during delivery. With the increased number
43 of institutional deliveries, due to provision of Janani Suraksha Yojana-a cash transfer scheme there is increased
44 access to the pregnant women for promoting family planning services. In the immediate postpartum period, the
45 insertion of intrauterine device is convenient and these women are highly motivated. The postpartum IUCD
46 insertion is particularly suitable for our country where even para medical personnel can insert the Cu T and

47 delivery is the only time these patients come in contact with the hospital. The intra uterine device is highly
48 effective, safe, long acting, coitus independent and cost effective 9 method of contraception with relatively few
49 side effects and fertility returns quickly as soon as it is removed. [10][11][12][13][14] This study helps to determine
50 the socio economic and demographic factors associated with immediate postpartum insertion of copper T and it
51 also helps to determine the complications.

52 2 II.

53 3 Material and Methods

54 This is a prospective observational study to assess the acceptability, safety, efficacy and outcome of PPIUCD use
55 in women inserted immediately after vaginal delivery. The study was conducted at Department of Obstetrics
56 & Gynecology, Jhalawar Medical College, Jhalawar over a period of one year from November 2018 to October
57 2019. Ethical approval for the study was obtained from hospital ethical committee. 203 women delivering in
58 the hospital fulfilling the inclusion criteria were included in the study. Post placental insertion of IUCD CuT
59 380A was done under sterile conditions and antibiotic coverage to ensure asepsis in the mother. Informed written
60 consent was taken from mother before insertion.

61 Inclusion criteria: All the women with singleton or multiple pregnancy delivering vaginally at Jhalawar medical
62 college were included in the study.

63 Exclusion criteria: Women who did not provide informed consent, history of antepartum hemorrhage, PROM
64 > 18 hours, postpartum hemorrhage, Fever during labour and delivery, anomalous uterus, chorioamnionitis, HIV
65 positive mothers taking ART, patients with previous allergic reaction to IUCD, history of lower genital tract
66 infections or active STD.

67 A questionnaire was used to collect data from the patients, which included socio demographic data, previous
68 contraceptive history and awareness about PPIUCD. All women were advised to come for follow up at 15 days,
69 6 weeks and 3 months following IUCD insertion. A follow up card was given to all the women containing
70 information regarding type of PPIUCD inserted, insertion date, date of expiry, date of follow up visits, patient's
71 phone no. During follow up visits, data was collected regarding complaints, willingness to continue Cu T, request
72 for removal, willingness for reinsertion if expelled. Speculum examination was done to see the strings of IUCD
73 and to rule out any local infection of cervix and vagina.

74 4 III.

75 5 Result

76 In this study, majority of the women were aged between 21-25 years (53.7%), most of the women (48.3%) had
77 completed their primary education, 95.1% of women were housewives. Most of the women (69.5%) belonged
78 to rural area. Majority of the women (53.7%) were multipara and most of the women (50.3%) had one living
79 child. Majority of the women (61.6%) had one living male child. The gross cumulative removal, expulsion and
80 continuation rates were 7.9%, 12.8% and 68.9%. There was one case of pregnancy with IUCD in situ and no cases
81 of perforation or other major complications were noted.

82 6 Discussion

83 The postpartum period is potentially an ideal time to begin contraception as women are more strongly motivated
84 to do so at this time, which also has the advantage of being convenient for both women and health-care providers.
85 IUCD insertion in postpartum period provides a good opportunity to achieve long term contraception with
86 minimal discomfort to woman. The intrauterine devices provide reversible long lasting and effective method of
87 birth control. 15,16,17 In this study, majority of the women 108 (53.7%) were aged between 21-25 years. This
88 is similar to a study conducted by Singal et al which found mean age of PPIUCD insertion to be 23.12+/-2.42
89 years. 18 This shows that PPIUCD usage as a method of contraception is more among young females rather
90 than among teenage pregnancies. The education status of the study group was analysed to understand the role
91 of education in PPIUCD acceptors. Majority of women had some form of education. This shows that women
92 who had some formal education were willing to accept PPIUCD. Educated women understand the risk of close
93 pregnancies and willing to space out pregnancy by using PPIUCD. This was similar to the studies conducted
94 by Safwat et al ??9 , Anjali et al ??0, Gunjan et al 21 and Vidyaraman et al. 22 Uneducated women tend to
95 overlook the benefits and their decision making is highly influenced by their family members. Educated women
96 tend to voice out their concerns and this facilitates in removing their misconceptions over PPIUCD. It is easy
97 to convince an educated woman about the benefits of PPIUCD usage. Higher educated women also had lower
98 acceptance of PPIUCD as they have easy access to other methods of contraception like condoms, OCPs and
99 permanent sterilization. Majority of the women in this study were housewives. Most of the women (69.5%)
100 in the study group belong to rural area. The acceptance of PPIUCD was higher among the rural women as
101 compared to urban women. This is because the women of urban areas rely on other methods of contraception
102 like OCPs, injectable hormonal contraceptives, condoms, permanent sterilization. Katheit G et al 23 found that
103 acceptance of PPIUCD was almost equal among rural (47.6%) and urban women (52.4%). This clearly indicates

104 that training to ASHA, ANMs and anganwadi workers and integrating this method in national programmes like
105 National rural health mission has contributed significantly in family planning programme. Majority of the women
106 in this study were multi-parous. This is similar to studies by Grimes et al 24 , Shukla M et al. 25 , Borthakur
107 S et al. 26 , Goswami G et al 21 and Maluchuru S et al. 27 Mishra S, 28 Gautam R et al 29 , Vidyarama R
108 et al 22 and Anjali et al found a higher acceptance in primipara. Some studies shows that women with higher
109 parity prefer permanent mode of contraception unlike primiparous women who use PPIUCD to space out their
110 pregnancy. The study group was analysed according to the number of living children. It was found that (50.3%)
111 women had one living child. This shows that majority of women with one living child are willing to use PPIUCD
112 as a method of contraception. This was similar to the studies by Kumar S et al 30 and Bhalerao AR et al 31 .
113 Contrary to the present study, Katheit G et al 23 found that 35.76% of total PPIUCD acceptors were having 2
114 children. According to Patel and Khan, 32 men approve use of contraceptive only after having 2 or 3 children.

115 Awareness of IUCD was 44.3%. In a study conducted by Gujju RLB et al, 33 only 54% of the women
116 were aware of IUCD before they received counselling. Awareness of IUCD has a direct relation with women's
117 education. According to Ullah and Chakraborty, 34 women's education was the most important determining
118 factor for contraceptive use.

119 The reasons for acceptance among women was analysed in the study. Most women preferred PPIUCD for
120 the reversible nature. This was contrary to the studies by Satyavathi et al 27 and found that reasons for
121 IUCD acceptance were long acting nature in 55.28% and 20.73% due to safety. PPIUCD has many advantages
122 including its reversibility, not requiring regular user compliance, lack of systemic side effects, coitus independent,
123 no interference with breast feeding.

124 In this study it was found that the acceptance of PPIUCD was more in women who had at least one living
125 male child. In a society that values highly a male child, it probably was reassuring to the women that by having
126 a male child a significant milestone has been achieved. Therefore they were more inclined to accept PPIUCD.
127 The study by Bhalerao and Purandare 31 reported that acceptance was high among women who had at least one
128 male child.

129 In this study, out of 203 women, 21(10.3%) women were lost to follow up. Among the remaining 182 acceptors,
130 26 women spontaneously expelled PPIUCD. The gross cumulative expulsion rate at the end of 3 months was
131 12.8%. All the expulsions occur within 6 weeks.

132 Gunjan et al 21 reported 10% expulsion rate and 30% lost follow up. Sangeetha et al 35 study resulted 6.8%
133 expulsion. Kittur et al. 36 reported 5.23% expulsion rate and they also concluded that the expulsion rate could
134 be minimized if the insertion was done by trained person and proper fundal placement was assured.

135 In this study, expulsion rate was high in primiparous women than multiparous women. This finding was
136 contrary to other studies in which expulsion rate was high in multiparous women which is very significant due
137 to parous cervix in multiparous women. According to Gupta et al 37 expulsion rate was significantly higher in
138 multiparous women (4.67%) compared to primiparous women (2%) following vaginal PPIUCD insertions. The
139 higher rate of expulsion in primiparous women can be misleading because it can be due to wrong reporting by the
140 PPIUCD acceptor women. May be these women had voluntarily removed the PPIUCD under family pressure.
141 As education level is low in Jhalawar, uneducated people have many taboos for PPIUCD like it can decrease
142 fertility or it can cause ill effect on health. Due to these psychosocial factors, a woman can remove PPIUCD
143 voluntarily and can misguide the Doctor that it has been expelled spontaneously.

144 In this study, analyzing the complications following PPIUCD insertions, heavy menstrual bleeding and pain
145 abdomen was the most common complains. This was similar to the studies conducted by by Satyyawathi et al
146 27 , Farhat Arshad et al 61 and Gunjan et al 21 .

147 In the present study, one case of failure in the form of pregnancy was observed. Eroglu et al 38 found 2/84
148 pregnancies in post placental Copper-T 380A, 2/43 in early postpartum (10 min-72 hrs) and 4/130 in interval
149 insertion group at 1 year of follow up. Contrary to this, Ricalde et al 25 reported no pregnancy after 1 year of
150 insertion of Cu-T380A or Multiload Cu-375 in post placentally and in early postpartum period. Gupta et al, 39
151 also found no failure at 6 months of follow up in both immediate insertion and delayed insertion group.

152 In the present study, no case of perforation was seen. The possible reason could be due to thick postpartum
153 uterine wall immediately after delivery. In this respect, this study was consistent with other studies conducted
154 by Shukla et al 70 , KitturS et al 40 .

155 In this study, 16 (7.9%) women requested removal of PPIUCD for various reasons. Most common reason was
156 pain abdomen. This was contrary to the study by Satayvathi et al 27 in which bleeding was the commonest
157 reason for removal.

158 In the present study, 19 women had heavy menstrual bleeding but only 2 women wanted removal. 16 women
159 had pain abdomen and out of these 7 women wanted removal. Celen et al 37 study reported 23.5% incidence
160 of bleeding but only 14.71% wanted removal, while the remaining retained IUCD with reassurance. Positive
161 attitude of the patient plays a significant role in continuation of PPIUCD.

162 In this study, the continuation rates at 15 days, 6 weeks and 3 months postpartum were 76.4%, 70.9%and
163 68.9% respectively. Raffat Sultana et al 41 reported continuation rates of 94%, 92% and 82.6% at 1 week, 6
164 weeks and 6 months postpartum respectively. Anjum Afshan et al 42 reported continuation rates at 6 weeks and
165 6 months were 90% and 84% respectively. Sahaja Kittur et al 50 reported continuation rate of 86.19% at 6 weeks
166 follow up.

167 V.

168 **7 Conclusion**

169 Immediate postpartum intrauterine contraceptive device is a safe, effective and long lasting reversible contra-
170 ceptive method to women in the delivery setting. Women are highly motivated during the postpartum period
171 and receptive to family planning advice and no additional visit to hospital is required. PPIUCD is very safe
172 with minimal side effects. Majority of the PPIUCD were inserted after proper counseling, but no one underwent
173 reinsertion following spontaneous expulsion which indicates that even more information regarding the advantages
174 and disadvantages of all the available methods and PPIUCD have to be explained to decrease the unmet need of
the family planning services.

Figure 1:

1

Figure 2: Table 1 :

2

Education	Awareness of PPIUCD			
	YES (Number)	YES (%)	NO (Num- ber)	NO (%)
Illiterate	2	2.22	40	35.39
Primary	29	32.22	69	61.06
Secondary	45	50	3	2.65
Degree /Diploma	14	15.55	1	0.88

Figure 3: Table 2 :

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3

Reason	Number	Percent
Long term	50	24.6
Safe	6	2.9
Reversible	138	67.9
Fewer clinical visits	9	4.4

Figure 4: Table 3 :

4

Number	Percent
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Figure 5: Table 4 :

5

Reason	15 Days	6 Weeks	3 Months
Abdominal pain	2	5	0
Heavy menstrual bleeding	0	1	1
Psychosocial causes	2	1	2
For permanent sterilization	0	1	1

Figure 6: Table 5 :

6

Complications	15 Days n=182	6 weeks n=155	3 months n=144
No complaints	162 (89.0%)	135 (87.1%)	129 (89.6%)
Heavy menstrual bleeding	0	6 (3.9%)	13 (9.0%)
Abdominal pain	4 (2.2%)	9 (5.8%)	3 (2.1%)
Missing strings	0	7 (4.5%)	2 (1.4%)
Expulsion	Complete 23 (12.6%)	3 (1.9%)	0
	Partial 0	0	0
White discharge	0	0	1 (0.7%)
Pregnancy	0	0	1 (0.7%)

Figure 7: Table 6 :

7

Problem	Total cases	Removal of Cu T	Continuation of Cu T
Heavy menstrual bleeding	19	2	17
Abdominal Pain	16	7	9
Missing strings	9	0	9
Expulsion	26	26	
White discharge	1	0	1
Pregnancy	1	1	
No complication	110	6	104

Figure 8: Table 7 :

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7 CONCLUSION

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