



## Comparative Study on Outcomes of Immediate Postpartum Intrauterine Contraceptive Device Insertions in Vaginal deliveries and Caesarean section

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### Abstract

**Background:** Immediate postpartum intrauterine contraceptive device (IPPIUCD) is an effective reversible contraception to mothers in the postpartum period. Our aim is to do a comparative study on the clinical outcomes of IPPIUCD insertions in vaginal deliveries versus caesarean section.

**Methods:** This is a retrospective comparative study done in Kanyakumari Govt Medical College Hospital. A total of 502 vaginal and caesarean deliveries with IPPIUCD insertions, over a 4 year period (January 2013-January 2017), was studied and were compared. The outcome was measured in terms of safety (perforation, abnormal uterine bleeding, abnormal vaginal discharge, and infection), efficacy (pregnancy, expulsions, and discontinuations), and incidence of missed IUCD strings. Results were analysed and chi square tests were used for comparison in between the variables.

**Results:** The rates of overall complications were low. No incidence of perforation or pregnancy was reported. Only in 5.3% cases there were spontaneous expulsions which was significantly higher in vaginal deliveries ( $p=0.042$ ). The incidence of missed IUCD strings was 8.1%, which was significantly higher in LSCS. ( $p=0.000$ ).

**Conclusion:** IPPIUCD is an ideal tool in the battle of family planning and should be encouraged in both vaginal deliveries and caesarean sections. Early follow-up should be encouraged to detect expulsions and address the common problems.

**Abbreviations:** IUCD: Intrauterine contraceptive device, IPPIUCD: Immediate postpartum IUCD, CuT: Copper-T, LSCS: Lower segment caesarean section

**Keywords:** IPPIUCD, Intra uterine contraceptive device, Intra cesarean, Post placental, Postpartum contraception.

### Introduction

Insertion of an IUD immediately after delivery plays a major role in the National family planning programme with various advantages such as 1) uterine bleeding due to insertion may be disguised by lochia 2) Most of women have lactational amenorrhea, so fear of getting pregnant can be relieved and 3) motivation will be higher for

immediate post-partum contraception and it will be convenient for both the mother and the doctor for inserting the IUD. 4) Situations when the baby is distressed, especially during cesarean section, Postpartum Cu-T insertion offers the best alternative. The disadvantage with immediate post-partum IUD insertion is the risk of

spontaneous expulsion which can be reduced by improvements in the insertion technique.

Cochrane reviews provide evidence of safety and feasibility of postpartum IUCD (PPIUCD) insertions<sup>[3,4]</sup>. Various advancements have been made to decrease expulsion rates and improve PPIUCD acceptance. PPIUCD insertions in different routes (vaginal or caesarean) have different outcomes at follow-up. It necessitates to evaluate the advantages and disadvantages of PPIUCD from a new perspective. This made us to analyze the immediate PPIUCD insertions in our medical college hospital.

### Material and Methods

Immediate postpartum IUCD (IPPIUCD) insertions in Kanyakumari Govt Medical College Hospital were studied during a four year period from January 2013-January 2017. The women were asked to come for follow up at 6 weeks. The follow-up visits after IPPIUCD insertion were analyzed.

#### Inclusion criteria

Women delivered by vaginal delivery or caesarean section, were counseled for postpartum contraception, during antenatal visits, also in early labour and informed written consent was obtained for IPPIUCD insertions.

#### Exclusion Criteria

Women who are anaemic, postpartum haemorrhage, premature rupture of membranes > 18 hours, any symptoms of infection and distorted uterine cavity.

The IUCD used was CuT-380 A. It was inserted using Kelly's Placental Forceps, within 10 minutes of removal of placenta in vaginal deliveries. During caesarean section ring forceps were used to place the IUCD. The IUCD strings were not trimmed in both types of insertions. Active management of third stage of labour was performed as routine.

During follow-up, they were asked for complaints of irregular bleeding PV, abnormal vaginal discharge, and any expulsions noted. Speculum examination was done to observe the descent of

IUCD strings into vagina and to rule out any signs of infection and bleeding. Descended strings were cut 2 cm beyond external os. If strings were not seen, USG was performed to confirm the presence of intrauterine IUCD. If they request for removal of IUCD for any reason, intrauterine device was removed after proper counselling.

The outcome of the study was measured in terms of efficacy (pregnancy, expulsions, and discontinuations), safety (perforation, abnormal vaginal discharge, infection, and irregular bleeding), and incidence of missed IUCD strings. They were compared for vaginal and caesarean IPPIUCD insertions. Statistical analysis was carried out using Statistical Package for Social Sciences (SPSS) Version 19.0. Variables were calculated for clinical outcomes, and chi square tests were used for comparison in between variables. For all the tests performed, results were considered statistically significant for  $p < 0.05$ .

### Results

A total of 502 immediate postpartum IUCD insertions were analysed. Out of these 293 (58.3%) insertions were intra caesarean and 209 (41.7%) IUCDs were placed after vaginal delivery.

Out of the total cases analysed, only 342 women came for follow-up (68.1% of total insertions). 55% of the cases who came for follow-up visits were of intra caesarean IPPIUCD insertions, but the difference in follow-up visits of vaginal and caesarean IPPIUCDs was not significant ( $p = 0.288$ ). The outcomes are summarized in Table 1

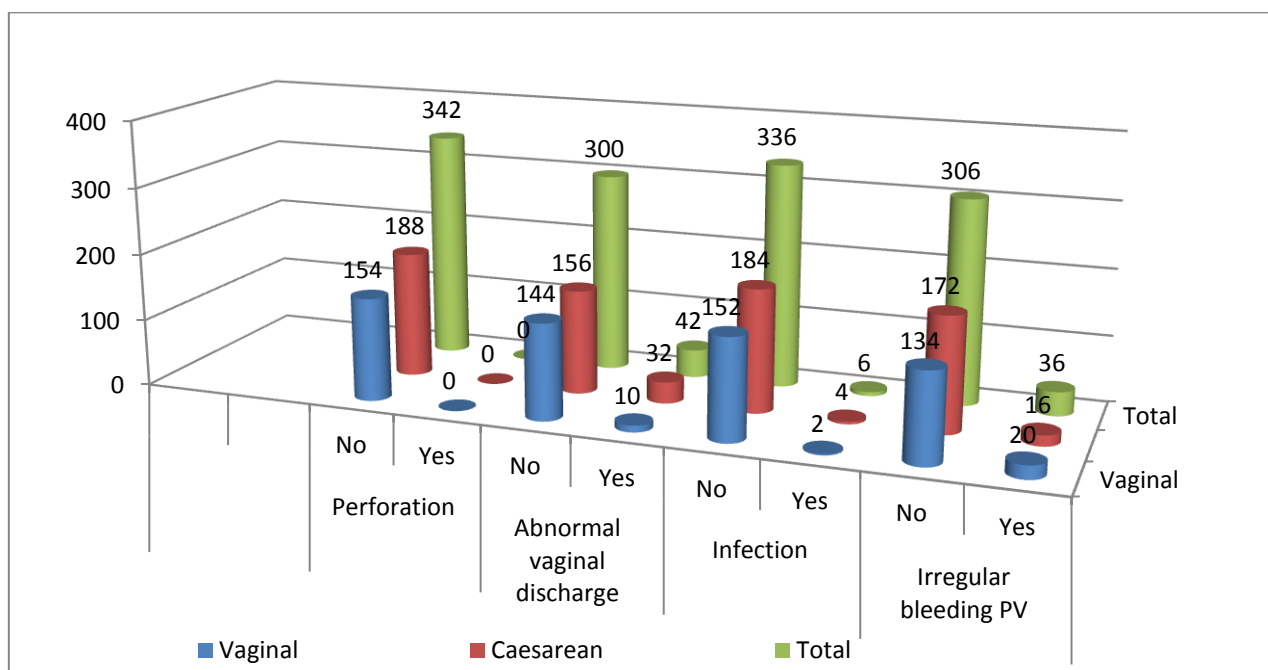
	FREQUENCY(n=342)	PERCENTAGE(%)
<b>Safety</b>		
1.Perforation	0	0
2.Abnormal vaginal discharge	42	12.3
3.Infection	6	1.75
a.Vaginitis	4	1.17
b.PID	2	0.58
4. Irregular bleeding	36	10.5
<b>Efficacy</b>		
(i) Pregnancy	0	0
(ii) Expulsion	18	5.3
(iii) Discontinuation	14	4.1
Missed IUCD strings	28	8.1

**Table 2:** Assessment of safety

		Vaginal	Caesarean	Total	p- value	Odds ratio
Perforation	No	154	188	342	—	—
	Yes	0	0	0		
Abnormal vaginal discharge (self-reported)	No	144	156	300	0.037	2.621
	Yes	10	32	42		
Infection	No	152	184	336	0.681	1.638
	Yes	2	4	6		
Irregular bleeding per vaginum	No	134	172	306	0.343	0.6553
	Yes	20	16	36		

No case of uterine perforation or unplanned pregnancy were noted. Only 12.3% women presented with abnormal vaginal discharge which was significantly higher after caesarean IUCD insertions ( $p = 0.037$ ) (Table 2). On follow up examination, however, 4 cases of bacterial vaginosis and only two cases of PID and were detected. Normal leucorrhoea identified in the remaining 36 cases.

Menorrhagia was observed in 10.5% women. Regarding infection or irregular bleeding there was no significant statistical difference between the two groups (Table 2). Spontaneous expulsion of IUCD occurred in 18 (5.3%) cases. Women who had IUCD inserted after vaginal delivery had significantly higher expulsion rates (9.1%) than intra caesarean IUCDs (2.1%) with  $p = 0.042$  (Table 3).

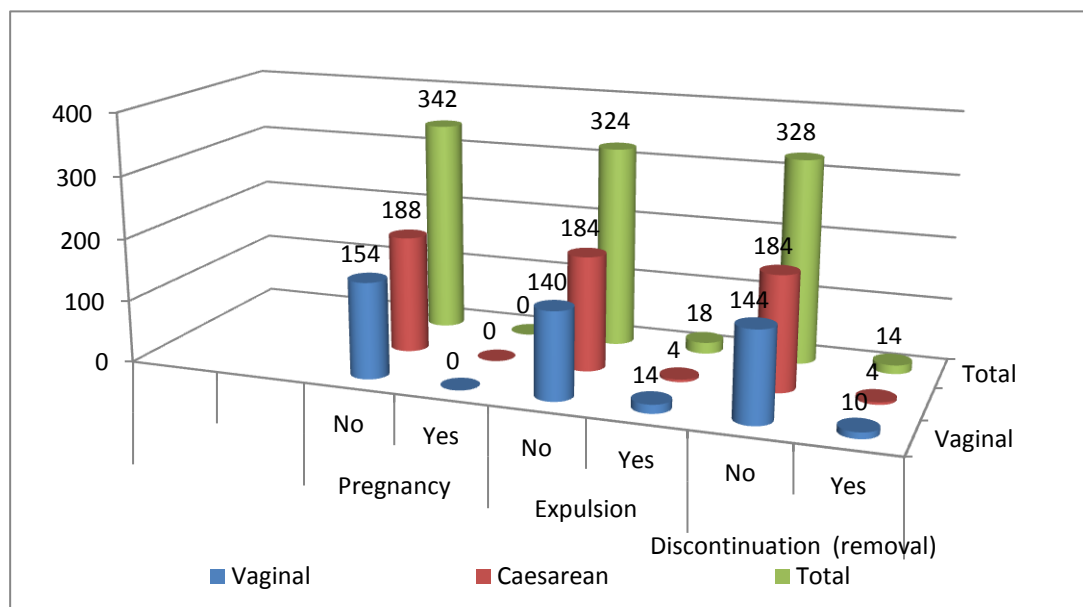


In 14 (4.1%) cases, IUCD removal was done on request. IUCD strings had not descended into vagina in 8.1% cases during follow-up visits excluding those spontaneous expulsion cases. All such cases with missed strings had underwent

USG confirmation of intrauterine placement of the device. 55.1% of the intra caesarean insertions had missed strings compared to 22.1% insertions after vaginal delivery; the difference being highly significant statistically ( $p = 0.000$ )

**Table 3:** Comparison of efficacy

		Vaginal	Caesarean	Total	p- value	Odds ratio
Pregnancy	No	154	188	342	—	—
	Yes	0	0	0		
Expulsion	No	140	184	324	0.042	4.273
	Yes	14	4	18		
Discontinuation (removal)	No	144	184	328	0.152	3.052
	Yes	10	4	14		



**Discussion**

Postpartum Intrauterine contraceptive device insertion is suitable for many women as, it does not interfere with breastfeeding in the early postpartum period. Moreover there is more chance for mothers to accept postpartum IUCD after undergoing caesarean section. Further, the number of follow up cases after intracaesarean insertions was higher than postplacental vaginal insertions, although this difference was not statistically significant.

Although we routinely advise all the women who underwent immediate postpartum IUCD insertions (vaginal or caesarean) to come for a follow-up examination in our hospital, only 68.1% mothers actually reported for a follow-up clinic visit may be because they prefer visiting their local primary health centres.

On follow up, there was no incidence of uterine perforation. None of the studies, as per literature search, have reported such uterine perforation after PPIUCD insertion. In case of abnormal

vaginal discharge, which is usually normal leucorrhoea, infection was present in only 1.75% cases [11]. Women delivering by caesarean section seem to be more anxious regarding symptoms of discharge, having undergone a surgical procedure. The women who complained of excessive bleeding were treated with NSAIDs and haematinics. Gupta et al observed bleeding in 4.3% of the cases where as Shukla et al indicated a higher rate of 27.2%. Other studies using CuT-380 A have reported IUCD removal due to bleeding/pain as 6% to 8% [10, 13]. Difference in types of IUCD could possibly explain the different rates of bleeding problems.

In comparison to other studies, a lesser number of spontaneous IUCD expulsions were observed in our study. Celen et al. reported 1-year cumulative expulsion rates of 12.6% and 17.6% in two different studies of PPIUCD insertions [6, 13]. Time when IUCD is inserted is an important determinant of expulsions. UN-POPIN report stated that 6-month cumulative expulsion rate was

9% for immediate postplacental insertions (within 10 minutes) compared with 37% for insertions between 24 and 48 hours after delivery<sup>[15]</sup>.

The expulsions were significantly higher in postplacental IUCD insertions after vaginal deliveries as compared to caesarean insertions. In our study, if we combine the discontinuations and spontaneous expulsions, the rate of IUCD continuation is 90.6%. In the absence of IPPIUCD insertions, these women would have left without effective postpartum contraception.

One of the main observations at follow-up was that of missed IUCD strings. Leaving the full length of IUCD string in uterine cavity during caesarean section and not passing it through the cervix, unlike study by Çelen et al played a significant role in the decreased incidence of missed IUCD in intra caesarean insertions.<sup>[13]</sup>. Proper counselling and confirmation of IUCD in uterine cavity by sonography are important to reassure the women and encourage them to continue with the device.

### Conclusion

Insertion of IUCD in immediate postpartum period is a safe, effective, convenient contraceptive intervention in both cesarean and vaginal deliveries. Even though vaginal IPPIUCD insertions have a relatively higher incidence of expulsion rate, they should be encouraged considering the advantages of the procedure. PPIUCD insertions by trained doctors, applying the principles of fundal placement using Kellys forceps, and timing of insertion are mandatory in reducing complications and expulsions. Regular follow-up examinations are important to identify spontaneous expulsions and to provide an alternative contraceptive methods.

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