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Post Placental Versus Intra Caesarean Insertion of Intrauterine Contraceptive Device: A Prospective Comparative Study

Neetu Sangwan[1], Ginny Rani[2], Roopa Malik[3], Smiti Nanda[4], Shikha Madan[5], Vani[6], Vandana[7]

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[2]Postgraduate Student, [5]Assistant Professor, [7]Associate Professor, [1,3,6]Professor, [4]Senior Professor, Department of Obstetrics and Gynaecology, Pandit Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana 124001, India.

Corresponding Author:
Ginny Rani,
Postgraduate Student, Department of Obstetrics and Gynaecology, Pandit Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana 124001, India.

E-mail: ginny.rani93@gmail.com

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Abstract

Background: Immediate postpartum intrauterine contraceptive device (PPIUCD) insertion is approved by WHO as one of the safe and effective method of temporary contraception. *Aims and Objectives:* To evaluate and compare the safety and efficacy of post placental versus intra caesarean insertion of intrauterine contraceptive device (CuT 380A). *Material and Methods:* This prospective study was carried out on 210 patients. The patients were divided in two groups: Group I: 105 patients in whom post placental intrauterine contraceptive device was inserted within 10 minutes of delivery of placenta after vaginal delivery. Group II: 105 patients in whom intra caesarean intrauterine contraceptive device was inserted. *Results:* Mean age of women in group I was 24.94 ± 2.67 years & 24.81 ± 3.15 years in group II. Majority of women in group I, 40 (38.09%) women and 47 (44.76%) in group II were primigravida. In group I, 56 (53.33%) women & 51 (48.57%) in group II had PPIUCD insertion for long acting reversible contraception (LARC). In group I, 49 (46.66%) women & 54 women (51.42%) in group II had PPIUCD insertion only to space the next pregnancy. The most common complication seen at 6 weeks was missing thread in both the groups, 7.61% in group I & 28.57% in group II (p value 0.001 significant). At 6 weeks, 21 women (20%) in group I & 22 women (20.95%) in group II requested for removal of PPIUCD, But only 5 women (4.76%) in group I & 4 women (3.80%) in group II had removal of IUCD (p value 0.733 non significant). The most common complication at 6 months was abnormal bleeding per vaginum (12.5%) followed by missing thread with IUCD in situ (10.41%) in group I & missing thread (25%) followed by bleeding per vaginum (9%) in group II. At 6 months, 22 women (22.91%) in group I & 28 women (28%) in group II requested for removal of PPIUCD, But only 11 women (11.45%) in group I & 8 women (8%) in group II had removal of IUCD at 6 months (p value 0.413 non significant). Continuation rate of PPIUCD at 6 weeks was 91.42% in group I & 100% in group II (p value 0.268). Spontaneous expulsion rate (3.80% in group I & 0.95% in group II) & total removal rate (4.76% in group I & 3.80% in group II) were statistically same in both the groups at 6 weeks. Continuation rate of PPIUCD at 6months was 79.04% in group I & 87.61% in group II (p value 0.09). Cumulative expulsion rate (5.71% in group I & 0.95% in group II) & cumulative removal rate (15.23% in group I & 11.42% in group II) were statistically same in both the groups at 6 months. Satisfaction rate was 81.90% in group I & 90.47% in group II at 6 months, p value not significant. *Conclusion:* Though expulsion & displacement of PPIUCD was more in postplacental group, but

not statistically significant. The incidence of missing thread of PPIUCD was more in intracesarean insertion than post placental insertion, but proper counselling and awareness motivated majority of the women for continuation of PPIUCD. The continuation rate & removal rates were same in both the groups. There was no case of pregnancy or perforation in either of the groups. Hence, PPIUCD is highly effective and safe long acting contraceptive method both in vaginal as well as cesarean deliveries with no major complications.

Keywords: Post-placental; Intracaesarean; PPIUCD.

Introduction

Intrauterine contraceptive devices constitute safe, highly effective and reversible method of contraception. Once inserted, the user is protected from unintended pregnancy upto 10 years. Institutional deliveries have increased significantly all over the country thereby creating opportunities for easy access to immediate PPIUCD services. Since parturition is the only period when healthy women comes in contact with healthcare personnel, immediate PPIUCD is approved by Ministry of health and family welfare in order to avoid the risk of unintended pregnancy [1]. Advantage of PPIUCD insertion are that discomfort related to interval insertion can be avoided and the client is highly motivated during the stress of labour. The acceptance of IUCD continues to remain less than 2%, out of the total child protection rate (CPR) of 48.5% [2]. Immediate postpartum insertion of IUCD is being seen as an effective and safe contraception which can be accepted by the woman immediately after delivery [3,4].

Approximately, 61% of births in India occur at intervals shorter than, the recommended birth to birth interval of approximately 36 months. In India, 78% of conceptions each year are unplanned and 25% are definitely unwanted [4]. Most of them are preventable through adequate nutrition, proper health care including access to family planning, the presence of a skilled birth attendant during delivery and emergency obstetric care [5]. In 2008, use of modern contraception prevented 230,000 maternal deaths in developing countries. Maternal deaths could be cut by about 30% if all women wish to avoid future pregnancy with the use of contraception [6]. Worldwide, Intrauterine contraceptive device (IUCD) is one of the most commonly used reversible methods of contraception among married women of reproductive age [7,8]. There is need for a long lasting, safe, effective, acceptable contraceptive method in the post-partum period especially post partum IUCD. The present study was attempted to evaluate and compare the safety and efficacy of post placental versus intra caesarean insertion of intrauterine contraceptive device, CuT 380A.

Material and Methods

This prospective study was carried out on 210 patients who were admitted for delivery in the department of Obstetrics and Gynaecology, Pt. B.D. Sharma PGIMS, Rohtak. The patients were divided in two groups: *Group I:* 105 patients in whom post placental intrauterine contraceptive device was inserted within 10 minutes of delivery of placenta after vaginal delivery. *Group II:* 105 patients in whom intra caesarean intrauterine contraceptive device was inserted. After counseling, an informed written consent was taken from all the patients enrolled for the study. The patients with severe anemia, rupture of membranes more than 18 hours, fever or clinical symptoms of infection during labour, chorioamnionitis, post partum haemorrhage, coagulation disorders, known uterine anomalies, known copper allergy and patient in active labor not received prior counselling were excluded from the study. A detailed history regarding duration of labour, duration of leaking per vaginum and mode of delivery was recorded for all the patients enrolled in the study.

In group I, CuT 380A was placed high up in the fundus immediately following vaginal delivery within ten minutes after expulsion of placenta by Kelly's forceps. In group II, CuT 380A was inserted in the uterine fundus with sponge holding forceps before closer of uterine incision. String was placed in lower segment but not pushed in cervical canal to avoid infection and displacement of CuT. Women were followed up at 6 weeks, 6 months or earlier, if necessary.

At the follow up visits patients was asked for symptoms, suggestive of irregular or excessive bleeding per vaginum, pain lower abdomen, unusual discharge, fever, backache, dyspareunia, missing thread, long thread, expulsion of intrauterine contraceptive device and discontinuation (removal). General physical and per speculum examination was done. If extra long thread was found, then trimming was done. In cases of missing thread, probing of cervical canal was done for retrieving the IUCD strings, following failure of which ultrasound was done to locate the intrauterine contraceptive device. Safety and efficacy of PPIUCD was assessed in terms of irregular or excessive bleeding per vaginum, unusual discharge, pelvic pain, infection, missing or

long thread, expulsion, perforation and pregnancy and was compared between two groups.

Statistical Tests

The quantitative variables in both groups were expressed as mean ± SD and compared using unpaired t-test. The qualitative variables were expressed as frequencies/percentages and compared by using Chi-square test. A p-value < 0.05 was considered statistically significant.

Results

Out of total 240 patients, twenty eight patients were lost to follow up, 18 in group I and 10 in group II and data was analysed for 210 patients.

Mean age of group I was 24.94 ± 2.67 years and in group II, it was 24.81 ± 3.15 years. A total of 18 patients in group I and 13 in group II were booked. Maximum number of patients belonged to rural areas & was housewives in both the groups. Majority of women were primigravida in both the groups. Table 1 shows demographic profile of all the women.

The most common complication seen at 6 weeks (Table 2) was missing thread in the groups, 7.61% in group I & 28.57% in group II (p value 0.001 significant). At 6 weeks, most common reason for which women requested for removal of PPIUCD was willingness for sterilisation in group I & missing thread in group II as shown in table 3. Most common reason for removal of IUCD at 6 weeks was partial expulsion / displacement in group I, missing thread and social cause (1.80% each) in group II (Table 4). Continuation rate of PPIUCD at 6 wks was 91.42% in group I & 95.23% in group II as shown in Table 5.

The most common complication at 6 months was abnormal bleeding per vaginum (12.5%) followed by missing thread with IUCD in situ (10.41%) in group I and missing thread (25%) followed by bleeding per vaginum (9%) in group II (Table 6). At 6 months, most common reason for removal

Table 1:

	Group I (n=105) Post placental	Group II (n=105) Intra caesarean	Statistical significance
		Age (years)	
Age (Mean±SD)	24.94 ± 2.67	24.81 ± 3.15	>0.05 NS
		Education	
Illiterate	31 (29.52%)	21 (20%)	
Upto 12th	54 (51.42%)	62 (59.04%)	p=0.257 NS
Higher education	20 (19.04%)	22 (20.95%)	
		Booking Status	
Booked	18 (17.14%)	13 (12.38%)	p=0.330 NS
Unbooked	87 (82.86%)	92 (87.61%)	
		Residence	
Rural	83 (79.04%)	81 (77.14%)	p=0.738 NS
Urban	22 (20.95%)	24 (22.85%)	
		Occupation	
Housewife	82 (78.09%)	79 (75.23%)	p=0.624 NS
Employed	23 (21.90%)	26 (24.77%)	
		Parity	
G1	40 (38.09%)	47 (44.76%)	p=0.511 NS
G2	27 (25.71%)	29 (27.61%)	
G3	18 (17.14%)	18 (17.14%)	
G4	12 (11.42%)	7 (6.66%)	
≥G5	8 (7.61%)	4 (3.80%)	
		Socioeconomic status	
Lower	68 (64.76%)	64 (60.95%)	p=0.620 NS
Middle	33 (31.42%)	34 (32.38%)	
High	4 (3.80%)	7(6.66%)	
		Indication	
LARC	56 (53.33%)	51 (48.57%)	p=0.490 NS
Spacing	49 (46.66%)	54 (51.42%)	

of PPIUCD was social cause or family pressure in group I and social cause or family pressure and missing thread in group II as shown in table 7. Most common reason for removal of IUCD at 6 months was willingness for tubal ligation in group I and missing thread 4 (4%) in group II (Table 8).

Table 2:

Parameters	Group I (n=105) Post placental	Group II (n=105) Intra-caesarean	Statistical significance
Irregular / excessive bleeding P/V	7 (6.66%)	5 (4.76%)	p=0.552 NS
Pain lower abdomen	5 (4.76%)	3 (2.85%)	p=0.570 NS
Unusual discharge	2 (1.90%)	2 (1.90%)	p=1 NS
Backache	1 (0.95%)	3 (2.85%)	p=0.312 NS
Missing thread (IUCD in situ)	8 (7.61%)	30 (28.57%)	p=0.001 Sig.
Long thread	3 (2.85%)	0	p=0.08 NS
Displacement / partial expulsion	3 (2.85%)	0	p=0.08 NS
Expulsion	4 (3.81%)	1 (0.95%)	p=0.174 NS

Table 3:

Parameters	Group I (n=105) Post placental	Group II (n=105) Intra-caesarean	Statistical significance
Irregular / excessive bleeding P/V	3 (2.85%)	2 (1.90%)	p=0.650 NS
Pain lower abdomen	0	1 (0.95%)	p=0.316 NS
Missing thread (IUCD in situ)	4 (3.80%)	10 (9.52%)	p=0.09 NS
Displacement / Partial expulsion	3 (2.85%)	0	p=0.08 NS
Willing for sterilisation	7 (6.66%)	6 (5.71%)	p=0.774 NS
Social cause/family pressure	4 (3.80%)	3 (2.85%)	p=0.700 NS
Total	21 (20%)	22 (20.95%)	p=0.864 NS

Table 4:

Parameters	Group I (n=105) Post placental	Group II (n=105) Intra-caesarean	Statistical significance
Missing thread	1 (0.95%)	2 (1.80%)	p=0.560 NS
Partial expulsion	3 (2.85%)	0	p=0.08 NS
Social cause / family pressure	1 (0.95%)	2 (1.80%)	p=0.560 NS
Total removal	5 (4.76%)	4 (3.80%)	p=0.733 NS

Table 5:

Parameters	Group I (n=105) Post placental	Group II (n=105) Intra-caesarean	Statistical significance (p value)
Continuation rate	96 (91.42%)	100 (95.23%)	0.268 NS
Spontaneous expulsion	4 (3.80%)	1 (0.95%)	0.174 NS
Total removal	5 (4.76%)	4 (3.80%)	0.733 NS

Table 6:

Parameters	Group I (n=96) Post placental	Group II (n=100) Intra-caesarean	Statistical significance
Irregular / excessive bleeding P/V	12 (12.5%)	9 (9%)	p=0.428 NS
Pain lower abdomen	2 (2.08%)	6 (6%)	p=0.165 NS
Unusual discharge	3 (3.12%)	2 (2%)	p=0.617 NS
Pelvic inflammatory disease	3 (3.12%)	2 (2%)	p=0.617 NS
Backache	3 (3.12%)	4 (4%)	p=0.741 NS
Missing thread (IUCD in situ)	10 (10.41%)	25 (25%)	p=0.001 Sig.
Long thread	2 (2.08%)	0	p=0.146 NS
Expulsion	2 (2.08%)	0	p=0.146 NS
Total	38 (39.58%)	48 (48%)	p=0.122 NS

Table 7:

Parameters	Group I (n=96) Post placental	Group II (n=100) Intra-caesarean	Statistical significance
Bleeding P/V	5 (5.20%)	7 (7%)	p=0.601 NS
Pain abdomen	2 (2.08%)	3 (3%)	p=0.684 NS
Unusual discharge	2 (2.08%)	0	p=0.306 NS
Social cause/family pressure	6 (6.25%)	8 (8%)	p=0.634 NS
Missed thread	3 (3.12%)	8 (8%)	p=0.138 NS
Willing for sterilisation	4 (4.16%)	2 (2%)	p=0.378 NS
Total	22 (22.91%)	28 (28%)	p=0.414 NS

Table 8:

Parameters	Group I (n=96) Post placental	Group II (n=100) Intra-caesarean	Statistical significance
Excessive/ irregular BPV	2(2.08%)	1 (1%)	p=0.530 NS
Willing for sterilisation	4(4.16%)	2 (2%)	p=0.378 NS
Missing thread	3(3.12%)	4 (4%)	p=0.752 NS
Social cause/family pressure	2(2.08%)	1 (1%)	p=0.530 NS
Total removal	11(11.45%)	8(8%)	p=0.413 NS

Table 9:

Parameters	Group I (n=105) Post placental	Group II (n=105) Intra-caesarean	Statistical significance (p value)
Continuation rate	83 (79.04%)	92 (87.61%)	0.09 NS
Cumulative expulsion	6 (5.71%)	1 (0.95%)	0.054 NS
Cumulative removal	16 (15.23%)	12 (11.42%)	0.416 NS

Continuation rate of PPIUCD (Table 9) at 6 months among two groups 79.04% (83 women) in group I and 87.61% (92 women) in group II. A total of 86 (81.90%) women in group I and 95 (90.47%) in group II were satisfied with IUCD at 6 months follow up.

Discussion

Unintended and unwanted pregnancy is major concern in our country. PPIUCD is safe, highly effective, long-acting reversible contraceptive method for postpartum women.

In our study majority of the cases who accepted PPIUCD belonged to the age group of 20-25 years. This findings is similar to study conducted by Aswathy et al and Singal et al. [9,10]. The study showed that maternal age is an important factor in contraceptive acceptance. In our study majority of women (51.42% in Group I and 59.04% in Group II) were educated upto 12th standard. In a study conducted by Aswathy et al., majority of participants (85.4%) were primary or secondary school educated [9]. This finding confirms importance of education is deciding factor for future pregnancy. Majority of women were unbooked, 82.86% in Group I and 87.61% in Group II. Majority of the women have some antenatal checkup in the periphery or get no antenatal care and then they directly came to our hospital for delivery.

Acceptance of PPIUCD among rural women was 79.04% in Group I and 77.14% in group II. This might be because of the fact urban women have easy access to health care services and therefore more awareness regarding different contraceptive methods. Our findings are in accordance with Aswathy et al study and Kanwat et al., where PPIUCD acceptance was maximum in rural population [9,12].

In our study, primipara had a higher PPIUCD acceptance rate, which is 38.09% in post placental group and 44.76% in intracaesarean group. Similar observation was found in study conducted by Misra et al., Mahadevan et al. and Maluchura et al. which were 20.73%, 74.74% and 15.42%, respectively [14,15,16]. In the present study maximum women of low socio-economic status accepted the PPIUCD insertion (64.76% in post placental group and 60.95% in intracaesarean group). This was probably because most of the patients who came to hospital for delivery and free services belonged to low socio economic status. In a study conducted by Singal et al., 71.67% PPIUCD acceptors were of low socio-economic status [10].

In our study irregular or excessive bleeding per vaginum was present in 6.66% in women in group I and 4.76% in group II at 6 weeks follow up. At 6 months followup, 12.5% women in group I and 9% women in group II has excessive or irregular bleeding. In a study conducted by Halder et al. to evaluate vaginal and intracesarean insertion of PPIUCD, vaginal bleeding was complaint by 10% of women in vaginal group and 5% in intracesarean group [17]. Pain in lower abdomen was present in 4.76% women in Group I and 2.85% women in Group II women at 6 weeks follow up and 2.08% women in group I and 6% women in Group II at 6 months follow up. In the present study, backache was present in 3.12% in post placental group, 4% in intracesarean group at 6 weeks and post placental group 3.12% and intracaesaran 4% at 6 months. In our study, anti inflammatory treatment and non-steroidal anti-inflammatory drugs was given mostly patients improved after treatment. In a comparative study conducted by Thiam et al., pain abdomen was present in intracesarean section 11.8% and 32% women at 1 and 3 months respectively and in post placental group, it was 25% and 46.66% at 1 and 3 months, respectively [13]. However, the rate considerably decreased at 6 months follow up. In a study conducted by Misra et al pain in abdomen reported was 23.55% at 3 months and 10.73% at 6 months [14].

Unusual discharge was present in 1.90% women in both the groups at 6 weeks and 3.12% and 2% in group I and II, respectively at 6 months followup. There was no case of PID at 6 week in either of the group. PID was present in 3.12% in Group I and 2% in Group II at 6 months. The present study showed no association between pain in abdomen, backache, unusual discharge and route of insertion. Study conducted by Halder et al. to evaluate vaginal insertion and intracesarean insertion of PPIUCD found that 4.4% women of post placental group and 10% women of intracesarean group had vaginal discharge [17].

In present study missing thread was present in 7.61% women in post placental group and 28.57% in intracesarean group at 6 weeks, 10.41% women in post placental group and 25% in intracesarean group had missing thread at 6 months follow up. The difference was statistically significant between two groups. USG was done in all women showed PPIUCD in situ, proper counselling and reassurance encouraged them to continue the device. In a study conducted by Laskar et al. study on IUCD insertion during postpartum period missing string was present in 17.7% women in post placental group and 30% in intracaesaran group after 1 year [18].

In our study displacement / partial displacement of PPIUCD was seen in 3 women (2.85%) and 1 women (1.08%) women in group I at 6 weeks and in none of the women at 6 months followup. There was no case of displacement of PPIUCD in intracesarean group. In Haldar et al. study on to evaluate the vaginal insertion and intra-cesarean insertion of contraceptive device, 2% women had partial expulsion in vaginal group and 1% in intra-cesarean group [17].

In our study request for removal at 6 weeks was present in 21 (20%) women in post placental group and 22 (20.95%) in intracesarean group. Most common cause of request for removal at 6 weeks was willingness of sterlisation (6.60%) in post placental group and missing thread (9.52%) in intracesarean group at 6 week but PPIUCD removal was done in 5 (4.76%) women in post placental group and 4 (3.80%) women in intracesarean group at 6 weeks. Most common cause of actual removal was partial expulsion 3 (2.58%) in post placental group and missing threads in 2 (1.80%) in intracesarean group.

In our study request for removal at 6 months was present in 22 (22.91%) women in post placental group and 28 (28%) in intracesarean group. Most common cause of request for removal at 6 months was social cause / family pressure in post placental group and missing thread in intracesarean group. PPIUCD removal was done in 11 (11.45%) in post placental group and 8 (8%) women in intracesarean group at 6 months. Most common cause for actual removal was willingness for sterilization 4 (4.16%) in post placental group and missing thread 4% women in intracesarean group. In a study conducted by Misra et al on evaluation of safety, efficacy and expulsion of post placental and intracesarean insertion of intrauterine contraceptive device. Most common reasons for removal was bleeding (32.56%) [14].

Continuation rate reported in our study was 91.42% in post placental group and 95.23% in intracaesaran group at 6 weeks followup, while 79.04% in post placental group and 87.61% in intracaesaran group at 6 months. In a study by Haldar et al. on continuation rate at 6 months was 90% in vaginal insertion group and 95% in intracesarean group [17]. In Lall et al. study overall continuation rate for PPIUCD was 84.5% at 3 months and continuation rate was significantly higher in LSCS group (91%) as compared to vaginal delivery (78%) [20]. In Poovati et al. study on immediate postpartum intrauterine contraceptive device insertion, the continuation rate were 90% at 6 weeks and 80% at 6 months [21] In Singal et al. study on outcome of post

placental Cu-T 3804 insertion in cesarean section continuation was 91% [10].

In our study, 88.54% women were satisfied in post placental group and 93% of intracesarean group at 6 months. Study conducted by Halder et al. to evaluate vaginal insertion and intra-cesarean insertion of postpartum intrauterine contraceptive device, 74% of women were satisfied with PPIUCD in vaginal group and 72% were in intracesarean group [17].

Conclusion

PPIUCD has huge potentiality and abundant scope and if widely used it will have a strong impact on population control and will prevent unplanned pregnancy. Expulsion and displacement of PPIUCD was more in post placental group, but difference was not statistically significant. The incidence of missing thread of PPIUCD was more in intra cesarean insertion than post placental insertion, but proper counselling and awareness motivated majority of the women for continuation of PPIUCD. Hence, despite of statistically significant difference in the rate of missing threads in intracesarean group, the continuation rates were same in both the groups both at 6 weeks and 6 months. The removal rates were also same. There was no case of perforation or pregnancy in either of the groups. Hence, PPIUCD is highly effective and safe long acting contraceptive method both in vaginal as well as cesarean deliveries with no major complications.

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