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## Original Research Article

# A comparative evaluation of post placental intrauterine contraceptive device (IUCD) insertion between normal delivery and caesarean section

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### ABSTRACT

**Background:** Adverse maternal and perinatal outcomes are related to pregnancies spaced too closely together. Objective of present study was to compare the expulsion rate and complications between post placental IUCD insertion between caesarean section and vaginal delivery.

**Methods:** This study was a prospective comparative study conducted in the department of Obstetrics and Gynecology, at Agartala Government Medical College over 1.5 Years (January 2016-June 2017) All cases at term pregnancy delivering by caesarean section and vaginal delivery were divided into two different groups. Sample size of 105 in each group. Subjects recruited from-obstetrics OPD and casualty of Agartala Government Medical College (AGMC) and GB Pant Hospital expulsion rate and complications. Comparative evaluation of Expulsion rate and complications following post placental IUCD insertion between caesarean section and vaginal delivery at the end of six months, one year and one and half year.

**Results:** There was no significant difference in either complications between the two groups (P value-.913) or outcomes (p value-.035). Expulsion rate 18.2% following vaginal delivery compared to those with intracaesarean insertion i.e 3.8%.

**Conclusions:** The complications associated with postplacental Intrauterine device insertion is insignificant, still the awareness, acceptance and continuation are very low. Therefore Information, education Communication activity by the field workers must be enhanced to overcome this knowledge gap.

**Keywords:** Intrauterine device, Intracaesarean insertion, Post placental contraception

### INTRODUCTION

Adverse maternal and perinatal outcomes are related to pregnancies spaced too closely together. Closely spaced pregnancies is associated with an increased risk of induced abortion, miscarriage, neonatal death, premature birth, placental abruption, low birth weight, congenital disorders, schizophrenia and autism.

Pregnancy interval of five years or more is associated with an increased risk of high blood pressure and signs of

damage to another organ system, often the kidneys.<sup>1</sup> Family planning during the first year postpartum has the potential to reduce a significant proportion of these unintended pregnancies as women experience a large UNMET NEED for family planning during this time.<sup>2</sup>

PPIUCD is employed in this study as a definitive method of post-partum contraceptive device as

- It is safe to use as it is certain that the woman is not pregnant at the time of insertion,

- There is minimal risk of perforation because of thick wall of uterus, there is reduced perception of initial side effects (bleeding and cramping).
- No effect on breastfeeding and Inserting IUCD in the immediate post partum period saves time for both the woman and the provider as the procedure is conducted in the same setting and involves only a few minutes of additional time.<sup>3</sup>

This study has been done to compare the complications of post placental IUCD insertion between caesarean section and vaginal delivery among women delivering in Agartala Government Medical College and at the same time benefit the female population of the state with long acting reversible contraception.

Objective of present study was to compare the expulsion rate and complications between post placental IUCD insertion between caesarean section and vaginal delivery.

## METHODS

This study was a prospective comparative study conducted in the department of Obstetrics and Gynaecology, at Agartala Government Medical College over 1.5 Years (January 2016-June2017). All cases at term pregnancy delivering by caesarean section and vaginal delivery were divided into two different groups. Sample size of 105 in each group. Subjects recruited from- Obstetrics OPD and Casualty of Agartala Government Medical College and GB Pant Hospital.

### Exclusion criteria

- Patient with He <8gm%,
- Ruptured membranes >18 hours prior to delivery,
- Chorioamnitis,
- PPH.

All registered women were first counseled during antenatal period, consent taken and PPIUCD inserted within 10 minutes of expulsion of placenta and membranes thereafter study subjects were asked to follow up at six months, one year and one and half year to evaluate the differences in expulsion rate and complications.

Statistical analysis testing was conducted with SPSS 15.0 and Microsoft Excel software.

## RESULTS

In this study, stipulated sample size was 105 subjects for both vaginal delivery and caesarean section, but only 55 women gave consent for insertion of postplacental IUCD insertion in vaginal delivery group, rest of the couples refused inspite of proper counselling (Table 1).

**Table 1: Selection of study subjects.**

	Caesarean delivery	Vaginal delivery
Total counselled (N)	13	>200
Total accepted (N)	105	55

Table 2 shows distribution of sociodemographic factors among women accepting PPIUCD, 75.2% in Caesarean Section group and 81.8% in the vaginal delivery group are in the age group of 21-30 years.

In both the groups >70% of women were primiparous, >88% of women were Hindu, followed by Christian 6.3% and Muslim 5.8%. Educational qualification of almost 50% study subjects were upto Secondary Stage, followed by Senior Secondary >Middle Stage >Primary Stage >No Formal education >Undergraduate. 54.3% and 41.8% of study subjects belonged to upper lower socioeconomic strata while 1% and 0% belonged to upper socioeconomic strata in intracaesarean and vaginal delivery groups respectively.

Table 3 shows no significant difference in complications between the two groups at sixth month, one year and one and half year (p value >0.01).

Between the two groups, at the end of Sixth month most common complication was pain abdomen (4.8%) in caesarean section and expulsion (9.1%) in vaginal delivery group, at the end of one year bleeding was the most common complication in both caesarean section (3.8%) and vaginal delivery (5.5%), at the end of one and half year expulsion was seen in 9% cases in vaginal delivery group.

The most common complication at the end of One and Half year is expulsion (7 cases), followed by infection (3 cases), pregnancy (2 cases), bleeding and pain abdomen (1 case each). 61 cases either lost to follow up or had Copper T (CuT) removed.

Table 4 shows awareness about PPIUCD is very low (70%) among the women of delivering in AGMC. 35% in Caesarean Section and 20% in vaginal delivery group.

Table 5 shows differences in outcomes between the two groups, 48.75% were satisfied with its use, 12 (7.5%) cases had it removed for bleeding, 6 cases (3.8%) had it removed for pelvic infection, 1 (.6%) had it removed for pressure from family, 1 (.6%) had it removed for string problems, 5 (3.1%) had it removed for vaginal discharge and purities vulvae, 2 (1.3%) had it removed as husband or child expired, 2 (1.3%) conceived with Copper T in situ, in 14 (8.8%) cases it got expelled spontaneously. 35 (21.3%) cases lost to follow up. Difference in outcomes between the two groups is statistically insignificant (p-value 0.035).

**Table 2: Sociodemographic factors distribution among the study subjects.**

	CS	CS	VD	VD	Total	Total
	N	%	N	%	N	%
<b>Age</b>						
<20	12	11.40	5	9.10	17	10.60
21-25	52	49.5	30	54.50	82	51.30
26-30	27	25.70	15	27.30	42	26.30
31-35	10	9.50	5	9.10	15	9.40
>35	4	3.80	0	0	4	2.50
<b>Parity</b>						
1	87	82.90	38	70.40	125	78.60
2	15	14.30	12	22.2	27	17
>2	3	2.9	4	7.40	7	4.4
<b>Religion</b>						
Hindu	92	87.60	49	89.10	141	88.1
Muslim	4	3.80	5	9.10	9	5.6
Christain	9	8.60	1	1.80	10	6.30
<b>Education</b>						
No formal education	11	10.50	2	3.60	13	8.10
Primary stage	13	12.40	2	3.60	15	9.40
Middle stage	14	13.30	6	10.90	20	12.50
Secondary stage	47	41.80	32	58.20	79	49.40
Senior secondary stage	15	14.30	12	21.80	27	16.90
Undergraduate	5	4.8	1	1.80	6	3.80
<b>Occupation</b>						
Housewife	91	86.70	48	87.30	139	86.90
Employed	14	13.30	7	12.70	21	13.10
<b>Socioeconomic strata</b>						
Upper	1	1	0	0	1	0.60
Upper middle	0	0	1	1.80	1	0.60
Lower middle	14	13.30	28	50.90	42	26.30
Upper lower	57	54.30	23	41.80	80	50
Lower	33	31.40	3	5.50	36	22.50

**Table 3: Comparison of Complications at 6<sup>th</sup> month, 12<sup>th</sup> month and 18<sup>th</sup> month.**

	At 6 <sup>th</sup> month				At 12 <sup>th</sup> month				At 18 <sup>th</sup> month			
	CS	VD	CS	VD	CS	VD	CS	VD	CS	VD	CS	VD
	N	%	N	%	N	%	N	%	N	%	N	%
Pain Abdomen	5	4.8	1	1.8	3	1	0	0	1	1	0	0
Bleeding	3	2.9	2	3.6	4	3.8	3	5.5	1	1	0	0
Expulsion	2	1.9	5	9.1	0	0	1	0	2	1.9	5	9.1
Pregnancy	0	0	0	0	0	0	0	0	2	1.9	0	0
Infection	0	0	0	0	0	0	1	1.8	2	1.9	1	1.8
No complications	80	76.20	39	70.90	69	65.70	33	60	58	55.2	28	50.
Lost to follow up	15	14.30	8	14.50	29	27.60	17	30.9	37	35.2	24	43.6
	p value 0.284				p value 0.284				p value 0.913			

**Table 4: Awareness about PPIUCD between the study subjects.**

Awareness		Caesarean section	Vaginal delivery	Total
Aware	N	37	11	48
	%	35.2	20.0	30.0
Not aware	N	68	44	112
	%	64.8	80.0	70.0
Total	N	105	55	160
	%	100.0	100.0	100.0

**Table 5: Comparison of outcomes of PPIUCD insertion after caesarean section and vaginal delivery.**

Outcomes	Caesarean section	Vaginal delivery	Total
Satisfied	N 56	22	78
	% 53.3	40	48.8
Removed for bleeding	N 8	4	12
	% 7.6	7.3	7.5
Removed for pelvic pain	N 5	1	6
	% 4.8	1.8	3.8
Removed for pressure from family	N 1	0	1
	% 1.0	0.0	0.6
Removed for string problems	N 0	1	1
	% 0.0	1.8	0.6
Removed for vaginal discharge and pruritis	N 1	4	5
	% 1.0	7.3	3.1
Removed for pelvic infection	N 2	2	4
	% 1.9	3.6	2.5
Removed for failure of contraception	N 2	0	2
	% 1.9	0	1.3
Removed as husband/child expired	N 0	2	2
	% 0.0	3.6	1.3
Expelled spontaneously	N 6	8	14
	% 5.7	14.5	8.8
Not known/lost to follow up	N 24	11	35
	% 22.9	20.0	21.3
Total	N 105	55	160
	% 100.0	100.0	100.0

**Table 6: Comparison of continuation of PPIUCD between the two groups.**

	Caesarean section	Vaginal delivery	Total
Removal at 6 months	N 7	3	10
	% 7.00	6.40	6.80
Removal at one year	N 9	6	15
	% 9.00	12.80	10.20
Removal at one and half year	N 8	7	15
	% 8	14.90	10.20
Continued	N 53	20	73
	% 53	42.60	49.70
Lost to follow up	N 23	11	34
	% 23.00	23.40	23.10

Table 6 shows 53% continued in caesarean section group and 42.6% continued copper T in vaginal delivery group (p value 0.677).

## DISCUSSION

Women soon after delivery are highly motivated and intend for an effective contraception method while if the women are advised to initiate contraception after 6 weeks of their delivery, they may have higher chances of conception and do not manage to come back.

In this study, majority (51.3%) of woman accepting PPIUCD belonged to age group of 26-30 years, which is similar to study conducted by Sujanendra et al and Katheit G et al, furthermore amongst women accepting PPIUCD, 78.6% were primiparous, this finding is consistent with study conducted by Sujanendra et al, but contrary to these studies Grimes et al, Sukla et al, and Deshpande et al where they found higher acceptance in multiparous client.<sup>4-8</sup> The reason for lower acceptance for PPIUCD in our study among para 2 or more was that they underwent BTL. In this study, acceptance of PPIUCD was higher among women with secondary stage education and senior secondary stage education i.e. 49% and 12.5% respectively than those with no formal or higher education i.e. 8.1% and 3.1%, similar to study conducted by Sujanendra et al and 50% of present study subjects belonged to Upper Lower Socioeconomic strata.<sup>4</sup>

In this study, follow up visits were conducted at 6<sup>th</sup> month, 12<sup>th</sup> month and 18<sup>th</sup> month and complications noted in both the groups (105 subjects in Caesarean Section and 55 subjects in Vaginal delivery group. Pain was reported as 5%, 3% and 1% for Intra-caesarean PPIUCD and 1%, 0%, 0% for post-placental PPIUCD at the end of 6 month, 12 months and 18 months respectively. Total 5.7% i.e. 9 cases (8 cases in intra-caesarean and 1 case after vaginal delivery) had pain Abdomen, the difference in pain between the two groups was not statistically significant. Out of which 6 cases insisted removal, rest 3 cases continued with it and pain subsided with intake of Analgesics. Similar to study performed by Katheit G et al where minor abdominal pain consisted of 12.5% of all complications. Follow up at 6 months, 1 years and one and half year 3 (2.9%), 4 (3.8%), 1 (1%) cases of bleeding per vagina following Intra-caesarean PPIUCD and 2 (3.6%), 3 (5.5%) and 0 cases following vaginal delivery.<sup>5</sup> So, at the end of One and Half year 13 cases (16.8%) of bleeding Per vagina (7.7% following intra-caesarean and 9.1% following vaginal delivery) were recorded, the difference noticed between the two is not statistically significant. Of the 13 cases, all of them were prescribed with combination of tranexamic acid and mefenamic acid thrice daily for 5 days but 12 of them had it removed from other private centers. In other studies, 23.5% and 17.79% of clients had bleeding. Infection rate being 0, 0, 2 cases after intra-caesarean PPIUCD and 0, 1, 0 cases after postplacental insertion follow up at 6 months, 1 year and

one and half year, there is no difference between the two groups.<sup>9</sup> Infection was on basis of abdominal pain associated with fever and foul-smelling vaginal discharge. Similar to study conducted by Ranjana et al, in my study, 2 cases i.e. 1 intrauterine and 1 extrauterine pregnancy with IUCD in situ was reported after one and half year following caesarean section.<sup>10</sup> The case reporting with intrauterine pregnancy at 16 weeks of gestation termination of pregnancy was done with Copper T removal, and Laparotomy followed by salpingectomy with Copper T removal was done with the one with tubal pregnancy. Present study shows expulsion rate as 2 (1.9%), 0, 2 (1.9%) and 5 (9.1%), 0, 5 (9.1%) at 6<sup>th</sup>, 12<sup>th</sup>, 18<sup>th</sup> month following intra-caesarean and vaginal insertion of IUCD respectively. In this study there is higher rate of expulsion i.e. 18.2% following vaginal delivery compared to those with intra-caesarean insertion i.e. 3.8%, probably because the post placental insertion of IUCD was conducted by the post graduate trainees and intra-caesarean insertion was conducted by consultants. In my study Expulsion was detected by history, clinical examination and pelvic ultrasonography. These women were informed about IUCD expulsion and were advised to use alternative method of contraception. According to Chi et al, expulsion rate of PPIUCD at 4 weeks interval was 9.5-12.5%.<sup>11</sup> In this study, 8 (7.6%) removed for bleeding, 5 (4.8%) removed for pelvic pain, 1 (1.0%) removed for pressure from family, 0 removed for string problems, 1 (1%) removed for vaginal discharge and pruritis, 2 (1.9%) removed for pelvic infection, 2 (1.9%) removed for pregnancy with IUCD in situ, 0 removed as husband or child expired, in 6 (5.7%) cases it got expelled spontaneously following Caesarean section. Continuation rate is 57% following Caesarean section and 47% following vaginal insertion of PPIUCD. In contrast to other studies where continuation rate ranges from 82-62%, the continuation rate in my study is very low.<sup>10,11</sup>

## CONCLUSION

The complications associated with Postpartum Intrauterine Contraceptive Device is insignificant, still the awareness, acceptance and continuation are very low. Therefore, the Information Education Communication activity by the field workers must be enhanced to overcome this knowledge gap, in the long run this will improve the acceptance of Contraceptives especially the IUCDs in the general population.

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