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Evaluation of spontaneous expulsion after immediate postpartum intrauterine contraceptive devices (PPIUCDs) insertion

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Abstract: *Immediate postpartum intrauterine contraceptive (PPIUCD) device insertion is one of the newer approaches in contraception where intrauterine contraceptive devices can be inserted within 48 hours of postpartum period with low expulsion rate. Immediate post-placental insertion of IUCD within 10 minutes of delivery of placenta has much lower expulsion rate as compared to insertion later in this period. So, the study was aimed to evaluate spontaneous expulsion after immediate postpartum intra uterine contraceptive devices (PPIUCDs) insertion among 50 married pregnant of more than 18 years of age who were willing to insert immediate PPIUCD (Cu-T 380 A) including lower segment caesarean section and willing to visit both the follow up period at six weeks as well as three months. All the spontaneous expulsions were found with normal vaginal delivery (10%) and were found with immediate postpartum period (6%) than post-placental insertion (4%). No spontaneous expulsion found with intraceasarean post-placental insertion (0%). The maximum spontaneous expulsions took place during first six weeks and reduced in later period. This present study will be able to develop possible references to correlate immediate postpartum intrauterine contraceptive device (PPIUCD) insertion with spontaneous expulsion in Post Partum Family Planning Programme.*

Keywords: *Contraception, IUCD, LSCS, Post-placental, PPIUCD, Spontaneous expulsion.*

I. Introduction

Throughout the history of knowledge, the contraception is quite long.[1,2] Contraceptive methods include temporary as well as permanent preventive methods to help women avoid unwanted pregnancies.[3] Postpartum Family Planning (PPFP) is the prevention of unintended and closely spaced pregnancies through the first 12 months following child birth.[4] So, the postpartum women need a range of effective contraceptive methods to prevent an unplanned pregnancy, within a short interval.[4,5]

Postpartum intrauterine contraceptive device insertion is one of the newer approaches in contraception where intrauterine contraceptive devices can be inserted within 48 hours of postpartum period.[6] Immediate Postpartum Intra Uterine Contraceptive Devices (PPIUCD) insertion is more approachable in our country where delivery may be the only time when a healthy woman comes in contact with health care personnel. There two ways used in PPIUCD insertion are immediate post-placental intra uterine device (IUD) insertion, where insertion of IUD occurs within ten minutes after placenta delivery and after the pureperium or interval period.[8] Intrauterine device insertion during caesarean section by placing an IUD as high as possible in the fundus is a safe and easy method.[9,10] Immediate post-placental insertion of IUCD within 10 minutes of delivery of placenta has much lower expulsion rate as compared to insertion later in the postpartum period.[11] So, the study was aimed to evaluate spontaneous expulsion after immediate postpartum intra uterine contraceptive devices (PPIUCDs) insertion among people who received IUDs (Cu-T 380A) immediately postpartum (including caesarean section).

II. Materials And Methods

This Observational study was conducted at Command (EC) Hospital, Kolkata from January, 2015 to September, 2016 with the permission of Institutional Ethical Committee of Command Hospital (EC). Fifty (50) married pregnant women of more than 18 years of age who were willing for immediate postpartum intrauterine contraceptive device (Cu – T 380A) insertion either by normal vaginal delivery or during lower segment caesarean section (LSCS) and willing to visit both the follow up period at six weeks and three months had participated. The exclusion criteria were obstructed labour, manual removal of placenta, unresolved post partum hemorrhage, chorioamnionitis, premature rupture of membrane (PROM) > 18 hours, extensive genital trauma, any uterine abnormalities and congenital anomalies, fever during or after labour (temperature $>38^0$ c), allergic to copper, wilson's and any haemorrhagic diseases, undiagnosed abnormal uterine bleeding and any pelvic inflammatory disease.

The individuals were classified into following three (03) age groups: Group I – 18 to 23 years; Group II – 24 to 29 years; Group III – 30 years and above. The PPIUCD were inserted after post placental vaginal delivery (within 10 min of delivery of placenta), immediate postpartum (within 48 hours of normal vaginal

delivery) and intra caesarean (post placental insertion during lower segment caesarean section) by maintaining standard procedures of immediate PPIUCD insertion for normal vaginal delivery and intraceasarean insertion.[12] After insertion the participants were observed and were counselled for checking the IUCD (Copper – T 380 A) thread regularly. The participants were asked for follow up visits at six weeks and at three months. In each follow up in outpatient clinic, women were asked for history of missing string and spontaneous expulsion. During each follow up visit physical (per vaginum and per speculum) and ultrasonographic examinations were performed to check IUCD thread. Transvaginal ultrasonography was done to confirmed proper intrauterine IUCD placement and if threads of IUCD were not visible and there were no history of spontaneous expulsion.
All the events and observations were recorded in master chart for analysis by calculating frequency, percentage (%), arithmetic mean and standard deviation in IBM Statistical Package for the Social Science (SPSS) software version (20.0).

III. Results And Observations

The following results and observations were made from the evaluation of spontaneous expulsion of PPIUCDs insertion.The minimum age of the individual (n = 50) was 19 years, maximum was 32 years and mean age with Standard deviation was 25.24 ± 3.82 years. Among the women who accepted the Post Partum Intrauterine Contraceptive Device (PPIUCD), 19 (38%) was in Group – I, 23 (46%) was in Group – II and 8 (16%) was in Group – III. In the present study the participants (n = 50) accepted for Normal vaginal Delivery (NVD) and Lower Segment Caesarean Section (LSCS) for insertion of Postpartum Intrauterine Contraceptive Device (PPIUCD) insertion was 42 (84%) and 8 (16%) respectively. All the women in the study (n = 50) had attended both the follow up clinics (at six weeks as well as at three months).

Table 1: Observations of the Follow up Period after 6 weeks and 3 months after PPIUCD insertion.

Follow up Period	Manual examination finding		Ultrasonographic Findings		Total
	Cu-T in Situ (%)	Missing String (%)	Cu-T in situ and String Present (%)	Missing String (%)	
At 6 weeks (n = 50)	45 (90%)	5 (10%)	46 (92%)	4 (8%)	50 (100%)
At 3 months (n = 45)	44 (97.8%)	1 (2.2%)	44 (97.8%)	1 (2.2%)	45 (100%)

The follow up after six weeks of PPIUCD insertion, 90% of the participants were found to have Cu – T in situ and 10% were with missing string by manual examination but while observed by ultrasonography 92% of the individuals were with Cu – T in situ and 8% were with missing string, suggestive of Spontaneous Expulsion. The follow up after three months of PPIUCD insertion, 97.8% of the participants were found to have Cu – T in situ manually and 2.2% had missing string. Similar observations were found by Ultrasonographic Examination. The spontaneous Expulsion at three months follow up was with one (01) participant (2.2%).

Table 2: Spontaneous expulsion during the follow up Period among study population (n = 50).

Sl no.	Period of follow up	Number of Spontaneous Expulsion	Percentage of Spontaneous Expulsion (%)
1.	At 6 weeks	4	8%
2.	At 3 months	1	2%
3.	Total (n = 50)	5	10%

80% of the spontaneous expulsion was observed at 6 weeks follow up period which had reduced to 20% while observed after 3 months follow up period. In the present study, the cumulative Spontaneous Expulsion after three months follow up period was 5 (10%) of the participants. The spontaneous expulsion was observed with the highest percentage in Group – II (60%), followed by in Group – I (40%). No spontaneous expulsion was observed in Group – III (0%).

Table 3: Distribution of five (05) Spontaneous Expulsions during the Follow up Period in three Age Groups.

Sl no.	Age Group	Period of follow up		Total Number of Expulsion Percentage (%)
		At 6 weeks	In between 6 weeks and 3 months	
1.	Group I (n = 19)	2 (40%)	0 (0%)	2 (40%)
2.	Group II (n = 23)	2 (40%)	1 (20%)	3 (60%)
3.	Group III (n = 8)	0 (0%)	0 (0%)	0 (0%)
Total		4 (80%)	1 (20%)	5 (100%)

Table 4: Showing Spontaneous Expulsion (n = 5) with Mode of Delivery and Type of Insertion.

Sl no.	Mode of insertion		Number of Expulsion (n = 5)	Percentage of Expulsion (%)
1.	Postplacental	Normal Vaginal Delivery (NVD)	2	40%
		Lower Segment Caesarean Section	0	0%
2.	Immediate Postpartum (NVD)		3	60%
Total			5	100%

From these observations it could be inferred that spontaneous expulsion is more during the early period after Post Partum Intrauterine Contraceptive Device (PPIUCD) insertion in younger age group. With gradual passage of time, spontaneous expulsion decreases. The spontaneous expulsion was observed with the highest percentage with Immediate Postpartum Insertion (60%) followed by Postplacental Insertion (40%) with Normal Vaginal delivery. No expulsion was observed with Postplacental Insertion with Intra-caesarean insertion (0%). From the above observations it could be inferred that, spontaneous expulsion with Postpartum Intrauterine Contraceptive Device (PPIUCD) insertion was found with Normal Vaginal Delivery (100%) and it was not observed with Intra-caesarean type of insertion (0%) in the present study.

IV. Discussion

Increase in the institutional delivery had provided the women an opportunity for IUCD insertion, particularly important for the women with limited access to medical care and requires special and integrated health care services for both woman and new born.[13] Immediate postpartum IUCD insertion can play a significant role in providing birth space as a reversible effective contraception without having any effect on the health of the baby.[14]

Expulsion defined as visible protrusion of the IUD stem through the external cervical os. The IUD was defined as cervically located when the vertical stem was found to lie completely in the cervical canal.[11] Expulsion of an IUCD was an important factor for its safety and efficiency.[15] Expulsion rates were lower with copper devices.[16] The majority of expulsion occurs within the first 3 months of the use. An average expulsion rate in parous women is 4.2% and is slightly higher in nulliparous at a rate of 2 – 10% in the first year of use. The risk of expulsion was greatly decreased during postpartum IUD insertion in between 10 minutes after postplacental and within 48 hours after delivery. [17,18] Insertion during caesarean section within 10 minutes of placental removal had lower expulsion rate than the insertions after vaginal delivery which might be related to high fundal placement or to less cervical dilatation.[7,19,20,21] The greater chance of expulsion rate during postpartum insertion can be significantly reduced with proper training for fundal placement and user experience along with ultrasonographic training. There has been no increase in IUD expulsions or perforations associated with active management of third stage of labor. The use of oxytocic agents and fundal massage does not increase the risk of IUD expulsion or perforation, even in the cases when IUD is inserted 2–40 h after expulsion of the placenta. Postplacental insertion has lower risk of insertion and perforation.[17]

In the present study, the spontaneous expulsion had occurred among 8% of the participants during 6 weeks of insertion which was reduced to 2% after 3 months follow up. All the expulsions were observed below 30 years of age.Visibility of the string was definitive in ensuring correct IUD placement.[22] The threads not visible on speculum examination could be confirmed by ultrasonographic location of IUD.[23] Lost string was observed among 16% of those inserted PPIUCD during 4 to 6 week follow up. The Strings were found at cervical canal among 14% of the cases.[13] In the present study, missing string was found in 10% of the cases at 6 weeks follow up which were confirmed by ultrasonographic examination where 8% of the participants were found with missing string. In the present study, 92% of the IUD strings were visualised by ultrasonography at 6 weeks follow up which can be comparable with the position of Cu – T in-situ among 94.78% participants.[2]

The expulsion rate is significantly high when the distance between fundus of uterus and Cu-T is more than10 mm.[24] Pelvic ultrasonography or X-ray pelvis were done for misplaced IUD if threads of IUD were not visible and with no history of expulsion.[7]

There was no case of spontaneous expulsion with intraceasarean insertion[25] and was found to be similar in the present study (0%) with intraceasarean post placental insertion (0%). In the present study, all the expulsions (10%) were found with the insertion after normal vaginal delivery. More was found with immediate post partum period (03 in number or 6%) than post placental insertion (02 in number or 4%). Expulsion rates at 12 months vary from 5% up to 50% and even higher including partial expulsion.[20] Skilled clinicians were associated with lower expulsions rates of copper IUDs. Early follow-up, combined with self-examination for the presence of strings, may be important in detecting early spontaneous expulsion.[19]

V. Conclusion

Knowledge of postpartum intrauterine contraceptive device insertion would be of paramount value. The efficacy of PPIUCD in the present study was satisfactory with low spontaneous expulsion. All the spontaneous expulsions were found with normal vaginal delivery (10%) and were found with immediate post partum period (6%) than post placental insertion (4%). There was no spontaneous expulsion found with intraceasarean post placental insertion (0%). The maximum spontaneous expulsions took place during first six weeks and reduced in later period. This present study will be able to develop possible references to correlate immediate post partum intrauterine contraceptive device (PPIUCD) insertion with spontaneous expulsion in Post Partum Family Planning Programme, which in turn will help to motivate the pregnant women attending this hospital with the assurance for immediate post-partum IUCD insertion.

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