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ORIGINAL ARTICLE

Clinical Outcomes of Post Placental Intrauterine Contraceptive Device Insertion in Women Delivering by Cesarean Section

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ABSTRACT

Background: Short pregnancy interval after caesarean section increases the risks of morbidity, mortality and surgical interventions. This can be easily avoided by post placental insertion of IUCD during caesarean section. Immediate post placental IUCD insertion is defined as insertion of IUCD within 10 minutes of delivery of the placenta. It is a very promising an appealing approach as patient does not have to come for a separate postpartum visit.

Objectives: To determine the outcome (safety, complications, failure and continuation rate) of post placental IUCD insertion during caesarean section.

Materials and Methods: Our study was a prospective cross-sectional study, carried out in the Department of Obstetrics and gynecology at Qazi Hussain Ahmad Medical Complex, Nowshera. All the pregnant women willing for post placental intrauterine contraceptive device were included in the study. Women who had postpartum hemorrhage, chorioamnionitis, structurally malformed uterus and fibroid uterus were excluded from the study. Follow up visits were scheduled at one month, 3 months and 6 months.

Results: 156 women were included in this study. Majority(35.2%) belonged to 31- 35 years age group. 46.7% of them were illiterate and 30.7% have just primary education. 40.38% of women belonged to low socio-economic group. 26.2% of women were para 4. 26.9% had previous 3 caesarean section. The most common adverse events during follow up of 6months were vaginal discharge, menstrual irregularities and pelvic pain. At the end of 6 months there were 9expulsions, 12 removals and 2 pregnancies with the gross cumulative expulsions, removal, failure and continuation rate of 5.7%, 7.6%, 1.28% and 85.2% respectively. The incidence of undescended strings at the end of 6 months was high (32.4%).

Conclusion: Post placental intra uterine Copper T 380 A insertion is a safe, effective and easy reversible method of contraception with low expulsion and high continuation rates.

Keywords: Intrauterine device,Intra-cesarean section, Post placental insertion

INTRODUCTION

Pakistan is the 5th most populous country in the world with population growth rate of 1.95%, birth rate 27.4 births per 1000 population ,total fertility rate 3.4 (children born per woman) and a contraceptive prevalence rate of 24.2%.Lack of contraceptive usage results in unintended pregnancies ,which either undergo induced abortion or are deprived of antenatal care resulting in high maternal and infant mortality. [1,2]It is projected to contribute 2.63% to world's population in 2018.[2,3] IUCD usage is only 2% among the contraceptive users.[3]In a data from recent Demographic and Health Surveys (DHS) conducted in 21 low- and middle-income countries to examine patterns of inter-pregnancy intervalsunmet need, 61% of women in 0-23 months postpartum have an unmet need for family planning.[4]

In this alarming situation, among the temporary methods the most effective methods of contraception are the long acting reversible contraception(LARC) such as copper intrauterine contraceptive device(Cu-IUCD) levonorgestrel intrauterine system and progestogen only implant.[1]Due to the rise in C/section rate all over the world with associated morbidity and mortality in subsequent cesarean section one must require a long term reversible contraception which does not interfere with breast feeding .[5]Due to the introduction of postpartum contraception one have the greater opportunity to have immediate insertion of copper IUCD(within 10 min) with the added advantage of eliminating a six week postpartum waiting period and an additional hospital visit convenient for both patient and health care provider .[6,]This device is highly effective reversible and is coitus independent with immediate contraceptive action and have advantages of ease of insertion and cost effective .It is most widely used method of contraception [7].Globally 14.3% of female prefer the IUD. Various studies has reported the efficacy of intra caesarean IUCD insertion without added risks.[7,8,9,10]

Due to the myths and misconception surrounding insertion of this device it has not attained much popularity amongst the general public and health care personnel.[9]Most of the health care providers are reluctant in performing interval IUCD insertion in women with previous caesarean delivery, so postpartum contraception after cesarean section gives the obstetricians an opportunity to place IUCD under direct vision obviating the fear of perforating the uterus .[8]

Keeping in view the advantages of postplacental IUCD insertion we have designed this study to know the efficacy of post placental IUCD in our population so that we can help in generating and comparing the new evidence to the already available national and international data and on the basis of that we can recommend some suggestions regarding further modification in the existing guidelines. The current study is also designed to determine the complications on immediate intrapartum IUCD insertion during cesarean section in our local population and its complications are highly scarce, our study will help to generate the local and current data regarding such complications.

MATERIALS AND METHODS

This prospective cross-sectional study was conducted at Qazi Hussain Ahmed Medical Complex, Nowshera, between January 2019 till December 2019. All pregnant women who gave consent for post placental IUCD insertion after cesarean section and were willing to take part in 6 months follow up were included in the study. Women who had ruptured membranes for more than 18 hours, chorioamnionitis, postpartum hemorrhage, ectopic pregnancy, structurally malformed uterus and fibroid uterus were excluded from the study. All the patients during their visit to OPD and also during their admission for surgery were counseled for IUCD and written informed consent was taken from those who showed willingness.

Intra uterine contraceptive devise was placed immediately within 10 mins of delivery of placenta through a ring forceps in the fundus of uterus and strings were passed through the cervix. Before their discharge from the hospital all the patients were re-examined through abdominal ultrasound. Patients were scheduled for follow up at 1,3rd and 6th month. At each visit they were asked questions about infection, pain, vaginal discharge, menstrual irregularities and expulsion. All the information was entered in the

predesigned Performa by the researcher. Safety was defined by the absence of any infection and perforation. Infections in the patients were assessed by fever and fowl smelling discharge. Dislodgment of the devise outside the uterine cavity was defined as uterine perforation and was confirmed by abdominal ultrasound followed by X-ray. Expulsion of IUCD was verified by ultrasound findings and partial expulsion was suspected when the lower part of the vertical arm of IUCD and thread was felt outside the cervix during per vaginal examinations. Both complete and partial expulsions were collectively referred as expulsions.

Data collection and analysis was done using SPSS version 20. Qualitative variables like age, parity, educational status was measured as mean +/- SD. Quantitative variables like infection, perforation, cycle irregularities and expulsion were calculated as frequencies and percentages. The level of statistical significance was $P < 0.05$.

RESULTS

A total of 156 patients were included in the study and then followed. Most of the patients were between the age group 31 – 35 years (35.2%) and the least frequent age group was of patients with <20 years i-e 3.2% .31.4% of the total included patients had parity of more than 5 and only 2.5% of the primi patients opted for intra uterine contraceptive device. 26.9% of patients had previous 3 cesarean sections and wanted a long-term temporary contraceptive device. In our study 46.7% of the patients had no education, 30.7% had just primary education and 22.4% had secondary education. Most of the patients were counselled for IUCD during their admission before surgery i-e 57.6% and 42.3% were counselled during their ante natal visit to the outpatient department. All the statistics are given in the table:1 below.

Table 1: Demographic and clinical profile of intra-cesarean Cu-T acceptors

Characteristics	Number	Percentage
AGE		
<20 years	5	3.2%
20-25 years	28	17.9%
26-30 years	48	30.7%
31-35 years	55	35.2%
36-40 years	20	12.8%
Parity		
Primi	4	2.5%
Para 2	25	16.02%
Para 3	37	23.7%
Para 4	41	26.2%
>Para5	49	31.4%
No. OF LSCS		
First C/sec	10	6.4%
Previous1 c/section	35	22.4%
Previous 2 c/section	32	20.5%
Previous 3 c/section	42	26.9%
Previous 4 c/section	33	21.1%
Previous 5 c/section	4	2.5%
Educational Status		
Illiterate	73	46.7%
Primary education	48	30.7%
Secondary education	35	22.4%
Socio-Economic Status		
Low	63	40.38%
Middle	50	32.05%
Upper	43	27.5%
Time of Counselling		
Antenatal	66	42.3%
Before c/section	90	57.6%

The most common adverse effects found among the patients at the end of 6months were vaginal discharge, menstrual irregularities and pelvic pain accounting to about 12.7%, 11.2% and 10.5%. There was no perforation found in the studied group upon follow up. 67.6% patients had string visible in the vagina after 6 months while 32.4% of patients still had string up inside the uterine cavity. At the end of one year, out of 156 intra caesarean IUCD insertions, there were 9 expulsions, 12 removals, and 2 pregnancies with gross cumulative expulsion, removaland failure rate of 5.7%,7.6% and 1.28% respectively. 85.2% of patients continued using Copper IUCD at the end of 6 months. All the results are shown in the table : 2 below.

Table 2: Follow up of postplacental Intra-uterine contraceptive device

Follow up	1 months	3 months	6 months
Continuation Rate	154(98.7%)	145 (92.9%)	133(85.2%)
Adverse effects:			
Unusual vaginal discharge	36 (23.3%)	27 (18.6%)	17(12.7%)
Menstrual irregularities	35 (22.7%)	26(17.9%)	15(11.2%)
Pelvic pain	31 (20.1%)	23(15.8%)	14(10.5%)
PID	2 (1.29%)	1(0.68%)	1(0.75%)
Perforation	0(0%)	0 (0%)	0(0%)
Pregnancy	0(0%)	1(0.68%)	1(0.75%)
String Visibility with Cu T In Uterine Cavity			
String visible	63 (40.9%)	68(46.8%)	90 (67.6%)
String not visible	91(59.1%)	77(53.2%)	43 (32.4%)
Spontaneous Expulsion			
Complete expulsion	0 (0%)	1(0.68%)	2(1.50%)
Partial expulsion	1(0.64%)	2(1.37%)	3(2.2%)
Reasons for cu t removal.			
Pelvic pain	0(0%)	0(0%)	1(0.75)
Menstrual complaints	0(0%)	2(1.37%)	1(0.69%)
Pelvic infection/ discharge	0(0%)	2(1.37%)	2(1.75%)
Failure/ pregnancy	0(0%)	1(0.68%)	1(0.69%)
Psycho-social cause	0(0%)	0(0%)	1(0.69%)
Baby expired	1(0.64%)	0(0%)	0(0%)

DISCUSSION

Approximately 18,593 live births occur in Pakistan each day with an average of 774.7 in an hour highlighting the importance of healthy birth spacing[11]. IUCD's are proposed as 1st line contraceptive by ACOG[12] and American Academy of Pediatricians (AAP)[13]. The centers for Disease control and prevention US Medical Eligibility Criteria for Contraceptive Use (USMEC) states that the advantages overweigh the risks for immediate post-partum use of IUCD[14]. Women soon after delivery are highly motivated for contraception as they want their child to grow with relaxed mind without the fear of unplanned pregnancy. Also, if they have to wait for another 6 weeks for initiating contraception, they might end up in pregnancy accidently. This trend is clearly seen in our results as almost 57.6% were counselled during their admission for surgery and they opted for post placental IUCD.

Follow up of the patients is an important component for detection of expulsion and continuation rates. Recent guidelines suggest that asymptomatic patients having IUCD should come for follow up after 3-6 weeks of insertion[15]. In the current study, follow up was scheduled at 1st , 3rd and 6th month of post placental IUCD insertion. All the patients were followed till 6 months and none of them were lost to follow up which emphasizes the importance of good counselling and constant contact with clients.The observed decrease in the number of patients at the and were due to expulsions, failure and removal of the device by patients themselves.

In our study, expulsion rate by the end of 6 months was 5.7%. The results are quite similar to another study done in India by Sunita Singal et al that showed the expulsion rate of 5.33% in patients who opted for post placental IUCD in cesarean section[5]. Another study done by Beenish Khanzada et al in Quetta revealed cumulative expulsion rate of 8.9% among which expulsion rate by cesarean section was 3.4% and expulsion rate after normal delivery was 5.5%. Their study predicted that expulsion after cesarean delivery was much less than expulsion after normal vaginal delivery[2]. Another multicentric study with the largest sample size so far reported that the expulsion rate is much higher in patients who received IUCD vaginally than those who received it per operatively. The expulsion rate in their study at 3 months was 10.9% for those patients who opted for an intra-cesarean IUCD

and 16.4%for those who kept IUCD vaginally after normal delivery[16].

In our study 5.7% of patients expelled IUCD within 6 months, 25% of which had complete expulsion and 75% of patients had partial expulsion but considering the efficacy, we had to remove it. Our results were contradictory with another study done by Grimes Det al that manifested 20% expulsion rate among which 25% had partial expulsion and 75% had complete expulsion[17].

Visibility of string is an important landmark as it assures both IUCD users and health care worker about proper placement of the device. During cesarean section as the uterus size is larger as compared to the nonpregnant uterus, the IUCD thread may not be seen visible outside the cervical os but involution of the uterus makes it visible mostly at the first visit. In some patients the thread gets curled up leading to invisibility. In the present study, IUCD strings were visible in 46.8% of patients at the end of 3 months and visibility increased up to 67.6% at the end of 6 months. Bhutta et al ., proclaimed string visibility of 92% of patients at the end of 6 months in his study[18] . Sunita Singal et al reported string visibility of 61.87% of patients at the 1st visit and 84.2% at 12 months[5]. The higher cases of string invisibility in our study are due to usage of Copper T 380A that has shorter string as compared to Multiload 375 used by Bhutta et al. Inability to visualize the string of IUCD during cesarean section ranges from 44-79% in different studies[19,20,21,22]. This finding may be due to technique of IUCD insertion during cesarean section in which the strings may not be traversing through the cervix in the vagina at the time of insertion.

The common complications that were found in our study were vaginal discharge, menstrual irregularities and pelvic pain. At first visit 23.3% had vaginal discharge, 22.7% had menstrual irregularities and 20.1% had pelvic pain. The frequency of complications decreased at the end of 6 month.12.7% had vaginal discharge, 11.2% had menstrual irregularities and 10.5% had pelvic pain at 6th month follow up. The results were similar to a study done in India interpreting that 9.34% had vaginal discharge, 8.9% had menstrual irregularities and 10.7% had complaints about pelvic pain[5]. Another study done in the gynae Department of QIMS hospital, Quetta showed that the rate of infection was quite lesser when IUCD was placed during cesarean section (2%) but rate was slightly increased i-e 6.2% when kept vaginally after delivery[2]. Pelvic inflammatory disease was the least common complication and the rate decreased from 1.29 % at first visit to 0.75% at the end of 6 months. A study done in our hospital an year back[23] showed that 10% of patients developed PID at the end of 6th month so the results of the current study are much less as compared to the past study. 2 of our patients conceived with IUCD in situ with a failure rate of 1.28 %. The results had similarity with another study also reporting 2 cases of unintended pregnancy during 12 months'time period with a failure rate of 0.67 per 100 women per year[5]. There was no perforation reported during the whole study period. The study done by Beenish et al also showed 0% perforation rate[2] concluding that the chances of perforation are much less while using PPIUCD.

The cumulative removal rate of IUCD at the end of 6 months was 7.6% and the most common cause found in our study was pelvic infection and discharge; this was much less than results reported by Hayes et al in their study showing a removal rate of 10%[24].

85.2% of patients continue to use IUCD and had satisfactory and promising feedback regarding post placental IUCD during cesarean section. A study done by Sucak et al. showed a continuation rate of 87% in patients who opted were PPIUCD during cesarean section[25] which was quite relatable to our study.

Limitations: Limitation in this study was small sample size and the reason behind this was difficulty in following the patient till end.

CONCLUSIONS

Post-placental intrauterine Copper device is highly effective and safe contraceptive device with low complication and high continuation rates. Counselling should be increased during antenatal period at the hospitals as well as at the community level so that most of the people avail its advantages.

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