



A Prospective Multi-centric Study of Acceptance, Insertion and Follow-Up of Postpartum Insertions of IUCD

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Abstract

Purpose of the Study The unmet need for contraception in the postpartum period is a major challenge in our country. Unintended pregnancies are highest in the first year after birth, and postpartum IUCD insertion is an effective way to counter this problem. This study was planned to build up data for acceptance and follow-up of postpartum IUCD insertions.

Methods The present study has included data of PPIUCD insertions and follow-up from seven institutions over a period of 6 months. The case recruitment lasted for 3 months, including only those who had PPIUCD insertions in this period, and they were followed up for a period of 6 months. The follow-up of patients was at 6 weeks and 6 months. All issues were addressed including side effects, expulsions, myths surrounding the device, etc., along with routine postnatal care.

Results and Conclusion There were 5227 deliveries and 1895 insertions. The acceptance rate was 36%, and a follow-up at 6 weeks and 6 months showed up an expulsion rate of approximately 4% and a removal rate of 5%. Overall, at the end of 6 months we have a continuation rate of 90%. This shows that a dedicated approach to postpartum contraception will definitely bring down incidence of unintended pregnancies.

Keywords Contraception · PPIUCD · Post partum contraception · Post placental insertion · Intra caesarean insertion · LARC

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Introduction

It is well established that almost 50% of all pregnancies globally at any given time are unintended and the same is true for India. The negative impact of unintended pregnancies on our national health care program is significant. For the woman, it can mean safe or unsafe abortion or an unplanned birth majorly affecting her health and quality of life and the family's economic status. As obstetricians in

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India, we need to be constantly aware of the ticking population clock. The current Indian population is over 1.39 billion; it is expected to surpass China in numbers in the next 5 years to become the largest population. The major contributor of all these problems is the high unmet need in the postpartum period (up to 65%). Evidence has it that family planning can avert nearly one-third of maternal death and 10% of childhood mortality if couples space their pregnancies more than 2 years apart [1, 2].

It is clear that we need to increase the basket of choice of contraceptives in the immediate postpartum period, as couples are highly receptive at this time [3]. Intrauterine contraceptive device (IUCD) is an effective method for spacing pregnancies as it is convenient, long acting and rapidly reversible [4]. Immediate provision of PPIUCD (postpartum IUCD) following birth can overcome barriers in accessing this method. It will reduce the risk of unintended pregnancy in the first year following birth and improve spacing between births. Though this method is available in the public sector, there is need for implementation of the service uniformly across all levels of health care in our country.

The modern day advent of contraceptives has opened the basket of choice for immediate postpartum contraception. There are several methods safe in the immediate postpartum period, the Cu IUCD, LNG IUS and Implants, etc. Progesterone only pills, centchroman, barriers and emergency contraception can be added to this basket as early as 4 weeks following delivery. Of these, the copper PPIUCD (380A or 375) seems to be a safe, effective and long-term contraceptive method. Awareness about PPIUCD and integration of a PPIUCD counseling service at every delivery point with provision of couple counseling will improve the success of this program. This may play a pivot role to meet unmet need of contraception in the postpartum period.

The choice for postpartum contraception including the PPIUCD should ideally be offered to women during pregnancy. The couples should have adequate information ('Cafeteria Approach') about all the options available, and the informed choice is recorded on the antenatal card. This conversation can also happen once women in early labor admit to labor ward. These efforts at counseling will facilitate correct information for the clients, overcome the fear of side effects, myths and misconceptions, all being important reasons for non-acceptance of contraception [5] (Ashok S, John S, Ajanta MT. The KAP-gap in Nepal). Besides, this method is also beneficial for the health facility as no additional resources are required, and it is performed on the same delivery table with minimum additional instruments by the team conducting the delivery. The timing is crucial, either within 10 min of delivery or intra-cesarean or within 48 h. It should not be inserted after 48 h of delivery up to 4 weeks as the chances of infection and expulsion increase in this period. After 4 weeks of birth, IUCD can be inserted

following guidelines for interval IUD insertion. It is now known by several studies that approximately 27% births in India occur within 24 months of a delivery and sexual practices resume quite early after delivery [6].

Aims and Objectives

The objectives of the study were to determine the factors associated with acceptability of immediate PPIUCD (post-placental and intra-cesarean insertions of copper IUCD) insertion.

Another objective was to identify reasons for non-acceptance.

The secondary objectives were to quantify the rates of adverse events (especially expulsion) and also to determine factors associated with discontinuation.

Methods

This was a prospective study conducted in the departments of Obstetrics & Gynecology, of following institutions:

1. Sanjay Gandhi Memorial Hospital, New Delhi
2. Guru Gobind Singh Government Hospital, New Delhi
3. Bhagwan Mohair Hospital, New Delhi
4. Acharyashree Bhikshu Government Hospital, New Delhi.
5. GGS Medical college and hospital, Faridkot.
6. R. N. Cooper Hospital, Mumbai
7. Mahatma Gandhi Institute of Medical Sciences, MGIMS, Wareham.

This study was approved by the Institutional Ethical Committees of individual hospitals. These institutions are catering to health needs of urban and semi urban Indian communities. Eligible subjects were pregnant women attending the institute for the antenatal care and for childbirth from Jan 15th 2021 to March 15th 2021. All pregnant women who were found eligible were offered the available contraceptive methods as a basket of choice during the antenatal counseling. This counseling served as a tool to identify the acceptors. No score was provided for this by MOHFW, and the method was to offer the available methods as a basket of choice during the antenatal counseling. The reasons for acceptance and non-acceptance were documented for analysis, and those who accepted were offered the service at birth after reconfirming the decision for insertion. During counseling, written informed consent was obtained and recorded on the *antenatal card most often in the form of a seal on the card*. Data on medical history, age, parity, religion, socio-economic status, obstetric history and most importantly, awareness about the method were recorded. The reasons

for the acceptance or reluctance to the PPIUCD insertion were inquired and noted in the case sheet. Subsequently, counseling was done by health care personnel with information, education and counseling (IEC) material regarding PPIUCD insertion and its benefits, associated complications and required follow-up during postpartum period. Acceptability was recorded when women agreed to undergo insertion of the intrauterine contraceptive device within 10 min of expulsion of the placenta following vaginal birth. Women who were non-acceptors were counseled regarding other methods of family planning. The follow-up was scheduled at 6 weeks and 6 months. The data collection concluded on September 15, 2021, when 6 months completed for the last case recruited. The second assessment after birth excluded any trauma or hemorrhage of the genital tract, or risk of sepsis. Though the standard checklist of service provision from the MOHFW website was followed, the following are the inclusion and exclusion criteria:

Inclusion Criteria

1. All women who were considered low-risk pregnancy and attending antenatal clinic were counseled initially.
2. Insertion time was restricted to immediately following vaginal birth, intra-cesarean, or within 48 h of a vaginal birth.
3. Women reporting early labor and who had missed the counseling in antenatal period were included.

Exclusion Criteria

1. Women reporting active labor and who had missed the counseling in antenatal period.
2. Women with known severe medical disorder in pregnancy.
3. Women with known uterine anomaly
4. Women with persistent vaginal hemorrhage following delivery.
5. Woman with AIDS and who has not been taking ARV
6. Woman with PROM more than 18 h, fever, or obvious signs of intrapartum or postpartum sepsis.

The Service

The insertions were done as per guidelines under aseptic precautions by providers trained and certified by MOHFW, and there were the consultants and medical officers conducting the deliveries or performing the cesarean sections. There were some conversions to postpartum insertion within 24 h though all acceptors had consented for post-placental insertions. Reasons for converting post-placental to postpartum insertions are as follows:

1. Women hesitating immediately after birth but agreeing later in the ward on recheck.
2. Trained provider not available at delivery including emergency CS.
3. Some concern about mild atony of uterus which resolved quickly with treatment but made the provider less sure of the procedure.

Results

A total of 5227 women were recruited in the study during study period in our centers. There were 3218(61.56%) vaginal births and 2009 (38.43%) cesarean sections. The total number of PPIUCD insertions was 1895 by about 60 providers. The majority of PPIUCD were immediate post-placental insertions: 1151 (60.73%). There were only 33(1.74%) insertions in the postpartum period within 48 h, and the remaining 711 (37.51%) were intra-cesarean insertions.

Out of the total deliveries, 2707 women (51.78%) were aware about PPIUCD, and of them 1433 (52.94%) accepted PPIUCD, and all underwent insertion. Out of 2520 (48.21%) women who were unaware of PPIUCD, only 462 (18.23%) accepted PPIUCD insertion. This gave us clearly a statistically significant higher acceptance rate for PPIUCD insertion in women who were already aware about the method ($p < 0.05$) (Table 1).

We tried to evaluate how women were educated or informed about PPIUCD. It was heartening to know that in an at least half the number of aware women (58.8%), health care provider/health center were source of information, rest of women were self-informed through different media (26.6%) and yet other undetermined means (14.50%).

Acceptance has always been a critical factor in the success of the program. In the present study, overall acceptance for PPIUCD insertion was 36.25% out of 5227 deliveries where women were counseled with a basket of choice of contraceptives (Fig. 1).

Overall coverage (acceptance) of PPIUCD was 36.25%, 36.79% of vaginal deliveries were covered and 36.25% of cesarean sections accepted and service was provided (Table 2).

Table 1 Association between the awareness and acceptance of PPIUCD

PPIUCD awareness	PPIUCD acceptance		Total	P-value [‡]
	Yes	No		
Yes	1433 (52.94%)	1274 (47.06%)	2707 (100%)	<0.001
No	462 (18.33%)	2058(81.67%)	2520 (100%)	
Total	1895 (36.25%)	3332 (63.75%)	5227 (100%)	

[‡]Chi-square test

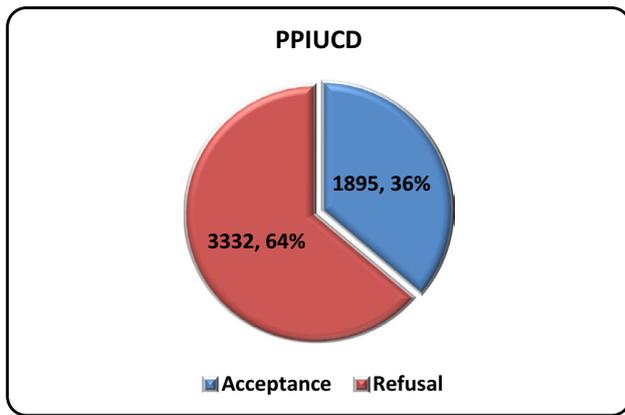


Fig. 1 Refusal and acceptance of PPIUCD

Table 2 : Percentage of deliveries covered including mode of delivery

Deliveries covered	Total number	PPIUCD insertions accepted and done	% covered
Vaginal deliveries	3218	1184	36.79%
Cesarean sections	2009	711	35.39%
Overall coverage	5227	1895	36.25%

The main reason for acceptance was awareness about its reversibility (51.6%) followed by awareness regarding safety and effectiveness of PPIUCD (48.33%). Some reasons for non-acceptance were refusal by partner/family member (18.81%), fear of complications (34.27%) and wish for an alternate method being an important reason (42.40%) (Table 3). Acceptance level was influenced by other demographic factors, age, parity, education, socioeconomic situation, etc. In the present study, the highest acceptance was seen in women in the age group ranging from 21 to 30 years (77.20%), those having primary/secondary level of education (42.95%/29.44%), women coming from urban areas (54.51%), Hindus (75.67%) and those with lower middle and lower socioeconomic status (61.31% and 32.98%). A higher acceptance rate was observed among primipara = 798 (42.11%) and Para 2 = 862 (45.48%). Acceptance was higher in those who had a desire for future pregnancy after an interval of more than 2 years (53.45%) (Table 4).

Follow-up of Women Post-insertion

An important part of our study was to follow up all women with insertions till 6 months, and considerable data of 6 months could be collected. There were two follow-ups: first at 6 weeks and next at 6 months. A total of 1224 (nearly 65%) women showed up for follow-up after 1 month. At the end of 6 months, 765 (40.36%) women came for follow-up.

Table 3 Factors affecting acceptance and refusal of PPIUCD

Factor	No. of patients (N= 1895)	Percentage (%)
<i>Factors affecting acceptance of PPIUCD</i>		
Reversible	969	51.13%
Safe and effective	916	48.33%
Allowed by partner/family member	503	26.54%
Long life	263	13.82%
Previous use of IUCD	163	8.67%
Non-hormonal	29	1.53%
No interference with sex	90	4.74%
<i>Factors affecting refusal of PPIUCD</i>		
Partner and family refusal	627	18.82%
Fear of complications	1142	34.27%
Satisfied with previous method	561	16.84%
Want to use another method	1413	42.41%
Not ready yet/no reason	683	20.50%

Out of these, 59.1% of women who came for the scheduled visit at 1 month had no complaints, and 76.39% of women who visited at 6 months had no complaints.

The incidence of expulsion of the IUCD at 6 weeks was found in 79 women; this was 4.16% of total insertions and becomes 6.45% of those who followed. Expulsion in 6 months was 1.31% of total insertions and becomes 3.26% of those who were followed up. About 29.5% of them opted for reinsertion after the first follow-up, about 14.7% opted for other methods, mainly injectable and barriers, and 32.9% had not opted for any method to date. At the 6-month follow-up, out of 25 expulsions no cases opted for reinsertion and 10 women (40%) opted for injectable and 1 woman (4%) did not opt for any method till date.

Removal of IUCD at 6-week follow-up was requested and provided in 68 women, 3.58% of total insertions and 5.55% of those who were followed up. The commonest reason for removal was abnormal uterine bleeding. Majority of women, 48 out of 68 (70.58%) got the removal done at the facility, while 20 out of 68(29.41%) got it removed outside the facility at private hospitals. After removal at 6 weeks, only 1 client opted for reinsertion, others opted for injectable or barriers, and 13 women (19.11%) had not taken up any method during the study period. At 6-month follow-up, 16 women got the IUCD removed, reflecting as 0.84% of total insertions and 2.09% of 765 women who were followed up till 6 months. None of these 16 women opted for reinsertion of IUCD, and 11 women (40%) had not opted for any method after removal till the study period.

The other common problem of threads not seen on follow-up at 6 weeks was found in 79 women (4.16% of all insertions and 5.55% of those who followed), out of whom

Table 4 Baseline socio-demographic profile of women with acceptability of PPIUCD

Variable	No. of patients (N= 1895)	Percentage (%)	
Age in years	<20	235	12.40%
	21–30	1463	77.20%
	> 30	197	10.39%
Educational status	No formal education	377	19.89%
	Primary	814	42.95%
	Secondary	558	29.44%
	Higher	146	7.70%
Residence	Rural	862	45.48%
	Urban	1033	54.51%
Religion	Hindu	1434	75.67%
	Muslim	392	20.68%
	Other	69	3.64%
Socioeconomic status	Upper	18	0.94%
	Upper middle	90	4.74%
	Lower middle	1162	61.31%
	Lower	625	32.98%
Parity	P1	807	42.58%
	P2-P4	866	45.69%
	> P4	222	11.71%
Desire for future pregnancy	Interval > 2 years	1013	53.45%
	Not sure	406	21.42%
	No more	476	25.11%

in 68 cases, USG could pick up the IUCD in situ (86.08%); this was in 3.58% of all insertions. Of the remaining 11 cases where USG could not find the device, 7 women opted for reinsertion (8.86%). At 6-month follow-up, 11 women were identified as thread not seen, 0.58% of all insertions (0.91%) of those who were followed up at 6 months.

The incidence of local infection (pelvic/endometritis/cervicitis) was found in 8 cases (0.42%) of cases at 6 weeks and 4 cases (0.2%) of cases at 6 months. Similarly, the presence of pelvic pain with or without signs of infection was documented in 38 cases (2%) at 6 weeks and in 14 cases (0.73%) at 6 months.

As the follow-up of the study period coincided with the second wave of COVID-19 pandemic, telephonic follow-up was conducted by the institutional program officers and counselors. The reasons for lack of follow-up were given as wrong phone numbers, numbers changed, lack of connectivity as patients went off to their villages, phones not recharged, etc. (Table 5).

Discussion

The use of IUCD for contraception (both postpartum and interval) among eligible women in India is very low despite being offered free of cost through the National Family Planning Program [7]. The PPIUCD coverage rate varies widely

among different states in India ranging from 1.2 to 40.2% with the national average being 16.3% [8]. Studies have implicated lack of appropriate counseling for poor acceptance of IUCD by postpartum women, and focused family planning counseling (FFPC) has been shown to be effective in improving the acceptability of PPIUCD in these women [9].

Even though the follow-up part of the study period was during the second wave of the COVID-19 pandemic, we were able to ensure 65% follow-up either physically or telephonically at 6 weeks and 40% at 6 months.

Out of 5227 women who delivered in these centers in the recruitment period of 2 months from January 15, 2021, to March 15, 2021, 51.78% were aware of the method, but out of them only 52.98% accepted. This is an improvement upon previous studies, one of them showing 20.20% as shown by Sharma A, Gupta V 2017 [10], and only 4% awareness as shown by Desponded et al. [11], Kathpalia et al. [12] and Katheit et al. [13]. The finding suggest that concept of PPIUCD is catching on in community, and there will be fewer reluctant women in future if we increase the level of awareness by means of antenatal counseling with good IEC materials and separate sessions.

In our study, the overall coverage (acceptance) of PPIUCD was 36.25%. This is more than double the national average of 16.4%. Our method uptake also compares favorably with a Quality Improvement study done by Agrawal

Table 5 Follow-up of PPIUCD insertions up to 6 months

Follow-up findings	6 weeks number	6 weeks% (out of total insertions/out of those followed up)	6 months number	6 months% (out of total insertions/out of those followed up)
Follow-up/total number	1224/1895	64.59%	765/1895	40.36%
No complications reported	658	59.1%	309	40.39%
Long thread trimmed	110	5.8%/8.98%	9	0.4%/1.17%
Bleeding	88	4.64%/7.18%	30	1.58%/3.92%
Expulsion	79	4.16%/6.45%	25	1.31%/3.26%
Removal	68	3.58%/5.55%	16	0.84%/2.09%
Thread not seen	79	4.16%/6.45%	11	0.58%/0.91%
IUCD in situ on USG	68/79	86.08%/3.58%	11	100%
Local infection	8	0.42%	4	0.2%
Pain	38	2%	14	0.73%
Post-expulsion reinsertion	26/79	32.9%	None	

et al. [14]. The project team was successful in achieving a PPIUCD coverage rate of 19.2% at 3 months in the facility, which was above the projected target of 10% [12].

In the present study, the highest acceptance was seen in women in the age group ranging from 21 to 30 years (77.20%), those with primary or secondary level of education (42.95% and 29.44%). The number coming from rural and urban areas was almost similar (45.48% and 54.51%). The acceptance was higher in Hindus (75.67%) and those with middle socioeconomic status (66.05%). A higher acceptance rate was also observed among multipara (57.66%) and those who had a desire for future pregnancy after an interval of more than 2 years (53.45%). These findings are similar as results observed by Sharma and Gupta 2017 [15] and Deshpande et al. [11] and Gujju et al. [16]. But in contrast to a study conducted by Mishra and by Gautam et al. [17], it was seen that there was a higher acceptance in primigravida [18]. This observation suggests that though in the present study multi-gravida were more receptive to this spacing method of contraception, even primigravida with good motivation and counseling can accept it.

Acceptors were found to have different factors influencing their decision, we found that reversibility of the method mattered in 51.68% of acceptors as an influencing factor, safety and effectiveness in 48.33% and acceptance by partner/family member in 26.4% of acceptors. Sharma et al. 2017, Deshpande et al. and Mishra have similar findings [10, 11, 15, 17].

Our study reveals that fear of complications was an important reason to refuse, and 34.27% of women who refused gave this as one of the reasons. Refusal from partner/family member for PPIUCD insertion was seen in few (18.81%), and 42.40% of women wanted to use another method, thereby reflecting the quality of counseling services in place for offering the basket of choice and involving

the partner and family in these institutions. The reasons for refusal were similar to as was found by S Deshpande et al., Mishra and Gautam et al. [11, 17, 18]. This clearly indicates that health care provider should understand the importance of couple counseling for contraception decision making.

The follow-up data in our study are encouraging and compare well with other such follow-up studies done in the past decade or so. A follow-up of 65% at 6 weeks and 40% at 6 months even as the pandemic was still ongoing is encouraging but can be improvised to a desirable 75% to 80%. Telephonic follow-up was done whenever the women could not attend due to the pandemic. A cumulative expulsion rate of 4.16% at 6 weeks and only 1.31% at 6 months is highly encouraging and reflects good training and correct placement. This compares favorably with the study by Deshpande et al., who reported an expulsion rate of 9.2%. Besides, we had a reinsertion rate of 30% to 40% and almost 15% opted for other methods like injection (Injection DMPA). A removal request was made by 3.58% of the total insertions at the 6-week follow-up, and the reason given was abnormal bleeding and the fear of worse symptoms to come. Unlike the expulsion group, reinsertion request was there in only one patient. Again our study compares favorably with the study by Deshpande et al., who reported a removal rate of 10.2%. Also, in our study at 6 months only 0.8% requested removal and none got reinserted. One lacuna here was 19.11–40% of these women who got the IUCD removed and did not take up any other method till the end of the study period. This reflects a need for higher engagement with this group of women for counseling and offering the basket of choice once again. The issue of thread management following PPIUCD insertions has perplexed providers for a long time now. In this study, threads were found to be missing in only 4.16% of all insertions and in a large majority of them (86.08%) USG could pick up the IUCD in situ. Fortunately, by 6 months

this problem became very rare with only 0.58% of women with threads not seen. The incidence of other problems for, e.g., local infection and pain were rare and accounted for only 0.2% and 0.73%, respectively, indicating an incidental finding rather than method related.

Conclusion

The present study examined the factors associated with acceptability of PPIUCD and found a higher level of acceptance in multiparous women, women with higher education, higher awareness, and the fact that the method was understood as a safe, efficacious and reversible procedure.

The reasons for non-acceptance were fear of complications, lack of support from spouse and family and rarely preference for other methods.

It was possible to check for the adverse events, mainly spontaneous expulsion in 79 women in a 6-month follow-up out of 1895 insertions, an incidence of 4.16% at 6 weeks and 1.31% at 6 months. This is relatively low incidence but can be further improvised with correct technique. The impact is negated by the reinsertion in 35% of these clients and 15% opting for other methods mainly injectable contraceptives.

The requests for removal in 3 to 4% of women were mainly due to abnormal bleeding patterns and the fear of worse symptoms ahead. Pain and infection were very rare to be significant.

As care providers for women during their pregnancy, birthing and the breast feeding phase, we need to be intensely aware that postpartum period is a crucial time when couples are highly motivated and receptive to family planning methods. If a contraceptive is provided prior to discharge from the hospital, then the woman is protected from unintended pregnancy irrespective of compliance for the postnatal visit. The couple has been protected before they resume sexual activity [5].

The critical factors associated with acceptability PPIUCD were determined in this study, and reasons for non-acceptance could be identified. The rates of the expulsion and reasons for discontinuation were assessed with effective follow-up to the first 6 months post-insertion, and other methods could be offered to such clients. This study demonstrated that telephonic follow-up because of the pandemic was possible and effective.

Acceptance and continuation of IUCD can be increased by education and counseling. Spreading awareness is the key indicator of success for any contraceptive implementation at the community level [12]. Despite making contraception widely available, there is poor acceptance of contraceptive methods either due to ignorance or fear of complications using them. Inadequate knowledge about contraceptive methods and lack of awareness about how and where to

procure them are the main reasons for not accepting family planning [18]. The present study was conducted to evaluate factors affecting acceptance of PPIUCD insertion and the benefits of follow-up at least till 6 months. All hospitals ensured sincere efforts for client follow-up ensuring continuation. The main lesson learnt were: Offering a basket of choice, method specific counseling once choice is made, follow-up and troubleshooting will help in building up a successful FP program. PPIUCD is a scientific tool with high retention and satisfaction rates and is a suitable method for the private sector where the client consultant interphase has a stronger dynamics conducive for counseling, discussion, acceptance and follow-up of the method provided. Hence, PPIUCD must be made an essential part of basket of choice of contraceptive and the concept must be introduced in the antenatal period for better insertion rates postpartum. Pregnancy and birthing are ideal interphase for contraception counseling, and it is time we harnessed these missed opportunities to reduce the unmet need in the postpartum period.

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Declarations

Conflict of interest None declared.

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