Annals of Medicine and Surgery 82 (2022) 104781

Contents lists available at ScienceDirect

Annals of Medicine and Surgery

journal homepage: www.elsevier.com/locate/amsu

Case Report

Intrauterine pregnancy with copper intrauterine contraceptive device in situ: A case report from Nepal

Abilasha Rana [a], Amit Shrestha [a], Anil Regmi [b,*], Shreyashi Aryal [c], Pragya Karki [d], Rewant Singh [e]

[a] Chirayu National Hospital and Medical Institute, BasundharaMarg, Kathmandu, Nepal
[b] Nepal Medical College Teaching Hospital, Kathmandu, Nepal
[c] Ishan Children and Women Hospital, BasundharaMarg, Kathmandu, Nepal
[d] Everest Hospital, New Baneshwor, Kathmandu, Nepal
[e] Manmohan Memorial Medical College and Teaching Hospital, Sitapaila, Nepal

ARTICLE INFO

Keywords:
Copper-T
Hysteroscopy
Intrauterine copper devices
Manual vacuum aspiration
Pregnancy

ABSTRACT

Introduction: and importance: Intrauterine pregnancy on the background of intrauterine devices heralds its rare but possible failure. Despite having an excellent contraceptive pearl index, clients with copper-T may present with typical pregnancy symptoms.

Case presentation: We present a case of a 22 year primigravida who after 42 months of successful use of copper-T, conceived an intrauterine pregnancy diagnosed at 7 weeks period of gestation.

Clinical Findings and Investigations: A positive urine pregnancy test following cessation of menstruation for 2 months was reported by the patient on presentation. Urgent transabdominal ultrasound of the abdomen and pelvis revealed a gravid uterus containing a single gestational sac corresponding to 7 weeks of gestation. After a thorough explanation about possibility of viable pregnancy and also its pros and cons, she decided to terminate the pregnancy. Manual vacuum aspiration was done with removal of copper-T.

Conclusion: Although ectopic pregnancy is a relatively common complication of intrauterine contraceptive device, it is necessary to consider the possibility of intrauterine pregnancy as a potential complication as well. Although, term pregnancies with excellent prognosis have been demonstrated in many studies after removal of intrauterine devices, close follow up is needed to identify misplaced copper-T and keep unwanted pregnancy at bay.

1. Introduction and importance

Intrauterine contraceptive devices are reversible contraceptives. Their contraception is remarkable yet its failure rate may lead to unwanted pregnancy [1]. Hormone (Levonorgestrel) loaded IUD shows par less failure rate than copper-T alone. The continuation of pregnancy is possible by safe removal of intrauterine devices (IUDs) by office hysteroscopy, yet challenges of preterm labor and inflammation of placenta can be troublesome. In resource poor settings, termination of pregnancy by manual vacuum aspiration is frequently practiced despite office hysteroscopy under ultrasound guidance being a better alternative [2,3].

2. Case report

A 22-year female, from London, United Kingdom, has been using the intrauterine contraceptive device (IUCD) i.e. Copper T-380 A for 42 months. She was on her vacation to Kathmandu when she developed increasing intermittent episodes of lower abdominal pain for 3 weeks and hence presented to Gynecology and obstetrics out-patient-department (OPD) with additional complaints of cessation of menstruation for 2 months. She recalled that her menstrual periods otherwise were regular and elaborates that the lower abdominal pain was gradually progressing, cramping intermittently in nature, non-radiating with no known aggravating or relieving factors but was associated with episodes of nausea.

She had her urine pregnancy test (UPT) done at home using the

* Corresponding author. Department of Internal Medicine, Nepal Medical College Teaching Hospital, Jorpati, Kathmandu, Nepal.
E-mail address: aregmi45@gmail.com (A. Regmi).

https://doi.org/10.1016/j.amsu.2022.104781
Received 4 August 2022; Received in revised form 19 September 2022; Accepted 19 September 2022
Available online 25 September 2022

pregnancy test kit 1 day before the OPD presentation which was positive. She recalls no history of fever, vomiting, Per Vaginal (PV) spotting or bleeding, or foul-smelling discharges in the past 2 months. The patient had no significant co-morbidities and no relevant medical, surgical, allergy, or psychosocial history. Her vitals were within normal limits and systemic examination of CardioPulmonary, Central nervous system, GastroIntestinal and GenitoUrinary systems were also within normal limits.

An urgent transabdominal ultrasound of the abdomen and pelvis was planned which revealed a gravid uterus containing a single gestational sac corresponding to 7 weeks and 0 days of gestation. The yolk sac was visualized but the fetal pole was not yet visualized. IUCD was seen in the endometrial cavity and the long arm of the IUD was positioned superiorly in the uterine cavity (Fig. 1).

After comprehensive patient counseling about the possibility of continuing pregnancy after IUD removal and the possible complications, our patient decided to terminate the pregnancy. Manual vacuum aspiration (MVA) for termination of pregnancy with the removal of Copper T was planned the following day. For 24 hours, she was in conservative management for intermittent pain.

In the operating room, with adequate monitoring, MVA was performed under intravenous anesthesia (IVA) under aseptic conditions. MVA cannula of size 4 and 6 was used and the product of conception (about 25–30 ml) along with the Copper T was removed. There was minimal blood loss and no other complications were observed.

During her 24 hours of hospital stay, postoperatively, she was managed conservatively. She was able to tolerate sips of liquid 2 hours after the surgery and resumed her normal diet the same day. She had no complications after surgery and was discharged home the next day. Following her follow-up on the 5th day she had no complaints.

3. Discussion

Intrauterine device (IUD) is one of the most frequently used contraceptive methods worldwide, and the pregnancy rate of the intrauterine device as a contraceptive method is around 1–2 pregnancies per 100 women-years (Pearl Index: Copper Spiral 0.9–3.0 failure/10 years, LNG-IUS 52 mg 0.16 failure/10 years, Gynefix 0–2.5 failures/10 years) [1]. Amongst Copper containing IUDs, the T-shaped models with a surface area of 380 mm^2 of copper have the lowest failure rates i.e. a one-year failure rate of 0.8% and a cumulative 12-year failure rate of 2.2%. The models with less surface area of copper have higher failure rates [4].

Table 1 illustrates the failure rates IUDs compared with other methods of contraception [5]. It is worthwhile to clarify that ectopic pregnancies are less common when using contraception with an intrauterine contraceptive device than without contraception.

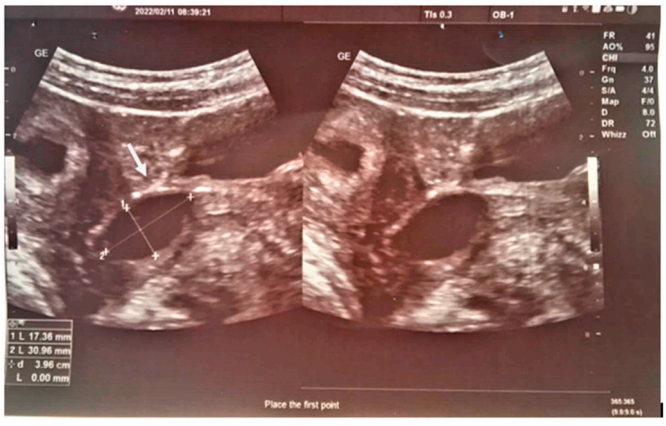

Fig. 1. Long arm of Copper T (arrowhead) visualized inside endometrial cavity above gestational sac.

Table 1
Failure rates of various contraceptive methods.

S·N.	Contraceptive methods	Failure rate (per 100 episodes of use)
1.	Implants	0.6
2.	Intrauterine devices (IUDs)	1.4
3.	Injectable contraceptives	1.7
4.	Oral contraceptive pills	5.5
5.	Male condoms	5.4
6.	Withdrawal method	13.4
7.	Periodic abstinence	13. 9

LNG-IUS and copper-bearing IUDs are long-acting reversible contraceptives (LARC) imparting high contraceptive effectiveness. Heinemann et al. performed a multinational, prospective, non-interventional cohort study of new users of LNG IUS (releasing 20 mcg LNG daily) and copper IUDs to measure the rate of unintended pregnancies in a typical population of IUD users which concluded that the contraceptive failure rate was low with both IUDs. Comparatively the LNG IUS resulted in significantly lower risk of pregnancy, including ectopic pregnancy, than the copper IUDs [6].

Despite being excellent contraception, such failure rates may lead to a substantial number of unwanted pregnancies and subsequently induced abortions. Typical pregnancy symptoms occur during pregnancies with the IUDs. Importance of counseling about the risk of pregnancy before insertion is necessary.

Options are available to continue a pregnancy with or without IUDs. A retrospective cohort study including 12,297 pregnancies, of which 196 had an IUD, concluded that pregnant women with an IUD are at very high risk for adverse pregnancy outcomes i.e. late miscarriage, preterm delivery, vaginal bleeding, clinical chorioamnionitis, and placental abruption than those without an IUD [7]. The likely reason are the high prevalence of intra-amniotic infection and placental inflammatory lesions prevalent in pregnancies with an IUD. As our patient was properly counseled on the pros and cons of continuing the pregnancy, she chose not to. Provided the IUD is in a favorable location, the removal of an IUD is recommended in the early weeks of pregnancy i.e. 9th −11th gestational week [1]. Meanwhile, an early removal of an IUD decreases the risk of above mentioned adverse pregnancy outcomes.

Amongst various method to terminate pregnancy, World Health Organization (WHO) discourages use of dilatation and sharp curettage (D&C) due to possibility of Asherman's syndrome. A randomized control trial concluded that manual vacuum aspiration (MVA) has safety and efficacy similar to those of conventional methods such as D&C and Electronic Vacuum Aspiration (EVA) [2]. Meanwhile, a prospective interventional study concluded that retrieval of IUCDs with missing strings with MVA is a novel method and can be an initial approach in low resource settings like ours [8].

Continuing pregnancy after removal of IUDs has shown promising results of full-term pregnancy with good maternal and fetal outcomes. A case series of Twenty-six patients retrospectively evaluated procedural and pregnancy-related outcomes where participants underwent saline hysteroscopy with or without concurrent ultrasound guidance for retrieval of a retained IUD in early pregnancy. This study concluded that saline hysteroscopy is a safe and effective method for retrieval of a retained IUD in early pregnancy. And concurrent ultrasound guidance can facilitate IUD localization [9].

Whilst lost IUDs can be troublesome, for pregnant women without any apparent complications, office hysteroscopy promises to be a safe alternative option and as means to remove a lost IUD during the 1st trimester of pregnancy. It is considered the gold standard procedure for uterine cavity assessment as it provides direct visualization/biopsy and concurrent treatment of intracavitary pathology, IUCDs as foreign body in our case [8].

4. Conclusion

Intrauterine pregnancy with a CU-T 380 A is rather uncommon. Although ectopic pregnancy is a relatively common complication of intrauterine contraceptive device, it is necessary to consider the possibility of intrauterine pregnancy as a potential complication as well. The possibility of continuing pregnancy after removal of IUDs is promising despite possible complications. MVA or office hysteroscopy technique avid possible management. This case report has been written in line with the SCARE 2020 criteria [10].

Ethical consideration

According to the local ethical guideline, it is not mandatory for ethical approval for writing a case report. Written informed consent was obtained from the patient to include the clinical details.

Sources of funding

N/A.

Author contributions

Abilasha Rana, Amit Shrestha, Anil Regmi, Shreeyashi Aryal, Rewant Singh, and Pragya Karki: reviewed the literature and designed the manuscript. Abilasha Rana, Amit Shrestha, and Shreeyashi Aryal: established the diagnosis and treated the patient. All authors read and approved the final version of the manuscript.

Registration of research studies

Name of the registry: N/A.
Unique Identifying number or registration ID: N/A.
Hyperlink to your specific registration (must be publicly accessible and will be checked): N/A.

Guarantor

Dr. Anil Regmi, Department of Internal Medicine, Nepal Medical College Teaching Hospital, Kathmandu, Nepal. Email: aregmi45@gmail.com, Phone: +977-9849071817.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Provenance and peer review

Not commissioned, externally peer-reviewed.

Declaration of competing interest

None.

References

[1] E. Piriyev, T. Römer, Case report: pregnancy while using an IUD, Obstet Gynecol Cases Rev 7 (2020) 172 (Full Text).
[2] T. Kakinuma, K. Kakinuma, Y. Sakamoto, Y. Kawarai, K. Saito, M. Ihara, Y. Matsuda, I. Sato, M. Ohwada, K. Yanagida, H. Tanaka, Safety and efficacy of manual vacuum suction compared with conventional dilatation and sharp curettage and electric vacuum aspiration in surgical treatment of miscarriage: a randomized controlled trial, BMC Pregnancy Childbirth 20 (1) (2020 Nov 16) 695. PubMed | Full Text.
[3] C.F. Yen, H.H. Chou, H.M. Wu, C.L. Lee, T.C. Chang, Effectiveness and appropriateness in the application of office hysteroscopy, J. Formos. Med. Assoc. 118 (11) (2019 Nov) 1480–1487 [PubMed | Full Text | DOI].
[4] R. Kulier, P.A. O'Brien, F.M. Helmerhorst, M. Usher-Patel, C. D'Arcangues, Copper containing, framed intra-uterine devices for contraception, Cochrane Database Syst. Rev. (4) (2007 Oct 17) CD005347. PubMed | Full Text.
[5] C.B. Polis, S.E. Bradley, A. Bankole, T. Onda, T. Croft, S. Singh, Typical-use contraceptive failure rates in 43 countries with Demographic and Health Survey data: summary of a detailed report, Contraception 94 (1) (2016 Jul) 11–17, https://doi.org/10.1016/j.contraception.2016.03.011. Epub 2016 Mar 24. PMID: 27018154; PMCID: PMC4970461.Heinemann K, Reed S, Moehner S, Minh TD. Comparative contraceptive effectiveness of levonorgestrel-releasing and copper intrauterine devices: the European Active Surveillance Study for Intrauterine Devices. Contraception. 2015 Apr;91(4):280-17. [PubMed | Full Text | DOI].
[6] K. Heinemann, S. Reed, S. Moehner, T.D. Minh, Comparative contraceptive effectiveness of levonorgestrel-releasing and copper intrauterine devices: the European Active Surveillance Study for Intrauterine Devices, Contraception 91 (4) (2015 Apr) 280–283 [PubMed | Full Text | DOI].
[7] S.K. Kim, R. Romero, J.P. Kusanovic, O. Erez, E. Vaisbuch, S. Mazaki-Tovi, F. Gotsch, P. Mittal, T. Chaiworapongsa, P. Pacora, G. Oggé, R. Gomez, B.H. Yoon, L. Yeo, R.F. Lamont, S.S. Hassan, The prognosis of pregnancy conceived despite the presence of an intrauterine device (IUD), J. Perinat. Med. 38 (1) (2010) 45–53 [PubMed | Full Text.
[8] A. Jain, S. Singh, S. Elliyas, Effectiveness of manual vacuum aspiration (MVA) device in the management of intrauterine copper devices (IUCD) with missing strings: a prospective interventional study, J. Obstet. Gynaecol. India 71 (4) (2021 Aug) 424–429 [PubMed.
[9] A.P. Sanders, M.R. Fluker, B.H. Sanders, Saline hysteroscopy for removal of retained intrauterine contraceptive devices in early pregnancy, J. Obstet. Gynaecol. Can. 38 (12) (2016 Dec) 1114–1119 [PubMed | Full Text | DOI].
[10] R.A. Agha, T. Franchi, C. Sohrabi, G. Mathew, for the SCARE Group, The SCARE 2020 guideline: updating consensus surgical CAse REport (SCARE) guidelines, Int. J. Surg. 84 (2020) 226–230.