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Intrauterine Pregnancy with Copper Intrauterine Contraceptive Device in Situ: A Case Report

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ABSTRACT

Intrauterine devices (IUDs) provide effective and reversible contraception, but rare pregnancies can lead to complications like miscarriage and preterm labor. Timely removal during the first trimester is advised to reduce risks. This case reports a 17-year-old female who presented with abdominal pain and vaginal bleeding after 16 months of IUD use and a 2.5-month missed period. Despite confirming a 13-week gestation via transvaginal ultrasound, she opted to continue the pregnancy without IUD removal. However, she spontaneously expelled both the fetus and IUD after two hours of observation, with minimal bleeding and no complications. This case highlights the risks associated with retained IUDs during pregnancy, emphasizing the importance of post-insertion follow-ups and IUD positioning checks. If pregnancy occurs, early removal is recommended to prevent adverse outcomes.

Keywords: Contraception, Intrauterine Devices, Spontaneous Abortion, Ultrasonography

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1. Introduction

Intrauterine contraceptive devices (IUDs), highly effective and safe, are the most used method of reversible contraception worldwide, with an average usage rate of 23 percent among female contraceptive users. However, despite their notable efficacy, IUDs are not entirely fail-proof, and there remains a risk of unintended pregnancies **(1)**. Hormone-loaded IUDs containing Levonorgestrel exhibit a markedly lower failure rate compared to copper-T IUDs **(2)**. The presence of an IUD during pregnancy is linked to adverse pregnancy outcomes, including an increased risk of miscarriage and preterm labor. Both the removal and retention of the IUD during pregnancy carry inherent risks **(3)**.

Removing an IUD early in pregnancy is linked to a lower risk of miscarriage. Recommendations suggest that the IUD should be removed during the first trimester to mitigate this risk **(4)**. However, the clinical management of pregnancies with an IUD retained within the uterine cavity poses significant challenges that are associated with elevated risks **(3)**. In unanticipated pregnancy, clinical guidelines recommend considering the removal of the IUD during the first trimester to minimize the associated complications. This paper presents a teenager who experienced a first-trimester pregnancy while retaining an IUD in situ.

2. Case Presentation

A 17-year-old female from Indonesia presented to the emergency room reporting abdominal pain and vaginal bleeding that had started two hours prior. Subsequently, she was directed to the outpatient department of obstetrics and gynecology. During the consultation, she disclosed a missed menstrual period spanning 2.5 months. She mentioned consistently using

the Copper T-380A IUD for the past 16 months, with no removal or expulsion incidents noted. However, ultrasound or follow-up examinations did not confirm the device's placement. She reported no associated symptoms despite regular menstrual cycles and sexually active.

The patient described encountering cramp-like abdominal pain predominantly localized in the right lower quadrant, with no discernible factors exacerbating or alleviating the discomfort. A day prior to seeking medical attention, she conducted a self-urine pregnancy test, yielding a positive result. Over the past 2.5 months, she denied any symptoms, such as fever, vomiting, or a malodorous discharge. Notably, her medical history revealed no significant past medical conditions, surgical interventions, or allergies. Psychosocially, there were no noteworthy aspects. Vital signs were within the normal range, and a comprehensive physical examination revealed no abnormalities in the cardiopulmonary, nervous, gastrointestinal, or genitourinary systems.

To further investigate, an immediate transvaginal ultrasound was conducted, revealing a uterus with evidence of pregnancy at 13 weeks and one day gestation, featuring a single fetus. Interestingly, the ultrasound also detected the fetal head near an IUD (Figure 1). This unusual finding raises questions about the potential implications of the IUD's presence and its proximity to the developing fetus, warranting careful consideration and further evaluation in the patient's ongoing care.

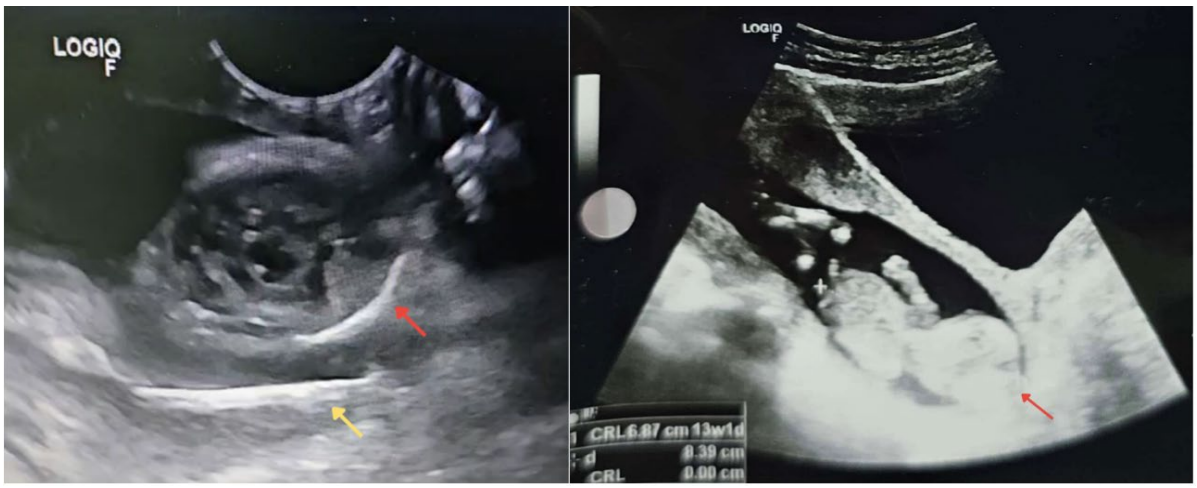


Figure 1. Presents a two-dimensional transvaginal ultrasonography image, capturing the fetal cranial structure (marked by a red arrow) at the 13th week of gestation. Additionally, a malpositioned intrauterine contraceptive device is evident (indicated by a yellow arrow) within the lower segment of the uterus.

Following a thorough assessment, the patient was apprised of potential complications associated with resuming the pregnancy after the removal of the IUD. Despite being informed about these risks, she decided to forgo IUD removal. Consequently, she was transferred to the obstetrics and gynecology inpatient ward, where she underwent conservative treatment to address abdominal pain.

After being closely observed for 2 hours, the patient underwent a spontaneous expulsion of both the fetus and IUD. Subsequently, minimal blood loss was observed during the manual removal of the placenta, and no further complications were detected. Throughout this period, the patient reported only experiencing abdominal pain, for which appropriate medication was administered. She was discharged after a 24-hour hospital stay, during which her vital signs remained stable.

At follow-up appointment on the third-day post-discharge, the patient was stable and reported no complaints or complications. This favorable outcome underscores the importance of comprehensive monitoring and patient care in navigating complex situations involving pregnancy and IUD-related considerations.

3. Discussion

IUDs are recognized as highly effective in preventing pregnancy, nearly on par with the effectiveness of permanent sterilization, maintaining a chance of conception less than one percent **(5)**. It is important to note that there is a small chance of pregnancy while using an IUD. There are rare cases of becoming pregnant despite having an IUD, typically occurring within the first year after insertion, with rates ranging from 0.2% to 0.8% **(2, 6)**. Factors that can contribute to the failure of IUD encompass a lower age bracket (attributable to heightened fertility levels), the malpositioning of IUD, and a past instance of IUD expulsion **(7)**.

In this report, we detail the scenario of a teenage patient who underwent the insertion of a copper IUD as a contraceptive strategy within a primary healthcare

setting. The critical step of validating the placement of the IUD post-insertion was overlooked, and the patient subsequently missed the advised follow-up pelvic examination. It is essential to underscore that post-insertion monitoring is pivotal, with ultrasonography being the predominant initial approach to ascertain an IUD's positioning. A malpositioned or dislodged copper IUD markedly diminishes efficacy, exhibiting a considerably elevated risk of conception in contrast to an IUD that is correctly situated (64% versus 11%) **(8)**. Furthermore, ultrasonography disclosed the IUD's proximity to the fetal cranium. Despite this revelation, the decision was made by the patient to continue the gestation without opting for the removal of the IUD. It warrants attention that pregnancies occurring with an in-situ IUD carry substantially higher risks for both maternal and fetal health relative to conventional pregnancies **(9)**.

The management of IUD in situ necessitates a patient-centered approach, offering several strategies contingent upon the patient's preferences. In cases where the patient opts to sustain pregnancy, the options include either the extraction of IUD or opting to leave it in situ. It is advised to remove IUD during the first trimester, particularly when the device is located within the cervical canal or when the strings are discernible at the external cervical os **(4, 6, 10)**. Research indicates that patients who elect to retain IUD are subjected to an elevated incidence of adverse maternal outcomes, including but not limited to preterm delivery, spontaneous abortion, and septic abortion **(3, 7, 10, 11)**. Furthermore, the retention of an IUD, especially those positioned low, significantly amplifies the risk of miscarriage **(12)**. Thus, it is imperative to counsel the patient thoroughly regarding the heightened risks associated with IUD retention during pregnancy. It should be noted, however, that while the extraction of the IUD diminishes these risks, it does not entirely obviate them **(3, 4)**.

In patients seeking termination of pregnancy, scholarly sources delineate three primary methods: hysteroscopic extraction, ultrasound-assisted hysteroscopic extraction, and ultrasound-guided forceps evacuation of IUD. Given the infrequency of this condition, a definitive preference for one methodology over another has yet to be established. It is important to recognize that variations in the availability of specialized equipment and the level of expertise among different institutions may affect the selection of a particular approach, contingent upon experiential factors **(13-15)**.

4. Conclusion

Maintaining an IUD during pregnancy poses significant health concerns for both mother and fetus. Consequently, it is crucial to conduct detailed post-insertion evaluations and verify the proper positioning of IUD. In cases of unexpected pregnancy, it is advisable to remove IUD during the first trimester to minimize the potential risks. Providing comprehensive counseling regarding these hazards becomes imperative, and the ultimate choice hinges on the patient's decision to either resume the pregnancy or opt for termination of pregnancy, ensuring that the patient is well-informed and cognizant of potential consequences.

5. Declarations

Acknowledgments

Not applicable.

Ethical Considerations

All procedures conducted in studies involving human participants adhered to ethical standards.

Authors' Contributions

All authors contributed to the conception and design of the work, as well as the acquisition and interpretation of data. Additionally, they participated in drafting the manuscript and critically revising it for significant intellectual content. All authors have reviewed the manuscript and given their approval for publication.

Conflict of Interest

The authors declare no conflict of interest This research received no specific grant from any funding agency in the public, commercial, or not for profit sector.

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