Risk of Malposition in a 56-Year-Old Female Lippes Loop IUD User: A Case Report

Muhammad Ardi Levrian Sepriano, Artha Falentin Putri Susilo, R.M. Sonny Sasotya
Departemen Obstetri dan Ginekologi, Fakultas Kedokteran, Universitas Padjadjaran – Rumah Sakit Umum Dr. Hasan Sadikin, Bandung, Indonesia
Correspondence: Muhammad Ardi Levrian Sepriano (muhammad22001@mail.unpad.ac.id)

Abstract
Introduction: The intrauterine device (IUD) stands as a widely utilized contraceptive modality globally, renowned for its effectiveness and long-term reliability. However, within the spectrum of potential complications, the occurrence of perforation, though rare, represents a significant concern due to its potential for serious sequelae. Perforation entails the unintended penetration of the uterine wall by the IUD, leading to its migration beyond the uterine cavity. Despite its gravity, perforation often presents as an asymptomatic phenomenon, with some cases remaining undetected for extended durations following insertion. Lippes loop IUD complications are relatively low risk like malposition, embedded, or perforation.
Case Report: This study documents a notable case involving a 56-year-old, P1A0, who had been utilizing an intrauterine device for a remarkable 31-year period. Referred from Hermina Arcamanik Hospital, the patient sought intervention for IUD removal, notwithstanding the absence of associated symptoms. Notably, physical examination and laboratory analyses yielded unremarkable findings, highlighting the latent nature of this complication. Further diagnostic elucidation through ultrasound examination confirmed the presence of a Lippes Loop (LL) IUD embedded within the uterine cavity. The intrauterine device (IUD) became embedded, rendering it impossible to remove. The IUD extraction is performed using hysteroscopy. Subsequent peri hysteroscopic extraction of the IUD unveiled partial embedding within the posterior uterine cavity, necessitating precise intervention to mitigate potential complications. Fortunately, postoperative surveillance revealed an absence of pain or hemorrhagic complications, culminating in the patient's discharge on the first postoperative day.
Conclusion: Constituted primarily of plastic material, LL IUDs offer prolonged utility devoid of significant adverse sequelae, underscoring their role as a viable contraceptive option with a slight risk of embedded for women seeking enduring contraception.

Keywords: Intrauterine device, Embedded, Lippes loop, Embedded

Risiko Malposisi pada Akseptor *Lippes Loop IUD* pada Wanita Usia 56 Tahun: Sebuah Laporan Kasus

Abstrak
Pendahuluan: Alat Kontrasepsi Dalam Rahim (AKDR) merupakan metode kontrasepsi yang banyak digunakan di seluruh dunia karena efektivitas dan keandalannya dalam jangka panjang. Namun, di antara berbagai potensi komplikasi, perforasi menjadi salah satu kekhawatiran utama meskipun jarang terjadi, mengingat potensi dampak serius yang dapat ditimbulkannya. Perforasi terjadi ketika IUD secara tidak sengaja menembus dinding rahim, menyebabkan migrasi IUD keluar dari kavitas uterus. Meskipun serius, komplikasi ini sering ersifat asimtomatik dan tidak terdeteksi dalam jangka waktu lama setelah pemasangan. Komplikasi IUD tipe lippes loop dapat terjadi seperti malposisi, embedded atau perforasi, tetapi pada kasus yang jarang.
Presentasi Kasus: Studi ini melaporkan kasus menarik pada seorang wanita berusia 56 tahun, P1A0, yang telah menggunakan IUD selama 31 tahun. Pasien dirujuk dari RS Hermina Arcamanik untuk menjalani prosedur pengangkatan IUD, meskipun tidak mengalami gejala terkait. Pemeriksaan fisik dan analisis laboratorium tidak menunjukkan kelainan, menekankan sifat laten komplikasi ini. Pemeriksaan ultrasonografi lebih lanjut mengonfirmasi keberadaan IUD jenis *Lippes Loop* (LL) yang tertanam di dalam kavitas rahim. Prosedur histeroskopi dilakukan karena IUD tertanam di dalam kavitas rahim sehingga membuat IUD sulit untuk diekstraksi secara normal. Saat prosedur histeroskopi, ditemukan bahwa sebagian IUD tertanam di dinding posterior rahim, memerlukan intervensi presisi guna mencegah komplikasi lebih lanjut. Pemantauan pascaoperasi tidak menunjukkan adanya nyeri atau komplikasi perdarahan, dan pasien dipulangkan pada hari pertama setelah operasi.
Kesimpulan: Karena terbuat dari bahan dasar plastik, IUD LL menawarkan masa pemakaian yang lama tanpa menimbulkan efek samping yang signifikan, menjadikannya pilihan kontrasepsi yang andal, namun dengan risiko kecil terjadi *embedded* bagi wanita yang mencari solusi kontrasepsi jangka panjang.

Kata kunci: Alat kontrasepsi dalam rahim, *Embedded, Lippes loop,* Risiko

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Introduction

Intrauterine device (IUD) is a contraceptive method that is widely used throughout the world.[1] The device is reliable, cost-effective, long-term, reversible, and can be used by many women with minimal side effects.[2] Complications due to IUD use are relatively rare but can be severe, for example, IUD malposition, embedded IUD, or perforation. The incidence of uterine perforation due to IUDs is reported to be 0.05 to 13 per 1000 insertions, with the potential for serious complications.[3] The incidence of embedded IUDs is still not well documented but is estimated at 18%.[4] In a retrospective study by Braaten et al., 11% of patients experienced IUD malposition.[5] IUD malposition can be diagnosed and treated with minimally invasive procedures such as hysteroscopy, endoscopy, and laparoscopy.[6]

Factors that increase the risk of perforation are insertion performed by an inexperienced clinician, insertion while breastfeeding, nulliparity, poor uterine scar healing, hematoma or infection, narrower fundal diameter, uterine size, and type of IUD.[6] Although perforation is a potentially severe complication of IUD use, it is rare and often has no symptoms. Some cases are not identified until years after IUD insertion. In one recorded case, the longest interval between implantation and diagnosis was 43 years.[7]

The lippes loop IUD is trapezoidal in shape which fits perfectly to the contour of the uterine cavity, thereby reducing the incidence of expulsion. This IUD was most commonly used from 1960 to 1980. Some authors state that this IUD can be left in the uterine cavity for an indefinite period. The Lippes Loop IUD type is made of spiral or S-shaped polyethylene. Lippes Loop has four types, which are differentiated based on the length of the top, namely type A measuring 25 cm with blue thread, type B measuring 27.5 cm with black thread, type C measuring 30 cm with yellow thread, and type D measuring 30 cm with white and thick thread. Lippes Loop has a low failure rate. Another advantage of using this type is that if perforation occurs, it rarely causes injury or intestinal blockage because it is made of plastic.[8] This case will discuss the Lippes loop type IUD, which was partially embedded in the uterine cavity, but the patient did not experience clinical symptoms.

Case Report

A 56-year-old woman, P1A0 (Last child 1, youngest child 31 years old), was referred from Secondary Hospital with a diagnosis of embedded IUD. The patient admitted that she wanted to remove the IUD after 31 years of use. The patient underwent IUD extraction but was unsuccessful. She denied complaints of lower abdominal pain. Complaints of birth canal bleeding were denied and denied complaints of profuse and itchy vaginal discharge. Complaints about defecation and urination were denied. Because of her complaints, the patient was referred to Tertiary General Hospital.

The patient experienced menarche at the age of 12 years and is currently in menopause three years ago. The patient has a history of being married twice, namely at the age of 23 years and 32 years. The patient's husband is currently 56 years old and is no longer active in sexual relations. The patient had no history of any previous surgery.

When she came to the tertiary hospital, the patient was in good condition, and the physical examination results showed normal results. External examination showed the absence of abdominal tenderness and abdominal mass. Speculum examination showed that there was no fluor or fluxus, the portio was smooth and calm, and no IUD thread was visible from the external uterine ostium. Internal examination showed

normal results. Laboratory examination also showed that haematological and blood chemistry parameters were within normal limits. Ultrasound results at RSHS on August 24, 2023, showed a retroflexed uterus, homogeneous density measuring 5.2x3.3 cm, and the discovery of a lippes loop IUD in situ. There were no visible masses in the bilateral adnexa. Ultrasound results are shown in Figure 1.

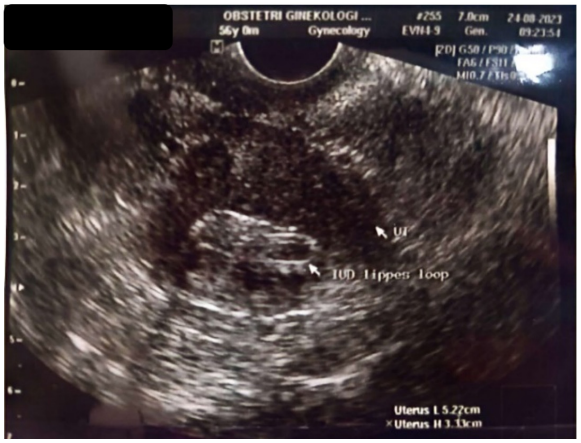

Figure 1 Ultrasound results. The white arrow indicates the presence of a lippes loop IUD in situ.

Based on these findings, the patient was diagnosed as having an embedded IUD with a lippes loop IUD type. Because the intrauterine device (IUD) became embedded, rendering it impossible to remove, therefore hysteroscopic approach is needed. The patient was planned for elective hysteroscopic IUD extraction. About one month later, the operation was carried out. The patient is positioned in the lithotomy position, antiseptic measures are taken in the vulva and surrounding areas. The lower speculum is placed and held by Portio's assistant, clamped with a tenaculum, and the uterus is in a retroflexed position. Dilatation was carried out with a Hegar dilator. The hysteroscope is inserted, and the camera enters through the cervical canal to the uterine cavity. The results of the hysteroscope are shown in Figure 2. The cervical canal is within normal limits. It was found that the IUD was partially embedded in the posterior uterine cavity. IUD extraction was performed. The hysteroscope is removed—evaluation of bleeding, no active bleeding. The volume of 0.9% NaCl solution entering is 200 cc, and the same volume of solution is exiting. Fluid deficit 0 cc. Bleeding during surgery: ± 20 cc. Operative findings are displayed in Figure 3.

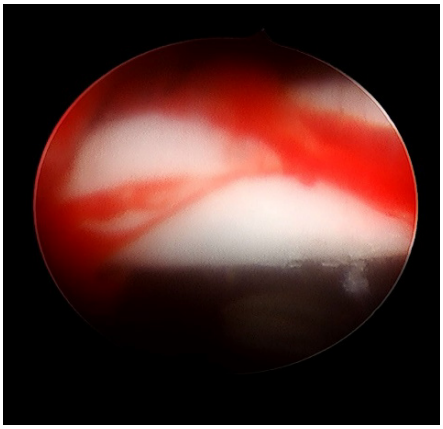

Figure 2 Hysteroscopy Procedure of Embedded IUD (Lippes loop)

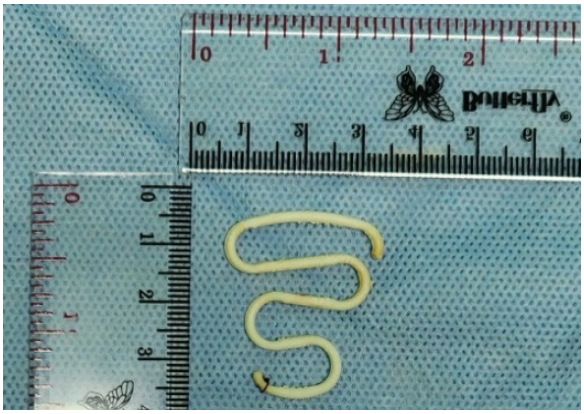

Figure 3 Intraoperative Result of Lippes Loop In situ

After surgery, the patient is followed up regarding pulse/tension/ respiration / temperature/ bleeding. The patient was given postoperative analgesic medication in the form of mefenamic acid tablets 3 x 500 mg po and metergin 3 x 0.125 mg po. Oxycycline 2 x 100 mg po is given for prophylactic antibiotic management for 5 days. Patients

are advised for early mobilisation. The patient was planned to go home on postoperative day 1. During post-operative monitoring, the patient did not experience any complaints of abdominal pain or bleeding. The patient was treated as an outpatient one day after surgery with home medication mefenamic acid 3x500 mg po and doxycycline 2x100 mg po.

Discussion

An intrauterine device (IUD) is a contraceptive device made of polyethylene that is put into the uterus. It is equipped with nylon thread and has been used for over 30 years. This contraceptive device is provided in a sterile environment, along with an insertion tube. It efficiently prevents conception and is safe and reversible for women who have never had a sexually transmitted disease and have previously given birth.[6]

The use of IUD contraception only requires one intervention for long-term use. It does not cause systemic metabolic effects, so this method is more profitable compared to other contraceptive methods.[6]

Initially, IUD devices were "inert" because they were made entirely of metal or plastic. In the late 1960s, copper was added to plastic devices to increase efficacy, while a "frameless" copper-only device, GyneFix® (Control, Ghent, Belgium), was also available in 1996. Hormone-releasing devices were developed to increase the efficacy of IUDs and reduce certain complications, such as bleeding and pain. This type of device that contains copper and releases hormones is sometimes referred to as a "medicated" IUD.[6] In this case, the IUD that was found embedded was a Lippes loop type IUD and is an inert IUD.

The Copper T IUD is the prevailing form of intrauterine device (IUD) utilized in contemporary times. The T-shaped structure is composed of polyethylene material, with its vertical components tightly wrapped with thin copper wire. This copper coil exhibits significant contraceptive properties. This variant can also be supplemented with a hormone that gradually releases levonorgestrel at low levels for at least five years. The research findings demonstrate a significant efficacy in the prevention of unintended pregnancies and menstrual bleeding. An inherent drawback of this approach is the presence of supplementary hormonal side effects and amenorrhea.[6]

In this case, the type of IUD that was embedded was the Lippes Loop IUD. The use of the Lippes loop IUD can be used for a long time. Still, prolonged use is associated with several complications, such as abnormal uterine bleeding during the postmenopausal period and pelvic inflammatory disease. [8] However, in this case, the patient did not experience symptoms related to bleeding and abdominal pain.

Bladder or bowel perforation, intestinal obstruction, fistula formation, abscesses, adhesions, unexpected pregnancy, and chronic pelvic pain are potential complications that might arise from a translocated IUD. Irrespective of the type and location, the World Health Organization (WHO) advises the removal of translocated intrauterine devices (IUDs) due to the possibility of severe problems. While the Lippes loop type IUD can be utilized for an extended duration, it is generally advised by clinicians to remove the device once menopause is reached.[9] In this case, the patient wanted to remove the IUD. However, the intrauterine device (IUD) became embedded, rendering it impossible to remove. The IUD extraction is performed using hysteroscopy.

Currently, there is a lack of evidence that directly compares the risk of translocation between Lippes loop and copper T IUDs. Nevertheless, the inactive characteristic of Lippes loop intrauterine devices (IUDs) typically lacks noticeable symptoms for an extended period and is sometimes detected

unintentionally during testing for various diseases.[9] In this case, the patient did not have symptoms related to abdominal pain or abnormal bleeding, which are usually found more often in cases of embedded copper T-type IUDs. However, there is no definite comparison of the incidence of clinical symptoms between the two types of IUDs. It has been reported that the Lippes loop type IUD can also cause symptoms such as abdominal pain, abnormal uterine bleeding, and perforation, but prevalence data is still limited because most cases are only reported in the form of case reports.[9] Until now, no cohort study with a large population can determine the risk comparison of the two types of IUD copper T and lippes loop.

The occurrence of embedded IUD cases may be caused by an imbalance between the size of the IUD and the size of the uterine cavity, causing asymmetric pressure on the uterus. The uterine muscle tissue appears to be able to generate forces that result in an implanted IUD. Another risk factor that may occur is the implantation of the IUD for an extended period of time, resulting in repetitive and prolonged pressure on the IUD during use and malposition.[10] In this case, the risk factor found to result in an embedded IUD was the use of an IUD for 31 years.

During IUD insertion, minimal force is required (without excessive pressure) to place the IUD in the endometrial cavity. The force required to position the IUD in the correct location depends on several factors that cannot be clearly distinguished. However, the effort needed to insert an IUD can sometimes be very large. The force required to dilate the cervix using a dilator or IUD inserter must be exercised with caution. The IUD is placed in the endometrial cavity, and the forces generated by myometrial contractions can impact the position of the IUD.[10]

The Lippes Loop (LL) type IUD is a contraceptive device that was commonly used at the beginning of IUD development because it is cheap and can be installed for a long time. Still, the LL IUD is relatively more difficult to install. Because of these factors, the LL IUD was replaced with the Copper T (CuT) IUD.[2] The inability to place an IUD due to pressure from within the uterus is caused by a blockage in the cervical canal, typically at the inner cervical os, and the resistance encountered when trying to slip the IUD through. The obstructive force arises from the augmentation of the surface area of the intrauterine device (IUD). Friction force refers to the resistance the IUD inserter tube encounters while it moves through the cervical canal. The force required to insert an IUD increases as the diameter of the device increases, due to the rapid increase in available surface area as the radius expands.[10] In this case, an embedded condition may also occur due to the large force required to insert the lippes loop IUD, due to the large surface area to be inserted.

A study conducted in China on 130 patients with a history of failed IUD removal found that 128 of them still had an IUD installed. Half of the patients show no symptoms, and the remaining 50% complain of pain and menstrual disorders. Benacerraf et al. evaluated 167 patients with IUDs using 3D ultrasound. Twenty-eight (16.8%) of the patients had a malpositioned IUD with the sleeve embedded in the myometrium on coronal view. Of the 28 women, 75% of women with malpositioned/embedded IUDs experienced bleeding and pain compared to 34% of women who had normal IUDs installed (P=0.0001). Twenty of 21 women with malpositioned IUDs reported improvement in symptoms after IUD removal. In this study, the type of IUD was not specified. [11]

However, another study by Moschos et al. showed that the proportion of women who had copper T IUDs and LNG-IUSs installed experienced symptoms (e.g. bleeding and pain), which were higher in patients with malpositioned/embedded IUDs. Bleeding

disorders were found to be more predictive of malposition in cases with the Copper T IUD. Until now, no extensive studies have examined the comparison of clinical symptoms in the Copper T IUD and Lippes Loop.[12] In addition, the protective function of malpositioned/embedded lippes loops is still unknown. This is probably because the Lippes loop type of IUD is no longer widely available on the market, and most patients who still have this type of IUD installed do not have symptoms related to the installation.

The correct position of the IUD is in the fundus of the uterus, with both arms of the IUD ideally extended towards the uterine horn and the stem vertically in the uterine cavity.[13] In this case, the IUD is partially embedded in the posterior part of the uterine cavity. A partially implanted IUD may signal migration or movement to a location outside the uterus and thereby create a potential route of infection. Patients who have an implanted IUD can have clinical symptoms of abdominal discomfort, abnormal uterine bleeding, and pregnancy due to the failure of the IUD's effectiveness.[10] However, in this case, no clinical symptoms were found in the patient. The impact of the LL IUD on the endometrium has not been well investigated, so its effects remain uncertain. The Lippes Loop IUD is made primarily of plastic, allowing for long-term installation with few adverse consequences.[2]

According to research by Jiang et al., failure of previous IUD removal, V-shaped IUD, and smaller uterine volume are independent risk factors for IUD insertion in postmenopausal women.[13] If an intrauterine device (IUD) is too large for the uterus, it will exert pressure on the uterine wall, causing the uterus to respond with either symmetrical or asymmetrical contractions, resulting in the displacement of the IUD. Malposition of the intrauterine device (IUD) might hinder the natural removal of the device and is likely to create discomfort for the patient.[11]

Conclusion

In this case, the patient was diagnosed with embedded IUD because the IUD is located within the posterior uterine cavity. The risk of embedded on the Lippes loop intrauterine device (IUD) in this case is attributed to menopausal conditions and long-term (31 years) utilization of the IUD. Employment of the Lippes loop IUD may not induce alterations in the endometrium, albeit still warranting comprehensive investigation. Its plastic-based composition enables prolonged intrauterine retention without significant adverse effects.

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Conflict of Interest

The authors declare that they have no conflict of interest regarding the publication of this case report.

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