
The Need for Gynecological Ultrasound Examination on IUD Acceptors

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Abstract

Maternal Mortality Rate (MMR) signifies the number of women who perish due to pregnancy-related complications or their treatment per 100,000 live births, with septic shock emerging as a notable contributor. One such complication linked to septic shock is the rare but perilous translocation of intrauterine devices (IUDs), leading to potential uterine perforation. A recent case of maternal death underscored the urgency of prompt intervention in intraabdominal IUD translocations, with the delay stemming from the refusal of necessary surgical procedures. This tragic incident emphasizes the critical need for timely detection and management of IUD translocations to avert life-threatening complications. Integrating routine gynecological ultrasound examinations to assess uterine shape for prospective IUD acceptors and promoting informed consent through engagement with family members, community leaders, and policymakers is essential in mitigating the risk of maternal mortality associated with such complications.

Keywords: Ultrasound, Sepsis Shock, IUD Translocation.

INTRODUCTION

Maternal Mortality Rate (MMR) is the number of women who die from a cause of death related to pregnancy disorders or their treatment (excluding accidents, suicides, or incidental cases) during pregnancy, childbirth, and postpartum (42 days after delivery) without taking into account the length of pregnancy per 100,000 live births. This indicator is directly used to monitor deaths related to pregnancy, childbirth, and puerperium. Several factors, including general health status, education, economy, socio-culture, and health services during pregnancy and childbirth, influence MMR (Statistik, 2020). MMR in Indonesia in 2022 is 183 cases, in Central Java 84.6 cases of maternal deaths, in Banyumas 105.56. The biggest cause that causes mothers to die after childbirth is due to bleeding. The number is as much as 33 percent. While in second place due to hypertension by 27 percent, the rest due to infection, cardiovascular, and others (Hermania & Cahyati, 2023).

Sepsis represents a significant threat to maternal health, characterized by a cascade of life-threatening organ dysfunction resulting from an irregular host response to infection (Evans et al., 2021). Maternal sepsis, defined as a critical condition arising from infections during pregnancy, childbirth, and postpartum, requires prompt and effective intervention to prevent

adverse outcomes. Particularly, septic shock, marked by severe circulatory, cellular, and metabolic abnormalities, poses an escalated risk of mortality if not managed adequately (Escobar et al., 2020; Filetici et al., 2022; Shields et al., 2021).

Intrauterine Device (IUD) usage, while generally considered safe and effective, can lead to rare but serious complications such as translocation and perforation (Boortz et al., 2012; Zhou et al., 2018). Notably, a case study highlighted the exceptional instance of an IUD migrating into the lumen of the rectosigmoid colon, resulting in colonic perforation and subsequent septic shock leading to maternal demise. This underscores the importance of vigilance in monitoring IUD placement and addressing any unusual symptoms promptly to prevent severe complications.

RESULTS AND DISCUSSION

Case Presentation

A G6P5A0 woman, 37 weeks pregnant, came to a referral from Puskesmas Ajibarang 1 with inpatu when she presented the buttocks of an insitu IUD suspect. Patients say IUD failure in this pregnancy and previous pregnancies. The patient does not feel an expulsion IUD in either this pregnancy or in previous pregnancies. A history of spontaneous previous labor in the *Puskesmas* (Community Health centers) IUD was not found. History of glandular TB disease in 2010. History of ANC pregnancy is 6 times (5 times at the *Puskesmas* and 1 time at the hospital), ultrasound in this pregnancy at the age of 34 weeks with the results of a single fetus, intrauterine life, DJJ (+), sufficient amniotic fluid, the location of the buttocks, the placenta does not cover the birth canal, the position of the IUD is not visible. The results of the examination when TTV comes within normal limits, laboratory results within normal limits, palpation TFU 30 cm, buttocks location, DJJ 136x/min, his 2x/10'/20"/medium, VT: slippery vagina, soft portio, opening 3 cm, palpable soft part, KK (+), buttocks down in hodge I, STLD (+), planned vaginal delivery, monitoring labor progress for 4 hours if there is no SC progress, patients performed SC and MOW with spinal anesthesia eracs obtained bicornnu uterine form, durante SC exploration of uterine cavum, IUD not found, good uterine contractions, bleeding 300 ml, close surgical wounds, 15 minutes after SC, uterine contractions disappear arising, active bleeding is carried out protap bleeding treatment → is not resolved → hysterectomy was decided, post SC patient in ICU for haemodynamic monitoring, post SC day 2 moved to the inpatient room, post SC day 3 patient complained of tightness, bloating getting bigger, flatus (-), pulse 124x/min, RR 28x/min, SpO2 97%, treated with Sp.B doctor, abdominal x-ray 3 positions (large bowel picture, paralytic ileus, T-shaped IUD on the abdomen 2 stems), install NGT (green production), fasting patient, planned laparotomy but patient and family refuse conservative treatment, patient improves, post SC day 7 patient complains of tightness again, bloating enlarged x-ray (picture of active pulmonary TB relapse), AGD check, ICU hospitalization, abdominal x-ray 3 positions (picture of high-location obstructive ileus) planned laparotomy after KU repair, discharge faces from the vagina, Suspect intestinal perforation, refer to tertiary hospital, do laparotomy (IUD 2 stem found on rectum), patient dies less than 24 hours post laparotomy.

Discussion

Contraception is a tool used to prevent meetings between mature eggs (female cells) and sperm cells (male cells) that can cause pregnancy. One method of long-acting contraception is the IUD. An IUD is a contraceptive inserted into the uterus made of polyethylene with or without metal or steroids. IUD insertion in patients with bicornuate uterus is not recommended because it may only be attached to one uterus, and the other uterus can still be fertilized normally, or there is no protection for sperm to meet with the ovum and can be well implanted in the uterus that is not installed IUD. Cases of bicornu uterus without complaints in pregnancy are rare. Usually, pregnancy with a bicornus uterus often results in bleeding during pregnancy, both in early and late pregnancy.¹¹ The incidence of congenital uterine malformations is difficult to recognize because it rarely causes complaints before pregnancy. It is estimated that the incidence rate is 1-2 per 1000 women.⁴ About 60% of women with bicornu uterus successfully give birth to normal, live babies. This is in line with this case that 2 IUD failures are possible. The IUD is attached to the uterus next to it, and fetal implantation in the other uterus. However, this is not known before because the patient has never had an ultrasound in early pregnancy or before pregnancy. There are no complaints of bleeding in pregnancy, both in this pregnancy and previous pregnancies, and there is no history of preterm labor. At the time of exploration of the uterine cavity during the SC action, no IUD was found in the uterine cavity filled with the fetus.

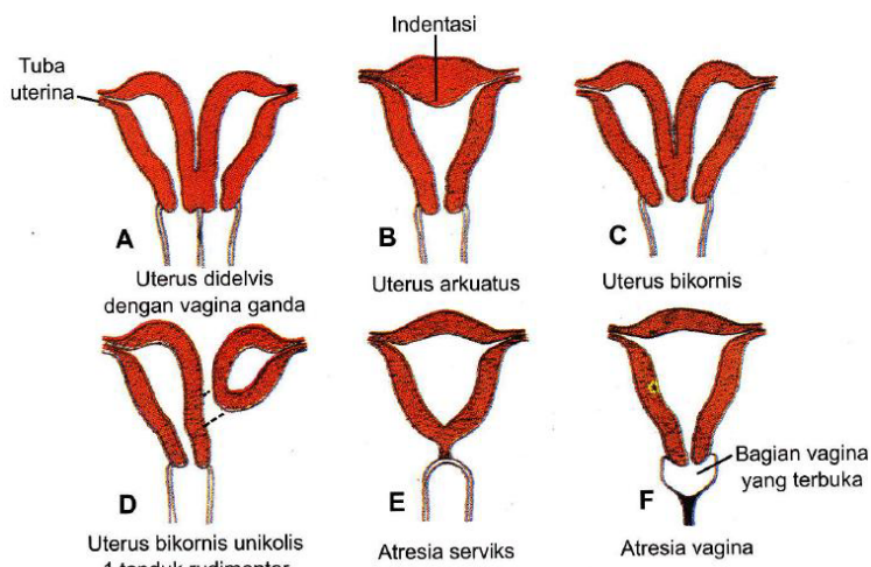


Figure 1. Uterine and vaginal abnormalities are caused by persistence of the uterine septum and obliteration of the uterine canal lumen

IUD translocations have been reported to cause serious complications such as gastrointestinal perforation, intestinal obstruction, fistulas, intra-abdominal abscesses, and peritonitis (Boortz et al., 2012). Translocation of the IUD to the gastrointestinal tract is most prevalent in the sigmoid colon (40.4%), then in the small intestine (21.3%) and rectum (21.3%) (Agacayak et al., 2015; Zhou et al., 2018). Many factors can cause IUD displacement. The following two congenital factors may contribute to the incidence of IUD translocation: uterine

malformations and enlarged uterus. Other possible contributions include postpartum, post-abortion, lactation, and metratrophy (Boortz et al., 2012). In line with this case, intraabdominal IUD transfer was found in the rectum of the sigmoid colon; in surgery, perforation of rectal fistula due to IUD was found, resulting in sepsis shock as the cause of maternal death.

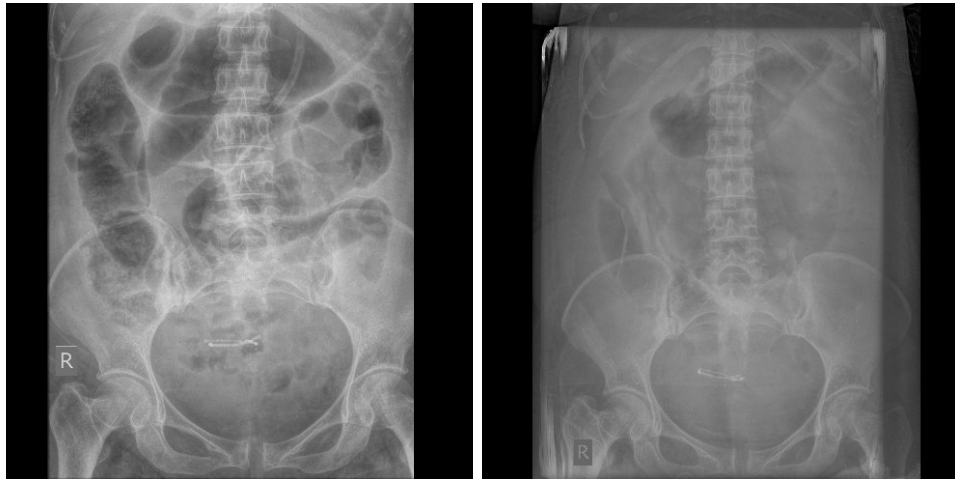


Figure 2. Radiological results of intraabdominal IUD translocation

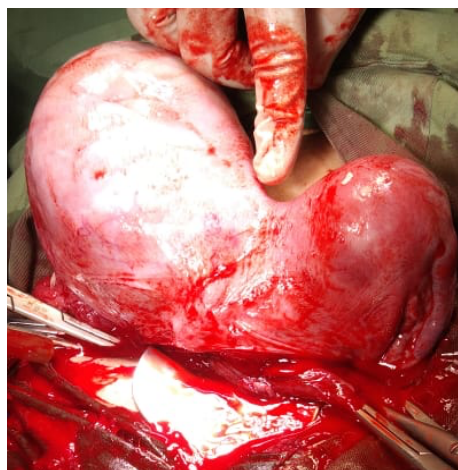


Figure 3. Conditions of the bicornu uterus (in patients with similar cases)

Ultrasound examination is a quick and non-invasive way to evaluate the condition of the uterus (Agacayak et al., 2015). If uterine abnormalities are found, it is contraindicated to install an IUD. An IUD is defined as being "in place" when visualized near the fundus uteri and the distance from each uterine wall to the body of the IUD (Agacayak et al., 2015; Pocius & Bartz, 2018). In pregnancies with suspected insitu IUD and SC termination of pregnancy, the IUD should be located at the time of the first surgery, if necessary, for x-ray durante surgery to confirm the site of the IUD prior to closure. Finally, if ultrasound and X-rays can't find the location of the IUD, a CT scan will help.

For women who will do IUD installation, it is recommended to do a gynecological examination first before installing to determine uterine abnormalities at least 1 time in a lifetime. If there are abnormalities in the uterus, it cannot be done IUD installation. The IUD

acceptor should have an annual check-up to check the position of the IUD (Boortz et al., 2012). If acute abdominal pain, irregular vaginal bleeding, or bloody stools occur, an ultrasound examination can help distinguish a translocation of the IUD from other causes. If no IUD is found in the uterus, an additional abdominal CT examination can help establish the correct diagnosis, and a thorough examination is certainly helpful (Boortz et al., 2012). The patient, in this case, ignored the absence of an IUD in a previous delivery and did not undergo further examination, leading to repeated instances of IUD failure.

Sepsis remains an important cause of maternal death. Sepsis is an emergency that arises from the body's response to infection. Sepsis is caused by an inflammatory response to triggers that are generally endotoxins and microbial exotoxins (Escobar et al., 2020; Filetici et al., 2022). Sepsis is a life threat due to organ dysfunction caused by host dysregulation of infection (Shields et al., 2021). Severe sepsis with acute organ dysfunction has a mortality rate of 20-30%, increasing to 40-50% in case of septic shock (sepsis with hypotension that isn't easy to cure by fluid resuscitation). Severe sepsis with multi-organ failure has a mortality rate of >60% (Evans et al., 2021). Maternal sepsis is a life-threatening condition defined as organ dysfunction due to infection that can arise during pregnancy, childbirth, post-abortion, or in the puerperium (Escobar et al., 2020; Filetici et al., 2022; Shields et al., 2021) Management as soon as possible after signs of sepsis will reduce the risk of mortality and morbidity. Delay in management will increase the risk of sepsis shock to maternal death (Evans et al., 2021). In line with this case, due to the delay in laparotomy action in IUD translocation due to the rejection of the initial action, resulting in perforation of the gastrointestinal tract to septic shock as the main cause of maternal death. The involvement of family and community leaders and policymakers in informed consent to risky medical measures (saving lives) may need to be considered so that cases of death can be avoided.

CONCLUSION

A gynecological ultrasound examination before IUD insertion is imperative to identify any uterine abnormalities, minimizing the likelihood of IUD failure. Our findings underscore the necessity of including gynecological ultrasound as a standard procedure for individuals considering an IUD. Moreover, engaging family members, community leaders, and policymakers in informed consent processes regarding potentially life-saving medical interventions is crucial for averting instances of maternal mortality.

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First publication right:

Journal Transnational Universal Studies (JTUS)

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