



Case report

Successful use of condom catheters for management of uterine inversion: Case report and literature review

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ABSTRACT

Introduction and importance: Uterine inversion is a rare case but can lead to maternal death. Treatment options start from repositioning the uterus to surgery. Surgery should be prevented because this procedure is associated with complications and long-term effects on women. A case report describes the use of condom catheters in the management of bleeding due to uterine inversion.

Case presentation: Mrs. SIM, a 35-year-old secondary primigravida woman, was referred from the midwife's independent practice 3 h after her third delivery with a diagnosis of uterine prolapse and hypovolemic shock. The patient successfully underwent a manual placenta but part of her uterus turned inside out accompanied by bleeding. At the referral hospital, the patient was diagnosed with uterine inversion. The main action is to reposition the uterus, then maintain it with internal bimanual compression. After the patient's perineum was sutured, the patient was observed for uterine contractions and given antibiotics. The patient had intermittent uterine contractions and bleeding therefore she was initiated to insert a condom catheter. The patient showed signs of improvement in her general condition and no active bleeding was found.

Clinical discussion: An accurate diagnosis needs to be made early so that there is no misdiagnosis between uterine prolapse and uterine inversion. Good teamwork is needed in case management. It is necessary to approach both primary and tertiary health facilities for case screening and initial management.

Conclusion: Condom catheters can be helpful in the management of uterine inversion, particularly in stopping bleeding.

1. Introduction

Uterine inversion is a condition when the uterus is partially or completely inverted. The incidence of uterine inversion varies from one in 2000 to 20,000 deliveries [1]. Uterine inversion can lead to death. Hypovolemic shock, as well as neurogenic shock, may occur, with complications of severe hypotension, bradycardia, and cardiac arrest that begin in a short time and must be treated immediately [2]. The survival rate is average 86% [3].

Many risk factors for uterine inversion such as placental fundal attachment, fundal leiomyoma, control of umbilical cord traction before signs of placental separation, uterine atony, and abnormally attached placenta to the uterine wall. In most cases, no risk factors are identified, so the condition is unpredictable [3]. The treatment provided depends on the individual circumstances and preferences of the hospital staff. Treatment options include uterine repositioning, abdominal surgery, or

an emergency hysterectomy [3]. Hysterectomy is the last option in the treatment of uterine inversion that needs to be prevented because it is associated with long-term effects on women's health. In addition to the reproductive organ system that will change, hysterectomy can be associated with other diseases such as cardiovascular disease [4].

The focus of uterine inversion is to treat bleeding and prevent shock. Condom catheters are easy to find in healthcare facilities. This can be a solution for health facilities in developing countries that do not have the resources or equipment for hysterectomy. We present the successful use of condoms catheter for the treatment of uterine inversion.

2. Presentation of case

Mrs. SIM, a 35-years-old secondary primigravida woman, got regular antenatal care from a midwife's independent practice. The patient was married and had given birth three times, including the first child aged

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18 years, the second child aged 14 years, and the third child aged 3 h. The patient gave birth according to the estimated date. The weight of a newborn baby is 3700 g. The patient had no previous drug allergies. Based on family history, no specific inherited disease was found. The patient did not smoke or drink alcohol or drugs. The patient complained of pain and dizziness. The family accompanied the patient during the treatment process.

The case started when the patient underwent active management of the third stage of delivery because the placenta had not been delivered on time, a manual placenta. The patient successfully underwent a manual placenta but part of her uterus turned inside out of the cervix accompanied by bleeding \pm 500 ml. The midwife sent the patient to the referral hospital with the insertion of vaginal tampons. After the patient was diagnosed with uterine prolapse and hypovolemic shock, the patient was given treatment namely 500 ml of Ringer Lactate (RL) infusion, RL infusion plus 10 IU of oxytocin, and 1 ampoule of methyl ergometrine.

The patient experienced a decrease in blood pressure to 70/50 mmHg and the pulse increased by 146 beats/min. The height of the uterine fundus is about 2 fingers above the symphysis with positive uterine contractions. Bleeding reaches 750 ml/3 h. At the referral hospital, the patient was diagnosed with uterine inversion. The diagnosis was confirmed by symptoms of postpartum hemorrhage, abdominal pain, vaginal mass, and low blood pressure. In addition, the uterus is in an inverted position. The patient was planned for condition stabilization, shock management, and bleeding management.

Medical personnel carrying out this procedure were anesthesiologists and obstetricians and gynecologists. The patient underwent exploration of the birth canal. 1 vaginal tampon was found according to the initial report, then the tampon was removed. Uterine inversion occurred followed by bleeding as much as 500 ml. Obstetricians and gynecologists repositioned the uterus and maintained it with internal bimanual compression. The patient was given uterotonic drugs. The results of the evaluation after uterotonic administration were positive uterine contractions, negative bleeding, and grade II perineal rupture. The patient was intubated by the anesthesia team. The patient's perineum was sutured, uterine contractions were observed, and therapeutic antibiotics were administered. The results of the examination found intermittent uterine contractions and bleeding, therefore the insertion of a condom catheter was started. The doctor agreed that if the patient had active bleeding, a hysterectomy was performed but the patient showed improvement, and no active bleeding was found.

Observations were made strictly every 15 min in the first 2 h in the patient's bed. The examination includes the amount of bleeding, blood pressure, and signs of shock. The patient can cope with pain during treatment, starting from repositioning to insertion of a condom catheter.

This situation can be seen in the patient's response to receiving therapy. The patient underwent an ultrasound examination. The results showed that the condom catheter was inserted into the uterine cavity and there was no free fluid. Post-intervention measures are care and monitoring of the puerperium. The patient is given antibiotics to prevent infectious complications. The results of the ultrasound examination are shown in Fig. 1.

3. Discussion

Condom catheters can be helpful in the management of uterine inversion, especially in stopping bleeding, although the main focus of action is on repositioning the uterus. In the initial setting of a patient in hypovolemic shock, the use of a condom catheter after suturing can treat bleeding effectively. Condom tamponade, which was placed and inflated with normal saline, because the patient was not responsive to uterotonics, was found to be effective in stopping bleeding. Condom tamponade saves time and money with positive results in about 96.7% of cases [5]. The device also shortens the hospital stay and avoids the need for surgical management [6].

The prospect of using a condom catheter in this study needs to be adjusted to the appropriate use technique and the patient's condition. The normal amount of saline needs to be considered in each case. 350 ml of normal saline is required to produce sufficient tamponade to stop bleeding within 10 min [7]. Another study used Bakri balloons for the management of uterine inversion leading to placenta accreta, and the patient was in shock. The procedure is similar to a condom catheter in that a Bakri balloon is inserted into the uterine cavity under ultrasound guidance and filled with normal saline. Uterine inversion can be successfully treated and the bleeding stopped. Moreover, no reinversion was observed [8]. Bakrie balloons may be a solution but for developing countries, condom catheters can be used as an alternative. This situation is particularly effective when uterotonics are ineffective or unavailable or where access to surgery is not possible [9]. Table 1 shows the results of previous case reports discussing the successful use of condom catheters in the management of uterine inversion.

The onset of uterine inversion, in this case, is similar to that in India. The placenta did not come out spontaneously so controlled cord traction was performed. The doctor performed the traction carefully but there was a complete inversion of the uterus [14]. An accurate diagnosis needs to be made early because there is a misdiagnosis between uterine prolapse and uterine inversion. Diagnosis is often difficult because of vague symptoms, presentation, and unknown pathology [15]. Uterine prolapse and uterine inversion have different meanings even though prolapse is part of the degree of uterine inversion where the uterus has decreased to

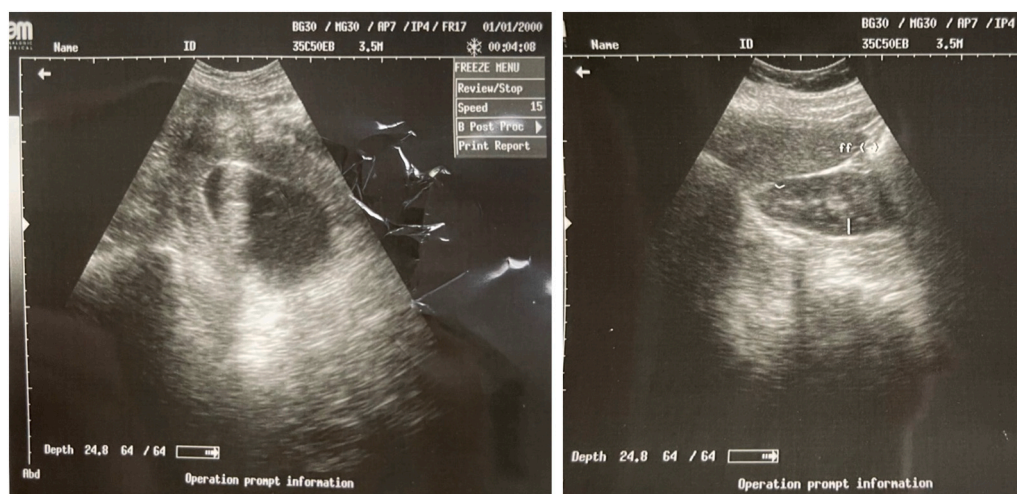


Fig. 1. Ultrasound examination results.

Table 1

Case report that discusses the potential of condom catheters in the management of uterine inversion.

Author, year	Sample	Treatment	Outcome
Lakshmy et al., 2019 [10]	8 cases of acute uterine inversion	Two patients underwent uterine repositioning and six patients underwent hydrostatic correction using a condom catheter filled from a urobag filled with 2–2.5 l of normal saline.	All six cases were corrected successfully but two patients underwent emergency obstetric hysterectomy for postpartum hemorrhage.
Thiam et al., 2015 [11]	A 20 years old primigravida	The patient was given a condom catheter with physiological saline up to 700 ml.	Intrauterine balloon tamponade is used to stop bleeding associated with uterine inversion
Haeri et al., 2015 [12]	A 38-year-old primigravida	Intrauterine and intravaginal dual-catheter balloon tamponade were infused with 400 and 240 mL of saline, respectively.	Intrauterine balloon tamponade is useful in cases of uterine inversion
Marasinghe et al., 2015 [13]	A healthy 26-year-old woman	Balloon tamponade connected to a conventional urinary catheter bag with a slow infusion of 40 IU of oxytocin started in 1 l of normal saline to achieve uterine tonicity	The use of balloon tamponade would be an excellent choice considering its low cost and non-surgical procedure

reach the introitus [3]. Uterine inversion associated with pelvic organ prolapse (POP) is extremely rare with only 1 case reported. A 74-year-old multiparous postmenopausal woman was admitted to our hospital with the following conditions: purulent vaginal discharge, difficulty urinating, lower abdominal discomfort, vaginal bleeding, protruding vaginal mass, and POP. She was diagnosed as POP with uterine inversion [16]. Sudden bleeding requires health workers to act quickly. Childbirth at home is dangerous because of limited tools and human resources.

4. Conclusion

Condom catheters can be helpful in the management of uterine inversion, particularly in stopping bleeding. An accurate diagnosis needs to be made early because in this case there is a misdiagnosis between uterine prolapse and uterine inversion. Management of this case requires teamwork so that it can be handled more quickly and effectively overcomes bleeding and shock.

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Ethical approval

N/A – not applicable.

Informed 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.

Author contribution

EMK- Performed the surgery, conception of the study, acquisition of data, drafting and finishing the original article.

Research registration

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Guarantor

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Referencing the checklist

This case report has been reported in line with the SCARE Criteria [17].

Declaration of competing interest

The authors declare no conflicts of interest.

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