

## Case Report

## Manual Reposition of Uterine Inversion with Hemorrhagic Shock in Minimal Facilities Situation

### *Reposisi Manual pada Inversi Uterin dengan Syok Hemoragik pada Situasi Fasilitas yang Minimal*

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#### Abstract

**Objective:** Reporting management of acute uterine inversion with hemorrhagic shock in minimal facilities situation.

**Method:** Case report.

**Results:** Manual reposition in acute uterine inversion was a life-saving treatment. The decision to do manual reposition with minimal sedation and without any tocolytic could be done in this case, due to minimal facilities situation where there is no operating theater available for ideal uterine reposition.

**Conclusion:** Uterine inversion can be promptly recognized in the third stage of parturition. Manual manipulation aided by tocolytic with or without anesthetic agents is often successful in correcting the inversion. Shock condition that accompanied the inversion must be vigorously treated, as it would lead to serious maternal morbidity and mortality. Management of acute uterine inversion seems to be depended on the clinical situation and clinical judgment which is very important in every emergency case.

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**Keywords:** hemorrhagic shock, manual reposition, minimal facilities situation, obstetric complications, uterine inversion

#### Abstrak

**Tujuan:** Melaporkan penatalaksanaan inversio uteri dengan syok hemoragik pada situasi dengan fasilitas minimal.

**Metode:** Laporan kasus.

**Hasil:** Reposisi manual pada kasus inversio uteri merupakan tindakan penyelamatan nyawa. Keputusan untuk melakukan reposisi manual dengan sedasi minimal dan tanpa tokolitik pada kasus ini dapat dilakukan dikarenakan situasi fasilitas yang minimal yang menyangkut ketidak-tersediaannya kamar operasi untuk tindakan reposisi yang ideal.

**Kesimpulan:** Inversio uteri dapat dikenali secara cepat pada kala tiga persalinan. Tindakan reposisi manual dibantu dengan pemberian tokolitik dengan atau tanpa pemberian anestesia sering berhasil dalam memperbaiki kondisi inversio. Kondisi syok yang terjadi dengan inversio harus diterapi dengan agresif karena kondisi ini dapat menyebabkan komplikasi morbiditas dan mortalitas ibu yang serius. Manajemen dari inversio uteri akut tergantung pada kondisi dan penilaian klinis, yang sangat penting pada setiap kasus gawat darurat.

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**Kata kunci:** fasilitas minimal, inversio uteri, komplikasi obstetrik, reposisi manual, syok hemoragik

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#### INTRODUCTION

Uterine inversion is a very rare case. The incidence varies from 1/500 until 1/20,000 deliveries.<sup>1-3</sup> The patient usually comes with grave condition and mostly accompanied by severe bleeding and hemorrhagic shock. Uterine inversion is a serious complication in obstetrics, with a mortality rate of 12 to 25%. Active management of the third stage of labor may reduce the incidence of uterine inversion.<sup>1</sup> Fundal implantation of the placenta may lead to inversion; the roles of fundal pressure and undue cord traction are uncertain.<sup>4-6</sup> The inverted uterus usually appears as a bluish-gray mass protruding from the vagina. Vasovagal effects produc-

ing vital sign changes disproportionate to the amount of bleeding may be an additional clue.<sup>7</sup> When the repositioning of the uterus is not done immediately, excessive bleeding can cause hemodynamic instability leads to shock, which will need a proper resuscitation.<sup>8</sup>

#### CASE REPORT

A 29 years old patient was referred by primary health care due to retention of placenta after delivering a baby weighted 3,200 g one hour ago. The parturition was going normal according to the partograph. After the baby was born, the midwife

has done controlled cord traction and applied 10 IU oxytocin injection intramuscularly. After 15 minutes, the placenta hadn't been born yet so she was giving the second dose of oxytocin 10 IU. The placenta was protruding through the vagina but it seemed adhered, so the midwife stop the traction and decided to brought the patient to our hospital. During the transfer the midwives did admit that the patient bleed profusely from the vagina, perineal rupture hadn't been stitched yet and she looked pale and started to feel drowsy.

At the emergency room, she had a small pulse and the frequency was 120 x/minute with blood pressure 80 mmHg per palpation. She was drowsy and pale, suggesting that she was in shock condition. Resuscitation was rapidly done, three intravenous lines was inserted, given that she was in hemorrhagic shock, blood sample for laboratory examination was also ordered for emergency blood cross check. On further examination, it was found that she had uterine inversion with some of the placenta (1/3 part) still adhered to the uterine, the placenta detached spontaneously and the bleeding from the womb become more copious. Meanwhile, she was given oxygen 2 liter/minute with nasal canule and she was resuscitated with total 1,500 cc fluid and she was starting to regain consciousness.

Immediate correction in the operating theater was planned; unfortunately all of the operating theaters were fully booked. Bleeding from the womb continue, and the fluid resuscitation are still continued. She was relatively on stable condition so it was decided to do the reposition immediately even though she is not in the operation room. Neuroleptic anesthesia with diazepam 40 mg and sulfas atropine was given to prevent vagal reflex due to the procedure. At the first attempt, the operator tried to push upward the fundal part along the long axis of the uterus with gentle movement using inners side of the palm, and the reposition succeed with no difficulty. For the next 10 minutes internal bimanual compression was done and uterotonics was administered, patient was given 1,000 µg misoprostol and oxytocin drips 20 IU in 500 cc lactated ringer. The contraction started to appear and the internal bimanual compression was maintained until the uterus had adequate contraction. Compression slowly released and rapid assessment of vaginal bleeding and uterine contraction was done through massaging external fundal continuously. The bleeding stopped and the contraction was adequate with maintenance of oxyto-

cin drips. The blood product infusion was started and she was observed closely for the vital signs, vaginal bleeding and contraction every 15 minutes for the next 2 hours, and after stable, every hourly. Second grade perineal rupture was repaired and folley catheter was inserted to observe her urinary output, and 100 cc initial urine came out. Her diuresis for the first 12 hours was 1.02 cc/kgBW/hour.

From her initial complete blood count the hemoglobin level was 4.9 g/dl, normocytic normochrom, suggesting severe anemia that was due to hemorrhage. She got 750 cc packed red cells transfusion and she was observed for the next 24 hours after the reposition in the delivery room. Her hemoglobin level was 8.1 gr/dl after the transfusion and she was stable. The purpuerium was uncomplicated with no history of fever and infection; she was discharged with good condition 2 days after hospitalization.

## DISCUSSION

Uterine inversion was a devastating condition with high rate of death. Some author stressed mismanagement of the third stage as an important causal factor.<sup>1-5</sup> Easterday et al<sup>9</sup> stated that at least 40 percent of cases occur where the placental stage has been perfectly normal. Roddie and Warden cited that Henderson and Alles<sup>10</sup> in a review of twenty-four cases, noted a high incidence of the condition in primiparas and it suggested that in certain patients there is a predisposition to inversion. Risk factors for uterine inversion were mismanagement of third stage, abnormally adherent placenta, short umbilical cord, sudden emptying of distended uterus, fundal placement of placenta and antepartum use of magnesium sulfate.<sup>11</sup> The literature review stretch back from early 19<sup>th</sup> century until recent updates with miscellaneous kind of management choices, and still the ultimate conclusion was we haven't got enough experience facing acute uterine inversion due to its rarity.<sup>3,10</sup>

Plattand et al<sup>12</sup> reviewed 28 cases, of which were eight patients diagnosed as experiencing shock clinically, although no definition was given. From this report the average estimated blood loss was 1,260 ml in primiparous women and 800 ml in multiparous women. Brar et al<sup>13</sup> later reviewed 56 cases from the same hospital and the range of estimated blood loss was 500-2,500 ml. One-third of the patients were diagnosed as experiencing shock

clinically, at any time during the episode. None were considered to experience shock out of proportion to the estimated blood loss. It was noted that removing the placenta increased the blood loss.<sup>1</sup>

The presence of shock and hemorrhage, severe pain if the patient is awake, the absence of the uterus on abdominal palpation and the presence of a large round mass in the vagina must suggest the diagnosis immediately.<sup>8,14</sup> At the completion of the third stage of labor, we have to be cautious if the position of the uterus cannot be ascertained by abdominal examination. The initial shock associated with an inverted uterus is due to the stretching of the peritoneum and the nerves of the broad ligaments and may disappear almost immediately following reposition.<sup>1,5</sup>

Diagnosis was made with clinical signs to this patient, that she was in third stage of parturition with placental retention, on examination the vaginal hemorrhage was accompanied by protruding mass with placenta still attached. The complaint of severe pain, abdominal examination revealing non-palpable uterus and the shock condition from the patient confirmed the diagnosis of uterine inversion.

Management of uterine inversion has two important components: the immediate treatment of the hemorrhagic shock and the reposition of the uterus. Resuscitation must be started immediately while attempting to replace the uterus manually. The chance of immediate reduction is between 22 and 43%.<sup>12,13,15,16</sup> If unsuccessful, further attempt must wait until the patient is hemodynamically stable.<sup>17</sup> If possible, the placenta should be left in place to reduce bleeding.<sup>13</sup> If the uterus remains inverted, cervix may be relaxed by general anesthesia or tocolytic therapy. Severe cases require laparotomy.<sup>3</sup>

Correction of shock condition and immediate uterine repositioning that can be achieved by manual or surgical methods are the hallmark of treatment of acute uterine inversion, which is already done in this case. The shock condition was tried to be treated by doing vigorous fluid resuscitation. We attempt to perform immediate uterine reposition facilitated with sufficient anesthesia and tocolytic treatment in operating room, but at that point it unfortunately was unavailable, resulting in uterine reposition manually performed in the emergency room with minimal anesthesia.

Successful treatment of uterine inversion, occurring either by vaginal or during cesarean delivery, requires prompt recognition. The prompt recognition and the early replacement of an inverted uterus are associated with the best maternal prognosis. There is a progressive rise in mortality as recognition is delayed up to 48 hours, but if the patient with unrecognized uterine inversion survives beyond this time the mortality drops sharply.<sup>7</sup>

Persistent inversion may be associated with profound hypotension despite of rapid intravenous fluid therapy. If separation has not yet occurred, delay should be minimized by reverting the uterus with the placenta still attached. If the placenta is removed before the uterine repositioning, the patient is at an increased risk for blood loss and shock. If the placenta is still attached to the corpus or if it is being held back by a constriction of the cervix, this is manifested by an upward pull on the cord while the corpus is being pushed up and back. In such cases one must wait and repeat the maneuver a few minutes later, after the placenta has separated or the cervix has relaxed.<sup>1</sup>

Tocolytics, such as magnesium sulfate and terbutaline, or halogenated anesthetics may be administered to relax the uterus to aid in reversal. Intravenous nitroglycerine provides an alternative to the tocolytics and offers several pharmacodynamic advantages. Treatment with hydrostatic pressure may be attempted while waiting for medications to be administered or for general anesthesia to be induced.<sup>1,16,18-20</sup>

Drugs recommendation for tocolysis including magnesium sulphate,<sup>19</sup> nitroglycerine<sup>18,21</sup> and beta2-adrenergic agonists such as terbutaline or ritodrine.<sup>3</sup> As uterine inversion is uncommon, it is difficult to compare these different therapies.<sup>1</sup> Abouleish et al recommended terbutaline 0.25 mg, and general anesthesia as a last resort. They recommended terbutaline because it has a rapid onset and short duration.<sup>16</sup>

The use of neuroleptic such as Diazepam was not yet reported. Some author didn't use any anesthesia during manual reposition while some use morphine or pethidine as analgesics during the procedure, with or without the use of tocolytics.<sup>2, 21</sup>

Diazepam was chosen due to its availability at the emergency room with its neuroleptic properties produced anxiolytic and sedation with minimal

relaxation effect. Atropine was used to block the action of the vagus nerve consider that in the reposition procedure there was a risk of vagal reflex. Assessment was made at the time that cervix was not constricted and the patient was quite relaxed, so the manual reposition was done in the first attempt and succeeded.

In this case, in minimal facilities condition, manual reposition could be done as a life saving treatment to the patient, with minimal anesthesia and without the use of tocolytic.

### CONCLUSION

Uterine inversion can be a life-threatening obstetric complication. Although uncommon, if unrecognized, severe hemorrhage and shock will lead to maternal death. Manual manipulation aided by tocolytic with or without anesthetic agents is often successful in correcting the inversion. In the most resistant of inversions, surgical correction through the abdomen might be needed. In any case, the best prognosis is achieved by prompt recognition of the condition and immediate attempts to correct the inversion. Thus, it is important that physicians providing obstetric care is aware of the common signs of inversion so that the diagnosis can be determined and treatment can be initiated immediately. Management of acute uterine inversion seems to depend on the clinical situation and clinical judgment, which is very important in every emergency case.

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