

Spontaneous Restoration of Unrecognized Uterine Inversion

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We report a case of unrecognized uterine inversion was restored spontaneously without surgical intervention. Initially, the case was diagnosed as uterine atony and not uterine inversion and was managed successfully with uterine artery embolization. However, a partial uterine inversion was detected on a subsequent scheduled pelvic examination. Fortunately, her uterus was completely restored without any surgical intervention on eighth week after delivery.

Key Words : Uterine inversion, Postpartum hemorrhage, Uterine artery embolization

Acute puerperal uterine inversion is a rare but life-threatening obstetric emergency if its diagnosis is delayed.¹ The detection of complete uterine inversion during physical examination is relatively straightforward, while partial inversion can be masked by heavy bleeding. Immediate manual reduction is the best management approach for uterine inversion; however, it sometimes fails and requires surgical intervention particularly in cases with delayed diagnosis. Herein, we present a case of unrecognized partial uterine inversion that resulted in spontaneous restoration at eight weeks postpartum.

Case Report

A 33-year-old postpartum woman (gravida 4, para 1) was transferred to our institution owing to massive postpartum hemorrhage, with the estimated blood loss of 1,500 mL. She had an uneventful pregnancy and was considered low risk. She delivered a healthy male baby 3.4 kg without vacuum application. On admission, she presented with unstable vital signs (blood pressure, 90/60 mmHg; pulse rate, 120 bpm); her uterine fundus was not palpable on physical examination. Pelvic examination did not reveal any genital tract laceration. Based on these findings, we diagnosed the case as uterine atony and administered uterotonics (an oxytocin agonist and prostaglandin E1). In addition, we performed multi-detector computed tomography (MDCT) immediately to determine the necessity of uterine artery embolization. MDCT showed enhanced vascularity directed inferiorly from the uterine musculature along with an inverted uterine fundus (Fig. 1). However, only the enhanced vascularity was reported and uterine atony was suspected as the diagnosis at that time. Accord-

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ing to the MDCT results, we performed selective uterine artery embolization. The patient recovered well and was discharged 3 days later. However, during a scheduled pelvic examination performed 3 weeks after discharge, a fist-size reddish mass was detected inside her vaginal cavity, instead of the expected normal cervix. Moreover, a longitudinal ultrasonographic scan did not reveal a regular uterine

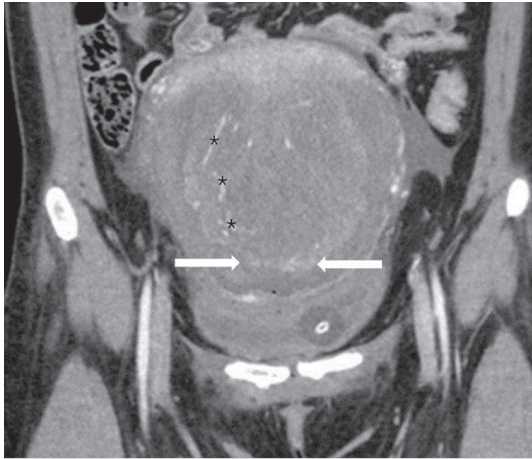


Fig. 1. MDCT showed enhanced vascularity (asterisks) directed downwards along the inverted uterine musculature. The uterine fundus inverted into the level of the cervix (arrows). MDCT; multi-detector computed tomography.

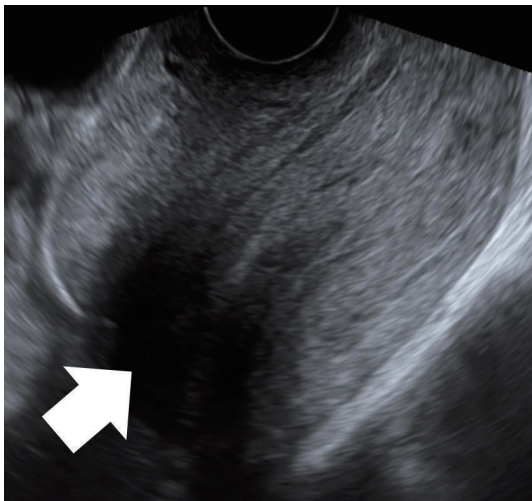


Fig. 2. Ultrasonography revealed the inverted uterus. The arrow indicates the irregular uterine fundus.

fundal contour (Fig. 2). She was diagnosed with grade 2 partial uterine inversion and an immediate reduction under intravenous analgesia was attempted, which failed. Thus, we recommended a laparoscopic surgical intervention; however, the patient refused. Since there were no signs of infection or active bleeding and her vital signs were stable, we decided to place her under observation without any surgical intervention. Fortunately and surprisingly, the uterus repositioned spontaneously 4 weeks after the unrecognized uterine inversion was detected (Fig. 3).

Discussion

Acute postpartum hemorrhage is associated with maternal mortality and morbidity; common causes include uterine atony, genital tract laceration, or retained placenta. While uterine inversion is also an important cause of obstetrical hemorrhage, its diagnosis is sometimes delayed or is unrecognized due to its low prevalence.

This case could provide several messages to ob-

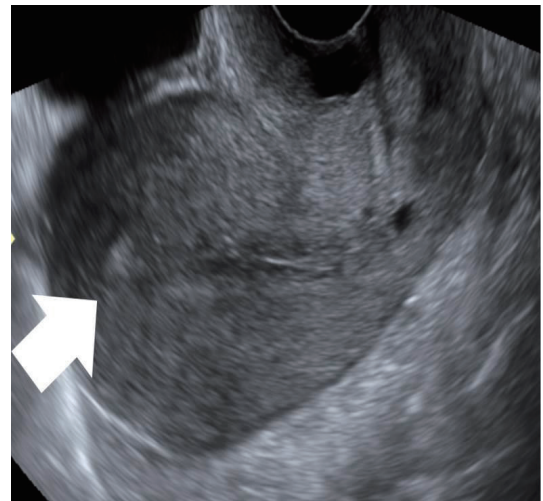


Fig. 3. Ultrasonography showed the normal uterine fundus (arrow).

stetricians on the management of uterine inversion. First, for hemodynamically stable patients complicated with partial uterine inversion, clinicians could choose an observational approach during the postpartum period instead of immediate surgical intervention. Naturally, the best management of uterine inversion is rapid detection and immediate reduction; most papers regarding management of uterine inversion recommend hydrostatic reduction or surgical intervention under anesthesia if immediate reduction fails.²⁻⁴ However, a major surgical intervention for the reduction of inverted uterus could influence the woman's fertility due to the associated complications.⁵ Older cases from the literature published from the mid-late 19th century to the mid-20th century reported the spontaneous reduction of uterine inversion.⁶ Although delayed management may be associated with adverse events such as infection or tissue edema,⁷ spontaneous restoration could be possible without subsequent complications as in our case described here. Therefore, close observation could be an option in a patient complicated by failed immediate reduction of uterine inversion. Second, partial uterine inversion can easily go unrecognized, especially following an established diagnosis of uterine atony as the cause of postpartum hemorrhage in hemodynamically unstable patients. Obstetricians, as well as radiologists, could miss the detection of uterine inversion despite performing imaging studies such as ultrasonography, angiography, and MDCT. In this case, the possibility of uterine inversion was not taken into consideration, even though angiography and MDCT studies had been performed. A retrospective analysis by an expert radiologist diagnosed this case as partial uterine inversion (grade 1) based on the inversion of the uterine fundus into the level of cervix and downward directed uterine vessels (Fig.

1). Third, uterine embolization can be used to manage postpartum bleeding caused by undiagnosed uterine inversion. Although correct diagnosis and prompt repositioning is essential in the immediate management of uterine inversion, angiographic embolization can be considered a diagnostic and therapeutic tool in similar cases of neglected uterine inversion. The normal appearance of the distal uterine arteries after a delivery is along the convex dome of the uterus,⁸ not descending as was observed in this case. However, uterine artery embolization is not an established method in the management of uterine inversion, and failed embolization has also been reported in a case of partial uterine inversion;⁸ therefore, more diverse cases are warranted to better evaluate this approach. Lastly, physical examination is extremely important. Initially, we failed to detect uterine inversion on physical examination owing to heavy vaginal bleeding. Even so, a careful re-evaluation prior to discharge would have likely revealed the partial uterine inversion.

In conclusion, we found the uterus has the ability to spontaneously restore its normal anatomy during postpartum involution. Therefore, in our opinion cases of delayed diagnosis of uterine inversion could be managed conservatively with careful observation for infection or bleeding, especially when involving a partial inversion. Also, obstetricians should keep in mind the importance of physical examination and possibility of uterine inversion in cases diagnosed as uterine atony.

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자연복원된 부분 자궁내번증

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차현화·성원준

본 증례에서는 수술적 처치 없이 자발적으로 복원된 자궁내번증의 증례에 대해 보고한다. 이 증례는 처음에는 자궁내번증이 아닌 자궁무력증으로 진단되어 자궁동맥색전술로 성공적으로 처치되었다. 그러나 경과 관찰 중 시행한 골반 진찰에서 부분 자궁내번증이 발견되었다. 다행히 분만 8주 후 자궁내번증은 특별한 조치 없이 자발적으로 복원되었다.

중심 단어: 자궁내번증, 산후출혈, 자궁동맥색전술