

Case of uterine Rupture After Hysteroscopic surgery and Intrauterine Balloon Tamponade

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1. Abstract

1.1. Background: Uterine rupture, a rare phenomenon, is a tear in the uterine wall. Uterine rupture in a non-pregnant state is even rarer. We need to attach great importance to relevant cases.

1.2. Case Presentation: Here, we present a case of uterine rupture in a non-pregnant state. In this case, a 28-year-old woman had undergone hysteroscopic treatment for three times due to intrauterine adhesions and uterine artery embolization due to placenta implantation with postpartum hemorrhage. This uterine rupture case occurred three days after hysteroscopic surgery with large amount of vaginal bleeding and continuous abdominal pain after intrauterine balloon tamponade and hemostasis.

1.3. Conclusion: Therefore, we present a case that may be associated with multiple intrauterine procedures, UAE and uterine rupture, and emphasize the necessity to strictly control the operation of the uterine cavity and UAE, especially for women with fertility requirements.

2. Keywords: Intrauterine surgery; uterine artery embolization; uterine rupture

3. Background:

Uterine rupture [1], especially during a non-pregnancy state [2], is fatal among women of childbearing age. There are many predisposing factors for uterine rupture, for example [3, 4], uterine myometrial fibers and endometrial damage, decidual defect or dysplasia caused by hysteroscopic surgery may be a factor. Mean while, the application of Uterine Artery Embolization (UAE) which will cause endometrial ischemia Injury or even necrosis, and result in the lack of elasticity of the myometrium because of uneven blood supply, may also be another factor. However, there is little recordation about uterine rupture after hysteroscopic surgery and uterine

artery embolization.

Therefore, it is necessary to assess the risk of uterine rupture [5] and estimate its incidence. According to existing reports on the risk of uterine rupture, the risks are as follows: scar uterus, stagnation of labor, stenosis of the pelvis, multiple pregnancies, giants, use of uterine contractions during placental delivery, placental abruption and intrauterine procedures. We hypothesized that past history of hysteroscopic surgery and history of UAE may have risks, but few cases report support for this hypothesis. We reported a case in which patient had undergone three hysteroscopic procedures and one UAE caused uterine rupture.

4. Case Presentation

The patient is a 28-year-old Chinese woman who had abortion at the age of 24 and hysteroscopic surgery at the age of 25 due to intrauterine adhesions. Induction labor was performed due to intrauterine fetal death at her age of 26. Then, postoperative UAE was performed due to placenta implantation and excessive vaginal bleeding. One year later, she was treated again for hysteroscopic surgery still due to intrauterine adhesions. At 28 years old, on the third day after her hysteroscopic surgery for intrauterine adhesions, suddenly there was severe vaginal bleeding, bright red with blood clots, while no abdominal symptom. The local hospital assessed that vaginal bleeding volume was about 1000ml. The following treatments were taken: intra uterine balloon tamponade and hemostasis (50ml water in the balloon), tranexamic acid with oxytocin intravenous dripping, CEFATHIAMIDINE anti-infection and infusion of red blood cell suspension 3U. After treatment, bleeding was significantly reduced, but the whole abdominal persistent pain occurred, with progressive aggravation, as well as low back pain and chest pain. After coming to the emergency department of our hospital, we checked the blood routine, which was

HB 118g/L, WBC $23.5 \times 10^9/L$, PT 11.3s, APTT 25.6s, D-dimer 2.49mg/L, blood glucose 8.2mmol/L. CT displayed that the uterus cavity was not clearly, and there was low-density lesion with gas accumulation in the lower abdomen and pelvis, a large number of abdominal and pelvic fluid (Figure 1). After admission, the patient was given oxygen, monitored vital signs, established venous access. For CT reported the pelvic and abdominal fluid accumulated, after she emptied the bladder, we took abdominal puncture and 5 ml of non-coagulation blood was vented. We communicated with the patient and her families for emergency laparoscopic exploration surgery. On laparotomy, in the entire posterior section of the uterus ruptured and the balloon was exposed to in the peritoneal cavity (Figure 2). And large amount of fresh blood was found the pelvic cavity. We sutured the ruptured uterus after removal of the balloon.

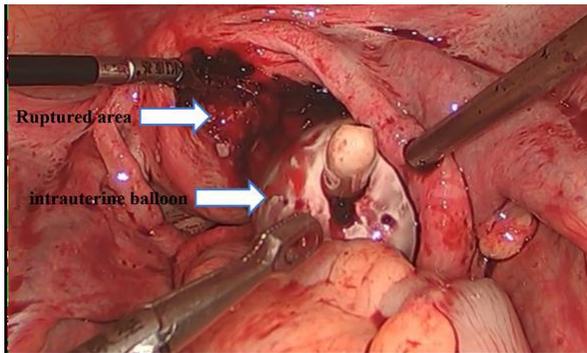


Figure 1: The top arrow shows the ruptured area of the uterus, the under arrow shows that the intrauterine balloon exposed in the peritoneal cavity.

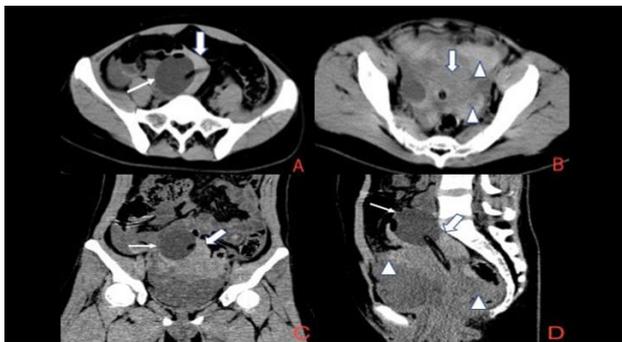


Figure 2: A axial, The balloon in the uterine cavity locally breaks through the uterine wall and is located outside the uterus. Figure. B axial. Effusion and blood accumulation in pelvic cavity. C, D coronal, oronal and sagittal respectively, The balloon in the uterine cavity locally breaks through the uterine wall, located outside the uterus, and there is fluid and blood accumulation in the pelvic cavity.

5. Discussion

This is a rare case of uterine rupture⁶. Although there is no history of cesarean section, the patient experienced once uterine artery embolization, twice curettage, three times hysteroscopic, which led to endometrial ischemic injury and even necrosis, and result in lack of elasticity of the myometrium because of uneven blood supply, finally causing damage to the myometrial fibers and endo-

metrium. After her last hysteroscopic treatment, the balloon was placed in the uterine cavity to stop bleeding, which tore the weak uterine posterior wall completely. Although it is difficult to explain the specific reasons, considering the history of multiple intrauterine operations and UAE [7], uterine rupture seems to be related to the patient's history of surgery. Since CT showed thinning of the myometrium, we believe that the myometrium is thinned due to damage to the myometrial fibers and ischemia. Pathology includes focal necrosis of the ruptured area, which should prove that our theory is correct. Therefore, the muscle layer of the posterior wall of the uterus is weak, and eventually the myometrial rupture occurs.

Here, we presented a case with multiple intrauterine surgeries and UAE, without cesarean scar [8], still uterine rupture occurred. It is difficult to determine which the main cause of rupture is during the medical history. However, UAE and multiple intrauterine surgeries were identified as the possible causes of uterine rupture. During these 10 years or so, UAE has become the most effective treatment for postpartum hemorrhage when first-line treatments fail, but there is still no data on their impact on the next pregnancy. Particularly, there is not much material on what will happen when a patient experiences UAE multiple times. Therefore, the impact of UAE on subsequent pregnancy requires further study. From this case, we need to be alert to the possibility of the increasing risk of iatrogenic uterine rupture after UAE.

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