Giant uterine artery pseudoaneurysm after missed abortion termination in cesarean scar pregnancy

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Abstract

Background: Uterine artery pseudoaneurysm is a dangerous disease which can lead to severe hemorrhage. The less common reason of a giant pseudoaneurysm in missed abortion in cesarean scar pregnancy has been reported.

Case presentation: The patient was a 25-year-old woman with missed abortion in cesarean scar. Curettage was performed under ultrasound monitoring. The uterine artery pseudoaneurysm was detected in the next day of curettage by ultrasound. Its size was as large as 71*44*39mm located in the scar position of uterus. In the 10th day after curettage, the pseudoaneurysm was broken spontaneously and hysterectomy was performed.

Conclusion: It is necessary to ask patients to take ultrasound examination within 24 hours after curettage especially in cesarean scar pregnancy. For a giant uterine artery pseudoaneurysm, hysterectomy should take as soon as possible. Thus the massive bleeding can be avoided.
Key words: uterus; pseudoaneurysm; ultrasound; missed abortion; cesarean scar pregnancy.

Background

Uterine artery pseudoaneurysm is a rare complication of repeated curettage, abortion, cesarean section, uncomplicated vaginal delivery or infection. It is a dangerous situation which can lead to severe hemorrhage. The time interval from pelvic surgery to the onset of symptoms has been reported to be from 1 week to 3 months [1-4]. It can be treated with hysterectomy with or without hypogastric artery ligation. In recent years, uterine artery embolization has become an accepted treatment method. The option depends on the patient’s reproductive desires and hemodynamic situation.

A literature search found three case reports of cesarean scar pregnancies complicated with uterine artery pseudoaneurysm [5-7]. In our report, it was happened in a patient with missed abortion in cesarean scar pregnancy and the lesion was the biggest one to date.

Case presentation

A 25-year-old woman, menopause for 2 months, was referred to the hospital because of painless vaginal bleeding for half a month. She had a history of one
elective cesarean delivery 2 years ago and a missed abortion at 9 weeks of gestation 4 years ago. She was diagnosed pregnancy 20 days ago at 40 days of gestational age by urine human chorionic gonadotropin (hCG) qualitative test. Vaginal bleeding appeared 15 days ago. The amount of bleeding was a little. Serum $\beta$-hCG was 1200mIU/ml. Transvaginal ultrasound showed the size of uterus was 106*64*60mm. There was an echo free area above the inner orifice of the cervix, measuring 43*23mm, without blood flow signal, yolk sac or embryo inside. A mixed echo mass, 29*15mm in size, was detected in the uterine cavity. No blood flow signal could be found in the mass either. The patient was diagnosed missed abortion in the cesarean scar and the curettage was performed by ultrasound monitoring. During the procedure, massive bleeding about (600ml) occurred but was stopped by oxytocin intravenous injection and uterine massage. Chorionic tissue was sucked out and was proven by pathology. When curettage was finished, uterine cavity was revealed as a clear thin line by ultrasound and was considered as normal. Vaginal packing was performed subsequently. In the next day of curettage (18 hours after curettage), serum $\beta$-hCG was 1164mIU/ml. A cyst with uneven wall in the lower part of the uterus measuring 71*44*39mm was detected with gray-scale sonography. The color Doppler sonogram showed a swirl of colors.
in the cyst. It was connected with an artery by a narrow neck in its posterior wall. The peak velocity of the artery was as high as 215 cm/s (Fig 1). In the 10th day after curettage, severe vaginal bleeding occurred suddenly and the hysterectomy was performed. A 60*70*50mm cyst with a broken wall in the cesarean scar position of uterus was found during the operation (Fig 1). The wall of the cyst was composed of blood clot, decidual tissue and chorionic tissue.

Uterine artery pseudoaneurysm is a very dangerous disease. It should be diagnosed as soon as possible. One of the causes of uterine pseudoaneurysm is vascular injury, which is due to abortion, curettage, or pelvic surgery. Traumatic injury to the vessel wall causes wall incompetence and hemorrhage. Pseudoaneurysm formation follows. Ultrasound scan was useful in detecting the formation of pseudoaneurysm both by 2-dimentional ultrasound and Doppler ultrasound. At gray-scale ultrasound, a pseudoaneurysm manifests as a hypoechoic mass and is thereby not easily differentiated from a hematoma or true aneurysm. Color Doppler ultrasound is helpful. It demonstrates turbulent arterial flow with a to-and-fro pattern, connected to a parent artery by a narrow neck in pseudoaneurysm. Blood flowing into the mass during systole and away from the mass during diastole is explained by the pressure gradient between a
distended high-pressure pseudoaneurysm and the low-pressure artery during diastole [8]. A true aneurysm manifests as color coded fusiform dilatation of the parent artery. Spectral analysis demonstrates a typical arterial flow pattern. A hematoma does not reveal color signal. The wall of a pseudoaneurysm is formed by a peripheral thrombus. In this case, decidual tissue and chorionic tissue were found in the wall as well. We diagnosed the pseudoaneurysm by ultrasound at the next day after curettage. So we think it is necessary to ask patients to take ultrasound examination within 24 hours after curettage especially in cesarean scar pregnancy.

In this case, the pseudoaneurysm located in the cesarean scar. The wall is very thin. It was with high risk of rupture. Uterine artery embolization is a minimally invasive treatment of this disease. It offers future fertility. But the pseudoaneurysm that successfully treated by this method was among 0.6cm to 3.5cm in size in literatures [9]. They were much smaller than this case. Such a giant pseudoaneurysm was difficult to treat with artery embolization. The other method that was used to treat was direct thrombin injection into the mass by Kovo M, et al [10]. But no further experience was reported. We are lack of knowledge on the scope of possible complications, such as resultant arterial thrombosis and allergic response. In this case, we should make hysterectomy
when we found the formation of pseudoaneurysm as soon as possible. Thus the dangerous massive bleeding could be avoided.

Conclusion:

It is necessary to ask patients to take ultrasound examination within 24 hours after curettage especially in cesarean scar pregnancy. For a giant uterine artery pseudoaneurysm, hysterectomy should take as soon as possible.

Consent: Written informed consent was obtained from the patient for publication of this Case report and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

Competing interest: The authors declare that they have no competing interests.

Author’s contributions:

YM carried out the ultrasound examinations, participate in the treatment of the patient and wrote the manuscript. YX carried out the ultrasound examinations and follow-up the treatment of the patient. YH participated in the design of the study and helped to draft the manuscript. TJ conceived of the study and
participated in the diagnosing and drafting the report. All authors read and approved the final manuscript.

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References:


Figure legend
Fig 1 The ultrasound images and gross specimen of the uterine artery pseudoaneurysm. A The gray scale ultrasound showed a cyst in the anterior wall of the lower part of the uterus. Part of the cyst wall was thin and part of the wall was thick. The inner side of the wall was uneven. B A swirl of colors was presented by color Doppler image. It showed the opening of the pseudoaneurysm and related artery. C Pulsed Doppler detected the velocity of the related artery near the orifice of the pseudoaneurysm was as high as 215cm/s. D The giant pseudoaneurysm (in the left side of the picture) was broken. The size accords with ultrasound detection.