

A Case of Uterine Artery Pseudoaneurysms

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ABSTRACT

Uterine artery pseudoaneurysms is a rare cause of haemorrhage but is potentially life-threatening and can occur after common gynaecological operations such as a Caesarean section or a hysterectomy. A 33-year-old woman who developed secondary postpartum haemorrhage after a Caesarean section was diagnosed to have uterine artery pseudoaneurysms on ultrasound scan. She was treated with bilateral uterine artery embolisation via selective catheterisation of uterine arteries. Good outcome with the aneurysms remaining obliterated was obtained. Angiographic embolisation is a safe and effective method of treating postpartum haemorrhage in haemodynamically stable patients and should be an option before resorting to surgery in appropriately selected cases.

Keywords: uterine pseudoaneurysms, embolism, angiography

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INTRODUCTION

Uterine artery pseudoaneurysms is a rare cause of haemorrhage, but is potentially life-threatening and can occur after common gynaecological operations such as a Caesarean section or a hysterectomy.

CASE REPORT

A 33-year-old Chinese woman first presented to our hospital with secondary postpartum haemorrhage. She had an emergency Caesarean section nine days prior for oblique lie in labour. The Caesarean section was performed at another hospital and according to the obstetrician who did the procedure, he did not notice any abnormalities intra-operatively. She was discharged well on the third post-operative day.

At presentation, she complained of heavy per vaginal bleeding with clots of one-day duration and fever for one week. On physical examination, her temperature was 37.8°C, blood pressure was 122/75 mmHg and pulse rate 149 beats per minute.

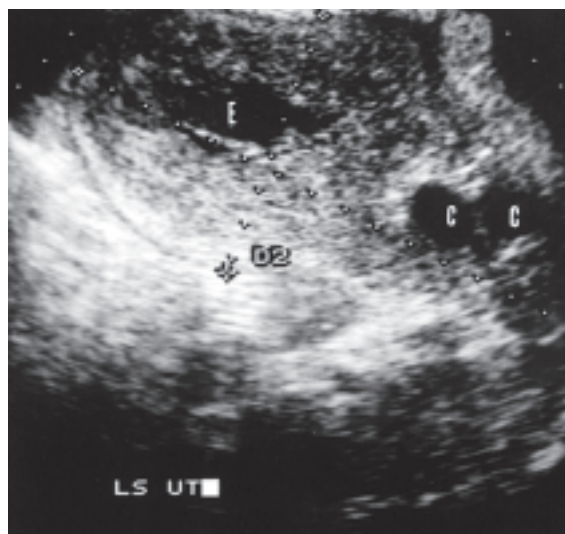


Fig. 1 Longitudinal ultrasound scan of the uterus shows two cystic (C) areas in the lower part of the anterior uterine wall. E - endometrial cavity.

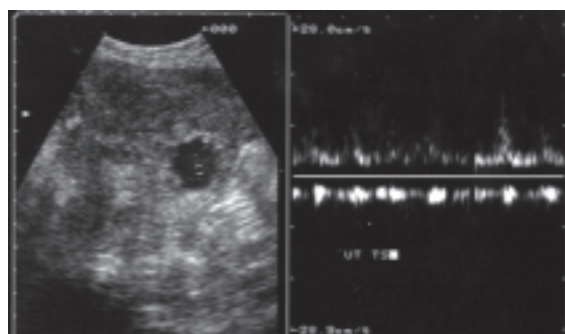


Fig. 2 Blood flow in a cystic area demonstrated on Doppler scan.

Her breasts were not engorged, her abdomen was soft and non-tender. Her uterus was about 14-16 week size. On vaginal examination, her cervical os was opened with just a slight ooze of blood from it. There was no uterine or adnexal tenderness. There were no other significant findings or adnexal mass.

She was admitted and a full blood count, coagulation profile and renal function profile were performed. Significant findings were a raised white cell count of $18.0 \times 10^9/L$ (granulocytes 89.9%) and a haemoglobin level of 10.0 g/dL. Intravenous ceftriaxone, metronidazole and gentamicin were instituted.

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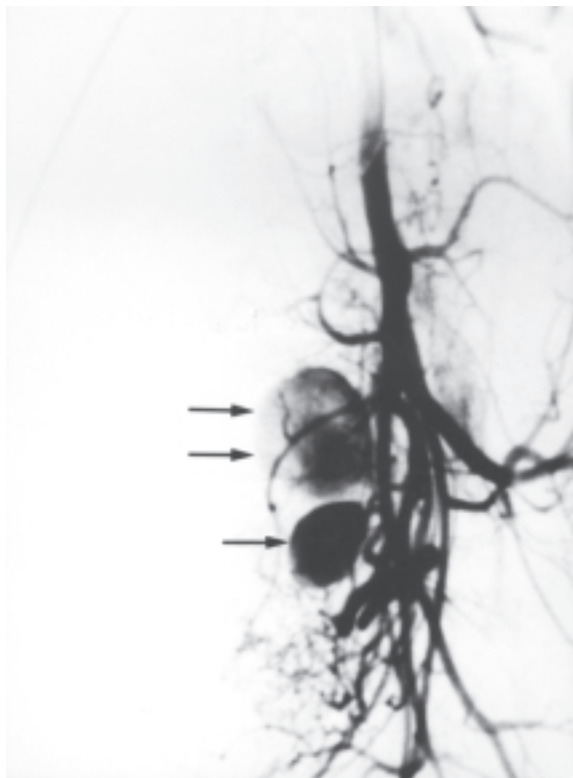


Fig. 3 Selective left iliac angiogram shows two pseudoaneurysms (arrows) supplied by the left uterine artery (oblique view).

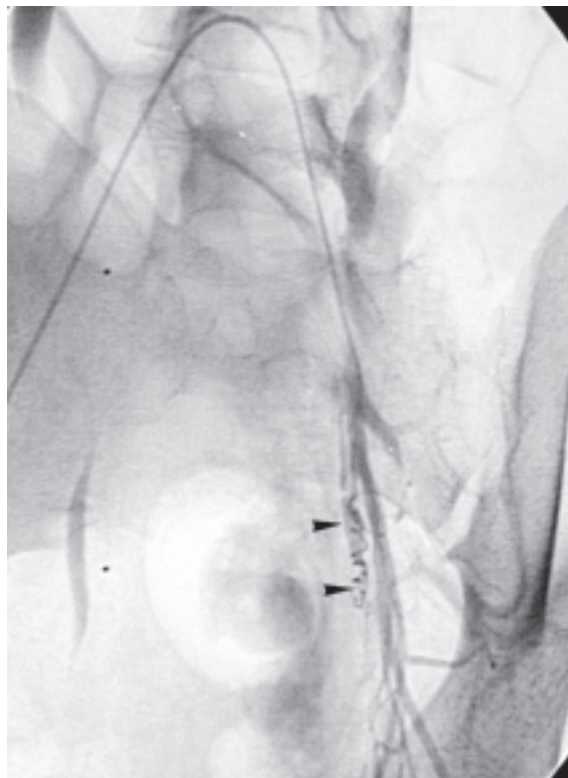


Fig. 4 Selective left iliac angiogram after embolisation of the left uterine artery using gelfoam and embolisation coils (arrowheads) shows no further blood flow beyond the coils in the left uterine artery.

An ultrasound scan was performed to exclude retained products of conception. Two small cystic areas in the lower part of the uterus were detected. Doppler scans confirmed the presence of blood flow (Fig. 1 and 2) in the cystic areas.

The patient was counselled regarding the options of uterine artery embolisation or hysterectomy. She chose to have embolisation performed due to the higher risks associated with a hysterectomy in the postpartum period. Selective right and left internal iliac angiograms performed via a right femoral artery puncture. It showed two pseudoaneurysms from the distal left uterine artery, one 3.0 cm and the other 2.0 cm in diameter (Fig. 3).

Selective catheterisation of the left uterine artery with a 4F cobra catheter (Glidecath; Terumo Tokyo, Japan) and embolisation with gelfoam and two 4.0 cm x 3.0 mm fibered stainless steel coils (Cook, Bloomington, Indiana, USA) was performed. The right uterine artery was selectively catheterised with a 5F sidewinder catheter (Terumo, Tokyo, Japan) and the artery embolised with gelfoam only. The immediate post-embolisation angiogram showed successful occlusion of both uterine arteries with preservation of the other branches of the internal iliac arteries (Fig. 4).

Post-embolisation, the patient was well and was comfortable on oral naproxen sodium. Repeat

ultrasound scan on the first and third post-embolisation days showed the aneurysms remaining obliterated. The vaginal bleeding decreased over the next few days as the patient completed a seven-day course of intravenous antibiotics. Her white cell and granulocyte counts also decreased as the endometritis resolved, decreasing from $18.0 \times 10^9/L$ to $9.13 \times 10^9/L$ and 89.9% to 77% respectively.

She was discharged on the fifth post-embolisation day. Repeat ultrasound scan two weeks later did not reveal any focal uterine lesions.

DISCUSSION

Pelvic aneurysms are rare in young women. Most of these are pseudoaneurysms occurring after gynaecological operations such as Caesarean sections or hysterectomies⁽¹⁻⁸⁾. Arteriovenous fistulas were thought to result from mass ligation of the artery or from passage of the transfixing needle through the two vessels. The secondary development of the aneurysm could have resulted from a periarterial expanding haematoma or drainage into the vein, or both. The secondary aneurysm would be a pseudoaneurysm, which will not include all three layers of arterial wall⁽⁷⁾. There has only been one reported true uterine artery aneurysm which had all three layers of arterial aneurysms which had all

three layers of arterial wall and no co-existent arteriovenous fistula⁽⁷⁾.

Our patient developed a pseudoaneurysm after a Caesarean section. Injury to the uterine vessels from Caesarean section may occur spontaneously⁽⁸⁾, aggravated by the presence of infection. There was no arteriovenous fistula seen. Treatment was by angiographic embolisation of uterine arteries with gelfoam and embolisation coils. In as early as 1980, Pais⁽⁹⁾ reported two cases of postpartum haemorrhage that was controlled by gelfoam embolisation via an angiographic catheter. In a series by Rosenthal⁽¹⁰⁾ angiographic arterial embolisation was shown to be a most useful clinical tool in the management of postoperative vaginal haemorrhage. Angiographic embolisation has the advantages of decreased morbidity, ability to localise the bleeding site and provide a more distal occlusion than surgical ligation and preservation of future fertility compared to a hysterectomy. The surgical option is still open for failures of embolisation without having compromise the patient. Success or failure is also evident soon after embolisation by clinically observing the patient's bleeding. Complications related to the procedure are minimal in the hands of a skilled angiographer and are rare because of the rich collateral blood supply in the pelvis. Complications include postprocedural fever and transient ischaemia which respond to symptomatic treatment⁽¹¹⁾.

Unilateral embolisation has been found to be less effective⁽¹²⁾ and we postulate that this may be due to the development of collateral blood supply from the opposite side. In this patient, bilateral embolisation was performed for this reason.

In conclusion, obstetric haemorrhage continues to be a major cause of maternal mortality and morbidity, Angiographic embolisation is a safe and effective method of treating postpartum haemorrhage in haemodynamically stable patients and should be an option before resorting to surgery in appropriate selected cases.

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