Clinical History:

A 30-year-old female patient presented with anaemia due to recently recurring vaginal bleeding. She was known to have a uterine arteriovenous malformation (AVM) diagnosed 8 years ago. She had had 2 embolisations using coil in 2003 then glue in 2006. After what she gave birth to her third child.

Imaging Findings:

Pelvic ultrasound revealed tortuous anechoic images of 33x28 mm on the anterior wall of the uterus (Fig. 1a), Colour Doppler showed intense flow (Fig. 1b) with a systolodiastolic pattern on Spectral Doppler, all features compatible with a persistent AVM. We decided to proceed to bilateral uterine embolisation. Under neuroleptic analgesia, bilateral femoral access was obtained (Fig. 2 a, 2b, 2c). Catheterisation of the left uterine artery showed no access to the right residual AVM while selection of the right uterine artery revealed its interruption by previous coil embolisation. Due to the impossibility of access by arterial means, a direct puncture of the AVM by transvaginal path was performed (Fig. 3). A 17G needle was advanced under ultrasound guidance using a transvaginal probe, and a glubran-lipiodol-tungsten (glubran/lipiodol=1/3) mixture was injected in the nidus under digital substracted fluoroscopy (Fig. 4). The procedure was free of complications and the patient went completely asymptomatic.

Discussion:

A. The first case of uterine arteriovenous malformation (AVM) was reported in 1926 by Dubreuil and Loubat [1]. AVM are of 2 types: acquired and congenital. Acquired uterine AVMs are conformed by communications between the uterine arteries and the myometrial veins, caused by an iatrogenic event or a pathological condition e.g molar pregnancy [2]. Congenital AVMs are the result of abnormal development of primitive vessels that result in connections between pelvic arteries and veins in the uterus [3].

B. Clinical presentation varies from no signs over various degree of menorrhagia to massive life-threatening vaginal bleeding. Clinical suspicion is essential for a prompt diagnosis and treatment.

C. Ultrasound in these patients reveals multiple tortuous anechoic spaces in the myometrium without mass effect.
There is intense colour fill in with juxtaposed reds and blues on colour Doppler ultrasound. The spectral Doppler reveals the classic features of arteriovenous shunting: low pulsatility of arterial waveform, pulsatile high velocity venous waveforms with little variations in systolic – diastolic velocities [4].

MR imaging is helpful in delineating the extent of the lesion. As with AVMs elsewhere in the body, the characteristic feature with spin echo sequences is the presence of multiple flow related signal voids within the lesion.

Choice of management is dictated by the site and size of the lesion. Large lesions require surgical intervention while others respond to conservative management. More recently, uterine AVMs have been treated successfully by intra-arterial embolisation. Substances for embolisation include gel foam, microfibrillar collagen, isobutyl cyanoacrylate...

Even when selective embolisation of AVM is initially very successful, these lesions will often recur due to marked collateral supply [5]. Pregnancy following conservative medical management of AVM and after successful embolisation has been reported in literature [6, 7, 8].

D. In our patient, the previous arterial uterine embolisations were successful in stopping the vaginal bleeding. However, they were not sufficient to eradicate the AVM nidus. Complete eradication of the nidus has been known to be the only option for a potential cure. This can be obtained by two ways, either total hysterectomy or direct embolisation of the AVM in a more conservative approach. This is usually done by endovascular route [9]. To our knowledge, no embolisation by transvaginal approach as in our case was reported before.

E. This technique, in addition to being eradication and conservative, has the advantage of offering access to unreachable lesion and being less invasive than the surgical uterine exposure [10].

**Differential Diagnosis List:** Trans-vaginal embolisation of a uterine arteriovenous malformation, Hysterectomy, Transarterial embolisation, Transvaginal embolisation

**Final Diagnosis:** Trans-vaginal embolisation of a uterine arteriovenous malformation

**References:**


Description: Ultrasound probe in position with needle opacification of the AVM. Origin: department of radiology, Hotel-Dieu de France hospital, Beirut, Lebanon
Description: Opacification of the right uterine artery after the embolisation showing the glue material in the nidus. Origin: department of radiology, Hotel-Dieu de France Hospital, Beirut, Lebanon
Description: the coil used in the embolization of 2003 in the right uterine artery is shown (arrow)
Origin: department of radiology, hotel-Dieu de France Hospital, Beirut, Lebanon
Description: early arterial phase showing the right uterine artery (arrow) in the catheterisation of the arteriovenous malformation. Origin: department of radiology, hotel-Dieu de France Hospital, Beirut, Lebanon.
Description: Right femoral catheterisation showing the arterial supply and the draining vein of the arteriovenous malformation. Origin: Department of Radiology Hotel Dieu de France Hospital Beirut Lebanon
Figure 4

(a) Description: Endovaginal ultrasound, sagittal view of the uterus. Tortuous anechoic images in the uterine wall (arrows). Origin: department of radiology Hotel-Dieu de France hospital Beirut Lebanon

(b) Description: color doppler ultrasound showing the arteries and veins in the nidus (arrows) Origin: Department of Radiology Hotel-Dieu de France hospital Beirut Lebanon