Successful Management of acquired uterine arteriovenous malformation.

Prise en charge des malformations artério-veineuse de l'utérus.

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RÉSUMÉ

Introduction : Les malformations artério-veineuse (MAV) de l'utérus est une pathologie rare. Il s'agit dans la plupart des cas d'une pathologie acquise suite à un traumatisme endo-utérin
But : Revoir les stratégies diagnostic et de prise en charge des MAV.
Cas rapporté : Nous rapportons le cas d'une MAV acquise chez une patiente de 28 ans après une interruption volontaire de grossesse. Le diagnostic a été porté par échographie endovaginale et la patiente a bénéficié une embolisation des artères utérines.

Mots-clés
Malformation artério-veineuse, métrorragie, échographie, artères utérines, embolisation

SUMMARY

Introduction: Uterine arteriovenous malformation (UAVM) is uncommon. They are usually acquired, due to previous intra uterine trauma.
Aim: To review different diagnosis and treatment strategy.
Reported case: We report a case of acquired UAVM in a 28-years-old patient after a medical abortion, diagnosed with ultrasonography and successfully managed with uterine artery embolization.

Key-words
Arteriovenous malformation, vaginal bleeding, ultrasound, uterine artery embolization.

Uterine arteriovenous malformation (UAVM) or arteriovenous fistula or arteriovenous shunt is uncommon. Its real frequency is unknown [1]. It can be congenital or acquired. Acquired UAVM are usually the consequence of previous intra uterine trauma. They lead to threatening profuse or irregular bleeding [1].
Ultrasonography with Doppler are excellent tools to diagnose UAVM but the gold standard is angiography [1,2].
Many treatment options are available to manage UAVM. However, uterine artery embolization (UAE) seems to be the safest and most effective intervention and preserves fertility [1,3-6].
We report a case of acquired UAVM successfully managed with UAE.

AIM

Review different diagnosis and treatment strategy of Uterine arteriovenous malformation.

CASE REPORT

A 28-years-old patient presented four weeks after a medical abortion with intermittent vaginal bleeding. Her obstetrical history included two vaginal deliveries, and endo-uterine aspiration.

A 2D transvaginal ultrasonography (TVUS) revealed intrauterine heterogeneous image in relation with a retained product of conception (RPOC), an irregular hypoechogenic area within the myometrium with high velocity and a bidirectional blood flow in color Doppler (Fig 1A). Doppler wave imaging showed objectively a high-velocity blood flow with a peak systolic velocity (PSV) of 57 cm/sec (Fig 1B). An UAVM was suspected and pelvic computed tomographic angiography confirmed the diagnostic, revealing a large arteriovenous communication with an extravasation of contrast product (Fig 1D).
Arteriography showed a tortuous left uterine artery, which was embolized using Curason through a 5F catheter by interventional radiology. Right uterine artery was difficult to attend and was not treated due to the major extinction of the UAVM after the left UAE (Fig 1C and 1E).
Five days after, the patient spontaneously expulsed the RPOC, but kept an intermittent vaginal bleeding (Fig 1C). A right UAE was performed one month later (Fig 1F).
During the follow up, the patient remained asymptomatic. TVUS control showed a complete regression of the irregular hypoechogenic area and no color or pulse wave Doppler.
Eight month later, she has spontaneous normally evolving pregnancy.

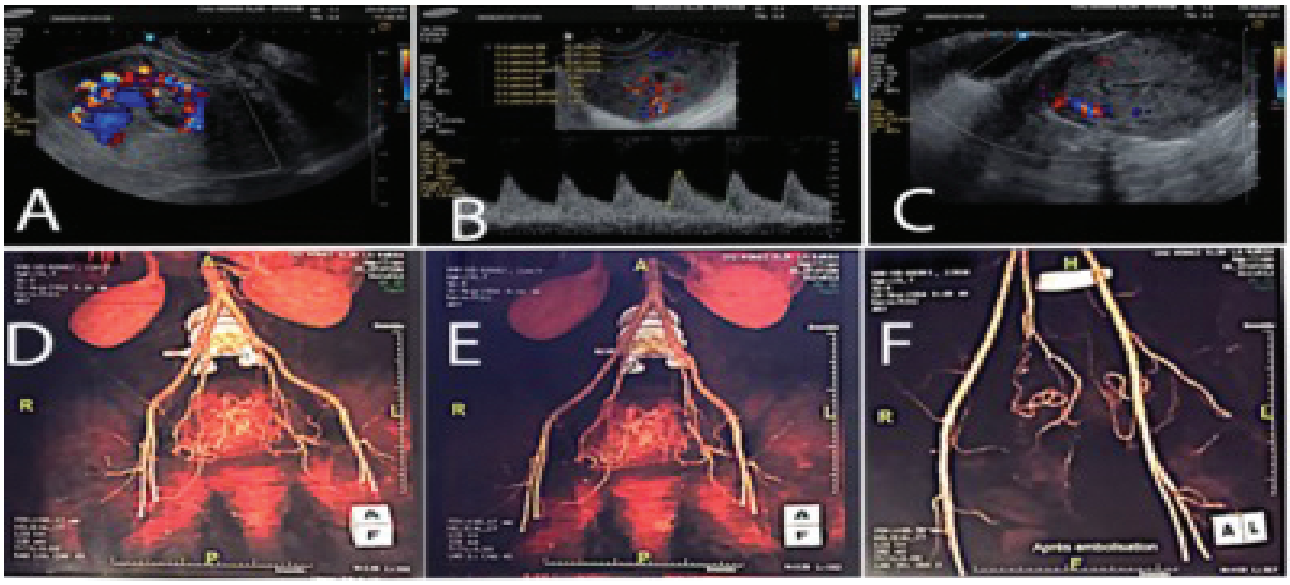

Figure 1: 1A: 2D transvaginal ultrasonography shows intrauterine heterogeneous image in relation with a retained product of conception, an irregular hypoechogenic area within the myometrium with high velocity and a bidirectional blood flow in color Doppler.
1B: Doppler wave imaging shows a high-velocity blood flow with a peak systolic velocity (PSV) of 57 cm/sec on the pathologic blood vessels.
1C: 2D transvaginal ultrasonography after first embolization and expulsion of the retention product of conception shows major extinction of the arteriovenous malformation area.
1D: Computed tomographic angiography before the first embolization: large arteriovenous communication with an extravasation of contrast product.
1E Computed tomographic angiography after the first embolization and before the second one: reduction of the extravasation of contrast product in the arteriovenous malformation area.
1F: Computed tomographic angiography after the second embolization: disappearance of the contrast product extravasation.

DISCUSSION

Acquired UAVM are acquired connection between artery and veins resulting from previous uterine trauma [1,7].
Ultrasonography with color and power Doppler are the best way to diagnose UAVM. However, it is not always easy to diagnose it, and it can be a confusing situation where RPOC and gestational trophoblastic diseases could be differential diagnosis [2,3].
As seen in our case, grayscale ultrasound image reveals irregular, inhomogeneous, hypoechogenic, structure within the myometrium. Color Doppler shows the site of the pathologic blood vessels; thus, the blood flow velocity and resistance to blood flow values can be measured.
The velocity of the blood flow measured as PSV could express the severity of the vascular malformation. Triage of patients for expectant treatment [6] versus intervention with UAE based on their clinical status, which was supplemented by objective measurements of blood velocity measurement in the UAVM, appeared to be a good predictor of outcome. The evolution of the UAVM can be correlate to the PSV: the patients with PSV between 40 and 60 cm/sec, can be managed expectantly, provided that the patients do not continue bleeding, and those with PSV higher than 60-70 cm/sec, must be treated by embolization [2].
In our case the PSV was 57 cm/s, but due to the heavy bleeding, we attended a UAE.
A systematic review of acquired UAVM treated by UAE shows that UAE had a primary success rate of 61% and a secondary success rate of 91% after repeated embolization [1]. The decision on laterality should be based on the arterial supply to the AVM determined by the angiographic appearance. After the treatment the dominant uterine artery, the decision to treat the contralateral side depends on the clinical scenario and the preference of the interventional radiologist [1,3-4]. In our case, we first performed the left UAE. In fact, the right uterine artery was difficult to attend due to technical issues. Moreover, the supply of the AVM depended more from the left artery, proven by the major extinction of the AVM after the left UAE.
UAE is probably the safest way to treat AVM, preserving fertility with less morbidity and mortality. However, it can lead to clinical failure (even after three embolization), so haemostatic hysterectomy remained the ultimate treatment [1-2,5-7].
Hysteroscopic treatment was also proposed [8].
Our patient spontaneously expulsed the RPOC, but if not, a systematic complementary evacuation of necrotic tissues by hysteroscopic resection seems superior to traditional blind curettage and have better outcomes [9-10].Our patient has spontaneous pregnancy eight months after the second UAE, as reported in many cases [1,5].
Acquired uterine arteriovenous malformation is rare. Routine grayscale and color Doppler ultrasound must be performed to patients with persistent bleeding after early miscarriage or medical abortion to diagnose this pathology before curettage or aspiration. Triage of patients for either conservative follow up or treatment may be based on their clinical picture supplemented by objective measurement of blood velocity in the UAVM area. The uterine artery embolization represents the best treatment way because it prevents of potentially life-threatening haemorrhage and preserves fertility.

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