Ultrasonographic indications for conservative treatment in pregnancy-related uterine arteriovenous malformations / Enhanced Myometrial Vascularity

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BACKGROUND
Acquired uterine vascular lesions / enhanced myometrial vasculature (AVM/EMV) is considered a rare but life-threatening complication that can arise after vessel trauma correlated to curettage, abortions, cesarean section, myomectomy, tubal surgery, but also after uncomplicated vaginal deliveries or non-traumatic abortions mostly diagnosed and treated with invasive procedures.

MATERIALS AND METHODS
Retrospective study of 10 women referred to our the emergency room because of vaginal bleeding between January 2016 and February 2018 with symptoms like menorrhagia or metrorrhagia that does not respond to medical treatment, lower abdominal pain and dyspareunia with an obstetric history. Inclusion criteria were having a diagnosis of AVM/EMV by TVUS with HD flow. The ultrasound diagnosis of arteriovenous malformations / enhanced myometrial vascularity was done. Gestational trophoblastic disease was excluded. AVM was characterized by TV-US as a mass of multiple cystic or tubular hypoechoic areas in the myometrial and endometrial junctions, with or without the presence of presumable products of conception. Color and Pulsed Doppler was used to demonstrate the vascular nature of AVMs (Figure 1), showing a characteristic mosaic pattern and vessels with high-flow velocities and low resistance index Peak systolic velocity >20 cm/sec).

RESULTS: 10 patients were admitted, 3 of them were hospitalized because of profuse but within limits bleeding for only few days (2-4 days). Past clinical obstetric events of the patients included 6 incomplete voluntary abortions treated medically (after 42-64 days), 2 missed abortions, 2 cesarean section followed by D&C due to postpartum hemorrhage. The average age of the patients was 34.7 years (age range 29-41). The largest width of the region of AVM/EMV varied from 10 to 48 mm. Median PSV (sonographic Doppler analysis) was comprised between 0.32-0.89 cm/sec. Only 1 case AVM showed a high PSV (0.89 cm/sec) who presented a massive vaginal bleeding for few hours. Patient refused embolization and a spontaneous resolution followed. In 7 cases ultrasound demonstrated the simultaneous presence of MAV and product of conception; in 3 cases there was only AVM. There was spontaneous regression of vascular malformation in 4 of them with a spontaneous elimination of the products of conception without procedures and in 3 AVM a regression of vascular malformation during time and menses. 3 patient, all with a large amount of product of conception, needed a surgical procedure (hysteroscopy because during time and menses spotting and abnormal ultrasound uterine image was unchanged (35-62 days). Hysteroscopy procedure with resector, was sufficient for the clinical case resolution. There were no complications. There was no need for transfusions. In one patients a pregnancy after a few months until term without obstetrical complications occurred.

7 AVM+ retained ovular material
3 AVM-
- PVS > 80 cm/sec
- profused bleeding
(after 35-62 days obstetric event)
4 spont resolution
3 surgery

1 Spontaneous pregnancy
spontaneous resolution

CONCLUSION
AVM management is currently under debate and depends on the degree of hemorrhage, signs of hypovolemia, and the desire of the patient for future fertility.

Most cases of enhanced myometrial vascularity result from retained placental tissue and are not true arterial vascular malformations and this is the reason why the hysteroscopic procedure with resector, conducted to removing the retained material could be sufficient for the clinical case resolution without complications. Nevertheless conservative management with ultrasound follow-up could be considered especially during the fertile period in patients with AVM/EMV, without heavy bleeding history.