



## Uterine arteriovenous malformation needing uterine artery embolization case reports

BEENA K

Department of Obstetrics and Gynaecology, CHRISTIAN MEDICAL COLLEGE

### Abstract :

Uterine arteriovenous malformation is a rare condition which needs a high index of suspicion for diagnosis. AVMs can be congenital or acquired. Acquired uterine AVMs are often preceded by pregnancy. We report 2 patients with acquired uterine AVM treated with uterine artery embolization.

### Keyword :

Uterine arterio-venous malformation (AVM), uterine artery embolization (UAE)

### Introduction:

Uterine AVM, can be either congenital or acquired. It is a rare condition that occurs due to abnormal communication between artery and vein. These patients present with excessive uncontrollable non cyclical bleeding per vaginum ,non responsive to hormonal treatment and often requiring blood transfusions. The diagnosis requires a high degree of suspicion. The management of 2 patients with uterine AVM who were treated with uterine artery embolization have been discussed below.

### Case 1:

A 21 year old primipara presented with history of excessive bleeding per vaginum during menstrual cycles for the past 1 ½ years after undergoing a cesarean section. Since then she has been having intermittent episodes of menorrhagia not responding to progestones. A significant fall in her haemoglobin necessitated 3 pints of blood transfusion at a local hospital. She then presented to our hospital . Her general clinical and pelvic examinations were unremarkable except that she was grossly pale with a haemoglobin of 5.2 gm%. Transvaginal ultrasonography revealed a 4 x 4.3 cm vascular mass in the uterine cavity with increased vascularity on Doppler. Her urine pregnancy test was negative with serum Beta HCG level was in the non pregnant range. A probable diagnosis of uterine AVM was made which was confirmed on digital subtraction angiography. She underwent uterine artery embolization on 11/10/12.



**Figure 1: Embolization of selectively cannulated uterine artery with PVA particles followed by gel foam slurry ( pointer showing the same )**

During the procedure bilateral uterine arteries were selectively cannulated and embolised with polyvinyl alcohol particles followed by gelfoam slurry until stasis was achieved. Post embolisation runs showed near total occlusion of the hypertrophied uterine arteries. She presented to us 7 months later with similar complaints of menorrhagia and on imaging was found to have a recurrence and underwent re-embolization (6 months back). She was well at discharge. But did not come for any further follow up.

### Case 2:

A 31 year old lady P1L1, had normal vaginal delivery, followed by amenorrhea for 1 year. Her first menstrual cycle was normal. She then had 2 months of amenorrhea followed by excessive bleeding per vaginum. She went to a local clinic and was transfused 1 pint of blood. She was then referred to our hospital for further management. On examination she was pale with a hemoglobin of 8.1gm%. Systemic and digital vaginal examination was unremarkable. Transvaginal ultrasound Doppler revealed a 3.1x3.1 cm vascular cystic mass in the uterine cavity with a 2x2 cm posterior wall fibroid. Urine pregnancy test was negative with a serum Beta HCG level of 1.31mIU/ml. A probable diagnosis of uterine AVM was made which was confirmed on digital subtraction angiography. She underwent bilateral uterine artery embolization on 8/7/12. Following the procedure the patient's symptoms improved dramatically. At follow up a year later she was completely symptom free and had normal menstrual cycles subsequently.

## Discussion:

AVM is an abnormal communication between arteries and veins without the intervening capillary network. (1) It can occur in sites such as in brain, spleen, lung, kidney, liver, spinal cord etc. It can either be congenital or acquired. Acquired uterine AVM's are associated with either miscarriage, cesarean section, pelvic trauma, endometriosis, or molar pregnancy. (2,3) Pregnancy has a major role to play in AVM. It has been said that chorionic villous necrosis followed by communication of the venous sinuses leads to its formation. They usually present with massive uncontrolled bleeding. It is diagnosed by Doppler Ultrasonography (4), MRI (5) and CT scan. (6) On Hysteroscopic examination, the endometrium appears to have a pulsatile vascular mass. (7) In both of our patients the irregular excessive bleeding was preceded by pregnancy. Ultrasound Doppler imaging revealed a vascular mass in the uterine cavity. Serum beta HCG was normal and choriocarcinoma was ruled out. Our differential diagnosis was uterine AVM. On angiography the first patient had grossly hypertrophied and tortuous uterine arteries on both sides with prompt venous shunting. The second patient had hypertrophied uterine arteries on both sides with an abnormal blush. Based on these findings, a diagnosis of uterine artery AVM was made and both of them underwent a transcatheter uterine artery embolization.

Treatment for patients with uterine AVM has evolved over the years from invasive procedures such as hysterectomy or uterine artery ligation to the minimally invasive uterine artery embolization [UAE] (8) With advent of UAE following the first embolotherapy done in 1982, this treatment modality has become the most opted for minimally invasive treatment modality especially in women who wish to retain their childbearing capacity. (9) (10) (11) (12) A study was conducted to look at the sonographic findings and the clinical outcome of transcatheter arterial embolization of symptomatic uterine AVMs over a 4 year period. They concluded that transcatheter arterial embolization is an excellent treatment modality and endovaginal sonography should be used to monitor postembolization outcomes. (13) Another study conducted over a period of 10 years on patients who underwent uterine artery embolization for traumatic uterine AVM reported a 100% technical success rate and a 93% clinical success rate with 5 out of 15 patients having subsequent uneventful pregnancies going to term. (14)

**Conclusion:** A high level of clinical suspicion of Uterine AVM's particularly in a woman who has undergone an uterine procedure, is required to make a diagnosis in women with abnormal uterine bleeding. Uterine artery embolization is an excellent minimally invasive treatment modality for uterine AVM. Transvaginal sonography with Doppler can be used to monitor post embolization outcome.

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