

# Uterine Arteriovenous Malformations – A Case Series

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## Background

Uterine arteriovenous malformations (UAVMs) result from multiple arteriovenous fistulous communications within the uterus without an intervening capillary network. It can cause life-threatening massive bleeding in young women. Even though rare, it is a very important differential to consider.

While doppler ultrasound is the first line investigation, the gold standard for diagnosis is by angiography. Management of UAVM varies on hemodynamic status, degree of bleeding, patient age and desire for future fertility. Conservative management by uterine artery embolization is a preferable method of treatment in order to avoid a hysterectomy in women of child-bearing age. Bilateral uterine artery embolization has a reported 90% success rate in managing uterine AVM.

We report 3 different patients in our case series at an outer metropolitan hospital in Queensland between 2016 and 2020. These cases had various management methods and outcomes and hence will be able to add to the limited data available in the literature.

**Case 1:** Ms X is a 22 year old, G2P1T1, referred with retained products of conception (RPOC) after a surgical termination.

Prior to review in our outpatient clinic, she presented to ED with intermittent heavy PV bleeding and spotting. A repeat pelvic ultrasound (USS) showed a dilated tortuous vessel seen in posterior uterus extending from myometrium into the endometrium. Vessel shows high grade turbulent flow. Appearance highly suspicious of an AVM (Image 1A).

As she was haemodynamically stable, a repeat pelvic ultrasound was done by the same senior sonographer with a gynaecology consultant present at the time of scanning. The large hypervascular vessel was still present and patient remained symptomatic.

A CT abdo/pelvis was organized which could not confirm or exclude the possibility for an AVM. After discussion with interventional radiology she was then booked for a uterine AVM embolization. Prior to the embolization, another pelvic USS was done which showed that the vessel had significantly regressed in size and colour flow. Her PV bleeding was improving so the embolization was cancelled. Repeat pelvic USS 2 weeks later showed that the previously noted vascular anomaly was no longer present (Image 1B). Her bleeding had completely settled.

This UAVM was successfully managed conservatively.

**Case 2:** Ms Y is a 23 year old, G2P0T2 who presented to ED 2 months post surgical termination at 8 weeks gestation with cramping and intermittent PV bleeding with dots with PV spotting in between bleeds. CST up to date.

Pelvic USS showed the endometrium with hypervascular bundle of vessels showing high velocity, low resistance waveforms, concerning for UAVM. She was haemodynamically stable and bhcg negative. The gynaecology consultant opted for conservative management. On repeat pelvic ultrasound 6 weeks later, there was no further evidence of UAVM, endometrium regular and thin. She was asymptomatic. This was another successful conservative management of UAVM.

**Case 3:** Ms Z is a 22 year old, G1P1, who had a secondary PPH of 500ml at 4 weeks post partum. She had an induction for pre edampsia at 39 week gestation and had a 2700ml PPH which was medically managed. She has not history of any uterine surgery or procedures. A pelvic ultrasound showed no retained products but suggested the possibility of a uterine AVM (Image 3A).

She was transferred to a tertiary facility and trialed on expectant management for 48 hours and discharged home when bleeding ceased. She re-presented 2 days later with another bleed of 500ml and was taken to theatre for balloon tamponade with a 40ml foleys catheter. Repeat ultrasound once again showed no retained products of conception but concerning for uterine AVM. Her images were reviewed by the interventional radiology team and bilateral uterine artery embolization (UAE) was performed with great success at the tertiary facility (Images 3B, C, D and E).

We reviewed her 6 weeks post procedure with a repeat ultrasound showing resolution of the UAVM (Image 3F). She was well and no longer bleeding. She has had further normal menstrual cycles which were not heavy. The pictures below depict the progress.



Image 1A



Image 1B

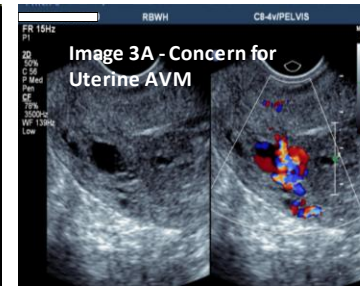


Image 3A - Concern for Uterine AVM

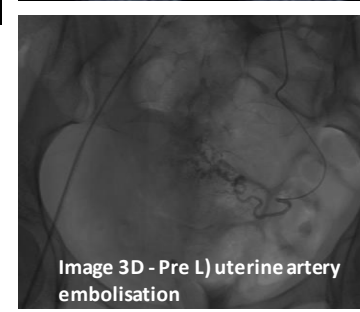


Image 3D - Pre L) uterine artery embolisation



Image 3B - Pre R) uterine artery embolisation



Image 3E - Post L) uterine artery embolisation

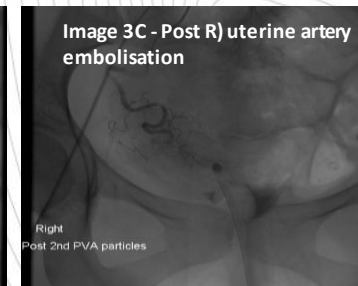


Image 3C - Post R) uterine artery embolisation

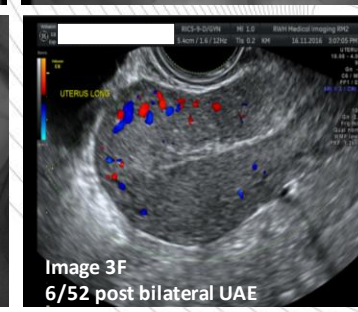


Image 3F 6/52 post bilateral UAE