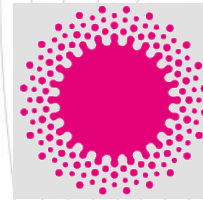


# Uterine Vascular Malformations

A 10-year experience across a tertiary service

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## INTRODUCTION

- Uterine vascular malformations (UVMs) present a rare but potentially life-threatening cause of uterine bleeding.
- Arteriovenous malformations (AVMs) involve a direct communication between a vein and an artery and can be considered a sub-class of UVM.
- UVMs be classified as either congenital or acquired, with the latter being more prevalent and almost exclusively occurring in women with a history of prior pregnancy<sup>1</sup>.
- The exact incidence is unknown, reported usually as case reports in the literature<sup>2</sup>.
- CT angiography is the gold-standard for diagnosis and allows for simultaneous management<sup>1</sup>, however is more invasive compared to MR angiography.
- Until the advent of uterine artery embolisation (UAE), hysterectomy was the only definitive method of management..

## OBJECTIVE

To explore the causes, clinical manifestations, diagnosis and treatment of UVM.

## METHODS

- Single site retrospective audit
- Cases were identified by searching medical records for presentations classified with a diagnosis or secondary diagnosis of 'arteriovenous malformation' between January 2010 and November 2020, and excluding those without a uterine AVM.

## REFERENCES

1. Grivell R, Reid K, Mellor A. Uterine Arteriovenous Malformations: A Review of the Current Literature. *Obstet Gynecol Surv.* 2005;60(11):761-767.
2. Hong W, Wang B, Wu Z et al. Systematic retrospective analysis of 13 cases of uterine arteriovenous fistula: Pathogeny, diagnosis, treatment and follow-up. *J Obstet Gynaecol Res.* 2020;46(7). <https://doi.org/10.1111/jog.14264>

## RESULTS

- Twelve cases were identified ranging from 19-42 years (mean 31).
- All women were multigravida
- Ten (83%) had a history of recent uterine surgery: STOP (n=6), C/S (n=2), suction D+C (n=1), and endometrial ablation (n=1)
  - Of those seven (70%) presented with intermittent heavy bleeding, the other two with ongoing post-procedural bleeding
- Mean interval time from procedure to presentation was 54 days (standard deviation (STD): 36.4; range: 18-120)
- The other two cases presented with intermittent heavy loss post MTOP and miscarriage respectively

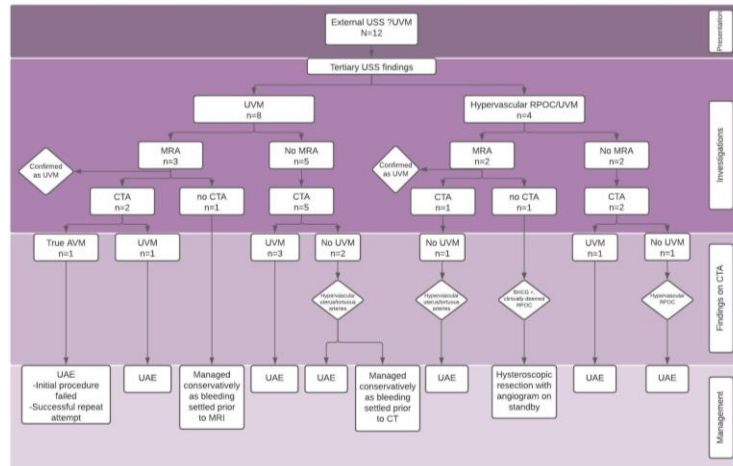


Figure 1. Summary of study findings

UVM= uterine vascular malformation; RPOC= retained products of conception; CTA= CT angiography; MRA= MR angiography; UAE= uterine artery embolisation

- Nine patients underwent UAE, including all confirmed UVMs, with a success rate of 88.9%

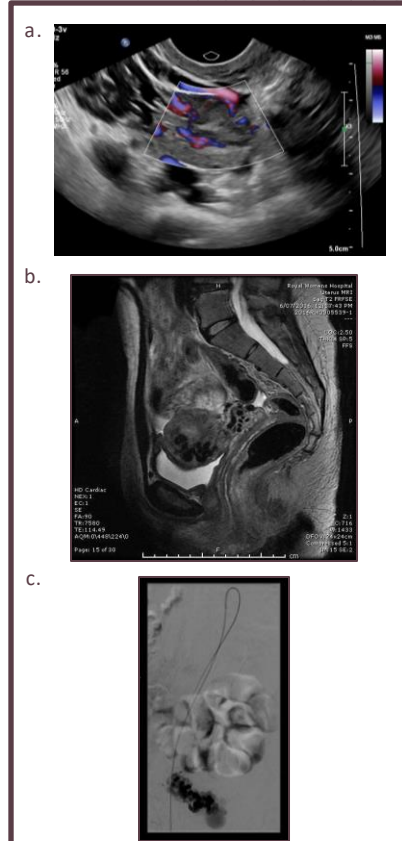


Figure 2. Appearances of the true AVM obtained on a) USS with colour doppler b) MRI c) CT angiogram

## CONCLUSION

- Ultrasound alone may lead to overdiagnosis of AVM
- CT angiography remains the gold-standard method for diagnosing UVMs and differentiating a true AVM.
- MRA does not appear to add further utility as compared to a tertiary ultrasound and should not delay progression to angiography when there is life-threatening bleeding.
- UAE proves to be a successful treatment modality for presentations with heavy uterine bleeding, even without a UVM being diagnosed, with success rates comparable to those reported in the literature<sup>1</sup>.
- Further research into long-term outcomes following embolisation are required before it can be adopted as a widespread technique.