International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Bhagat S et al. Int J Reprod Contracept Obstet Gynecol. 2025 Apr;14(4):1330-1333
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20250883

Case Report

A rare case: uterine arteriovenous malformation and its management with uterine artery embolization

Snehal Bhagat*, Anagha Jinturkar

Department of Obstetrics and Gynaecology Byramjee Jeejeebhoy Government Medical College (BJGMC), Pune, Maharashtra, India

Received: 11 February 2025
Accepted: 18 March 2025

***Correspondence:**
Dr. Snehal Bhagat,
E-mail: snehal.bhagat9175299@gmail.com

ABSTRACT

This case report details the medical journey of a 23-year-old female, Gravida 3, Para 1, Living 1, Abortion 1 (P1L1A1), who was referred to the gynaecology outpatient department (OPD) with complaints of persistent vaginal bleeding and abdominal pain. The patient's medical history, including previous obstetric events, was carefully reviewed. Diagnostic investigations, including pelvic ultrasound and laboratory tests, were performed to identify the underlying cause of her symptoms. Based on the findings, appropriate medical and/or surgical management was initiated to stabilize the patient and address her condition. The case report also highlights the patient's follow-up and clinical progress post-treatment, emphasizing the importance of comprehensive care in managing gynaecological complications.

Keywords: Uterine arterio-venous malformation, Abortion, Uterine artery embolization, Minimally invasive treatment, Abnormal uterine bleeding, Fertility preservation

INTRODUCTION

Uterine arteriovenous malformation (AVM) is a rare condition, with fewer than 100 cases reported in the literature.[1] It is a potentially life-threatening condition, as patients may present with profuse bleeding. Colour doppler ultrasound (US) provides a non-invasive method for initially diagnosing this rare condition and confirmation can be made using diagnostic angiography.[2]

Acquired arteriovenous malformations are more commonly associated with conditions such as multiple pregnancies, miscarriage, previous surgery, dilation and curettage, termination of pregnancy, and Caesarean section.[3] Most symptomatic pelvic and uterine AVMs present with abnormal vaginal bleeding ranging from frequent spotting to catastrophic haemorrhage, menorrhagia, metrorrhagia, menometrorrhagia, and postcoital bleeding have all been described as presenting symptoms. Pelvic pain or pressure, including neuropathic pain such as sciatica, can also be a presenting symptom. Pelvic AVMs may present with other evidence of increased venous pressure such as vulvar varices or, in severe cases, lower extremity venous congestion. An increasing number of asymptomatic uterine and pelvic AVMs are diagnosed incidentally as the use of imaging grows.[4]

CASE REPORT

A 23-year-old woman, married for two years, Gravida 3, Para 1, Living 1, Abortion 1, with a history of a previous vaginal delivery, hailing from Latur and educated up to the 12th standard, was referred from VDMMC Latur to the gynaecology OPD at Sassoon General Hospital, Pune, due to per vaginal bleeding. An MRI suggested the presence of a uterine arteriovenous malformation. She reported experiencing per vaginal bleeding intermittently for the past 3–4 months and abdominal pain for the last 3–4 days. She was apparently well until three months ago when she had three months of amenorrhea due to a confirmed pregnancy on a urine pregnancy test. However, she

subsequently developed per vaginal bleeding with the passage of clots and products of conception. Seeking medical attention at a private hospital in Udgir, she underwent dilatation and evacuation for a probable diagnosis of incomplete abortion, though she did not have reports of the procedure. After 10–15 days, she experienced recurrent per vaginal bleeding, associated with pain, using 1–2 pads per day, but without passage of clots.

She revisited the private hospital and was advised an ultrasonography (USG) of the abdomen and pelvis on January 4, 2024, which revealed a bulky uterus with increased vascularity in the fundic region, an endometrial thickness of 25 mm, and echogenic material measuring 17×8 mm in the mid-segment of the endometrial canal, suggestive of incomplete abortion or retained products of conception (RPOC). She then underwent another dilatation and evacuation at Udgir, following which the bleeding stopped for 8–10 days. However, she later experienced recurrent per vaginal bleeding with a similar pattern.

History of a case

There is no history of diabetes, hypertension, tuberculosis, HIV, or any major family illness. On general examination, she was moderately built, conscious, oriented, and afebrile but appeared moderately pale. There was no icterus, edema, lymphadenopathy, or clubbing. Her blood pressure was 110/70 mmHg, pulse rate 102/min, and respiratory rate 12/min. Systemic examination revealed normal cardiovascular findings with S1S2 sounds and no murmurs, and her respiratory system was clear with equal bilateral air entry. Abdominal examination showed a soft, non-tender abdomen without guarding, rigidity, or distension. Per speculum examination revealed altered-colored bleeding, while per vaginal examination showed a bulky, soft, and anteverted uterus with free, non-tender bilateral fornices.

A repeat ultrasonography on January 20, 2024, raised suspicion of an arteriovenous malformation (AVM). An MRI of the pelvis performed on the same day revealed a complex hyperintense mass lesion in the fundus and posterior body of the uterus, suggestive of a vascular malformation. Consequently, she was referred to Sassoon General Hospital, Pune, for further management.

Radiological findings

Transvaginal ultrasound of the pelvis revealed multiple serpiginous dilated vascular channels along the fundal region of the uterus, extending to the posterior wall. Color doppler imaging demonstrated increased vascularity with a high-velocity, low-resistance pattern, with a peak systolic velocity (PSV) of 2.4 cm/s and a resistive index (RI) of 0.39, suggestive of arteriovenous malformation (AVM) (Figure 1).[5] Additionally, a few dilated and tortuous blood vessels were noted in the pelvis and parametrium, indicating pelvic congestion.

Images and description

CT abdomen and pelvis

Postoperative changes were observed as multiple multifocal hyperdense foci within the myometrium. The endometrial cavity appeared widened with central heterogeneous hyperdense content, suggesting a possible hematoma or blood clot. No evidence of contrast blush was noted in the uterine endometrial or myometrial components.

MRI abdomen and pelvis

A review of the outside MRI plates showed a uterus of normal size with a heterogeneous intensity mass lesion in the fundus and posterior myometrium. Multiple dilated and prominent flow voids were noted, extending to the endo-myometrial junctional zone. The cervix, endometrial cavity, and both ovaries appeared normal. These imaging findings are highly suggestive of a vascular malformation of the uterus.

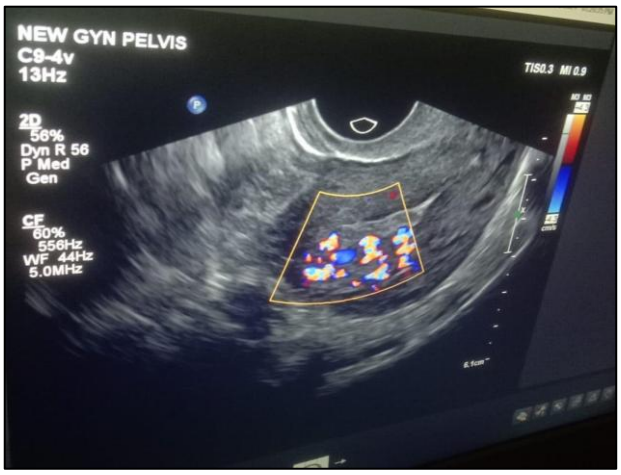

Figure 1: Multiple serpiginous dilated vascular channels seen along fundal region of uterus extending up to posterior wall (Transvaginal ultrasound pelvis).

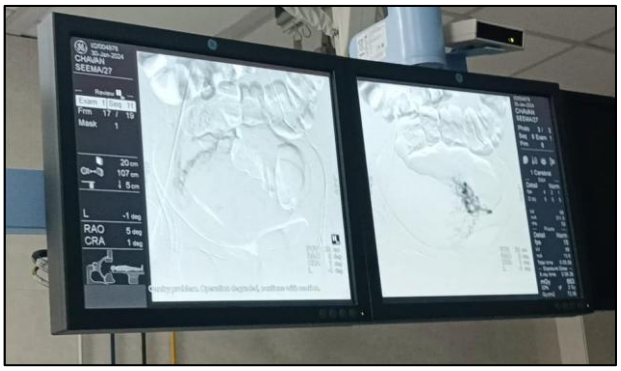

Figure 2: Uterine artery embolization.[14]

DISCUSSION

Post-treatment surveillance is crucial in managing uterine arteriovenous malformations (AVMs), particularly in cases where fertility-preserving interventions have been performed. In this case, the patient presented with persistent abnormal uterine bleeding following multiple dilation and evacuation (D&E) procedures.[6] Imaging studies, including transvaginal ultrasound with Doppler and MRI, confirmed the diagnosis of uterine AVM.[7] Given the patient's symptomatic presentation and reproductive concerns, a minimally invasive approach was preferred.

Plan and treatment

Preoperative management

Correction of anemia with one pint of packed cell volume (PCV) transfusion.[8] Pre-anaesthetic evaluation for surgical fitness.[8] Consultation with an interventional radiologist to discuss treatment options.

Interventional procedure

Digital subtraction angiography (DSA) to assess vascular anatomy.[9] Uterine artery embolization (UAE) to occlude abnormal vascular channels.[10] Consideration of hysterectomy if embolization was unsuccessful or bleeding persisted.

Follow-up Protocol

Ultrasound evaluation at 3days post-procedure to check for residual vascularity. Repeat ultrasound at 5 days post-procedure to confirm resolution. Clinical follow-up at 6 weeks to assess menstrual regularity and symptom resolution. Contraceptive counselling to prevent unintended pregnancy. Long-term follow-up at 6 months to ensure continued symptom-free status and assess reproductive health.

Procedure

Under aseptic precautions and informed consent, right femoral arterial access was obtained. Bilateral internal iliac and uterine arteries appeared dilated on internal pelvic angiography, with opacification of multiple tubular channels, consistent with MRI findings.[11] Uterine artery embolization was performed by super-selectively cannulating the bilateral uterine arteries using a microcatheter and micro-guide wire.[12] The arteries were embolized using polyvinyl alcohol (PVA) particles and glue. The procedure was uneventful.[13]

Post-procedure monitoring

Post-procedure, the patient's vitals were closely monitored. Strict immobilization of the right lower limb was maintained for 12 hours, and peripheral pulses and the puncture site were monitored for hematoma formation.

Three days after the procedure, a follow-up transvaginal ultrasound showed a hypoechoic content measuring 1.7×3.7×3.2 cm within the endometrium, with no significant vascularity, suggestive of blood clots. A repeat ultrasound after five days showed no abnormalities, confirming successful embolization.

On clinical examination, the patient was stable and was subsequently discharged. Follow-up was advised, and six weeks later, she reported regular menses without pain or clot passage, lasting 3 to 4 postpartum days. Contraceptive counselling was provided to prevent unintended pregnancy.

At six months follow-up, the patient remained asymptomatic with a regular menstrual cycle and continued appropriate contraception. This case highlights the effectiveness of uterine artery embolization in the successful management of uterine AVM while preserving fertility. Regular follow-up and contraceptive counselling are essential components of long-term care to prevent recurrence or complications. Procedure was done as reflected in Figure 2. A follow-up transvaginal ultrasound of the pelvis was performed 24 hours post-procedure, showing no abnormalities. The patient was subsequently discharged after one week.

CONCLUSION

This case demonstrates that early diagnosis and prompt intervention are critical for the successful management of uterine AVM. Uterine artery embolization (UAE) proved to be an effective, minimally invasive treatment option, leading to rapid recovery and resolution of symptoms without complications. The patient's post-procedure follow-up showed complete resolution of abnormal vascularity with no recurrence, allowing for the preservation of fertility. With proper monitoring, timely intervention, and contraceptive counselling, uterine AVM can be effectively managed, ensuring long-term reproductive health and overall well-being.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Hashim H, Nawawi O. Uterine arteriovenous malformation. MJMS. 2013;20(2):76.
2. Timmerman D, Wauters J, Van Calenbergh S, Van Schoubroeck D, Maleux G, Van Den Bosch T, Spitz B. Color Doppler imaging is a valuable tool for the diagnosis and management of uterine vascular malformations. Ultrasound in Obst & Gynecol. 2003;21(6):570-7.
3. Peitsidis P, Manolakos E, Tsekoura V, Kreienberg R, Schwentner L. Uterine arteriovenous malformations induced after diagnostic curettage: a systematic review. Arch Gynecol and obste. 2011;284:1137-51.

4. Smith J, Doe A. Clinical presentation and management of pelvic and uterine arteriovenous malformations. J Obstet Gynecol Res. 2024;50(2):123-30.
5. Uller W, Alomari AI, Richter GT. Arteriovenous malformations. In Seminars in Ped Surg. 2014;23(4):203-7.
6. Grivell RM, Reid KM, Mellor A. Uterine arteriovenous malformations: a review of the current literature. Obst Gynecol Surv. 2005;60(11):761-7.
7. O'Rourke-Suchoff D, Benitez S, Higgins MC, Stier EA. Diagnosis and treatment of women with radiologic findings suspicious for uterine arteriovenous malformations. J Obst and Gynaecol. 2021;41(5):769-73.
8. Mendonça Motta AC, Gomes JR, Verner GC, Clinical and epidemiological profile of obese patients from a pre-operative outpatient evaluation clinic. J Obst and Gynaecol. 2021;3:45-8.
9. Posa A, Tanzilli A, Barbieri P, Steri L, Arbia F, Mazza G, et al. Digital subtraction angiography (DSA) technical and diagnostic aspects in the study of lower limb arteries. Radiation. 2022;2(4):376-86.
10. Bazeries P, Paisant-Thouveny F, Yahya S, Bouvier A, Nedelcu C, Boussion F, et al. Uterine artery embolization for retained products of conception with marked vascularity: a safe and efficient first-line treatment. Cardiovas and Interv Radiol. 2017;40:520-9.
11. Merland JJ, Chiras J. Arteriography of the pelvis: diagnostic and therapeutic procedures. Springer Science & Business Media. 2012: 6.
12. Fu Z, Li X, Cai F, Yuan Y, Zhang X, Qin J, Liang Y. Microspheres present comparable efficacy and safety profiles compared with polyvinyl alcohol for bronchial artery embolization treatment in hemoptysis patients. J Transl Med. 2021;19:1-10.
13. 13. Ghai S, Rajan DK, Asch MR, Muradali D, Simons ME, TerBrugge KG. Efficacy of embolization in traumatic uterine vascular malformations. J Vasc Intervent Radiol. 2003;14(11):1401-8.
14. Badawy SZ, Etman A, Singh M, Murphy K, Mayelli T, Philadelphia M. Uterine artery embolization: the role in obstetrics and gynecology. Clinical Imag. 2001;25(4):288-95.

Cite this article as: Bhagat S, Jinturkar A. A rare case: uterine arteriovenous malformation and its management with uterine artery embolization. Int J Reprod Contracept Obstet Gynecol 2025;14:1330-3.