



## Role of Uterine Artery Ligation in Arteriovenous Malformation

Author

Poonam Chandora

### Abstract

**Introduction:** Uterine AV malformation is a rare and under diagnosed cause of hemorrhage after diagnostic or therapeutic curettage, which can present with varying grades of severity. It is a potentially life-threatening condition, and diagnosis requires a high degree of suspicion on the part of the caregiver—and prompt diagnosis could save many a uterus and thus preserve fertility, due to the availability of conservative alternatives to hysterectomy.

**Case:** In our institution in 2023, case of symptomatic uterine AVMs has been reported of reproductive age group presenting with a history of miscarriage or termination of pregnancy for which curettage was done. The presentation was of torrential bleeding, and not controllable with regular measures. Diagnosis was by ultrasound color Doppler, and contrast MRI pelvis. The time interval between the onset of symptoms and the primary curettage was 55 days; patient underwent for bilateral uterine artery ligation followed by dilatation and curettage. On follow-up, patient's is presently free of symptoms with no excessive bleeding or post op complications. Patient discharged in good condition.

**Conclusion:** Uterine AV malformation should be thought of as a differential diagnosis in all cases presenting with bleeding after miscarriage or curettage, since diagnosis is simple and treatment by selective artery ligation saves morbidity and more importantly reduces hospital stay and the absence from work.

**Keywords:** Arteriovenous malformation, uterine artery ligation, vascular malformations.

### Objective

To study the clinical features, presentation, diagnostic, and treatment options symptomatic uterine AV malformations, who presented to the general Gynecology OPD of our hospital on November, 2023.

### Methods

A retrospective analysis of case record revealed case of symptomatic uterine AV malformation. Patient presented with bouts of torrential bleeding following curettage. Complete hemogram and

serum beta HCG was done. Patient was anemic at presentation, requiring blood transfusion. Ultrasound and Doppler were used for diagnosis, which was confirmed by contrast MRI pelvis prior to uterine artery ligation.

### Case Presentation

35-yr-old, P2L2A2 with previous LSCS with 2 termination was admitted with heavy bleeding P/V for 1week/changing 6-7pads per day followed by profuse bleeding on 3thNovember 2023. Her last pregnancy was a twin's missed abortion for which

she had undergone curettage<sup>[1]</sup> on 1 Oct 2023. Hemoglobin on admission was 8.4gm/dl; ultrasound showed<sup>[2]</sup> AV malformations with hypo echoic tubular structures with mixed echogenicity. CEMRI pelvis showed enlarged uterus of size 134x61x82 and endometrial cavity is filled with heterogeneous material with multiple flow voids within and around it. Post contrast

Doppler<sup>[3]</sup> study reveals significant tubular enhancement within the lesion. Findings suggestive of intrauterine AV malformations. Laparoscopic bilateral uterine arteries ligated to stop profuse bleeding followed by dilatation and curettage. Hemostasis achieved and patient transfused with 1unit PRBC. Patient showed improvement and discharged in 2days.

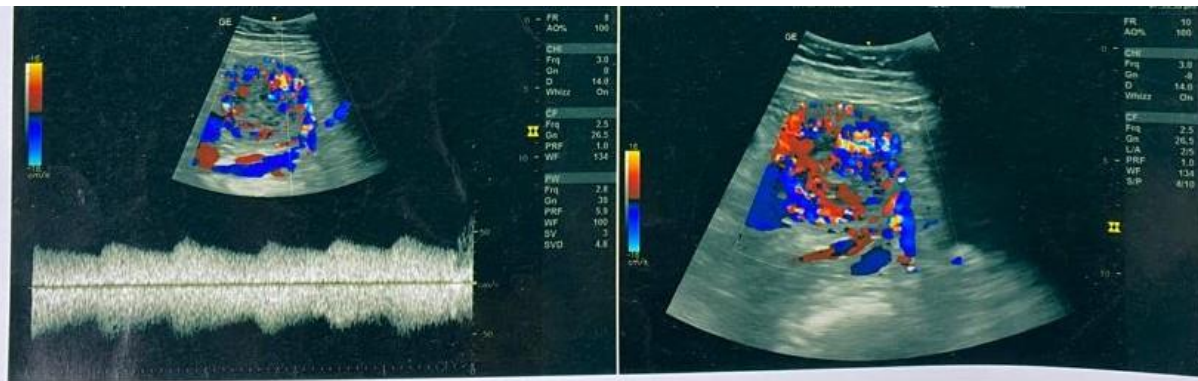


Figure 1 Hypoechoic Tubular Structures with Mixed Echogenicity

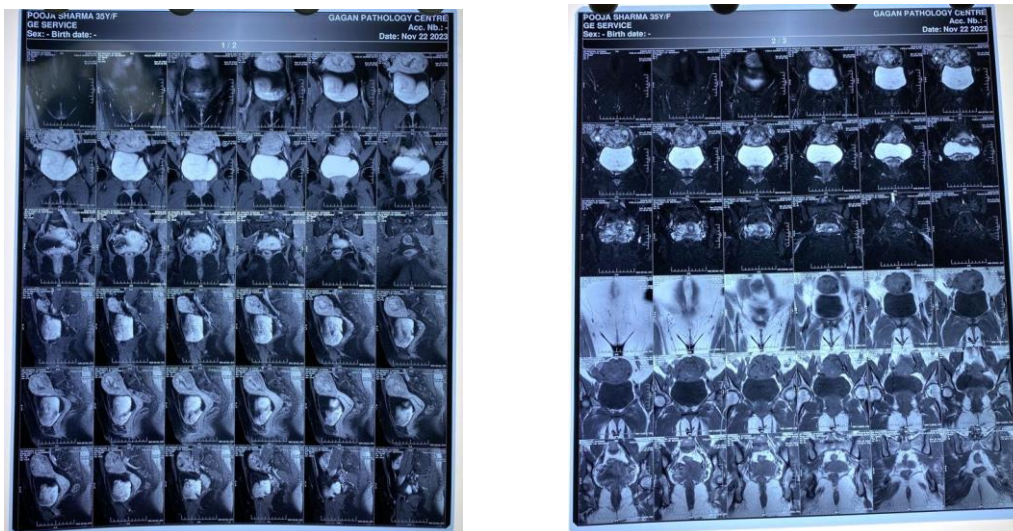


Figure 2 MRI Study Reveals Significant Tubular Enhancement with in the Lesion

**Result**

The patient was taken up for artery ligation after obtaining informed consent and addressing fertility issues. The procedures were performed by gynaecologist. Under general anesthesia, retro peritoneum opened, uterine artery traced and ligated and cessation of flow was confirmed followed by dilatation and curettage or artery embolization<sup>[4]</sup> could be performed. The patient showed improvement and was

discharged in 2 days. On follow up, after 1 month repeat ultrasound was normal with asymptomatic patient.

**Discussion**

Uterine arteriovenous malformations may be congenital or acquired; acquired or traumatic AVMs represent multiple small AV fistulae in the myometrium and may have unilateral/bilateral uterine artery feeders.

Arteriovenous malformations<sup>[5]</sup> is a rare entity, may be due to under reporting. Typically, the patient presents with torrential vaginal bleeding, following a D&C, therapeutic abortion, or uterine surgery. Patient in our case had a prior curettage for termination/incomplete miscarriage. Diagnosis<sup>[6]</sup> is by clinical suspicion. Diagnostic modalities include ultrasound with Doppler contrast MRI pelvis.

Uterine AVM may be symptomatic or asymptomatic-regression of asymptomatic AVMs has been reported. Symptomatic AVMs require intervention in the form of artery embolization<sup>[7]</sup> uterine artery ligation, or hysterectomy. Patient in our case was symptomatic and treated with bilateral uterine artery ligation and dilatation and curettage.

Complications which have been reported include pelvic pain, local hematoma, and rarely, skin sloughing but our patient shows no symptoms after 1 month follow up. Pregnancies have been reported following ligation, proving that an adequate collateral supply can develop to support a full-term pregnancy.

### Conclusion

Uterine AV malformation should be thought of as a differential diagnosis in all cases presenting with bleeding after miscarriage or curettage, since diagnosis to treatment<sup>[8]</sup> is simple by selective arterial embolization or ligation reduces morbidity and is cost effective; reduces hospital stay and the absence from work.

### Acknowledgements

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### Compliance with ethical requirements and Conflict of interest

All procedures followed were in accordance with the ethical standards of the responsible

committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008(5). Informed consent was obtained from all patients for the surgery. An ethical clearance has also been taken from the institutional ethical committee. The authors declare that they have no conflict of interest.

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### Biography



#### **Dr Poonam Chandora**

Obtained her MBBS from University of Rajasthan and her post-graduation MD in obstetrics and gynaecology from University of Delhi. Her field of specialisation includes laparoscopic surgeries, obstetrics, ultrasound, infertility and has 10+ years of experience in them. She is working as department head obstetrics and gynaecology at Mata Roop Rani Maggo hospital, Delhi for last 15years.

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