International Journal of Clinical Obstetrics and Gynaecology

ISSN (P): 2522-6614
ISSN (E): 2522-6622

www.gynaecologyjournal.com
2021; 5(5): 199-201
Received: 03-06-2021
Accepted: 05-07-2021

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Uterine arteriovenous malformation secondary to uterine trauma following dilatation and curettage: A case report

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DOI: https://doi.org/10.33545/gynae.2021.v5.i5d.1038

Abstract
Uterine AV malformation is a rare condition with very few cases reported in literature. It is mainly due to abnormal and non functional connections between arteries and veins and can be life threatening if untreated. It commonly affects women in child bearing age group. Women present with irregular and excessive vaginal bleeding. The treatment modality is considered depending on the age of the woman, symptoms, inclination to maintain reproductive functions and localization and size of the lesion. MRI angiography is considered the gold standard for diagnosis of the condition and Uterine artery embolisation may be offered if the woman has inclination to maintain reproductive functions as a method of management. Here is reporting a case of acquired AVM following D and C which was treated with laparoscopic hysterectomy.

Keywords: AV malformation, abortion, uterine artery embolization, angiography

Introduction
Uterine arteriovenous malformation (AVM) is a rare condition, with very few cases reported in the literature [1]. Uterine arteriovenous malformation (AVM) is defined as abnormal and nonfunctional connections between the uterine arteries and veins [2]. Despite being rare, it is a potentially life-threatening condition in women of childbearing age & can cause profuse vaginal bleeding [1-3]. Whenever there is unexpected, excessive vaginal bleeding after a first-trimester pregnancy loss, dilatation and curettage, or Cesarean section, uterine AVM must be considered[3.] These can be either congenital or acquired lesions. The incidence rate of acquired AVMs is currently increasing [1-3]. Acquired AVMs are often associated with previous uterine surgery (dilation and curettage (D/C)), therapeutic abortion, cervix or endometrial cancer, trophoblastic diseases, and direct uterine trauma and occur more frequently in women at reproductive age [3]. AVMs have been reported in patients from 18 to 72 years old but only rarely in nulliparous women [4]. Angiography is the gold standard for diagnosis, whereas Doppler ultrasonography and MRI are the modalities of choice for the evaluation of a suspected AVM [5]. Conservative management or embolisation should be considered as a modality of treatment in order to avoid a hysterectomy in patients of child-bearing age [6].

Case report
A 34 year old female with history of previous LSCS presented to our department with bleeding on and off since 3 months. She also gives history of dilatation and evacuation for an unwanted pregnancy 4 months back. She gives onset of heavy menstrual bleeding since 2 days. She underwent hysteroscopic evaluation under general anesthesia at an outside hospital 2 weeks back and the cavity was noted to be empty and hemostasis was ensured. At the time of examination, the patient was conscious, cooperative, and well oriented to time place, and person. Her vitals were as follows – Pulse Rate -86 bpm, BP – 110/70 mm hg, Respiratory Rate – 16 CPM, SPO2 on Room Air was – 99% and her intra axillary temperature was noted to be 98.1 F. Per abdomen was soft, non-tender with no organomegaly or mass felt. Per speculum examination revealed minimal fresh bleed. Per vaginal examination showed Uterus to be 8 weeks size, anteverted, mobile, regular, non-tender with B/L fornices free with no forniceal tenderness or cervical motion tenderness. Hemoglobin was investigated and found to be 10.1 g/dl. Her urine pregnancy test was done to rule out retained products of conception and found to

be negative. B-Hcg was also done to rule out suspicion of retained products of conception but was found be <0.1 miu/ml. Ultrasonography of the abdomen and pelvis was done and it revealed an enlarged uterus with serpentine anechoic areas of low resistance flow was noted caudally along the anterior aspect of the myometrium towards the previous cesarean scar region measuring 14x 9mm suspecting arteriovenous malformation with endometrial thickness of 2mm. MRI Pelvis was advised to confirm the diagnosis and it revealed multiple serpiginous vessels involving anterior, lateral walls projecting into the endometrial cavity and parametrium confirming the ultrasonographic findings. The patient was referred to an interventional radiologist for uterine artery embolization. However, the patient returned to the hospital and opted for laparoscopic hysterectomy. Risks and consequences of the procedure were explained and consent was taken for the procedure and laparoscopic-assisted vaginal hysterectomy was done. The specimen was sent for histopathological examination and microscopy showed endometrium in proliferative phase and fibrous nodular vascular formations including both arteries and veins invading the myometrium confirming AVM. There were no intraoperative complications and the patient was discharged on postoperative day 4.

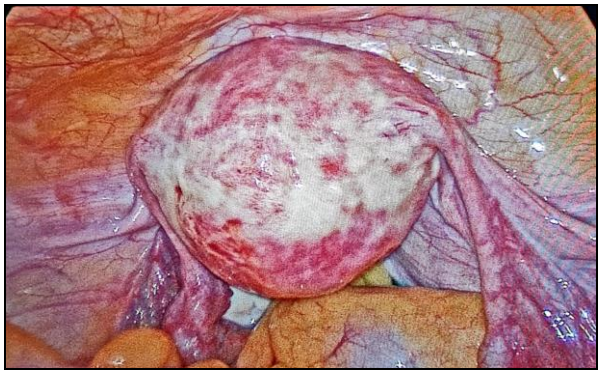

Fig 1: Laparoscopic image of uterus with bilateral adnexa

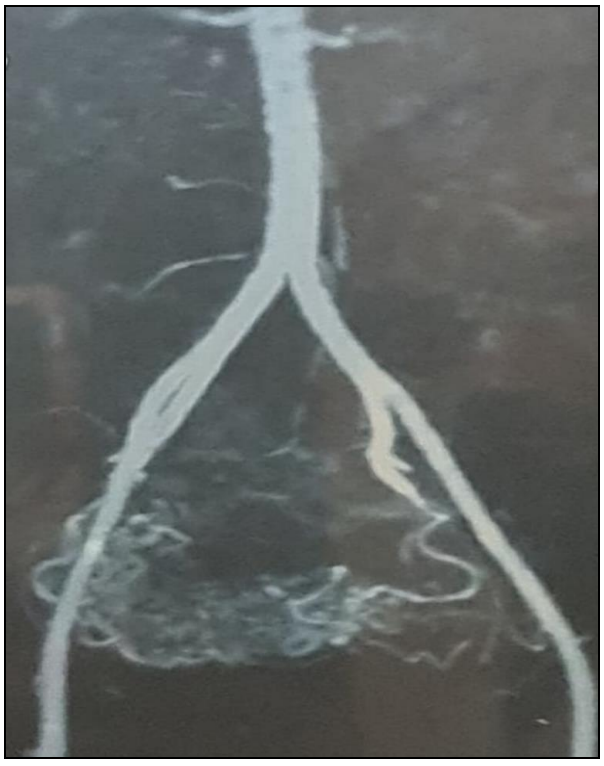

Fig 2: MRI angiography showing AV Malformation

Discussion

Uterine AV malformation is a rare and life threatening condition if untreated which presents with catastrophic and excessive vaginal bleeding in women in reproductive age group which can lead to hemodynamic instability [1]. It can also be suspected in post-menopausal women if ultrasonography reveals anoechoic structures [1]. They can be either congenital or acquired [2]. Pelvic AVM's are more likely to be congenital and but most Uterine AVM's are of acquired etiology due to uterine trauma like infections, repeated curettages, gestational trophoblastic diseases and pathological pregnancy related complications [2]. Congenital AVMs known arise from arrested vascular embryologic development resulting in anomalous differentiation in the capillaries and abnormal communication, between arteries and veins [2]. Our case presented with bleeding PV on and off since 3 months following an abortion done 4 months ago for an unwanted pregnancy and B-Hcg was done to rule out the suspicion of retained products of conception and decreased B-Hcg levels will exclude the diagnosis of Gestational Trophoblastic Disease and was not considered as a differential diagnosis while investigating our patient [3]. Before the availability of imaging modalities diagnosis was made after hysterectomy and histopathological examination [4]. Angiography is currently considered as the gold standard in establishing the diagnosis for the disease [4]. Ultrasound pelvis with Doppler can also be used for initial diagnosis of the disease and in our case it was helpful in detecting the presence of the disease after which patient was investigated for arteriovenous malformation with angiography [5]. Angiographic embolization has made hysterectomy as unwarranted modality of treatment[6]. Hysterectomy is considered a treatment of choice in women with post-menopausal bleeding and in women with life threatening conditions.

Conclusion

Uterine AV malformation is a potentially life-threatening condition and prompt diagnosis is required to treat the condition. Profuse irregular vaginal bleeding can lead to massive hemorrhage which can pose a threat to the patient's life. The management of the condition requires high index of suspicion and good clinical acumen to diagnose it. Ultrasonography with colour doppler can be considered to diagnose the disease however MRI angiography is considered as the gold standard diagnostic tool for establishing the diagnosis. Uterine artery embolisation should be offered in women as fertility saving measure. Hysterectomy should be used as a last resort of treatment in such patients and should be considered in women with post-menopausal bleeding and in women with life threatening conditions.

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