



Post-Curettage Uterine Arteriovenous Fistula: A Case Report from Borgou/Alibori's Departmental Teaching Hospital in Parakou

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Abstract

Background: A uterine arteriovenous fistula (uterine AVF) is an abnormal connection between uterine vessels. It is a rare but potentially serious condition, often associated with metrorrhagia. Imaging examinations in this case Doppler ultrasound, CT scanner and magnetic resonance imaging allow the diagnosis to be made. **Aim:** To present a case of post-curettage uterine AVF Case presentation: This was a young woman who had undergone abortive procedures and who presented with metrorrhagia. The diagnosis of uterine AVF was suspected on pelvic Doppler ultrasound and confirmed by pelvic angio-scanner in the medical imaging department of the Borgou-Alibori departmental university hospital center in Parakou. Surgical treatment was planned but the patient was discharged against medical advice. **Conclusion:** Uterine arteriovenous fistulas (AVF) constitute one of the rare causes of metrorrhagia. Today, the treatment is mainly in the field of interventional radiology in developed countries, but it can also consist of surgical intervention.

Subject Areas

Radiology, Medical Imaging

Keywords

Uterine Arteriovenous Fistula, Curettage, Ultrasound, CT Scanner

1. Introduction

Uterine arteriovenous fistulas are a rare etiology of persistent metrorrhagia, particularly in cases of previous miscarriage or endo uterine maneuvers [1]. They may arise after trauma or surgery, or on pre-existing uterine pathology such as infection or gestational trophoblastic disease. Their incidence is as yet unknown. However, in a case series published in 2006, the authors reported a rate of 4.5% in 464 women of childbearing age who underwent pelvic ultrasound for metrorrhagia [2]. Haemorrhage during aspiration abortion is usually the result of atony and/or retention of products of conception [3]. In contrast, uterine AVF is a rare cause of post-abortive hemorrhage in the first trimester. A few cases of AVF following aspiration abortion have been published [4]. Significant metrorrhagia and knowledge of the patient's history may suggest the diagnosis, provided they are considered. Imaging tests such as ultrasound-Doppler, CT scan, magnetic resonance imaging, and arteriography will help confirm the diagnosis [4]. The ultrasound will be done using the suprapubic and endocavitary routes. The CT scan will consist of an acquisition without injection of contrast product followed by other acquisitions after injection of iodinated contrast product. As for the MRI, it will be made up of morphological sequences and perfusion sequences. Treatment can be interventional radiology or surgical.

The authors report a case of uterine AVF suspected on Doppler ultrasound and confirmed on CT scan.

2. Observation

This 18-year-old patient was admitted for post-abortive metrorrhagia. She had never been operated on and had no history of high blood pressure, diabetes or any family history.

The history begins approximately two months ago, marked by an endouterine abortive maneuver following 6 weeks of gestational amenorrhea. Genital bleeding of moderate abundance, made of bright red blood, persisted despite several manual intrauterine aspirations (MIUA).

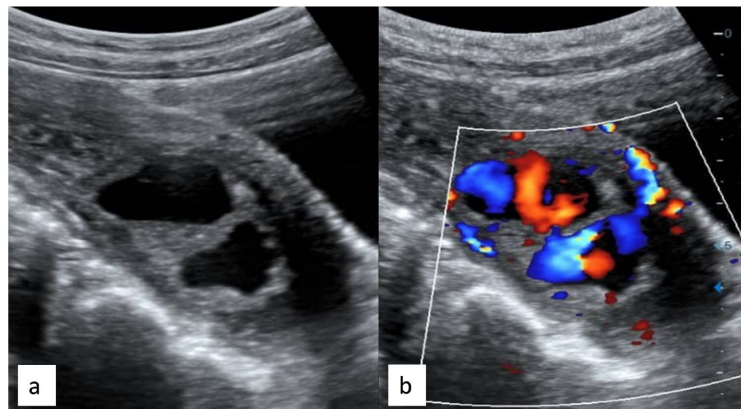
A first pelvic ultrasound allowed us to suspect gestational trophoblastic disease.

The b-HCG level returned to 42 mIU/ml and the occurrence of cataclysmic haemorrhage prompted a further ultrasound scan in the medical imaging department.

This ultrasound revealed the presence of a partitioned anechogenic collection on the posterior side of the myometrium, giving a pseudo-bag-like appearance in B mode, with a serpiginous color pattern. This collection compresses and pushes the endocavitary line forward (**Figure 1**).

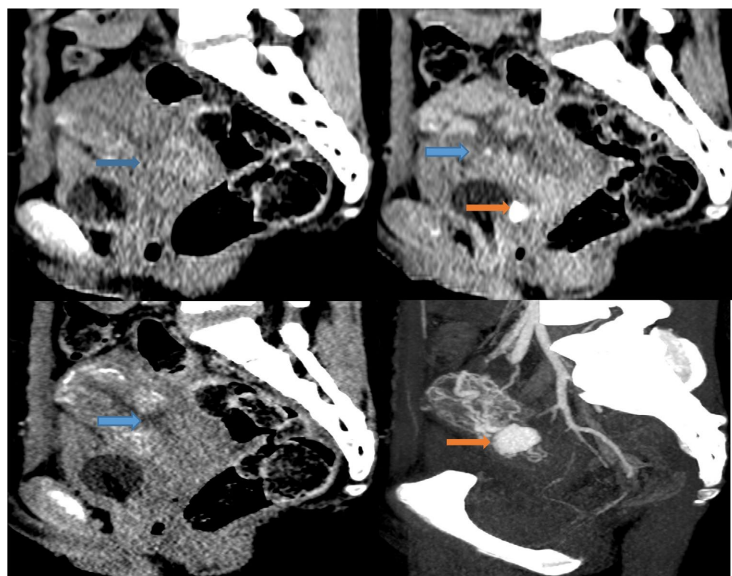
The diagnosis of trophoblastic disease was ruled out, and an arteriovenous fistula following the intra uterine aspiration maneuver was made. An injected pelvic CT scan was then performed for further exploration. This revealed a corporal myometrial enhancement defect associated with a continuity gap. There was also extravasation of iodinated contrast agent, creating a pseudoaneurysm in the myometrium, originating from the uterine artery and fed by the uterine venous plexus (**Figure 2**,

Figure 3 and **Figure 4**). The diagnosis of post-abortive uterine arteriovenous fistula associated with incomplete uterine rupture was made. The decision to have a surgical intervention with the aim of achieving hemostasis was then made but the patient was discharged against medical advice due to a lack of financial means to carry out the surgical intervention. The planned intervention was ligation of the uterine vessels performed by laparotomy. If necessary, a total or subtotal hysterectomy consisting of removal of the uterus would have been carried out if bleeding persisted.



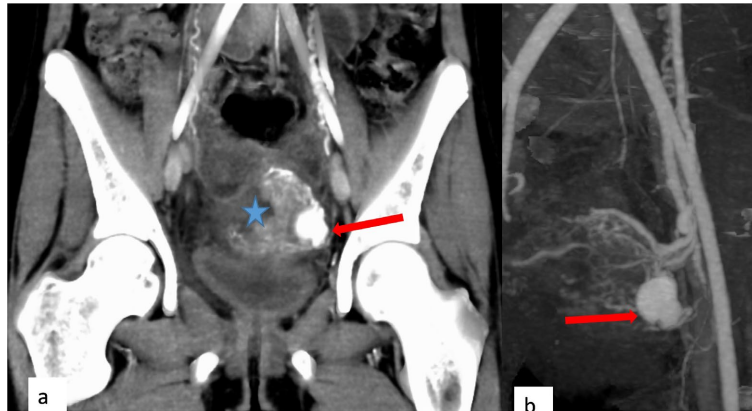
Presence of a partitioned anechogenic collection on the posterior side of the myometrium, creating a pseudo-bag-like appearance in B mode and taking up color encoding in a serpiginous pattern. This collection compresses and pushes the endocavitary line forward.

Figure 1. Left parasagittal ultrasound sections in B mode (a) and color Doppler (b).



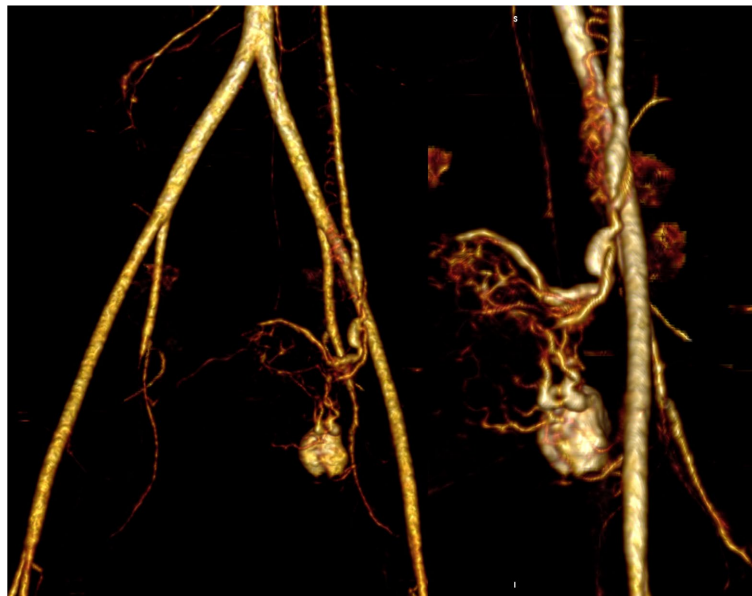
Presence of a myometrial enhancement defect at the corporeal level associated with a solution of continuity (blue arrow). There is also extravasation of contrast medium creating a pseudo aneurysm on the myometrium, originating from the uterine artery and fed by the uterine venous plexus (orange arrow).

Figure 2. Pelvic CT in parenchymal window and sagittal slices after injection of iodinated contrast medium at arterial time and in MIP.



Presence of an intramyometrial defect (blue star) and intramyometrial extravasation of contrast medium originating from the left uterine artery and supplied by homolateral uterine veins (red arrow), suggestive of uterine AVF.

Figure 3. Coronal CT sections in parenchymal window after injection of iodinated contrast medium at arterial time (a) and in MIP (b).



A pseudoaneurysm was present in favour of an arteriovenous fistula, fed by the left uterine artery and veins of the homolateral uterine venous plexus.

Figure 4. Coronal sections of abdominal-pelvic CT in VR reconstruction.

3. Discussion

Uterine arteriovenous fistula is defined as an abnormal communication between uterine arteries and veins. It is generally classified as congenital or acquired [5].

Acquired uterine AVF usually occurs in women of childbearing age [6].

Patients often present with intermittent heavy bleeding, but may be asymptomatic [5]. Our case involved a woman of childbearing age who had performed an abortive maneuver leading to cataclysmic hemorrhage.

The differential diagnosis of post-abortive haemorrhage includes retained prod-

ucts of conception, uterine atony, uterine perforation, cervical laceration, and rarely, uterine AVF [6].

Doppler ultrasonography is considered to be the imaging test of first choice. In our case, Doppler ultrasound was the first examination performed.

It showed a hypoechogenic, hypervascular tubular structure on color Doppler, with turbulent flow and multiple tortuous, high-velocity, low-resistance intra-myometrial or peri-uterine feeding vessels [7].

Magnetic resonance imaging (MRI), although not performed in this case, can be useful when ultrasound is insufficient to make the diagnosis. It will enable us to correctly identify the part of the uterus involved and its vascularization. In our case, this will be an intramyometrial formation that intensely enhances after injection of contrast medium during early acquisitions.

However, CT scans without and then with iodinated contrast agent injection can substitute for MRI and give similar results.

In our case, a CT scan was performed due to the absence of MRI in our facility, and confirmed the diagnosis.

Various therapeutic approaches are applied in the management of uterine AVFs, including conservative-medical, embolization, and endovascular surgery.

Asymptomatic lesions can regress spontaneously and medical treatment can be adopted when lesions are small with maximum systolic value MSV <60 cm/s [8].

Various drugs have been tried, including methotrexate, misoprostol, methylergometrine maleate, and GnRH agonists [8].

Since the introduction of uterine artery embolization in the 1980s, transcatheter uterine artery embolization has become the treatment of choice for patients wishing to preserve their fertility or preferring an invasive approach. Hysterectomy is reserved for patients in centers with limited access to interventional radiology [6].

The advantages of uterine artery embolization include reduced bleeding, shorter hospital stay, and faster recovery [6].

Today, trans arterial embolization is the most widely applied approach to treating uterine AVFs when the lesions are large and highly vascular with a MSV > 60-70 cm/s [9].

As with all AVFs, the aim of embolization is to occlude the fistula tip or nidus.

Prior to the introduction of embolization, hysterectomy or artery ligation was the treatment of choice.

Today, surgery is considered when endovascular intervention fails or is unavailable. In these situations, hysterectomy remains the standard method [10].

In our case, surgery had been scheduled but was not performed because the patient preferred to leave against medical advice due to a lack of financial means. Our hospital does not yet have an interventional radiology unit, so we were unable to consider endovascular treatment. However, conservative surgery had been planned and would involve ligation of the uterine vessels. Unfortunately, it was not carried out because the patient preferred to leave against medical advice due to a lack of financial means. To date, she has been lost to sight. In fact, she is no

longer reachable and has no longer regained control.

4. Conclusion

Uterine AVF, a rare lesion, should be considered in patients of childbearing age with a history of endo uterine maneuvers. These uterine AVFs are serious and urgent to manage, as they can cause cataclysmic metrorrhagia. Imaging based on Doppler ultrasound, MRI, and angioscan helps confirm the diagnosis. Treatment can be by arteriography or, failing that, by medication or surgery.

Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] Hoffman, M.K., Meilstrup, J.W., Shackelford, D.P. and Kaminski, P.F. (1997) Arteriovenous Malformations of the Uterus: An Uncommon Cause of Vaginal Bleeding. *Obstetrical & Gynecological Survey*, **52**, 736-740. <https://doi.org/10.1097/00006254-199712000-00004>
- [2] O'Brien, P., Neyastani, A., Buckley, A.R., Chang, S.D. and Legiehn, G.M. (2006) Uterine Arteriovenous Malformations: From Diagnosis to Treatment. *Journal of Ultrasound in Medicine*, **25**, 1387-1392. <https://doi.org/10.7863/jum.2006.25.11.1387>
- [3] White, K., Carroll, E. and Grossman, D. (2015) Complications from First-Trimester Aspiration Abortion: A Systematic Review of the Literature. *Contraception*, **92**, 422-438. <https://doi.org/10.1016/j.contraception.2015.07.013>
- [4] Giurazza, F., Corvino, F., Silvestre, M., Cavaglià, E., Amodio, F., Cangiano, G., et al. (2021) Uterine Arteriovenous Malformations. *Seminars in Ultrasound, CT and MRI*, **42**, 37-45. <https://doi.org/10.1053/j.sult.2020.08.002>
- [5] Yoon, D., Jones, M., Taani, J., Buhimschi, C. and Dowell, J. (2015) A Systematic Review of Acquired Uterine Arteriovenous Malformations: Pathophysiology, Diagnosis, and Transcatheter Treatment. *American Journal of Perinatology Reports*, **6**, e6-e14. <https://doi.org/10.1055/s-0035-1563721>
- [6] Sharpless, K.E., Pappas, I.I., Dobrow, E.M., Moccia, M., Bates, A., Pinette, M.G., et al. (2022) Severe Hemorrhage Due to Acquired Uterine Arteriovenous Malformation/Fistula Following First-Trimester Aspiration Abortion: A Case Report. *Case Reports in Women's Health*, **34**, e00410. <https://doi.org/10.1016/j.crwh.2022.e00410>
- [7] Timor-Tritsch, I.E., Haynes, M.C., Monteagudo, A., Khatib, N. and Kovács, S. (2016) Ultrasound Diagnosis and Management of Acquired Uterine Enhanced Myometrial Vascularity/Arteriovenous Malformations. *American Journal of Obstetrics and Gynecology*, **214**, 731.e1-731.e10. <https://doi.org/10.1016/j.ajog.2015.12.024>
- [8] Rosen, A., Chan, W.V., Matelski, J., Walsh, C. and Murji, A. (2021) Medical Treatment of Uterine Arteriovenous Malformation: A Systematic Review and Meta-Analysis. *Fertility and Sterility*, **116**, 1107-1116. <https://doi.org/10.1016/j.fertnstert.2021.05.095>
- [9] Peitsidis, P., Manolagos, E., Tsekoura, V., Kreienberg, R. and Schwentner, L. (2011) Uterine Arteriovenous Malformations Induced after Diagnostic Curettage: A Systematic Review. *Archives of Gynecology and Obstetrics*, **284**, 1137-1151. <https://doi.org/10.1007/s00404-011-2067-7>

- [10] Bagga, R., Verma, P., Aggarwal, N., Suri, V., Bapuraj, J.R. and Kalra, N. (2008) Failed Angiographic Embolization in Uterine Arteriovenous Malformation: A Case Report and Review of the Literature. *The Medscape Journal of Medicine*, **10**, Article 12.