Case Report

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Treatment of Uterine Arteriovenous Malformation and Subsequent Successful Pregnancy: A Case Report

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ABSTRACT

Uterine Arteriovenous Malformation (AVM) is a rare, but potentialy life- treatening condition, as patients may present with profouse bleeding [1]. This case report details the management of a 26-year-old woman, who experienced a miscarriage at 16 weeks of gestation accompanied by persistent bleeding throughout her pregnancy. Following the miscarriage, she was presented to the hospital due to severe bleeding and anemia. A thorough evaluation revealed the presence of an Arteriovenous (AV) malformation within the uterus. The patient underwent successful embolization of the uterine artery to treat the AV malformation. Subsequently, she achieved a successful pregnancy and delivered a healthy baby. This report highlights the challenges posed by uterine AV malformations, the importance of prompt diagnosis and intervention, and the positive outcome of successful pregnancy achieved through appropriate management. It underscores the significance of a multidisciplinary approach in addressing complex obstetric cases involving uterine AV malformations.

Abbreviations: AVM: Arteriovenous Malformation; AV: Arteriovenous; LPSC: Laparoscopic Procedure; MRI: Magnetic Resonance Imaging

Introduction

Uterine Arteriovenous Malformation (AVM) is a rare vascular anomaly characterized by an abnormal connection between arteries and veins within the uterine tissue. This condition, though infrequent, can lead to substantial morbidity due to its potential to cause profuse and life-threatening bleeding. With fewer than 100 reported cases in the medical literature, uterine AVMs remain a challenging and underexplored aspect of obstetric and gynecological care [2]. The clinical presentation of uterine AVMs varies widely, with symptoms ranging from abnormal uterine bleeding to acute hemorrhage, often triggered by events such as pregnancy, miscarriage, or curettage [3]. Rapid and accurate diagnosis is critical to prevent further complications and ensure appropriate management. Treatment modalities for uterine AVMs encompass a spectrum of approaches, including medical therapy, surgical resection, and minimally invasive techniques such as arterial embolization [4]. In this context, we present the case of a 26-year-old woman, who experienced a miscarriage at 16 weeks of gestation and subsequently faced persistent bleeding. Following the miscarriage, the patient's condition deteriorated, necessitating hospitalization due to severe bleeding and anemia. Our case report delves into the diagnostic journey, the multidisciplinary approach to treatment involving uterine artery embolization, and the successful outcome of a subsequent pregnancy. By shedding light on the complexities of uterine AVM management, this report contributes to the understanding of this rare condition and emphasizes the importance of early intervention and collaboration across medical disciplines.

Case Presentation

A 26-year-old female patient presented to the Clinic for Gynecology and Obstetrics, Department of Gynecology, with a history of heavy menstrual bleeding for several months and concomitant secondary anemia. The patient's obstetric history included a spontaneous abortion at 16 weeks. Following this loss, she continued to experience persistent bleeding, a troubling symptom that persisted even after a Laparoscopic Procedure (LPSC) was performed three months after the miscarriage to address a haemorrhagic corpus luteum. Importantly, despite interventions, the bleeding persisted for an additional month following the LPSC. The patient's medical history did not reveal any other significant diseases or surgical interventions.

Diagnostics Methods

Ultrasonography (USG)

1. Uterus in retroverted flexion (RVF)
2. Endometrial thickness measured 3 mm
3. Inhomogeneous myometrial appearance with marked vascularization of the anterior uterine wall suggestive of arteriovenous (AV) malformation
4. Sonographically normal adnexa bilaterally
5. Douglas space appeared free

Laboratory Findings

1. Leucocytes (L): 6.5
2. Erythrocytes (E): 2.57
3. Hemoglobin (Hgb): 55
4. Thrombocytes (T): 416
5. C-Reactive Protein (CRP): 0.3
6. Beta HCG: Negative

Pelvic Magnetic Resonance Imaging (MRI)

1. The uterus appeared in RVF and was of appropriate size relative to the patient's age.
2. A marginal wavy contoured change in T2WI with varying signal intensity was noted, suggesting an AV malformation with thrombosed vascular structures.
3. The change measured 40x36x42 mm in diameter.
4. Small Nabothian cysts were identified on the posterior uterine wall, with the largest measuring up to 6 mm.
5. Ovaries were normal with the right ovary showing a corpus luteum cyst measuring 25 mm.
6. No intrapelvic lymphadenopathy or inguinal lymph node enlargement was noted.

Clinical Management

During her hospital stay, the patient received 6 units (totaling 1400ml) of blood group "B" negative (B neg (-)) and one unit of SSP (250ml) to manage her anemia. Given the ultrasonographic findings indicative of a uterine AV malformation, MSCT angiography was performed. This was followed by embolization of the arteriovenous malformation located on the anterior uterine wall. After administering local anesthesia, the right common femoral artery was punctured, and a 5F flushing catheter was placed into the aorta through a 5F sheath. An angiogram revealed a hypervascular lesion with early venous filling, supplied by both uterine arteries, primarily through the left uterine artery (Figure 1). Subsequently, a 5F "ber" shaped catheter was positioned in the left uterine artery. Contrast injection displayed a serpiginous and dilated arterial structure (Figure 2). Gelfoam pledgets mixed with iodinated contrast and saline were introduced into the left uterine artery until flow stasis was achieved (Figure 3). Following unsuccessful cannulation of the right internal iliac artery on the right side, we punctured a left common femoral artery, and a 5F "ber" shaped catheter was placed into the right uterine artery using a 5F sheath. Employing the same method as described earlier, Gelfoam pledgets were injected into the right uterine artery until flow stasis was attained (Figure 4). A follow-up angiogram displayed complete occlusion of the uterine Arteriovenous Malformation (AVM) (Figure 5). The procedure was carried out without complications.

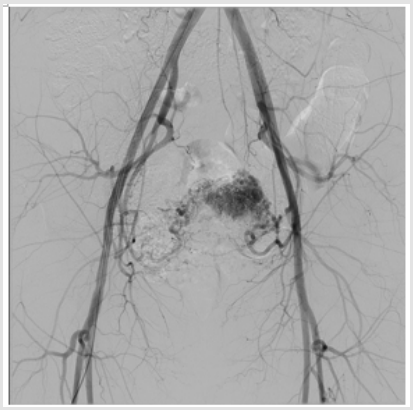
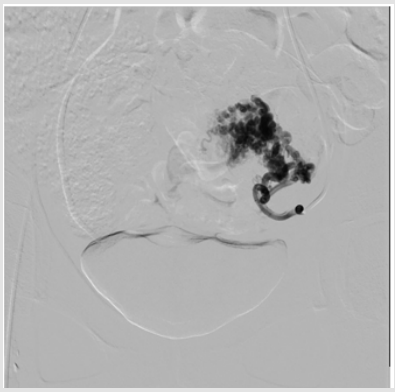


Figure 1.



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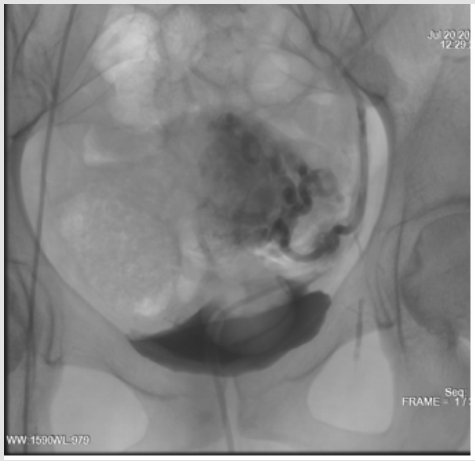

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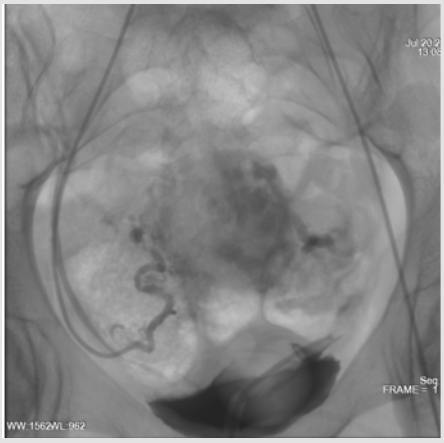

Figure 4.

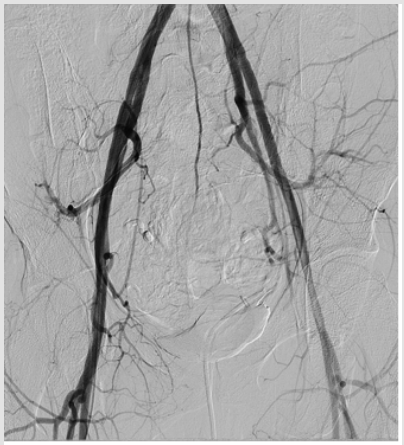

Figure 5.

Subsequent Pregnancy Outcome

Approximately one year after the successful embolization, the patient successfully conceived again, demonstrating the resilience of her reproductive health. Throughout the pregnancy, the patient faced the challenge of preeclampsia, a condition characterized by elevated blood pressure and potential organ dysfunction [5]. Despite this complication, diligent monitoring and medical intervention ensured a positive outcome for both the mother and the developing fetus. Due to premature rupture of membranes at 37 weeks of pregnancy, she received a oxytocine infusion for labor stimulation (Figure 6). The patient delivered a healthy baby boy, weighing 2700 grams, despite the preeclampsia. As the patient's experience showcases, uterine Arteriovenous Malformations (AVMs) present multifaceted challenges that extend beyond the initial diagnosis and management. The occurrence of preeclampsia prompts further investigation into potential associations between uterine AVMs and hypertensive disorders of pregnancy. This avenue for future research underscores the potential for deeper understanding and improved care for patients affected by uterine AVMs.

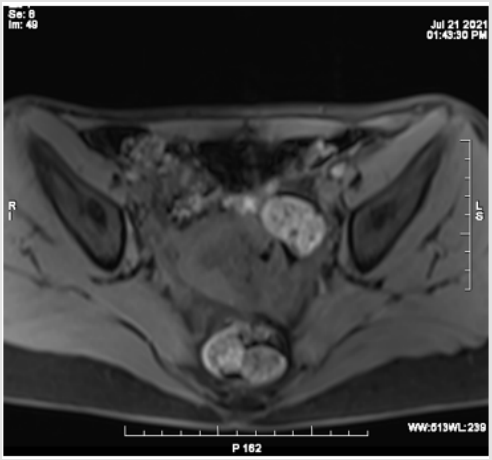

Figure 6.

Discussion

Uterine Arteriovenous Malformation (AVM) is an infrequent but potentially life-threatening condition characterized by abnormal connections between arteries and veins within the uterine tissue [1]. Although rare, it poses significant diagnostic and management challenges due to its varied clinical presentations and potential for severe hemorrhage [1,2]. In this case, we present the clinical course of a patient with a history of spontaneous abortion and persistent bleeding, ultimately diagnosed with a uterine AVM. The patient's history of miscarriage and subsequent persistent bleeding raised suspicion for an underlying uterine pathology. The diagnostic journey involved a combination of ultrasonography, laboratory tests, and advanced imaging

techniques. Ultrasonography revealed inhomogeneous myometrium with increased vascularization of the anterior uterine wall, consistent with an AV malformation (Figure 7). Magnetic Resonance Imaging (MRI) provided further insights, confirming the presence of a thrombosed AV malformation in the same region. Such comprehensive diagnostic steps were pivotal in ensuring accurate identification of the condition. The case's clinical management included a multidisciplinary approach involving obstetrics, gynecology, and interventional radiology. Embolization of the uterine artery effectively addressed the AV malformation, preventing further bleeding episodes. The successful outcome of a subsequent pregnancy demonstrates the significance of appropriate and timely management.

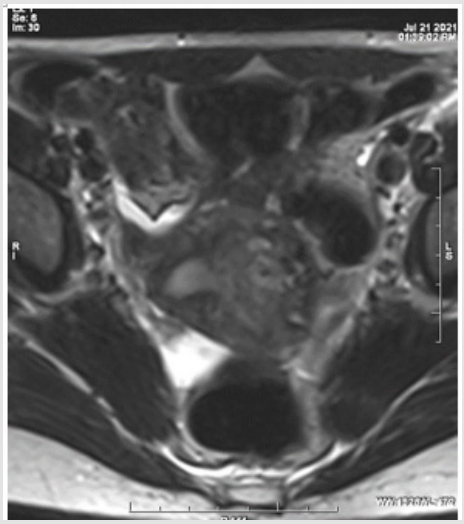

Figure 7.

This success aligns with existing literature highlighting the role of arterial embolization as a minimally invasive and efficacious option for treating uterine AVMs [6] This case underscores the importance of considering uterine AVMs in the differential diagnosis of abnormal uterine bleeding, especially in the context of pregnancy-related complications. Early diagnosis and prompt intervention are crucial to prevent life-threatening hemorrhage. Additionally, this case report contributes to the growing body of evidence supporting the efficacy of uterine artery embolization in managing uterine AVMs. In conclusion, the presented case emphasizes the need for heightened awareness of uterine AVMs among healthcare providers, particularly when managing patients with a history of miscarriage and persistent bleeding. Accurate diagnosis, aided by imaging techniques, followed by appropriate interventions, can lead to favorable outcomes, including successful subsequent pregnancies.

Conclusion

This case report illuminates the complex diagnostic journey, management, and subsequent successful outcome of a patient with a uterine Arteriovenous Malformation (AVM). Uterine AVMs, while rare, present a significant challenge due to their potential for life-threatening hemorrhage [1]. The presented case highlights the importance of a multidisciplinary approach in effectively diagnosing and managing such cases. Early recognition of uterine AVMs is essential, especially in patients with a history of miscarriage and persistent bleeding. The diagnostic process, involving ultrasonography, laboratory tests, and magnetic resonance imaging (MRI), aided in precisely identifying the condition's location and extent. Embolization of the uterine artery emerged as a successful intervention, arresting the AVM's bleeding potential and ultimately facilitating a positive reproductive outcome. The subsequent successful pregnancy achieved after the embolization underscores the clinical significance of prompt and appropriate management of uterine AVMs.

The seamless collaboration between obstetricians and interventional radiologists contributed to the patient's favorable clinical trajectory, highlighting the value of integrated care in managing complex gynecological cases.

In conclusion, this case report enriches the medical understanding of uterine AVMs by showcasing a diagnostic and therapeutic approach that led to the resolution of potentially life-threatening bleeding and the achievement of a successful pregnancy. As a rare condition with limited documented cases, this report contributes to the collective knowledge base and underscores the importance of a comprehensive and collaborative approach to managing patients with uterine AVMs.

Conflicts of Interest

Authors declare no conflicts of interest.

References

1. Hammad R, Nausheen S, Malik M (2020) A case series on uterine arteriovenous malformations: A life-threatening emergency in young women. Cureus 12(7): e9410.
2. Barbara L, Hoffman, John OS, Lisa MH, Hamid CA, et al. (2020) Williams Gynecology 4e Eds. McGraw Hill.
3. Grivell RM, Reid KM, Mellor A (2005) Uterine arteriovenous malformations: A review of current literature. Obstet Gynecol Surv 60(11): 761-67.
4. Rosen A, Chan WV, Matelski J, Walsh C, Murji A (2021) Medical treatment of uterine arteriovenous malformation: A systematic review and meta-analysis. Fertil Steril 116(4): 1107-1116.
5. Shaikh N, Nahid S, Ummunnisa F, Fatima I, Hilani M, et al. (2022) Preeclampsia: From Etiopathology to Organ Dysfunction. Preeclampsia.
6. Mohan PP, Hamblin MH, Vogelzang RL (2013) Uterine artery embolization and its effect on fertility. J Vasc Interv Radiol 24(7): 925-930.

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