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CONSERVATIVE MANAGEMENT OF UTERINE ARTERIOVENOUS MALFORMATION: A CASE STUDY

KEY WORDS:

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ABSTRACT

Uterine arteriovenous malformation (AVM) is a rare vascular anomaly characterized by an abnormal connection between arteries and veins within the myometrium. The prevalence is estimated to occur in 4.5% of women with abnormal uterine bleeding. AVMs can be congenital or acquired, with the latter typically resulting from uterine trauma, such as cesarean section, curettage, or pregnancy-related complications. Traditionally, uterine AVMs have been managed with surgical interventions, including hysterectomy or uterine artery embolization. However, there is growing interest in conservative management approaches, particularly for women who wish to preserve fertility or are poor surgical candidates. This case study presents a patient with uterine AVM successfully managed through conservative measures, highlighting the potential for non-invasive treatment options in select cases. The clinical presentation of uterine AVMs can vary widely, ranging from asymptomatic incidental findings to life-threatening hemorrhage. Diagnosis typically involves a combination of ultrasound with color Doppler, magnetic resonance imaging (MRI), and can be confirmed by angiography. The management strategy depends on factors such as the patient's age, desire for future fertility, hemodynamic stability, and the size and location of the AVM. This case study aims to contribute to the growing body of literature on conservative management of uterine AVMs by presenting a detailed case report, discussing the rationale behind the chosen treatment approach, and reviewing relevant literature on non-invasive management strategies. By sharing our experience, we hope to provide insights that may inform clinical decision-making and potentially expand treatment options for patients with this rare but potentially serious condition.

CASE REPORT:

A 32-year-old woman presented to DY Patil Hospital with recurrent vaginal bleeding. Her medical history was significant for liver cirrhosis, portal hypertension, and hypothyroidism. The patient had a complex obstetric history, including two spontaneous abortions and one preterm delivery complicated by postpartum hemorrhage.

The patient's most recent pregnancy, which resulted in a preterm vaginal delivery at 31 weeks gestation (28+2 weeks by scan) on September 26, 2021, was marked by significant complications. She experienced vaginal bleeding during the third and sixth months of pregnancy, requiring specialized care and referrals. The delivery itself was induced due to premature rupture of membranes (PROM), vaginal bleeding, and oligohydramnios.

Postpartum, the patient suffered from profuse hemorrhage necessitating multiple interventions. These included vaginal exploration for retained products of conception, vaginal repair, and an exploratory laparotomy with bilateral uterine artery ligation and right-sided internal iliac artery ligation. She required multiple blood and blood product transfusions. Despite these measures, the patient continued to experience persistent bleeding for months following delivery, leading to referrals to multiple hospitals.

Initial imaging studies were performed to investigate the ongoing bleeding. An MSCT scan of the abdomen and pelvis on October 7, 2021 (day 9 postpartum) at KEM Hospital suggested a postpartum uterus with retained placenta, possibly placenta increta. However, subsequent imaging revealed a more complex picture.

A CECT of the abdomen performed on November 17, 2021, at HBT Medical College confirmed liver cirrhosis with signs of portal hypertension and thrombosis of the right internal iliac artery with distal recanalization. Crucially, it also revealed multiple tortuous vessels in the myometrium and within the endometrial cavity, which enhanced in the arterial phase and drained into the internal iliac veins. These findings were suggestive of an arteriovenous malformation (AVM).

Further evaluation at DY Patil Hospital included a transvaginal ultrasound with color Doppler, which revealed a complex vascular structure within the myometrium of the anterior uterine wall, measuring 2.5 x 2.0 cm, with turbulent flow characteristic of an AVM. An MRI confirmed this diagnosis.

Given the patient's complex medical history, previous surgical interventions, and desire for future fertility, a conservative management approach was chosen. The patient was started on a regimen of combined oral contraceptives (30 g ethinylestradiol/150 g levonorgestrel) and tranexamic acid (1000 mg three times daily during menstruation). Additionally, she was prescribed a combination of medications including Gynace CVP, Methergin, Primolut N, Progyno V, and Dexorange syrup for five days. Upon discharge, her medication regimen was adjusted to include Primolut N (Norethisterone) 5 mg twice daily, Estradiol valerate 2 mg once daily, monthly injections of Lupride Depo 3.75 mg IM, and continuation of Dexorange syrup.

The patient's bleeding gradually decreased over the following weeks. Follow-up Doppler ultrasound at 3 months showed a significant reduction in the size and vascularity of the AVM. A subsequent ultrasound on March 20, 2022, revealed a small focal area of thickening with increased echogenicity in the mid-body region, measuring approximately 1.5 x 1.3 cm. Importantly, color Doppler showed no internal vascularity within this area, suggesting it may represent fibrotic scar tissue rather than active AVM.

DISCUSSION:

This case study presents the successful conservative management of a uterine arteriovenous malformation (AVM) in a patient with a complex medical and obstetric history. The approach and outcomes can be compared with other studies in the literature, highlighting both similarities and unique aspects of this case.

Diagnosis and Imaging: The diagnosis of uterine AVM in this case evolved from an initial suspicion of retained placenta to a confirmed AVM through multiple imaging modalities. This diagnostic journey aligns with the experiences reported by O'Brien et al.[6], who emphasized the importance of a multimodal imaging approach. Our use of color Doppler ultrasonography and MRI for confirmation is consistent with the diagnostic algorithm proposed by Timor-Tritsch et al.[7], who found these methods to be highly effective in diagnosing and monitoring uterine vascular malformations.

Conservative Management Approach: The decision to pursue conservative management in this case was influenced by the patient's desire for fertility preservation and her complex medical history. This approach is supported by several studies in the literature. Rangarajan et al.[5] reported successful outcomes with conservative management in select cases of uterine AVM, particularly in hemodynamically stable patients.

Our use of combined oral contraceptives and tranexamic acid aligns with the findings of Bagga et al.[9], who documented success with hormonal therapy in managing uterine AVMs. The gradual resolution of the AVM over several months in our case is consistent with the timeframe observed by Yazawa et al.[10], who reported complete resolution in some cases after 6 months of conservative treatment.

Unique Aspects of the Case: The complexity of our patient's medical history, including liver cirrhosis and portal hypertension, presented unique challenges not commonly reported in other uterine AVM cases. The management of AVM in the context of these comorbidities required careful consideration and monitoring, which is not extensively discussed in the current literature.

Furthermore, the patient's history of postpartum hemorrhage and surgical interventions (including uterine artery ligation) adds another layer of complexity to the case. Molvi et al.[11] discussed the challenges of managing uterine AVMs in patients with previous uterine surgeries, but cases with extensive postpartum complications like ours are less frequently reported.

Outcomes and Follow-up: The successful resolution of the AVM in our case, confirmed by follow-up imaging, is encouraging and aligns with positive outcomes reported in other conservative management studies. Hashim and Nawawi[3] documented similar success rates with medical management, emphasizing the importance of close follow-up and serial imaging.

Implications for Clinical Practice: Our case, along with supporting literature, suggests that conservative management can be a viable option for uterine AVMs, even in complex cases.

This approach may be particularly valuable for women wishing to preserve fertility, a sentiment echoed by Peitsidis et al.[2] in their systematic review of uterine vascular malformations.

However, it's important to note that not all cases are suitable for conservative management. Grivell et al.[4] emphasized the need for careful patient selection and close monitoring when opting for non-surgical approaches.

CONCLUSION:

This case study contributes to the growing body of evidence supporting conservative management of uterine AVMs in carefully selected patients. It highlights the importance of individualized treatment plans, considering the patient's medical history, fertility desires, and hemodynamic stability. Future research should focus on developing standardized protocols for conservative management and identifying predictors of success for this approach.Gold standard treatment includes embolization with polyvinyl alcohol by using interventional radiology ,since then two other cases of arteriovenous malformations were treated by polyvinyl alcohol embolization.

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