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Case Report

A young female presented with uterine arteriovenous malformation: A rare case managed successfully by endovascular techniques

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Abstract

Embolization of feeder vessels is gaining popularity day by day because of the advancement of endovascular procedures for managing uterine arteriovenous malformation (UAM). A young female, having a recent history of dilatation and curettage was admitted to Department of Gynecology and Obstetrics with the complaints of per vaginal bleeding (PVB) for three days. Her transvaginal ultrasonography (TVS) with doppler study revealed presence of arteriovenous malformation (UAM) of uterus. Then she was referred to vascular surgery department of DMCH for further evaluation. Simultaneously, she underwent abdominal computed tomography angiography (CTA) which confirmed the presence of extensive arteriovenous malformation involving the uterus. She underwent Fluoroscopic-guided uterine artery embolization (UAE). Post embolization angiogram showed an abrupt cut-off of the feeding vessel and non-visualization of the UAM as well as normal flow in uterine body and fundus indicating the procedure was successful.

Keywords: Arterio-venous malformation, per-vaginal bleeding, embolization

INTRODUCTION

Uterine arteriovenous malformation (AVM) is a rare condition with less than 100 cases documented worldwide [1]. Inadequate vascular differentiation in the embryo results in numerous abnormal vascular channels, which leads to congenital AVM [2]. However, the majority of uterine AVMs are acquired and arise from endometrial or cervical cancer, infection, exposure to diethylstilbestrol or prior uterine surgery or curettage [3]. Due to its propensity to invade surrounding tissues, uterine AVM presents a diagnostic dilemma as well as a significant therapeutic challenge. According to recent publications, color Doppler ultrasonography is the preferable technique for identifying AVM [3]. Nowadays, angiography is recognized as a gold standard investigation to diagnose AVM as it can be used for both diagnosis and intervention by embolization [4]. Less than 100 cases of uterine AVM have been documented in the literature till now, with the first case being recorded in 1926 [5].

Here we present a case where a young woman of reproductive age presented with uterine AVM, which was managed efficiently by endovascular techniques.

CASE REPORT

A 22-year-old female was admitted to the Department of Gynae and Obstetrics of Dhaka Medical College and Hospital (DMCH), Bangladesh with the complaint of per vaginal bleeding (PVB) for three days. She had a history of dilatation and curettage (D&C) for intrauterine death of a one month old fetus. Initially, she was diagnosed as a case of PVB due to retained product of conception. Transvaginal ultrasonography (TVS) with doppler

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study revealed high flow of color signals within myometrium indicating presence of uterine arteriovenous malformation (UAM) of uterus. Subsequently, the patient was referred to vascular surgery department of DMCH for further evaluation. Her initial vitals showed low blood pressure (80/40 mm Hg) and tachycardia (110 betas/min).After adequate resuscitation by transfusing two units of whole blood, she underwent abdominal computed tomography angiographic study (CTA) which showed bilateral tortuous and dilated uterine arteries that were distributed in both sides of the uterus. All these findings confirmed the presence of extensive AVM involving the uterus (Figure 1). The main feeder vessels were originated from right uterine artery. So she was planned for endovascular procedure for control of bleeding to preserve her fertility status as she was nulliparous. She underwent Fluoroscopic-guided uterine artery embolization (UAE) including all the feeder vessels arising from right uterine artery using polyvinyl alcohol (PVA) PVA 300 µm and gelfoam pledgets (Figure 2). After the procedure, her PVB was stopped. Her post UAE TVS with Doppler study showed reduced high flow vascular signals in uterine body and fundus, indicating the procedure was a success.

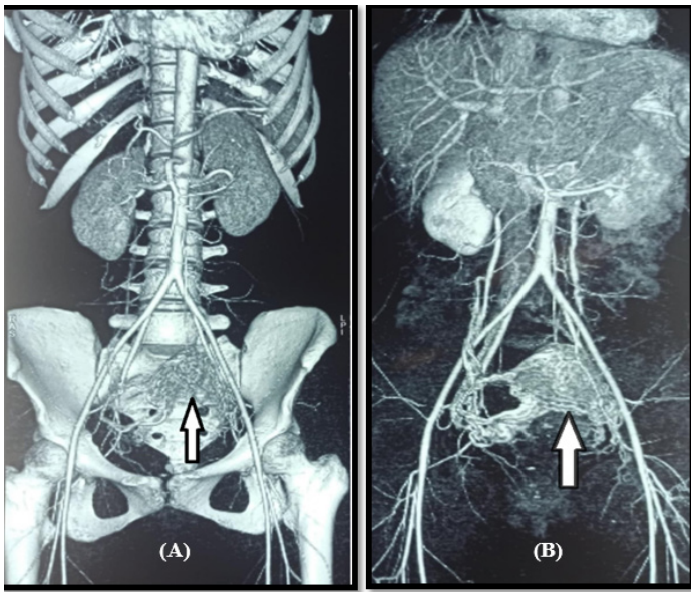

Figure 1. Showing CT angiogram of the patient (A) Early arterial phase (B) Delayed phase

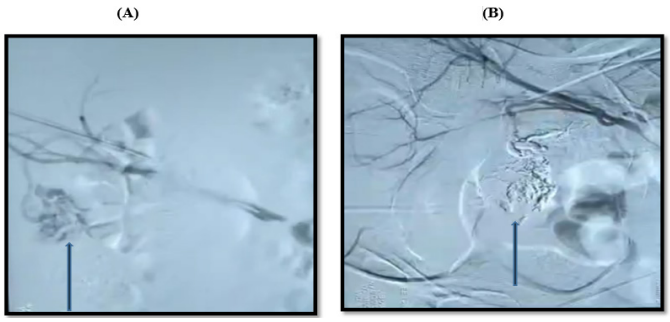

Figure 2. (A) Before embolization (B) After embolization

DISCUSSION

UAM are defined as abnormal communication between the uterine arteries and veins. It is an aberrant connection between the uterine venous plexus and the uterine artery branches [5]. UAM can be classified as congenital or acquired [6]. Acquired UAMs are usually observed in the childbearing age women manifested as PV bleeding due to uterine manipulation such as dilatation and curettage, cesarean delivery or abortion [3]. Acquired UAM can also occur due to infection and gynecological malignancies [3].

Imaging modalities are the choice of investigation to diagnose UAM. Doppler studies can be done initially to suspect UAM but angiography is considered the gold standard diagnostic tool for UAM [6]. Nowadays, magnetic resonance imaging (MRI) is also used as an adjunct to angiography [7]. Our patient was initially diagnosed by Doppler USG and later confirmed by CT angiogram.

Currently, there is no clinical guideline to treat UAM. The treatment plan depends on patient's age, symptoms and necessity to preserve fertility. Treatment options include medical management, UAE, or hysterectomy [8]. Angiographic arterial embolization is gaining popularity nowadays for treating UAM because it is less invasive and the chance of preserving fertility is higher. UAE has a successes rate of more than 95% with a lower complication rate [9]. In our case, the patient was managed successfully by UAE for preservation of fertility having no post procedural complications.

CONCLUSION

A uterine arteriovenous malformation should always be considered when a patient presents with abrupt and severe vaginal bleeding and a history of previous uterine instrumentation. A proper and prompt utilization of diagnostic modalities and appropriate choice of therapeutic tool with multidisciplinary approach are the keys to provide a better clinical outcome while treating such challenging cases.

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