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Case Report

Foley's Tamponade: Life Saving in Massive Bleeding from Uterine Arteriovenous Malformation

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Abstract

Arteriovenous malformation (AVM) of uterus is a rare condition with 100 cases being reported in literature so far. It has a risk of massive bleeding that can be life threatening and is frequently misdiagnosed. When patient presents with such massive haemorrhage Foley's tamponade is useful to arrest the bleeding and stabilize the patient. We report a case of 29-year-old patient, who presented to our hospital with heavy bleeding per vaginum. Patient took pills over the counter, for termination of pregnancy a month back. Following this, she had continuous bleeding. Initial Ultrasound done in labour room showed retained products of conception. On attempting, suctioning and evacuation patient started bleeding profusely. Foley's tamponade was done immediately and bleeding got arrested. Subsequent detailed Ultrasound showed AVM of uterus. AVM should be suspected in patients with recurrent abortions, even in the absence of previous curettage. UAE or hysterectomy is the treatment of choice. This case highlights the significance of Foley's tamponade to arrest massive gynaecological hemorrhage, when sophisticated technique of interventional radiology is not available.

Keywords: *Foley's Tamponade; Post Abortal Bleeding; Arteriovenous Malformation of Uterus; Uterine Artery Embolization*

Abbreviations

AVM: Arteriovenous Malformation; UAE: Uterine Artery Embolization; USG: Ultrasound; PPH: Postpartum Haemorrhage; UPT: Urine Pregnancy Test; P/V: Per Vaginal

Introduction

AVM of uterus is a rare condition, with 100 cases being reported in literature so far [1]. Importance of this condition lies in the fact that patient presents with life threatening haemorrhage. In this condition there is abnormal connection between arteries and veins and can be congenital or acquired. Symptomatic patients most commonly present with bleeding per vagina. Traditionally, AVM of uterus is diagnosed at laparotomy or after hysterectomy. With the advent of Ultrasound, greater number of cases are being diagnosed. Color doppler and spectral flow add to the accuracy of the diagnosis [2]. Treatment ranges from UAE to hysterectomy. In peripheral hospital where sophisticated facilities of intervention radiology are unavailable, tamponade with Foley's catheter is life saving and will help to tide over the crisis.

Case Report

A 29yrs. old presented to the labour room with complaints of bleeding per vagina for 1 month, and bleeding had increased for the past 1 day. She had 75 days of amenorrhoea before this episode. UPT done a month back was positive. Following this, patient took pills over the counter for termination of pregnancy.

Obstetric history: First pregnancy was induced at 28 weeks in view of severe pre-eclampsia (fetal outcome-early neonatal death), next 5 pregnancies were spontaneous abortions and no history of previous curettage, seventh pregnancy is the present one which was self-induced abortion. Patient gives history of deep venous thrombosis 6 months back for which she was put on warfarin. Patient discontinued warfarin by herself when she found out that she was pregnant. On examination, she was pale, pulse rate was 100/min, blood pressure was 100/70 mm Hg, there weren't any features of cardiac failure. Per abdomen uterus was 12 - 14 weeks size. On Per speculum examination there was heavy bleeding from within the cervix. Per vaginal findings corresponded with the per abdomen findings, of 12 - 14 weeks uniformly enlarged uterus and bilateral fornices were free.

Investigations: Hemoglobin was 7.5 g/dl, platelet count was 77,000/mm^3, blood group was A positive, Prothrombin time was 14.9 sec (control 14.2 sec), INR was 1, aPTT was 67.6 sec (control 33.8 sec), UPT was positive. Transvaginal Ultrasound was done in labour room (Figure 1), and initial diagnosis of retained products of conception or molar pregnancy was made. With this initial diagnosis in mind and the detoriating condition of patient, suction evacuation was planned.

Figure 1: *Grey scale transvaginal ultrasound showing heterogeneous lesions within the uterus.*

Management: One unit of blood was transfused prior to the procedure. Blood products were kept ready, as coagulation parameters were deranged. Once suction evacuation was attempted in Operation Theater, patient started bleeding profusely. She bled around 1.5 liters in about 25 minutes. There wasn't any tissue obtained, it was only blood and clots. Procedure was abandoned and 18 F Foley's was inserted into uterine cavity and inflated with normal saline. Inflating Foley's bulb with 60 ml normal saline provided adequate tamponade. Bleeding was arrested with this. After stabilizing, the patient was shifted to post operative ward.

Post operative period: Intra uterine Foley's was kept for 24 hrs (Figure 2). Patient was transfused 4 units of packed cells, 4 units of platelets and 2 FFPs after being transferred to the post operative ward. Her investigations on first post operative day were: haemoglobin 8.3 g/dl, platelet count 54,000/mm^3. As there wasn't any active bleeding no further transfusions were given. Patient was sent for detailed

Ultrasound with radiologist. With the help of doppler and spectral study diagnosis of AVM of uterus was made (Figure 3 and 4). Repeat UPT on 3rd post operative day was negative. Once platelet counts were on increasing trend, patient was discharged.

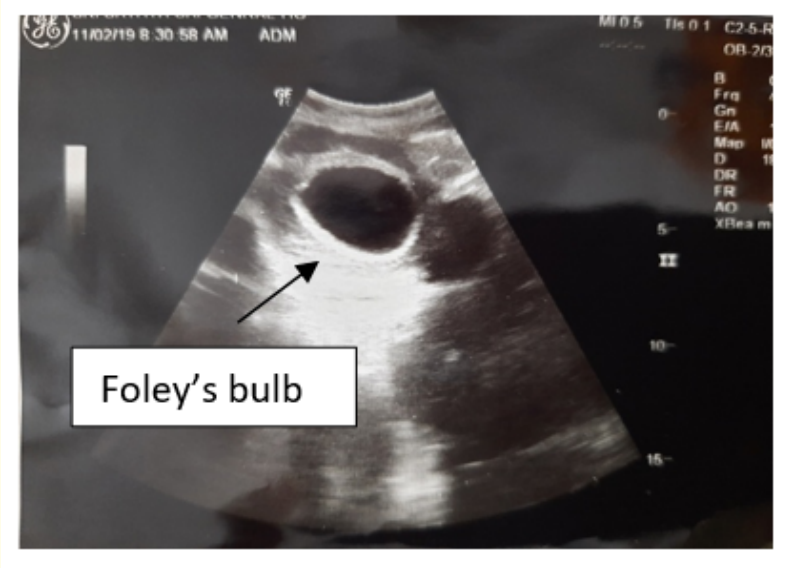

Figure 2: *Gray scale transabdominal ultrasound showing Foley's bulb within uterine cavity.*

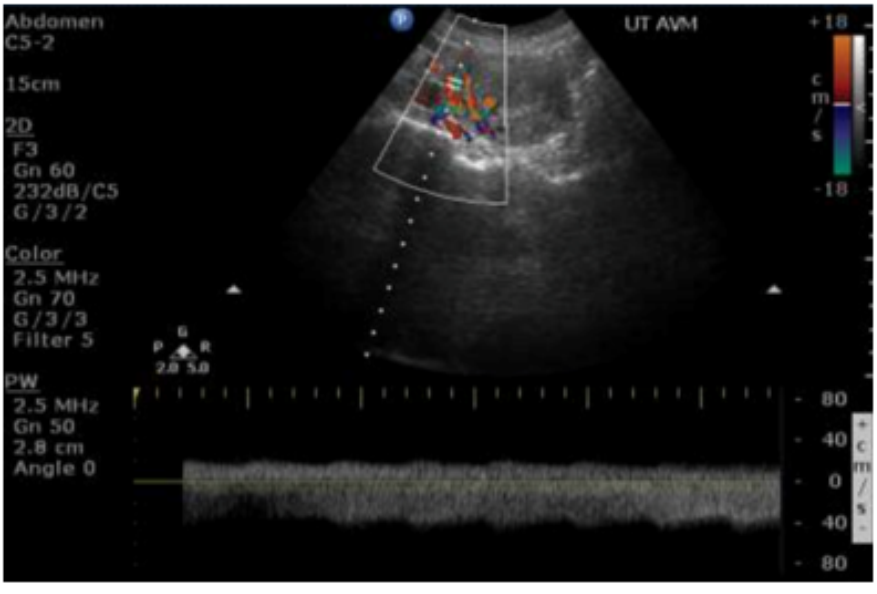

Figure 3: *Spectral doppler study showing both arterial and venous wave pattern.*

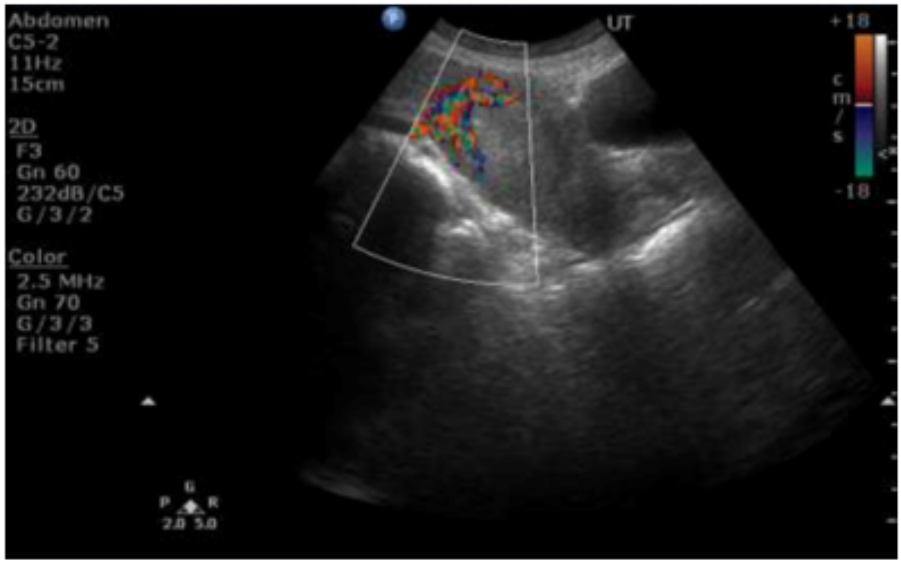

Figure 4: *Color doppler showing intense color uptake in the myometrium.*

Discussion

AVM of uterus is a rare gynaecological condition, with 100 cases being reported in literature so far [1]. Traditionally, AVM of uterus is diagnosed by histopathology after hysterectomy but now the incidence is likely to increase as Ultrasound is more readily available to make the diagnosis [2]. Patients can be asymptomatic or can present with life threatening bleeding per vagina. Though vaginal haemorrhage is the most common presentation, other presentations such as congestive heart failure, post-menopausal bleeding, and an asymptomatic pelvic mass have also been described [3].

Basic pathology in Arteriovenous malformations (AVMs) is that there is anomalous direct blood flow between arteries and veins, bypassing the normal capillary bed [4].

These lesions may be congenital or acquired. Acquired AVMs have been described following normal pregnancy, gestational trophoblastic disease, uterine and cervical cancers, uterine instrumentation and maternal diethylstilbestrol exposure [5]. Our patient most likely had acquired AVM of uterus, with history of multiple abortions in past.

USG pelvis is the first line of diagnosis, but Gray-scale USG findings alone is inadequate for accurate diagnosis. Color or power doppler enhances the accuracy of diagnosis. Differential diagnosis on USG may include highly vascular retained products of conception, invasive moles; blood clot; and sub-involution of the placental implantation site. When USG findings are equivocal, Computed tomography or magnetic resonance imaging may be helpful in clinching the diagnosis [6].

Choice of the treatment is governed by age of the patient, symptoms, size of the lesion and desire to preserve fertility and ranges from conservative management to usage of gonadotropins [7] to UAE [8] to hysterectomy.

When patient presents with acute haemorrhage, as in our case, treatment options are limited and more challenging especially when fertility must be preserved. Universally accepted method in such a scenario is UAE [8]. On one hand embolization technique is minimally

invasive and very effective but on the other hand, needs special equipment and skills, and is also expensive, and most importantly, not easily available. In such cases, Foley's tamponade becomes lifesaving [9]. Foley's tamponade and several other balloon tamponade techniques have been used since decades to arrest PPH refractory to medical management [10]. Uterine packing technique was being used in past before balloon tamponade techniques became common. Mechanism of action of both these procedures is to put pressure on the bleeding vessels. Balloon tamponade techniques allow drainage of blood to be estimated, so no occult bleeding is accumulating inside the uterine cavity as against uterine packing with gauze. Advantages of foley's catheter is that it is readily available, inexpensive, easy and has no potential side effects.

There are a few studies in which foley's tamponade has been used in tackling severe uterine bleed following first trimester abortion and most of these studies have been for cervical pregnancy and caesarean scar pregnancy [11,12]. Not many studies are there where Foley's tamponade has been effectively used to arrest bleeding in AVM of uterus or in severe menorrhagia. In the present case, we used foley's tamponade effectively to tide over the immediate crisis in AVM of uterus and thus, were able to preserve uterus.

Conclusion

AVM of uterus is a rare condition that can present with life threatening bleeding. In peripheral establishments where interventional radiology techniques are unavailable, Foley's tamponade is lifesaving. It is cheap, readily available, easy to perform and minimally invasive procedure. Foley's tamponade is an accepted treatment for medically refractory PPH but can also be effectively used to produce tamponade effect after severe post abortal or refractory gynaecological bleed, to tide over the crisis.

Conflict of Interest

There is no conflict of interests.

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