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Case Report

Successful embolization of pseudoaneurysm of uterine artery: a case report

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ABSTRACT

Pseudoaneurysm arising from uterine artery which was initially thought to be rare, is an important cause of abnormal uterine bleeding. The incidence has risen over the years due to various gynaecological and obstetric surgeries and also because of better diagnostic modalities. This case report is about a 28-year-old female who came with heavy continuous bleeding per vagina and was diagnosed to have uterine artery pseudoaneurysm arising from left uterine artery. Embolization was done which led to symptomatic relief and ultimately complete resolution of the aneurysm. Uterine artery embolization is now considered as the first line treatment of such cases, where facilities are available.

Keywords: Pseudoaneurysm, Uterine bleeding, Embolization

INTRODUCTION

A pseudoaneurysm is an extraluminal hematoma or a collection of blood surrounded by the adventitia or surrounding perivascular soft tissue, communicating with the perforated artery through a defect in the wall.[1,2] Lack of the three layers of arterial wall lining differentiates it from true aneurysm.[3,4] Though earlier it was thought to be rare, the incidence of uterine artery pseudoanerysm (UAP) has been found to be 2-3/1000 deliveries.[5] It is a potentially life-threatening vascular anomaly. The cause is inadequate sealing of ruptured uterine artery which can occur in traumatic delivery, caesarean section, hysterectomy, myomectomy, curettage, conization, and laparoscopic surgeries for endometriosis.[6,7]

However, many cases have been reported after non-traumatic delivery or abortion also.[8] The most common symptom is vaginal bleeding, ranging from moderate to severe which may be intermittent or persistent.[7] Other features include abdominal pain, discomfort, hypovolemic shock or fever, when infected.[7,9]

CASE REPORT

A 28-year-old female, presented to the emergency with continuous heavy bleeding per vagina (PV) for 2 days, which started following sexual intercourse, and which have become severe for 12 hours. She had history of on and off spotting PV for few days prior to that. She is para 1, with caesarean section done 9 months back at local hospital due to breech presentation. She was referred from the local hospital, where ultrasound showed a heteroechoic pulsatile vascular lesion, labelled as AV malformation in the cervical canal. On admission, her pulse was 106/min, blood pressure (BP) 90/60 mmHg and pallor was present. No lesion could be seen in per speculum examination. PV examination revealed a normal sized tender uterus with active bleeding. Her hemoglobin was 6.3 gm% and thus 1 unit packed red blood cells (PRBC) was transfused. Transvaginal sonography with color Doppler showed a pseudoaneurysm of around 7×6.5 mm with surrounding hematoma of 2.5 cm in the uterine isthmus region, near the previous scar, arising from the left uterine artery, as shown in Figure 1. This was confirmed by a magnetic resonance imaging (MRI).

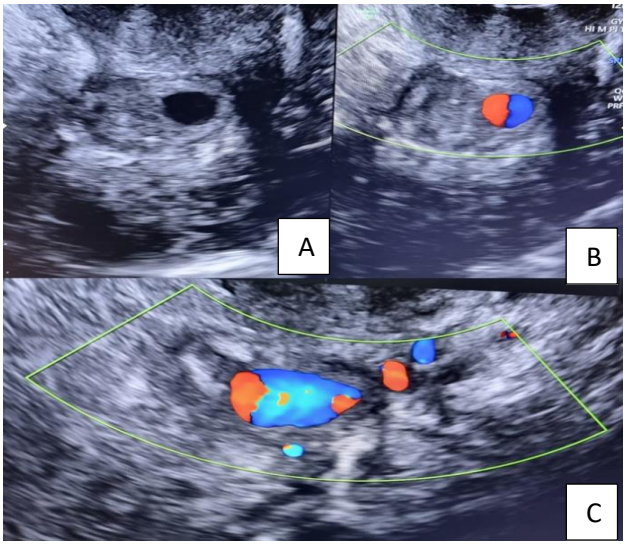

Figure 1 (A-C): Ultrasound and Doppler images of the uterine artery pseudoaneurysm.

Selective angiography of left uterine artery showed a pseudoaneurysm arising from distal part of left uterine artery, as shown in Figure 2. Uterine artery embolization (UAE) of left side was done through right femoral route using 0.5 F diagnostic catheter with PVA particles (500-microns size) followed by 2 steel coils of 4 mm size. Patient had relief of bleeding. Transvaginal ultrasound (TVS) done the next day showed thrombus in the lesion.

Figure 2: Angiography images of the pseudoaneurysm.

On follow up after 3 months there was complete resolution of the lesion and patient had normal menstruation.

DISCUSSION

Blood from uterine artery injury or laceration which does not seal completely, dissects the surrounding tissue and collects perivascularly, which maintains a communication with the parent artery, thus forming a pseudoaneurysm.[10] Though initially thought to be very rare, it's been found to be a comparatively common entity, with many cases being asymptomatic or self-resolving.[7] The cause of UAPs is found to be mostly iatrogenic in which uterine arterial wall is injured, after which there is an outflow of blood into the periarterial tissue, leading to the formation of a blood-filled cavity communicating with the main arterial lumen.[6] However, studies have shown that it can occur after non traumatic delivery.[8] The differential diagnoses include arteriovenous fistulas, arteriovenous malformations (AVM) and direct vessel ruptures.[6] The interval of the insult to presentation may vary from 6 days to 10 years.[11,12]

Two types of UAPs have been described, one communicating with uterine cavity and causing genital bleeding and the other type forming hematoma outside the uterus.[7] Diagnosis of UAPs are by ultrasound and color Doppler.[2,7] Angiography is the gold standard diagnostic test.[2,13] Computed tomography (CT) scans and magnetic resonance imagings (MRIs) are also used to diagnose.[7] On color Doppler, UAPs appear as arterial out pouch or dilatation with surrounding hematoma.[14] The characteristic "yin-yang" pattern has been described to identify UAP, which is, the arterial blood flowing like a jet into the aneurysm during systole and then reversing back during diastole, which is more seen in narrow neck UAP.[10,15]

The treatment has changed over the years from laparotomy including hysterectomy and internal iliac ligation, uterine artery ligation, uterine tamponade to laparoscopic surgeries and finally to UAE.[2,16-18] Surgical approach i.e. emergency laparotomies are more suitable in emergencies, whereas UAE has been found to be safe, effective, less invasive and more suitable in non-acute cases. Though it has been debated that UAE can hamper fertility, studies have shown that pregnancy outcomes after UAE for UAP have been favourable.[19] Thus in various literature, UAE is recognised as 1st line treatment option for UAP.[20] Safety and efficacy of selective UAE has been demonstrated in many studies.[21] Rare complications reported are muscle pain, pelvic organ ischemia, sciatic and perineal nerve neuropathy, and post-embolization syndrome.[22] Literature have advocated bilateral UAE to prevent recurrent bleeding, yet unilateral UAE have been found to be equally effective for persistent hemostasis, with the advantage of preserving fertility.[5,9,10,23-25] Use of both particulate matters and coils have been described in various reports. Particulate matters help in UAE as uterine artery is tortuous and coils help in prevention of recanalization.[9,26] Success rates of UAE have been reported as high as 97%.[10] However, high cost and limited availability and expertise are the limitations of UAE. There are reports of spontaneous resolution of UAP, especially smaller and asymptomatic lesions.[27]

In some cases, it has been found that bleeding may continue because of other feeding arteries like contralateral uterine artery, internal pudendal artery, ovarian artery, inferior epigastric artery or middle sacral artery and thus may cause failure of embolization.[3,7,28,29]

CONCLUSION

It is important for every gynecologist and radiologist to know about this entity for the early detection and diagnosis before any life-threatening event occurs. Early diagnosis, close follow up and prompt management is required in all UAP cases – whether symptomatic or asymptomatic and even after adequate management. Despite the high success rate of UAE in UAP, lack of robust evidence of effects on future fertility suggests that treatment decisions, especially in young female population should be considered on a case-to-case basis and available management options. However, UAE is the first line management in these cases.

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