

Uterine Artery Pseudoaneurysm: A Rare Cause of Delayed Secondary PPH, Managed with Bilateral Uterine Artery Embolization

Pooja Shinde¹, V N Kurude²

¹MBBS, DGO, DNB, ²Associate Professor, Department of Obstetrics and Gynecology, Grant Government Medical College, Mumbai, Maharashtra, India

Abstract

Uterine artery pseudoaneurysm is rare cause of delayed secondary postpartum hemorrhage (PPH), but life-threatening condition occurs after traumatic vaginal delivery, dilatation and curettage, cesarean section, or hysterectomy. A 27-year-old female who develops secondary PPH after vaginal delivery was diagnosed to have left side uterine artery pseudoaneurysm on angiography and treated with bilateral uterine artery embolization with PVA particle. The procedure was uneventful. Angiographic embolization is safe and effective method for treating PPH due to pseudoaneurysm in hemodynamically stable patients. Therefore, it should be considered as treatment option before surgical management, in appropriately selected cases.

Key words: Angiography, Bilateral uterine artery embolization, Delayed secondary PPH, Pseudoaneurysm of uterine artery

INTRODUCTION

A pseudoaneurysm of uterine artery is an extraluminal collection of blood with turbulent flow that communicates with parent vessel through a defect in arterial wall. The development of an arterial pseudoaneurysm is rare but reported complication of pelvic surgery, vascular trauma during cesarean section or after uterine curettage, or after traumatic vaginal delivery. After hematoma formation, there is central liquefaction that leaves a cavity with turbulent flow as a result of persistent communication between parent artery and hematoma. The absence of 3 layer arterial wall lining the pseudoaneurysm differentiates it from a true aneurysm which is less common than the pseudoaneurysm.^[2] The pseudoaneurysm of uterine artery is an uncommon cause of delayed secondary postpartum hemorrhage (PPH), but it is potentially life-threatening condition. Typically lesions are discovered because the patients have symptoms related to delayed rupture of pseudoaneurysm, causing hemorrhage.^[3]

Pseudoaneurysm may be asymptomatic or thrombosis may leads to distal painful embolization. The risk of rupture is proportional to the size and intramural pressure. Diagnosis is ultimately based on both Doppler sonography and angiography.^[4] Transcatheter uterine artery embolization (UAE) has emerged as highly effective technique for controlling obstetric and gynecologic hemorrhage, including that from pseudoaneurysm. We report a case of uterine artery pseudoaneurysm presenting with the secondary PPH after 23 days of full-term vaginal delivery with cervical tear and managed successfully with PVA foam particle embolization.

Objective

Proper diagnosis of uterine artery pseudoaneurysm can be established radiologically such as color Doppler and CT scan. Angiography confirms the diagnosis. This condition can be successfully treated by selective UAE.

CASE REPORT

27-year-old female, P2L2A1, day 23 PNC, post full-term vaginal delivery with cervical tear came with c/o excessive bleeding PV since morning on 1/7/17. She gives H/O soakage of 7–8 pads with passage of clots. On examination, the patient was vitally stable, per abdomen-soft, and On Per speculum examination bleeding+, clot +. On per

Access this article online



www.ijss-sn.com

Month of Submission : 01-2023
Month of Peer Review : 02-2023
Month of Acceptance : 02-2023
Month of Publishing : 03-2023

Corresponding Author: Dr. V. N. Kurude, MD OBGY, Associate Professor & HOU ,OBGY Department, GMC, Mumbai, Maharashtra, India.

vaginal examination-uterus bulky, postpartum status-internal os closed, Bilateral fornices free, and non-tender. On admission, her Hb was 7.2 g%, beta hcg was done to exclude trophoblastic diseases. All other investigations and coagulation profile was within normal limit. The patient started on higher antibiotics and Inj. Tranexa 1 g tds 2 points whole blood given. On 1/7/17, USG abdo + pelvis suggestive of bulky uterus with thickened and heterogenous endometrium. Findings are likely suggestive of RPOCS. After stabilization, the patient posted for elective check curettage. PAC fitness given. On 10/7/17, elective check curettage was done which was followed by emergency exploratory laparotomy for uterine perforation. Left fundocornual perforation sutured with catgut 1-0 by continuous interlocking suture. Hemostasis achieved. One point whole blood given intraoperatively. Post-operative Hb was 8.7 g%. Postoperatively, no any active bleeding. HPR on 14/7/17 suggestive of products of conception. Post-operative USG on 14/7/17 suggestive of no significant abnormality. On 16/7/17, the patient again complaining of bleeding p/v with 4-5 pads soaked associated with clots since 4-5 h. Urgent USG Abdo + pelvis suggestive of no significant abnormalities. CECT on 16/7/17 suggestive of an enhancing area in endometrial canal near fundus with no abnormally dilated, tortuous vessels. Thickened endometrial canal. Findings are likely suggestive of RPOCS rather than uterine vascular malformation, mild free fluid in pelvis, and mild hepatosplenomegalyone.



One point whole blood given. Post BT Hb was 8.5 g%. On 16/7/17 along with interventional radiology department, the patient posted for UAE. Uterine artery angiography suggestive of left uterine artery pseudoaneurysm. Emergency bilateral uterine artery embolization done at 11 pm with PVA foam embolization particles. Patient withstood procedure well. The patient followed up after 15 days and 1 month. She was asymptomatic [Figure 1].

DISCUSSION

Post-partum hemorrhage remains a major cause of maternal mortality. Secondary PPH is defined as excessive bleeding starting anytime from 24 h after delivery up

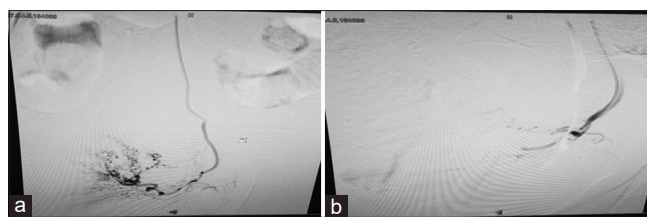


Figure 1: Uterine artery angiography with bilateral uterine artery embolization (a) pre-embolization and (b) post-embolization

to 6 weeks postpartum and most commonly occurs between first 2 weeks. Common causes include RPOCS, subinvolution of placental bed and endometritis.^[5] Rare causes include pseudoaneurysm of uterine artery, arteriovenous malformation, and choriocarcinoma. When more common causes have been excluded, pelvic angiography may be performed. UAE can be carried out to control hemorrhage. In 1979, Brown *et al.* reported first case of selective arterial embolization used successfully to treat an extrauterine pelvic hematoma after three failed surgical attempts to control the bleeding.^[6] Since then, arterial embolization has been used successfully to control postpartum bleeding from uterine atony, placenta previa, and vulval and vaginal hematomas. The efficacy and safety of selective arterial embolization artery was evaluated by Pelage *et al.*, in woman with delayed secondary PPH. In this series of 14 women, pseudoaneurysm of uterine artery was found in two women.^[7] A true aneurysm has all three layers of arterial wall, whereas a pseudoaneurysm does not have all three layers. The differential diagnosis of pseudoaneurysm includes acquired AV malformation, arteriovenous fistulas, and direct vessel rupture. AV malformations are characterized by multiple communications of various sizes between arteries and veins, which can be congenital or acquired. Color Doppler helps to differentiate between them. Color flow Doppler demonstrates “to and fro sign” in neck of pseudoaneurysm and “yin-yang sign” in body of pseudoaneurysm. AV malformations are characterized by marked aliasing on the color flow Doppler and arterialization of venous flow on spectral Doppler evaluation. In our case, the patient developed a pseudoaneurysm on 23 days of full-term vaginal delivery with cervical tear. The treatment was arterial embolization of bilateral uterine artery with PVA foam particles. Angiographic embolization has advantages of decreased morbidity, ability to localize the bleeding site and provide a more distal occlusion than surgical ligation, and preservation of future fertility compared to hysterectomy. Inadequate embolization of pseudoaneurysm due to extrauterine feeding arteries such as internal pudendal artery leading to embolization failure.^[2] Hence, bilateral UAE is safe and more advantageous than unilateral embolization.

CONCLUSION

We conclude that in a woman with unexplained vaginal bleeding after full-term vaginal delivery with cervical tear, a pseudoaneurysm is a potentially life threatening complication and should be considered in differential diagnosis of secondary PPH and can be managed conservatively with bilateral UAE. Although data are scanty, bilateral UAE for obstetric hemorrhage appears to have no increased delirious effect on future fertility and is more effective as compared to unilateral embolization.

REFERENCES

2. Kwon JH, Kim GS. Obstetric iatrogenic arterial injuries of the uterus: Diagnosis with US and treatment with transcatheter arterial embolization. *Radiographics* 2002;22:35-46.
3. Langer JE, Cope C. Ultrasonographic diagnosis of uterine artery pseudoaneurysm after hysterectomy. *J Ultrasound Med* 1999;18:711-4.
4. Hidar S, Bibi M, Atallah R, Essakly K, Bouzakoura C, Hidar M. Pseudoaneurysm of uterine artery: Apropos of 1 case. *J Gynecol Obstet Biol Reprod (Paris)* 2000;29:621-4.
5. Khong TY, Khong TK. Delayed postpartum hemorrhage: A morphologic study of causes and their relation to other pregnancy disorders. *Obstet Gynecol* 1993;82:17-22.
6. Brown BJ, Heaston DK, Poulson AM, Gabert HA, Mineau DE, Miller FJ Jr. Uncontrollable postpartum bleeding: A new approach to hemostasis through angiographic arterial embolization. *Obstet Gynecol* 1979;54:361-5.
7. Pelage JP, Soyer P, Repiquet D, Herbreteau D, Le Dref O, Houdart E, *et al.* Secondary postpartum hemorrhage: Treatment with selective arterial embolization. *Radiology* 1999;212:385-9.

How to cite this article: Shinde P, Kurude VN. Uterine Artery Pseudoaneurysm: A Rare Cause of Delayed Secondary PPH, Managed with Bilateral Uterine Artery Embolization. *Int J Sci Stud* 2023;10(12):16-18.

Source of Support: Nil, **Conflicts of Interest:** None declared.