Original Research Article

Pseudoaneurysm of uterine artery - A rare cause of secondary post partum hemorrhage

G Madhavi Latha[1*], K Deepthi[2]

[1,2]Resident, Department of Radio Diagnosis, Gandhi Medical College, Secunderabad, Andhra Pradesh, INDIA.
Email: maddy.gundamaraju@gmail.com

Abstract

Uterine artery pseudoaneurysm (UAP) is a rare cause of secondary post partum hemorhhage (PPH) and can occur after caesarean section or hysterectomy. Here is described 5 cases of UAP who presented with secondary post partum hemorrhage. The patients were sent to our radiology department for colour doppler transvaginal sonography (TVS) examination and were diagnosed as UAP using colour doppler ultrasonography. Four of them were treated with embolization of pseudoaneurysm. One patient had to undergo hysterectomy due to ongoing bleeding. Consideration of UAP in the differential diagnosis is critical for proper treatment before rupture. Uterine artery embolization is a safe and reliable treatment option and prevents a hysterectomy.

Key Words: Pseudoaneurysm, Secondary PPH, Uterine artery embolization.

[*]**Address for Correspondence:**
Dr. G. Madhavi Latha, H NO 4-9-47/1, Brahminwadi, Mahabubnagar, Telangana-509001, INDIA.
Email: maddy.gundamaraju@gmail.com
Received Date: 16/07/2017 Revised Date: 21/08/2017 Accepted Date: 10/09/2017
DOI: https://doi.org/10.26611/100497

Access this article online

Quick Response Code:

Website: www.medpulse.in

Accessed Date: 20 September 2017

INTRODUCTION

PPH continues to be the most important cause of maternal morbidity and mortality 1. Secondary PPH is excess bleeding from genital tract 24 hours after delivery up to 12 weeks post partum. UAP is a rare but dreaded cause of secondary PPH following caesarean section. Typically, the lesions are discovered because the patients have symptoms related to delayed rupture of the pseudoaneurysm causing hemorrhage 2). Diagnosis is usually based on both colour doppler sonography and angiography 3). Transcatheter uterine artery embolization has emerged as a highly effective technique for controlling obstetric and gynaecologic hemorrhage, including that from pseudoaneurysms.

MATERIALS AND METHODS

Prospective study of secondary PPH cases due to pseudo aneurysm, treated by uterine artery embolization admitted at Gandhi hospital from January 2012 to December 2014. Here in we report 5 cases of secondary post partum haemorrhage which presented as recurrent attacks of bleeding following caesarean section with no identifiable cause and referred to our institution. We subjected them for USG doppler study, diagnosed to have pseudo aneurysm and further managed by angiography, followed by uterine artery embolisation.

OBSERVATIONS AND RESULTS

Age (range 16-30) mean age: 28. Mode of delivery: All by caesarean sections. Onset of bleeding: 3rd day to maximum 42 days. Average bouts of bleeding: 3 to 4 Ultrasound color doppler showed the presence of pseudoaneurysm in 5 cases. 5 cases were subjected to CT angiogram and confirmed pesudoaneurysm, 3 on the right side and 2 on the left side. Management of pseudo aneurysm: UAE was done successfully in 4 cases. 1 case was directly subjected to hysterectomy due to hemodynamic unstability. Materials used at the time of UAE: Gelfoam, Coils. All patients were discharged 2 – 3 days after UAE. Following hysterectomy also uneventful.

How to cite this article: G Madhavi Latha, K Deepthi. Pseudoaneurysm of uterine artery - A rare cause of secondary post partum hemorrhage. *MedPulse – International Medical Journal.* September 2017; 4(9): 936-938. http://www.medpulse.in

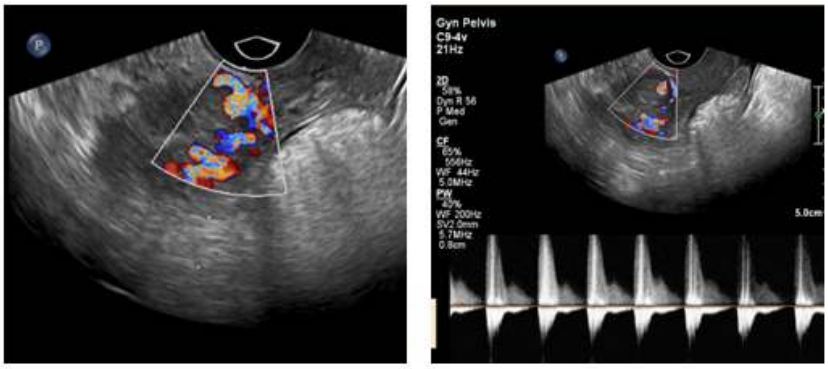

Figure 1: Anechoic lesion in lower uterine segment showing blood flow with yin and yang pattern.

CT angiography was done with non ionic contrast, showed early contrast filling of lesion within the uterus. MIP and VR images demonstrated the pseudoaneurysm in relation to uterine artery.

Figure 2

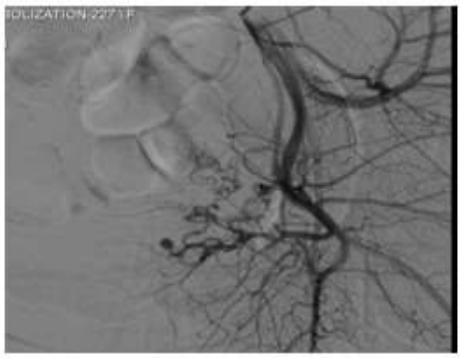

Figure 3

Figure 4

Legend

Figure 2: Axial CT angiogram images show contrast filling the pseudoaneurysm within the uterus.

Figure 3: Left internal iliac angiogram showing pseudoaneurysm from left uterine artery, in addition hypertrophy of left uterine artery can also be appreciated.

Figure 4: Selective left internal iliac angiogram (post embolization) using gel foam shows complete obliteration of pseudoaneurysm.

DISCUSSION

Postpartum hemorrhage remains one of the major causes of maternal mortality. Secondary postpartum hemorrhage is defined as excessive bleeding starting any time from 24 hours after delivery up to 6 weeks postpartum and most commonly occurring between 8 and 14 days postpartum. Common causes include retained products of conception, sub involution of the placental bed and endometritis[4]. Rare causes include pseudoaneurysm of uterine artery, arteriovenous malformations and choriocarcinoma. A pseudoaneurysm is an extra-luminal collection of blood with turbulent flow that communicates with the parent vessel through a defect in the arterial wall. The development of an arterial pseudoaneurysm is a rare but reported complication of pelvic surgery, vascular trauma during cesarean section or after uterine curettage. After hematoma formation, there is central liquefaction that leaves a cavity with turbulent blood flow, as a result of persistent communication between the parent artery and the hematoma. The absence of a 3-layer arterial wall lining the pseudoaneurysm differentiates it from a true aneurysm, which is less common than a pseudoaneurysm[5]. The risk of rupture is proportional to the size and intramural pressure[6]. Real time sonography provides a simple, reliable and inexpensive assessment. The sonographic signs consist of expansile pulsations in the pseudoaneurysm and a point of communication with the artery. Pulsed Doppler sonography improves the specificity of diagnosis by allowing demonstration of arterial like and sometimes turbulent flow within the lumen of the false aneurysm. The 'to and fro' Doppler sign is diagnostic of every pseudoaneurysm that has a narrow neck. This can be explained by the fact that during systole the pressure is higher in the artery than in the pseudoaneurysm leading to an influx of blood into the pseudoaneurysm. During diastole the pressure and flow in the artery drop down to zero and there may even be reversal of flow due to high resistance. Blood then flows back through the pseudoaneurysm neck as a result of pressure gradient between the over distended high

pressure pseudoaneurysm and low pressure artery. This Doppler sign observed at the neck of the pseudoaneurysm together with turbulent flow helps to confirm the diagnosis. Diagnosis of pseudoaneurysm can be made by color and pulsed doppler USG with 95% sensitivity. Sonographic diagnosis and treatment of pseudoaneurysm of uterine artery after caesarean section has been reported by Henrich W, Funchs I, Luttkus A[7]. The different treatment options available for secondary PPH caused by pseudoaneurysm are Hysterectomy, Laparotomy and Laparoscopic uterine/ internal iliac artery ligation and fluoroscopy guided uterine artery embolization. In 1979, Brown *et al*. reported the first case of selective arterial embolization used successfully to treat an extrauterine pelvic hematoma after three failed surgical attempts to control the bleeding[8]. Since then, arterial embolization has been used successfully to control postpartum bleeding from uterine atony, placenta accreta, vulvar and vaginal hematomas. Transcatheter uterine artery embolization has emerged as a highly effective technique for controlling obstetric and gynaecologic hemorrhage, including that from pseudoaneurysms[9]. Selective arterial embolization is a common therapeutic option in hemodynamically stable patient with PPH. In a series of women, Rosenthal *et al*., observed angiographic arterial embolization was shown to be the most useful clinical tool in the management of post operative vaginal hemorrhage[10]. Advantages of UAE over surgical intervention are that it allows for selective occlusion of bleeding vessels and potential future for fertility is preserved. Successful pregnancies have been reported after pelvic embolization. There is minimal morbidity. Complications have been reported following uterine artery embolization including fever, infection, ischaemic pain[11], muscle pain and bladder necrosis[12].

CONCLUSION

One should have doubt about pseudoaneurysm in cases of secondary PPH where the bleeding is recurrent and cause not ascertainable. Real time ultrasonography with colour doppler provides a simple, reliable, and inexpensive assessment of UAP. Uterine artery embolization is an effective and reliable method for control of haemorrhage in pseudoaneurysm.

REFERENCES

1. Kodey PD, Koneru GR, Kota LN, Kuchibatla S: Pseudoaneurysm of uterine artery as a cause of secondary post partum haemorrhage: Int J Reprod Contracept Obstet Gynecol. 2015; 4:1821-4.
2. Langer JE, Cope C. Ultrasonographic diagnosis of uterine artery pseudoaneurysm after hysterectomy. J Ultrasound Med. 1999;18:711–4.
3. Hidar S, Bibi M, Atallah R, Essakly K, Bouzakoura C, Hidar M: Pseudoaneurysm of the uterine artery: apropos of 1 case: J GynecolObstetBiolReprod. (Paris) 2000; 29:621-24.
4. 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. [PubMed]
5. Kwon JH, Kim GS. Obstetric iatrogenic arterial injuries of the uterus: Diagnosis with US and treatment with transcatheter arterial embolization: Radiographics. 2002; 221:35–46. [PubMed]
6. Pramya Nanjundan, Meenakshi Rohilla, Ainharan Raveendran, Vanita Jain, Niranjan Khandelwal: Pseudoaneurysm of Uterine Artery: A Rare Cause of Secondary Postpartum Hemorrhage, Managed with Uterine Artery Embolisation: J Clin Imaging Sci. 2011; 1: 14. Published online 2011 Feb 11. doi: 10.4103/2156-7514.76692
7. Henrich W, Fuchs I, Luttkus A, Hauptmann S, Dudenhausen JW. Pseudoaneurysm of the uterine artery after caesarean delivery. J Ultrasound Med. 2002; 21:1431–4.
8. Brown BJ, Heaston DK, Poulson AM, Gabertet HA, Mineau DE, Miller FJ., Jr Uncontrollable postpartum bleeding: A new approach to hemostasis through angiographic arterial embolization. Obstet Gynecol. 1979;54:361–5.
9. PARVIN, Afroza; BEGUM, Monowara; HUDA, Atiya: Uterine artery pseudoaneurysm after cesarean section: case report. Pulse, [S.l.], v. 7, n. 1, p. 56-60, may. 2015. ISSN 2408-8765.
10. Rosenthal DM, Colapinto R. Angiographic arterial embolization in the management of postoperative vaginal haemorrhage. Am J Obstet Gynecol. 1985;151:227–31.
11. MS Maassen, MDA Lambers, RP Tutein Nolthenius, PHM van der Valkan, OE Elgersma (2009) Complications and failure of uterine artery embolisation for intractable postpartum haemorrhage. BJOG 116:55-61
12. Sieber PR. Bladder necrosis secondary to pelvic artery embolization: Case report and literature review. J Urol. 1994;151:422

Source of Support: None Declared
Conflict of Interest: None Declared