International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Kodey PD et al. Int J Reprod Contracept Obstet Gynecol. 2015 Dec;4(6):1821-1824
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: http://dx.doi.org/10.18203/2320-1770.ijrcog20151267

Research Article

Pseudoaneurysm of uterine artery: as a cause of secondary post partum haemorrhage

Prabha Devi Kodey*, Gangadhara Rao Koneru, Lakshmi Narayana Kota, Sharada Kuchibatla

Department of Obstetrics & Gynaecology NRI Medical College & General Hospital, Chinakakani, Guntur, Andhra Pradesh, India

Received: 01 September 2015
Revised: 07 September 2015
Accepted: 27 October 2015

***Correspondence:**
Dr. Prabha Devi Kodey,
E-mail: drprabhakodey@yahoo.co.in

ABSTRACT

Background: Secondary PPH is rare and life threatening, if the cause is not properly identified. Cases should be subjected for USG doppler to exclude rare entities such as pseudoaneurysm of uterine artery and AV malformations. Pseudoaneurysm of uterine artery is a rare entity to produce secondary PPH, but once identified can be effectively treated, provided facility of uterine artery embolisation is available.
Methods: Here in we report 6 cases of secondary post partum haemorrhage where 5 were treated by uterine artery embolization, for 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 in 6 cases and further managed by angiography, followed by uterine artery embolisation.
Results: Out of 6 cases, all cases were diagnosed of having pseudoaneurysm of either Right or Left uterine artery. 5 were subjected to uterine artery embolization. Out of the 5 cases, 4 responded well and in one case following coil embolisation as bleeding through collaterals still observed, hysterectomy had to be done. For 6th case because of haemodynamic unstability hysterectomy had to be done.
Conclusions: Uterine artery embolization is an effective and reliable method for control of haemorrhage in pseudoaneurysm. One should have doubt about pseudoaneurysm in cases of secondary PPH where the bleeding is recurrent and cause not acertainable and to be referred in time where the facility of uterine artery embolization is available.

Keywords: Pseudoaneurysm, Uterine artery embolization, Secondary PPH.

INTRODUCTION

Post partumhaemorrhage (PPH) continues to be the most important cause of maternal morbidity and mortality. Secondary PPH is excess bleeding from the genital tract 24 hours after delivery upto 12 weeks post partum. Most common causes of secondary PPH are retained placental products, placental polyp, placental site sub involution, infection, coagulopathy. Pseudo aneurysm of uterine artery is a rare but dreaded cause of secondary PPH following caesarean section. Uterine artery embolization – (UAE) is an interventional radiological technique performed for various reasons, out of which, one important indication is secondary PPH due to pseudo aneurysm.

METHODS

Retrospective study of secondary PPH cases due to pseudo aneurysm, treated by uterine artery embolization admitted at NRIGH from 2011 Jan-2014 Dec (4yrs). Here in we report 6 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.

RESULTS

Age (range 16-30) mean age: 24.

Parity: P1, L1-2 and P2, L2-4.

Mode of delivery: All by caesarean sections. 4 underwent Caesarean sections at Private Hospital and 2 underwent Caesarean sections at Other Institutions.

Onset of bleeding: 3rd day to maximum 42 days. Mean duration of starting bleeding from the time of caesarean section -11.8 days. Average bouts of bleeding: 3-4.

Blood and blood components received: Ranging from 2 to 30 bottles. Total bottles given 54 in 6 cases. Average need of blood transfusions - 9 bottles.

Procedures done: Uterotonic Agents were given outside our institution in all 6 cases. Intra uterine packing with balloon tamponade was done outside in 1 case. Misoprostol followed by check curettage done outside in 1 case. In one case CuT removal followed by intra uterine ballon tamponade was done at NRIGH. D & C done in 2 cases at NRIGH reported as proliferative phase without any retained products of conception or villous activity.

Ultrasound color doppler showed the presence of pseudoaneurysm in 6 cases. 5 cases were subjected to angiogram and confirmed pesudoaneurysm. 3 on the right side and 2 on the left side.

Management of pseudo aneurysm: UAE was done successfully in 4cases.UAE followed by Emergency hysterectomy was done in 1 case. 1 case was directly subjected to hysterectomy due to hemodynamic unstability.

Before procedure of uterine artery embolization (UAE) counselling done regarding the procedure complications and Informed consent obtained in all cases. Angiogram done in 5 cases followed by UAE. Unilateral-4. Bilateral-1. Materials used at the time of UAE: gelfoam -1, Coils - 2 (2-4 Coils in each case), Coils + gelfoam - 1 case. 4 Coils + gelfoam + hysterectomy-1 case. UAE done under local Anaesthesia. And approached through right femoral artery.

All had uneventful post embolisation period. One case following UAE -conceived and delivered by repeat lower segment caesarean section (LSCS), again ended uneventfully. All patients were discharged 2 – 3 days after UAE. Following hysterectomy also uneventful.

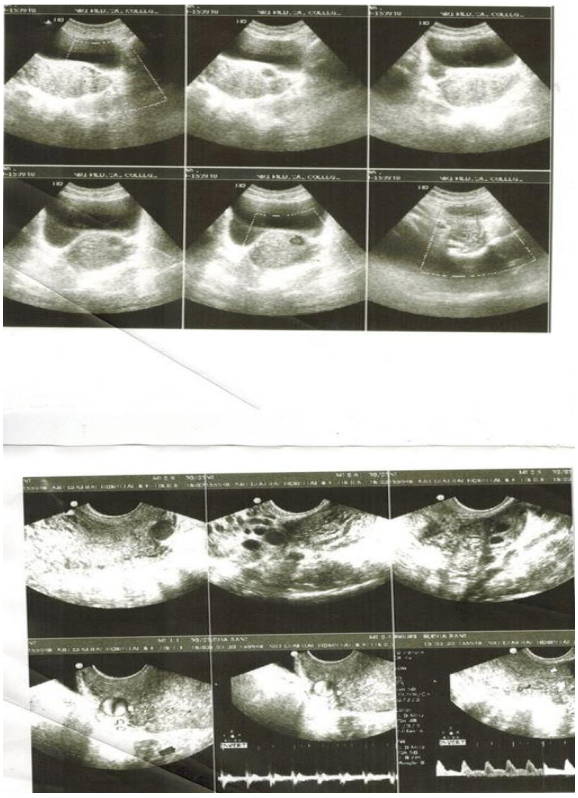

Figure 1: Grey scale USG of pseudoaneurysm of uterine artery.

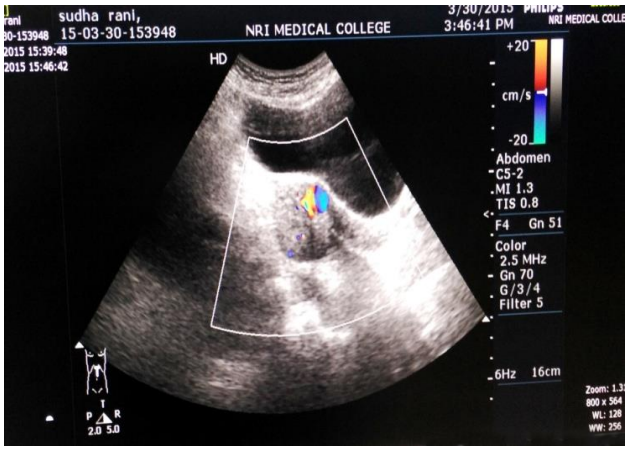

Figure 2: Colour doppler of pseudoaneurysm of uterine artery.

Summary

Out of total 9 cases admitted with secondary PPH, 6 cases were diagnosed of having pseudoaneurysm, all following cesarean section outside. 5 were subjected to angiography followed by UAE. One among 5 cases needed hysterectomy in view of collateral formation following 4 coils and gel foam application. All cases had uneventful post embolisation period. In our study out of 5 cases subjected for UAE, 4 cases were successful showing 80% clinical success and 100% technical success.

Figure 3: Embolisation angiogram of right uterine artery.

Figure 4: Post embolisation angiogram of right uterine artery.

DISCUSSION

Secondary PPH is an obstetric emergency. It is difficult to find out the cause sometimes. Incidence is around 1 - 2%. The exact incidence of secondary PPH in developing countries is not reported. Secondary PPH is associated with high mortality & morbidity. Majority require hospital admission, blood transfusion and some may also need hysterectomy. Most common causes of secondary PPH are Retained placental products, Placental polyp, Placental site sub involution, Infection, Coagulopathy but rare cause is sometimes pseudo aneurysm and AV malformation which are dangerous.

A pseudoaneurysm is an extra luminal collection of blood with turbulent flow which communicates with an artery due to disruption in the arterial wall. Pseudo aneurysms form due to extended uterine incision and additional hemostatic suture. The difference between pseudoaneurysm and true aneurysm is that in a true aneurysm, the artery is enlarged. The enlargement doesn't result from an injury. Blood flows normally through the aneurysm. In a pseudoaneurysm there is absence of 3 arterial walls lining and blood flows extra luminally.

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.[1] Gray scale USG alone cannot differentiate between the two. On color Doppler the characteristic “to and fro” waveform at the neck and “yin yang” pattern in the body is diagnostic of pseudoaneurysm as reported by Monzer M, Yousef A, Wiese JA.[2] Differential diagnosis of pseudoaneurysm are true aneurysm and AVM (acquired / congenital). A true aneurysm can be diagnosed by Histopathological examination. AVM can be conclusively diagnosed by color doppler, sonography and MRI.

The different treatment options available for secondary PPH caused by pseudoaneurysm are Hysterectomy, Laparotomy and Laproscopic uterine/ internal artery ligation and fluoroscopy guided uterine artery embolization. Indications for Hysterectomy in pseudoaneurysm are unstable condition of the patient with severe PPH. Laparotomy / laparoscopy with internal artery ligation is a safer option where angiographic and radiological facilities are unavailable.

Uterine artery embolization (UAE) provides a clear visualization of the pseudo aneurysm and fertility is preserved. Selective arterial embolisation is a common therapeutic option in hemodynamically stable patient with PPH. Ganguli S, Stecker MS, Pyne D, Baum RA, Fan CM reported a Cumulative success rate of 88-95% by UAE in secondary PPH.[3] In our study clinical success rate was 84% and technical success rate 100%. The success rate depends upon size of aneurysm and the number of feeding collaterals. Technical success means successful catheterisation of the artery and embolisation, clinical success means obviation of Hysterectomy.

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.

Brown BJ, Heaston DK, Poulson AM reported the first case of selective arterial embolization used successfully to treat an uncontrollable PPH after three failed surgical attempts.[4]

Subsequently the diagnosed cases of pseudoaneurysm were treated by selective uterine artery embolisation by Nanjundan P, Rohilla M, Raveendran A.[5]

Chitra TV, Panicker in their study reported 5 cases of secondary PPH due to pseudoaneurysm out of which 4 cases were treated by UAE.[6]

Procedure related complications are 3%-6% in general. Reported complications with UAE are fever, infection, ischemic pain, vascular perforation, tissue necrosis, bladder rupture, rupture uterus, infertility, VVF. Complications and failure of uterine artery embolisation for intractable postpartum haemorrhage was reported by MS Maassen, MDA Lambers, RP Tutein Nolthenius, PHM van der Valkan, OE Elgersma.[7] In our study complications were nil.

Any case of secondary PPH where cause is not traceable should be subjected to USG doppler followed by angiography and uterine artery embolisation where facilities are available. Pelage reported 14 women with seconadery PPH with different etiologies successfully treated by UAE.[8] Every obstetrician should be aware of availability of facility of UAE for early referral and further treatment.

Procedure of UAE is an integrated approach by a team of obstetricians, interventional radiologists and cardiologists.

CONCLUSIONS

Uterine artery embolization is an effective and reliable method for control of haemorrhage in pseudoaneurysm. One should have doubt about pseudoaneurysm in cases of secondary PPH where the bleeding is recurrent and cause not acertainable and to be referred in time where the facility of uterine artery embolization is available.

ACKNOWLEDGEMENTS

Our acknowledgements to radiologist Dr. S.V.N. Vamsi Krishna, Assistant Professor, Department of Radiology, Dr. Biju Govind, Professor, Department of Cardiology, nursing staff and technical staff for timely intervention.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. 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.
2. Abu-Yousef MM, Wiese JA, Shamma AR. The to and fro sign. Am J Roentgenol. 1988;150(3):632–4.
3. Ganguli S, Stecker MS, Pyne D, Baum RA, Fan CM. Uterine artery embolization in the treatment of postpartum uterine hemorrhage. J Vasc Interv Radiol 2011;22(2):169-76.
4. Brown BJ, Heaston DK, Poulson AM, Gabert HA, Mineau DE, Miller FJ Jr. Uncontrollable postpartum bleeding; a new approach to hemostasis through angiographic embolization. Obstet Gynaecol. 1979;188:183–7.
5. Nanjundan P, Rohilla M, Raveendran A, Jain V, Khandelwal N. Pseudoaneurysm of uterine artery: a rare cause of secondary postpartum haemorrhage, managed with uterine artery embolisation. J Clin Imaging Sci. 2011;1:14.
6. Chitra TV, Panicker S. J Obstet Gynaecol India. 2011;61(6):641-4.
7. 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
8. 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(2):385-9.

Cite this article as: 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.