

Uterine Artery Embolization in Postpartum Hemorrhage: A Case Report

Suja Varghese, Nandini Gokulam, Sheika Al- Abri

Received: 25 Nov 2011 / Accepted: 14 Jan 2012
© OMSB, 2012

Abstract

A case of secondary postpartum hemorrhage was treated by uterine artery embolization with a view to preserve fertility as the patient was of low parity.

Keywords: Secondary postpartum hemorrhage; Uterine artery embolization.

Introduction

The significant impact of postpartum hemorrhage on maternal mortality can be reduced when timely measures are put in place. The scarcity of interventional radiologists makes embolization options the privilege of a few centers alone. This case highlights the possibility of preserving fertility in cases of low parity when such an option is available.

Case Report

A 30 year-old second gravida at term was first admitted to the Armed Forces Hospital (AFH) in labor on 2nd Oct 2009. She was a gestational diabetic on insulin, being a poor antenatal attender with only three antenatal visits. During her first pregnancy, she had developed gestational diabetes requiring treatment with insulin and delivered a male baby weighing 3.5 kg in March 2007.

The patient underwent an emergency Cesarean section the afternoon of the day of admission for no progress of labor with non-reassuring CTG. A male baby weighing 5.47 kg was transferred to SCBU forthwith. She had an uneventful postoperative period and went home on the fifth postoperative day when the baby was able to maintain euglycemia while on breast feed. The baby passed away at home 5 days later. She was readmitted 60 days later with history of three bouts of bleeding in the intervening period for which she had attended the local hospital. During the first episode 25 days after surgery she was transfused one unit of blood. A scan showed a bulky empty uterus. She left against medical advice.

The second episode was 52 days after surgery when she had presented with hemorrhagic shock and was transfused three units of packed cells and fresh frozen plasma. An emergency curettage was then done (Histopathology report was later traced and found to be secretory endometrium). The patient was started

on Meropenem based on culture reports and considered fit for discharge when she had a third bout of bleeding and transferred to AFH. She required blood transfusion while being transferred.

On admission, her vitals were stable, the abdomen was soft, speculum examination showed a healthy cervix and no active bleeding. Pelvic examination revealed a bulky uterus with few old clots in the vagina. Scan showed an empty uterus with no other pelvic pathology. The same night at 22:30 hrs, she started bleeding again; passing about 300 - 400 ml of blood and a further 400 ml from the vagina on pelvic examination. She was managed with IV fluids while awaiting cross-matched blood in addition to misoprostol, carboprost and syntocinon infusion.

The husband was apprised of the situation and the possibility of hysterectomy as a life saving measure was discussed. Keeping in mind her low parity and single living issue, the option of conserving her uterus by embolization of the uterine arteries was considered. The radiologist and gynecologist at Royal Hospital (RH) were consulted and she was transferred after a routine CT that showed no evidence of active vascular extravasation. A further 300 - 400 ml of blood was expelled from the vagina at this point.

At RH, uterine artery embolization was carried out using 350 - 500P VA after super-selective catheterization of the left and right uterine arteries. The angiogram had shown tortuous uterine arteries bilaterally with ectatic vessels (Varicose veins) on the right side. Post embolization angiogram was satisfactory. She was discharged five days later in good health with hemoglobin of 9.1 g/dl.

Discussion

Obstetric hemorrhage still remains a major cause of maternal deaths in developed and developing countries. The fact that the Confidential Enquiry into Maternal Deaths (2005-2007) judged 58% of them to have received substandard care makes it imperative to review ideal management in such cases. The management of postpartum hemorrhage (PPH) has been categorized into four broad areas: 1) Communication between midwife, obstetrician, anesthetist and hematologist is vital, 2) Resuscitation with anesthetist's help if required, 3) Investigation and Monitoring, and 4) Arrest of bleeding - keeping in mind the 4 T's (i.e., Tone, Tissue, Trauma, and Thrombin).¹

When medical and surgical options (curettage, B-Lynch, uterine artery ligation) have been exhausted, the decision for hysterectomy should be taken sooner rather than later. The cause

of secondary postpartum hemorrhage is usually infection with or without retained products. This calls for curettage and specific antibiotic therapy. In the index case, curettage was reportedly done as secretory endometrium. She received Meropenem as per the culture report of Klebsiella. The possibility of an eroded vessel in the present case is high as scan at embolization showed a vessel close to the uterine scar. Pelage, in his series of 14 cases of secondary postpartum hemorrhage could not detect any cause in two of them.²

Transcatheter arterial embolization for control of obstetric hemorrhage was first carried out successfully by Brown in 1979. A review of literature shows a cumulative success rate of 97% for selective arterial embolization in PPH following vaginal or Cesarean deliveries.³ Badaway reviewed 138 cases of PPH and found a similarly high success rate with low complication rate and need for hysterectomy due to failure of embolization in 5% of cases.⁴ While Pelage, in his series of 14 consecutive cases of uncontrolled hemorrhage, used gelatin sponge in all but two cases of false aneurysm where N-butyl-acrylate was used.²

The high success rate and low complication rate of uterine artery embolization (UAE) has made it a valuable option in managing PPH. The potential complications of angiography include low grade fever, hematoma at the site of catheter placement, infection like pelvic abscess; contrast related side effects, ischemic phenomena, and rarely iliac artery perforation. The potential limitations include the logistics of performing the procedure during labor and delivery when equipment and interventional radiologists may not be available at all centers.

The advantages of UAE are easy identification of bleeding site, decreased re-bleeding from collaterals as more distal occlusion of bleeding vessels are carried out, preservation of uterus and fertility and the avoidance of laparotomy and technically difficult

hysterectomy. When facilities for uterine artery ligation and UAE are available, the first choice would be embolization as it obviates the need for laparotomy and ligation could be subsequently carried out. However, if ligation was carried out, then hysterectomy would be the only remaining option as it would be almost impossible to do an UAE after ligation.

Conclusion

Overall, the increasingly important role of UAE in control of PPH has to be acknowledged. The limited availability of trained personnel and equipment calls for elective cases, like placenta praevia increta or percreta, especially with previous cesarian sections, to be scheduled at such centers where catheters could be put in place prophylactically. In case of emergencies, referral pathways for smooth transfer and management of cases should be in place.

Acknowledgements

The authors reported no conflict of interest and no funding was received on this work.

References

1. Royal College of Obstetricians and Gynaecologists Green Top Guidelines. May 2009.
2. 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 Aug;212(2):385-389.
3. Gary A. Dildy III Postpartum hemorrhage: New management options. *Clin Obstet Gynaecol* 2002;45(2):330-334.
4. Wee L, Barron J, Toye R. Management of severe postpartum haemorrhage by uterine artery embolization. *Br J Anaesth* 2004 Oct;93(4):591-594.