Internal Iliac Artery Embolisation in Post LSCS Haemorrhage

Surg Capt Sushil Kumar*, Surg Capt JD Souza⁺, Surg Cdr IK Indrajit[#], Surg Cdr V Mohindra^{**}, Maj Rima⁺⁺

MJAFI 2006; 62 : 198-199

Key Words: Life threatening hemorrhage; Coagulopathy; Internal iliac artery embolisation.

Introduction

Obstetric hemorrhage is an important cause of maternal morbidity and death [1]. This condition has been traditionally managed by bilateral uterine artery ligation. Of late, life-threatening obstetric hemorrhage is increasingly dealt with using endovascular embolisation technique. Angiographic embolisation is a potentially 'life and fertility' saving procedure. It is a safe and effective method of controlling pregnancy related hemorrhagic complications unresponsive to conservative management and maintains reproductive potential [2]. We report our experience in a case of successful arterial embolization following intractable primary post partum hemorrhage complicated by coagulopathy.

Case Report

A 27 year old lady underwent repeat LSCS for CPD. Two hours after caesarean section she started bleeding per vaginally. On examination the patient had features of hypovolemic shock. She was managed with Pitocin drip, Inj Methergin and Prostaglandins, the uterus was well contracted after treatment but bleeding continued and patient went into shock. Patient was resuscitated with colloid and crystalloid infusion. A bedside clot retraction test was performed in which blood did not clot even after ½ hr. Urgent investigations revealed: Hemoglobin: 6.9gm%, PCV: 21.9%, Platelet count: 71000, PT:>200 sec, APPT: 156.9 sec, FDP>200 units Serum fibrinogen levels : 100 mg. Patient was started on stored.

In spite of blood transfusion patient continued to bleed, started oozing from abdominal wound and went into hypovolemic shock. At this stage, hysterectomy could have been catastrophic and patient taken up for internal iliac artery embolisation to decrease the bleeding from the uterus, before the availability of fresh blood components.

Internal iliac embolisation was performed using a right transfemoral route. After the introduction of a 6 French arterial

sheath, the diagnostic and interventional study involved the use of 5 French sized catheters: Cobra, Shepherds crook, Renal catheters were utilized for contralateral (left) internal iliac artery while Simmons and Cobra catheters were used for ipsilateral internal iliac artery. Selective internal iliac angiography revealed AV shunting at the origin of left uterine artery with large draining vein. Occlusion of anterior division of both internal iliac arteries was performed with .035 fibered embolization coils. Three coils in left internal iliac artery and two coils were deployed in right internal iliac artery. A check angiography showed adequate occlusion of anterior trunk of both internal iliac arteries (Fig. 1).

Immediately after embolisation bleeding decreased, but oozing from uterine wound continued. After 30 minutes of internal iliac artery embolisation 10 units of cryoprecipitate and 6 units of fresh frozen plasma were transfused and patient recovered completely. The arterial sheath was kept in situ for 24 hours and removed after Prothrombin Time returned to normal. A 3D CT Angiography using Multislice CT done a week later showed complete occlusion of both internal iliac arteries (Fig. 2).

Discussion

500,000 women worldwide die annually as a result of child birth complications and about a quarter of the deaths are due to PPH[1]. The treatment of PPH is centered on resuscitation of the patient and arrest of bleeding. If bleeding cannot be successfully controlled by uterotonic medications, other treatment options include uterine tamponade, selective arterial embolization, uterine suturing techniques, ligation of uterine or internal iliac arteries and hysterectomy [2].

Of late, internal iliac artery embolization is emerging as a successful alternative to surgery for control of obstetric hemorrhage [3]. This is achieved by transcatheter use of occlusion coils, a technique referred

*Senior Advisor (Obstetrics and Gynaecology), ⁺Senior Advisor (Radiology), ^{**}Classified Specialist (Obstetrics and Gynaecology), ⁺⁺Post graduate Trainee (Obstetrics and Gynaecology) INHS Asvini, Colaba, Mumbai, [#]Classified Specialist (Radiology), AH (R&R), New Delhi.

Received : 22.04.04; Accepted : 06.09.04

Fig. 1 : A check angiography of both internal iliac artery showing adequate occlusion of anterior division of both internal iliac arteries following embolisation with multiple 0.35 fibered embolization coils

as embolization, which ensures a) timely control of bleeding, b) reduction of “pressure head” on the bleeding uterine vessels, c) permits complete occlusion of the uterine arteries and d) hemostasis [4]. The procedure avoids high-risk surgery while maintaining the reproductive ability of the patient.

However, internal iliac artery ligation has been shown to have a more than 50% failure rate as a result of the rich collateral circulation in the pelvis [5]. Uterine artery embolization was first described as a treatment for PPH in 1979 by Brown et al [6], and the procedure reports high success rate compared to ligation and hysterectomy [7].

According to the review by Badawy et al [8], the success rate of 138 cases of embolotherapy for PPH between 1979 and 1999 was 94.9% . There is a relatively low complication rate of 8.7%. An additional advantage of embolotherapy for PPH is the preservation of fertility in treated women[9].

Conflicts of Interest

None identified

References

1. Abouzahr C. Antepartum and postpartum hemorrhage. In: Health dimensions of sex and reproduction. Boston: Harvard University Press, 1998:172-4.

Fig. 2 : 3D multislice CT angiography with volume rendering done a week later showed complete occlusion of both internal iliac arteries.

2. Deux JF, Bazot M, Le Blanche AF et al. Is selective embolization of uterine arteries a safe alternative to hysterectomy in patients with postpartum hemorrhage? *AJR Am J Roentgenol.* 2001 Jul;177(1):145-9.
3. Pelage JP, Le Dref O, Jacob D, Soyer P, Herbreteau D, Rymer R. Selective arterial embolization of the uterine arteries in the management of intractable post-partum hemorrhage. *Acta Obstet Gynecol Scand.* 1999 Sep;78(8):698-703.
4. Oei PL, Chua S, Tan L, Ratnam SS, Arulkumaran S. Arterial embolization for bleeding following hysterectomy for intractable postpartum hemorrhage. *Int J Gynaecol Obstet.* 1998 Jul; 62(1): 83-6.
5. Sergeant F, Resch B, Verspyck E, Rachet B. Intractable postpartum haemorrhages: where is the place of vascular ligations, emergency peripartum hysterectomy or arterial embolization? *Gynecol Obstet Fertil.* 2004;32:320-9.
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. Yamashita Y, Harada M, Yamamoto H, Miyazaki T, et al. Transcatheter arterial embolization of obstetric and gynaecological bleeding: efficacy and clinical outcome. *Br J Radiol.* 1994;98:530-4.
8. Badawy SZ, Etman A, Singh M, Murphy K, Mayelli T, Philadelphia M. Uterine artery embolization: The role in obstetrics and gynecology. *Clin Imaging* 2001;25:288-96.
9. Ravina JH, Vigneron NC, Aymard A, Le Dref O Merland JJ. Pregnancy after embolization of uterine Myoma: Report of 12 cases. *Fertil Steril* 2000;73:1241-3.