Life Saving Hysterectomy after Uterine Artery Embolization for Secondary Postpartum Haemorrhage.

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Abstract:
Pseudoaneurysm of the uterine arteries as a cause of secondary postpartum haemorrhage (PPH) is a rare but potentially life threatening complication. We report a case of pseudoaneurysm of uterine artery following cesarean section, who presented with secondary PPH. Uterine artery embolization was done to conserve the uterus. But the haemorrhage continued due to feeding collaterals, hence hysterectomy was done to save the patient.

Keywords: Secondary postpartum haemorrhage, Uterine artery embolization, Uterine artery pseudoaneurysm, Hysterectomy.

Introduction:
Post Partum Haemorrhage (PPH) is one of the major causes of maternal mortality in the world. Secondary PPH is defined as abnormal bleeding from genital tract from 24 hours after delivery until 6 weeks post partum. Secondary PPH is very rare. Most common causes of secondary PPH being infection and retained products of conception. Rare causes are pseudoaneurysm, choriocarcinoma and AV malformations. Ultrasound, doppler and angiography have helped to identify women with vascular abnormalities leading to PPH. When primary management with uterotonic drugs, antibiotics, endometrial curettage fails, procedures like hypogastric artery ligation or hysterectomy is resorted to. Uterine Artery Embolization (UAE) has been a safe and reliable alternative procedure for PPH. Failure of this procedure necessitates lifesaving hysterectomy. A case is reported of uterine artery pseudoaneurysm with secondary PPH, 5 weeks after cesarean section, managed with UAE, which failed and had to undergo hysterectomy as a life saving procedure.

Case Report:
A 24 years old woman primi para delivered a female child of 3.8 kg by emergency cesarean section done for premature rupture of membranes and failed progression of labour 37 days ago in a private hospital. She had Intra Uterine Contraceptive Device (IUCD) inserted immediately after the surgery. Her antenatal period was uneventful. She was asymptomatic for 36 days following surgery. On 37th day, she had severe bleeding per vaginum, associated with giddiness. She was referred to our hospital. Patient had no pain abdomen. No significant past history. On examination, she was moderately built with pallor and her vitals were stable. Abdomen soft and no tenderness.

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Cesarean scar was healthy. Speculum examination of vagina showed IUCD threads through cervix which was removed immediately and continuous bleeding through cervix. Vaginal examination showed uterus 10 weeks size, mobile, non tender, fornices free. Blood investigations revealed Hb: 6.5 g/dl, Platelet count, Bleeding time and clotting time were Normal. Ultrasonography and doppler revealed a pseudoaneurysm of left uterine artery of size 3.5 cms to 1.5 cms. Symptomatic treatment was done by giving intravenous fluids, uterotonic drugs and blood transfusion. Since the profuse bleeding continued, patient was posted for uterine artery embolization in view of conserving the uterus.

**Procedure:**
Under local anaesthesia and strict aseptic precautions endovascular embolization of left uterine artery pseudoaneurysm was done via right femoral artery cannulation. Even after placing 4 coils, there was faint filling of the large pseudo aneurysm. Hence, advised close observation for further bleed and requirement for surgery.

Even after the procedure, patient continued bleeding heavily with deteriorating vitals and hence decided to be taken up for hysterectomy.

**Discussion:**
Postpartum haemorrhage is one of the major causes of maternal mortality. Primary PPH is common but secondary PPH is rare. Common causes of secondary PPH are retained products of conception, endometritis, sub involution of placental bed and rare causes are pseudoaneurysms of uterine artery, arteriovenous malformations, and choriocarcinoma. Pseudoaneurysm is an extra luminal collection of blood with turbulent flow that communicates with flowing arterial blood through a defect in the arterial wall. When the uterine arteries are lacerated or injured and does not seal completely blood escapes, dissect the adjacent issue and collects in the perivascular areas. If this collection maintains communication with the parent vessel a pseudoaneurysm can result. Rupture of this can result in profuse bout of bleeding. It is a rare but a dangerous complication and especially after cesarean section. It can also occur after any pelvic surgeries (hysterectomy, myomectomy). Dilatation and curettage, uncomplicated vaginal delivery, infections and neoplasms. Pseudoaneurysm of uterine artery usually presents as secondary PPH [Between 24 hours and 6-12 weeks postpartum]. It can be diagnosed by real time sonography and doppler sonography. Sonographic signs consist of a hypoechoic lesions associated with
uterine incision. Color Doppler sonography will show to & fro sign in the neck of pseudoaneurysm [1] and Yin and Yang sign in the body of pseudoaneurysm. CT angiography confirms the pseudoaneurysm and rules out other causes if any.

Recently uterine artery embolization has become the most useful clinical tool in the management of pseudoaneurysm. Pseudoaneurysm of uterine artery after cesarian section- sonographic diagnosis and treatment has been reported by Henrich et al.[2]. Since its introduction in 1979 [3,4] endovascular pelvic arterial embolization has emerged as a highly effective technique for controlling acute bleeding in a wide variety of obstetric and gynaecologic disorders, including its use as a uterussparing technique for PPH treatment.

Few reports suggested a single embolization achieved hemostasis in four patients [5,6,7]. Two patients underwent bilateral embolization prophylactically. Unfortunately our patient developed recurrent vaginal bleeding after embolization. Rebleeding neither signified a failed embolization nor bleeding from a branch of contralateral uterine artery feeding this same false aneurysm as was seen on pelvic angiogram. It is possible that the redistribution and redirection of blood or hypoxia induced neovacularisation to allow bleeding to occur from contralateral side after initial embolization. Hence hysterectomy should be resorted to at the earliest before the patient goes into haemorrhagic complications without any further conservative treatment.

Even after uterine artery embolisation, the massive bleeding episodes persists hysterectomy as a life saving procedure should not be forgotten. The decision has to be taken early than late to prevent patient from going into shock or disseminated intravascular coagulopathy.

Conclusion:
Pseudo aneurysm is a potentially life threatening complication, which should be considered in the differential diagnosis of secondary postpartum haemorrhage. Timely done hysterectomy as a life saving procedure will be needed especially in cases of large pseudoaneurysms with feeding collaterals to the same after trying uterine artery embolization.

References: