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Case Report

Uterine preservation with Cho suture in localized multifocal atonicity of uterus with failed medical management and uterine tamponade

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ABSTRACT

Postpartum haemorrhage (PPH) is a major cause of maternal morbidity and mortality, and one of the common obstetrical emergencies. Quite commonly, it occurs in patients where PPH is not expected. Management has to be swift and precise according to the steps and the response initiated by the uterine musculature during the management. In our patient, we had a localized multifocal atony of the uterus, at points where the uterine sinuses were bleeding due to atony, and medical management and uterine tamponade failed, with a raised D-dimer level. As the stepwise management failed with uterine devascularisation failing to control PPH, a decision for uterine compression suture (UCS), Cho suture was taken.

Keywords: PPH, Atony, Uterine tamponade, Devascularisation, UCS, Cho suture

INTRODUCTION

Primary postpartum haemorrhage (PPH) is the most common form of major obstetric haemorrhage. The traditional definition of primary PPH is the loss of 500 ml or more of blood from the genital tract within 24 hours of the birth of a baby.[1] PPH is a significant contributor to severe maternal morbidity and long-term disability as well as to a number of other severe maternal conditions generally associated with more substantial blood loss, including shock and organ dysfunction.[2-4] According to World Health Organization (WHO) estimates PPH is leading cause of maternal mortality and morbidity worldwide and is responsible for nearly one-quarter (25%) of all maternal deaths.[5] PPH is a frequent complication of delivery and its reported incidence in India is 2-4% after vaginal delivery and 6% after cesarean section with uterine atony being the most common cause (50%). As reported by registrar, general, India and centre for global health research 2001-2003; the five most common direct causes of pregnancy-related mortality in India were hemorrhage (38%), sepsis (11%), unsafe abortion (8%), hypertensive disorders (5%) and obstructed labor (5%). The remaining 34% of maternal deaths were due to unspecified indirect causes.[6]

In this case report, we describe a case of primary PPH due to atonicity of uterus intrapartum during caesarean section that was managed by uterine compression sutures (UCS) after PPH failed to respond to medical management, selective uterine devascularisation, and uterine tamponade.

We do emphasize on review of the incidence of complications of various UCS, and also application of the technique that fits the recognizable cause of PPH, in our case patches of localized atony of uterus that was best assessed to be managed by Cho compression sutures and for surgeons to familiarize with the techniques to avoid surgical removal of the uterus and to preserve the fertility.

We also hereby press on the need to be equipped with the required instruments, in our case a straight needle that is to be used in such dire state of emergency.

CASE REPORT

We report the case of a 24 year old pregnant patient, with a history of a previous caesarean section with a moderate anaemia, and without any significant medical history. The patient was taken up for an emergency caesarean section for having a big baby and scar tenderness on palpation. The patient had no history of gestational hypertension, and had preoperative investigations with haemoglobin (Hb) 7.9 g/dl, total leucocyte count (TLC) 9,000, platelets (plt) 1.36 lakh, C-reactive protein (CRP) 1.4, and D-dimer 5000. A repeat D-dimer was found to be 3960 ng/ml. The patient had a normal saturation of peripheral oxygen (SpO_2) with 99% oxygen saturation, and had a normal chest x-ray.

The caesarean section was done under spinal anaesthesia. The baby was delivered with a birth weight of 3.7 kg, and cried soon after birth and assessed by neonatologist. 20 units of oxytocin was started in 500 ml of ringer lactate as an infusion. Injection methergin was given intravenous (i.v.) stat after spontaneous separation of the placenta. Adherent placenta was ruled out preoperatively. There was bleeding from the sinuses of the placental bed that were open due to lack of the contraction of the uterine musculature. Bilateral uterine arteries were ligated and injection carboprost (0.5 mg) was given to facilitate uterine contraction. Still, the bleeding continued, and tablet misoprostol (1000 µg) was given, and uterine tamponade was achieved by packing the uterine cavity with roller gauze, with one end outside the cervical canal. Call for help was given. We waited for uterine contraction, and for bleeding to be reduced, but there was failure of uterine tamponade, and so the roller gauze was removed. Help arrived and an assistant surgeon joined. 2-3 stitches taken over placental bed to achiever closure of the bleeding sinuses along with repeat doses of injection methergin and injection carboprost. 2 units of packed cell volume (PCV) was requested on an emergency basis.

Bleeding continued, and bimanual uterine compression was started. Bleeding was reduced. The sites of bleeding sinuses were identified by applying compression over various quadrants of uterus, and assessing the blood loss. Thus, the decision for UCS, and in this particular case, Cho suture was taken due to multifocal localized atonicity of uterus. Four Cho sutures were taken with catgut no. 1 using a straight needle at sites of the bleeding sinuses, as shown in Figure 1 and 2.

The bleeding was stopped, and uterine closure performed. Control of PPH was confirmed by vaginal swabbing before abdominal closure. An intraperitoneal drain was kept for postop assessment. Wash was given and there was no bleeding. Abdominal closure was done and patient was shifted to post operation ward.

The patient was switched over to higher antibiotics, but had a fever spike of 100 oF on postoperative day 2, with otherwise uneventful postop period. The postoperative investigations were within normal range. The drain was removed on day 5 and patient discharged after ultrasound. Patient was followed up on weekly intervals to check for development of pyometra, pelvic abscess and other such complications of UCS, by use of ultrasound.

Figure 1: Anterior surface of uterus with Cho sutures.

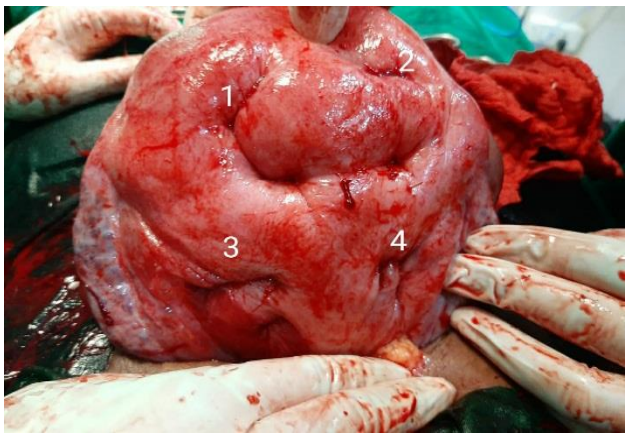

Figure 2: Posterior surface of uterus with Cho sutures.

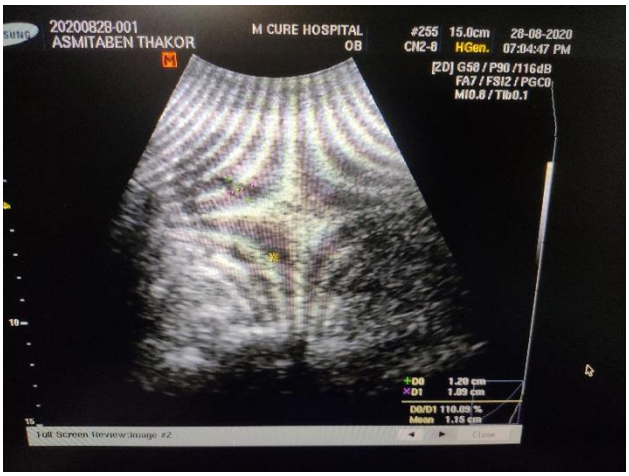

Figure 3: Ultrasound picture with no evidence of pyometra or any collection post operation.

DISCUSSION

The management of severe postpartum haemorrhage must be as fast, simple and conservative as possible.[7] The primary steps must be followed for resuscitation of the patient, and for calling out desired helping hand when deemed necessary. It is critical to ensure that the uterus is empty with no left out products of conception, to ensure contraction of the uterus. A "stepwise approach" must be adopted in each obstetric unit that is simple, effective and reproducible to avoid delay in management of PPH.

When the medical management fails, use of conservative surgical techniques should be considered, that is easier to perform and is less aggressive and so being more commonly used now. These are: uterine artery ligation, possibly of both upper and lower branches, which is not so helpful in cases of atony of uterus; ligation of the hypogastric artery by dissection of the retroperitoneal space and isolation of the hypogastric artery, anterior branch, and it safe ligation using a mixter forceps, taking care of the external iliac artery and internal iliac vein; uterine tamponade, by Bakri Balloon, or a roller gauze packing, to create a pressure effect on the bleeding sinuses to cause compression for arresting the bleeding; and uterine compression sutures, which are more recent description and also simple, quick and less aggressive.[8-14]

In our case, the authors have used this technique (Cho suture) along with one or more above mentioned techniques for control of PPH.

The aim of these sutures is to cause compression of the placental bed as the source of bleeding. Several techniques have been described in literature and stated below.

B-lynch suture

It was practiced for the first time in 1989 by Christopher B-Lynch who refused hysterectomy haemostasis during caesarean section. Also known as brace suture and uses an absorbable suture for compressing the uterus by making a brace on the uterus and causing compression of the uterus.[12]

Hayman suture

It is a modification of B-Lynch suture, and offers advantages of being faster, easier and avoids performing a hysterotomy in cases when PPH follows vaginal delivery.[13]

Cho suture (square suture)

This technique has been presented by Cho which comprises of suturing together a square portion of anterior and posterior walls of uterus together and causing the compression of bleeding sinuses.[14]

Finally, imaging plays an important role to rule out the complications like pyometra, necrosis, synechia along with a thorough clinical examination as was followed in our present case.[15-17]

CONCLUSION

Conservative surgical management of PPH should be sought for wherever possible and it is important for the surgeon to be well verse with the techniques that can be useful in said situation, especially when all the other medical and primary conservative methods for management of PPH fail. Uterine compression sutures play a major role in the conservative surgical management of PPH during caesarean section. It allows preservation of the patient's fertility, and saves the patient from severe morbidity and mortality caused in the wait for other therapeutic approaches.

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