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## Management of parturient with triplet pregnancy and placenta percreta: Importance of multi-disciplinary approach

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## Management of Parturient with Triplet Pregnancy and Placenta Percreta: Importance of Multi-Disciplinary Approach

### Abstract

Obstetric conditions like placenta percreta and multiple pregnancies can be extremely challenging as they pose a high risk for both the mother and infants. In placenta percreta, placental villi penetrate through the wall of uterus into the surrounding organs including the bladder and carry a risk of massive maternal bleeding. Multiple pregnancies have greater complication rate than that in singleton pregnancy. Successful management of such challenges are best done by a multidisciplinary teamwork, where all members of a perinatal team are involved in decision making and management. We report the successful management of a triplet gestation associated with placenta percreta.

**Keywords:** Anaesthetic management, multidisciplinary team, multiple pregnancies, placenta percreta

### Introduction

With rising rate of caesarean section and introduction of assisted reproductive technologies there is a dramatic rise in the incidence of morbidly adherent placenta (MAP) and multiple gestations.<sup>[1,2]</sup> Morbidly adherent placenta accounts for 7-10% of maternal mortality all over the world.<sup>[3]</sup> There have also been reported antenatal and postpartum complications of multiple gestations.<sup>[4]</sup> Therefore, a safe maternal and infant outcome requires antepartum recognition and a multidisciplinary team approach. We report the successful management of a triplet gestation associated with placenta percreta.

### Case History

A 30-year-old second gravida after an *in vitro* fertilization (IVF) was booked under the care of obstetric services of Aga Khan University Hospital, Karachi Pakistan. The ultrasound at 20 weeks of gestation showed alive triplet pregnancy with placenta completely covering the os. The repeat ultrasound at 30 weeks showed re-demonstration of grade IV placenta previa completely covering the os along with thinning of myometrium with multiple vessels traversing into the myometrium up to the urinary bladder wall, strongly

suggesting of placenta percreta with invasion of bladder dome.

A multidisciplinary consultation was sought from urologist, gynecologic urologist, obstetric anesthesiologist, hematologist, and neonatologist. After detailed discussion among the multidisciplinary team, it was planned to proceed with cesarean section at 35 weeks and to give betamethasone to enhance fetal lung maturity and iron supplements to improve her hemoglobin levels.

Anesthesia assessment included detailed history, examination and counseling regarding invasive lines, blood transfusion, technique of anesthesia and possible intensive care admission. She was already counseled by the obstetric team regarding cesarean hysterectomy. After discussion with the family and patient; general anaesthesia was decided as the technique of choice and patient controlled intravenous analgesia (PCIA) was decided as the postoperative analgesic modality.

At the day of surgery, she was adequately optimized with haemoglobin of 12.1 g/dl. Availability of different teams, blood products including 10 packed cells, 10 platelet units, 10 fresh frozen plasma units, and 10 cryoprecipitate was done. The operating room was ready with rapid infusion sets, warming blanket, vasopressors, four packs of each blood products and resuscitation equipment.

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Before induction of anesthesia using local infiltration with 2% lidocaine, two 16 gauge venous cannulas; one on left dorsum of hand and one on the left forearm was placed, in addition to a 14 gauge venous cannula on right forearm. Left radial artery was cannulated for invasive arterial blood pressure monitoring. As the patient was very apprehensive and refused to awake central venous cannulation, position for central venous line from internal jugular was made to put after induction of general anaesthesia under ultrasound guidance.

The patient was induced with rapid sequence induction with thiopentone and suxamethonium and a MAC of 0.9-1.0 was maintained with isoflurane and nitrous oxide with oxygen. A midline incision was used and three live babies were delivered within 5 minutes of incision and were resuscitated by team from neonatal intensive care unit (NICU) available in the operating room. Later on they were shifted to the NICU while maintaining adequate oxygen saturation on supplemental oxygen. Nalbuphine was used for analgesia once the babies were delivered, followed by 1 gram of paracetamol. Atracurium was used as muscle relaxant after assessing train of four. Ringer lactate was used for resuscitation initially and was administered over fluid warmers. Bair hugger warming blanket was used to avoid hypothermia and she maintained a core temperature of more than 36 centigrade throughout the surgery. About 3 litres of blood was lost within 30 minutes of incision and mean arterial pressure was maintained above 65 mm Hg with crystalloids, colloids, and vasopressors. Once uterine arteries were clamped, 4 units each of packed cells, fresh frozen plasma (FFPs) and platelet were transfused over the fluid warmers. As placenta was adherent to the bladder, hysterectomy was performed and bladder was repaired by urogynaecologist. The bladder repair was confirmed by retrograde filling of the bladder with methylene blue dye. Another 2.5 litres of blood was lost during hysterectomy and bladder repair, and was replaced by additional 4 units each of packed red cells, FFPs, platelets and cryoprecipitate. The urine output was monitored and a total of 50-60 ml of urine was produced each hour. She required intermittent boluses of phenylephrine and epinephrine to maintain the mean arterial pressure above 65 mm Hg. Once the bladder was repaired, the abdominal cavity was rinsed using warm saline. The muscle layers were closed and peritoneum was sutured. Intravenous ondansetron 8 mg was administered during skin closure. Once the skin was closed, isoflurane was discontinued and the patient was assessed for spontaneous breathing. Nitrous oxide was discontinued once spontaneous breathing efforts were observed. Patient was reversed by administering 2.5 mg of neostigmine in combination with 0.2 mg of glycopyrrolate and was extubated once she was making more than 6 ml/kg of tidal volume with spontaneous eye opening and head rise. She was shifted to the recovery room and arterial line was monitored for the next 2 hours. Blood sample was

sent for analysis which showed haemoglobin of 10.5 g/dl and normal blood gases and electrolytes. The patient was observed in the recovery room for two hours after which she was shifted to the special care unit. The anesthesia team followed her during her hospital stay and she was discharged on oral medicines on day 3 of her surgery.

## Discussion

The major risk factor for the present case was the presence of placenta percreta, which is a type of morbidly adherent placenta where placental villi penetrate through the uterus and into the surrounding tissues including the bladder.<sup>[5]</sup> Additional risk factors were multiple pregnancies with triplets, and placenta completely covering the os. In such cases, optimum obstetric management recommends planned caesarean hysterectomy between 34-36 weeks of gestation,<sup>[6]</sup> which was planned for this case. It is also recommended to have a multidisciplinary approach by a team of experienced obstetricians, anaesthesiologists, nurses, interventional radiologists, neonatologists, and urologists, as well as a blood bank to ensure the best outcomes.<sup>[5]</sup> In this case a multidisciplinary team of all specialists were made, however the services of interventional radiologists for uterine artery balloon catheterization was not utilized. Literature has shown that other categories of morbidly adherent placenta including placenta accrete and increta are usually perfused by uterine vessels so that putting a balloon by interventional radiologist in the uterine artery can control massive bleeding,<sup>[7]</sup> but placenta percreta may be perfused by extra uterine vessels,<sup>[8]</sup> so the risk of bleeding cannot be controlled by uterine artery balloon catheter alone.

Anaesthetic management requires meticulous preoperative planning,<sup>[9]</sup> which includes optimization of haemoglobin, availability of blood products and rapid infusing sets, invasive hemodynamic monitoring, availability of vasopressors, compression stockings, avoidance and treatment of hypotension, and positioning of patient by using gel pads so as to avoid nerve compression.

The choice between regional and general anaesthesia depends on anticipated blood loss and extend of placenta percreta. Even though regional anaesthesia is the preferred option for caesarean section, with a reported significant decrease in the rate of complications as compared to general anaesthesia,<sup>[8,10]</sup> there are some reservations for its use in patients with placenta accreta.<sup>[11]</sup> General anaesthesia was selected in this case for better control of ventilation and hemodynamic stability as excessive haemorrhage was anticipated due to combination of triplet pregnancy, extension of placenta to the bladder and planned hysterectomy. The anticipated duration of caesarean hysterectomy is longer which can lead to patient restlessness and pulling, and traction on the viscera can often lead to pain, nausea, and vomiting. In addition, hyperaemic pelvic viscera require careful dissection with a quiet operative field and good muscle relaxation.

A recent case report found that more than 10 units of packed red cells were required in 65% of patients operated for morbidly adherent placenta.<sup>[12]</sup> In addition damage control resuscitation by transfusing packed red cells, fresh frozen plasma and platelets in 1:1:1 ratio has shown improved outcomes in trauma field.<sup>[13]</sup> However, no comparable data is available in pregnancy but the author's experience of using it in cases of morbidly adherent placenta which has shown encouraging results. Therefore preoperative arrangement of blood products, immediate access in the operating room with 1:1:1 transfusion is vital for successful outcome and practiced in the case under discussion.

In summary, we report successful anesthetic management with favorable maternal and neonatal outcomes in a patient operated for placenta percreta with multiple gestations. The key to success for such high risk cases includes early preoperative diagnosis, followed by multidisciplinary teamwork approach, prospective planning, meticulous preparation and adequate man power. Proper counseling of patient and her family and a flexible approach to anesthetic management, may further enhance optimal perioperative management.

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#### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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#### Conflicts of interest

There are no conflicts of interest.

#### References

1. Solheim KN, Esakoff TF, Little SE, Cheng YW, Sparks TN, Caughey AB. The effect of cesarean delivery rates on the future incidence of placenta previa, placenta accreta and maternal mortality. *J Matern Fetal Neonatal Med* 2011;24:1341-6.
2. Wright VC, Chang J, Jeng G, Chen M, Macaluso M. Assisted reproductive technology surveillance-United States, 2004. *MMWR Surveill Summ* 2007;56:1-22.
3. Chandrharan E, Rao S, Belli AM, Arulkumaran S. The Triple-P procedure as a conservative surgical alternative to peripartum hysterectomy for placenta percreta. *Int J Gynaecol Obstet* 2012;117:191-4.
4. Marino T, Goudas LC, Steinbok V, Craigo SD, Yarnell RW. The anesthetic management of triplet cesarean delivery: A retrospective case series of maternal outcomes. *Anesth Analg* 2001;93:991-5.
5. Parva M, Chamchad D, Keegan J, Gerson A, Horrow J. Placenta percreta with invasion of the bladder wall: Management with a multi-disciplinary approach. *J Clin Anesth* 2010;22:209-12.
6. Sivasankar C. Perioperative management of undiagnosed placenta percreta: Case report and management strategies. *Int J Womens Health* 2012;4:451-4.
7. Faranesh R, Romano S, Shalev E, Salim R. Suggested approach for management of placenta percreta invading the urinary bladder. *Obstet Gynecol* 2007;110:512-5.
8. Reitman E, Devine PC, Laifer-Narin SL, Flood P. Case scenario: Perioperative management of a multigravida at 34-week gestation diagnosed with abnormal placentation. *Anesthesiology* 2011;115:852-7.
9. Belfort MA. Placenta accreta. Publications Committee, Society for Maternal-Fetal Medicine. *Am J Obstet Gynecol* 2010;203:430-9.
10. Parekh N, Husaini SW, Russell IF. Caesarean section for placenta praevia: A retrospective study of anaesthetic management. *Br J Anaesth* 2000;84:725-30.
11. Snegovskikh D, Clebone A, Norwitz E. Anesthetic management of patients with placenta accreta and resuscitation strategies for associated massive hemorrhage. *Curr Opin Anesthesiol* 2011;24:274-81.
12. Stotler B, Padmanabhan A, Devine P, Wright J, Spitalnik SL, Schwartz J. Transfusion requirements in obstetric patients with placenta accreta. *Transfusion* 2011;51:2627-33.
13. Ball CG. Damage control resuscitation: History, theory and technique. *Can J Surg* 2014;57:55-60.