Anaesthesiologist's role in the multidisciplinary approach to placenta percreta

INTRODUCTION

Abnormal placentation, an obstetrician's nightmare[1] presents a challenge. We present a case of caesarean section, in a patient with placenta percreta managed by multidisciplinary approach and the challenges faced by anaesthesiologist during the management. The challenges include preparation for massive blood loss, managing anaesthesia in a pregnant patient in a remote location, and transport of an anaesthetised patient back and forth between interventional radiology suite and the operation theatre.

CASE REPORT

A 31-year-old gravida 2 para 1 with a gestational age of 37 weeks 6 days presented with the diagnosis of placenta percreta, which had invaded the bladder. Her past obstetric history included a previous caesarean section for placenta praevia. In order to avoid obstetric hysterectomy, which would have led to sacrificing a part of the bladder, a staged procedure that involved bilateral internal artery balloon catheterisation, caesarean section delivery, and embolisation was planned.

An informed written consent was obtained after explaining the risks and benefits involved in the procedure. Adequate blood was reserved, and the blood bank was informed about the possibility of massive blood transfusion. Keeping the possibility of conducting a caesarean section in the interventional radiology suite, arrangements were made with the required anaesthesia equipment to deal with the airway, operating instruments, neonatal resuscitation, and portable lights for such an emergency.

In the interventional radiology suite monitoring along with invasive arterial blood pressure was established. Two wide bore 18 gauge cannulae were secured. Under local anaesthesia, bilateral internal iliac artery balloons were placed through right femoral artery [Figure 1]. Injection heparin 3000 units was given intravenous (I.V.) Accompanied by the anaesthesiologist and trained staff, the patient was transported to the operation theatre with adequate monitoring. During the procedure, and during the transportation, a wedge under the patient's right hip to facilitate left uterine displacement and also protect the femoral artery sheath. In the operation theatre, general anaesthesia was instituted. Post-delivery oxytocics were avoided to prevent placental separation. The balloons in the internal iliac arteries were inflated intra-operatively to control the haemorrhage. The total blood loss during surgery was 800 ml. A healthy baby of 3.2 kg was delivered.Crystalloids were used during the procedure.

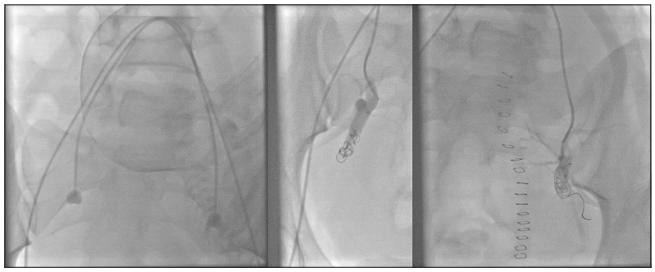

Figure 1: Internal iliac balloons in place bilaterally, and steel coils in place

In order to embolise the internal iliac artery [Figure 1], the patient was once again transported to the interventional radiology suite with monitoring and ventilation. At the end of the procedure in the radiology suite, patient was reversed and extubated. The placenta was left *in situ*, and she received 4 doses of methotrexate 1 mg/kg I.V. along with leucovorin rescue 0.1 mg/kg in the post-operative period. Serial ultrasonography and beta human chorionic gonadotropin showed a downwards trend. The patient was discharged on 7th post-operative day without any complications. Complete resorption of the placenta with the absence in the Doppler flow took 14 weeks.

DISCUSSION

Placenta accreta is a general term, when part of the placenta or the entire placenta invades and is inseparable from the uterine wall. When chorionic villi invade only the myometrium, the term placenta increta is used, and when they invade the serosa along with the surrounding structures, the term percreta is used.[1,2] The possible mechanisms of accreta formation have been proposed such as abnormal decidualization and pathological over-invasiveness of the trophoblast.[3,4] The incidence of placenta accreta of 1.7 in 10,000 pregnancies has been reported in UK, for the period of 1982–2002. However, the incidence is considerably higher in women with both a previous caesarean delivery and placenta praevia, occurring in around one in every 20 such women.[5] A conservative approach in the management of placenta accreta when the placenta may be left in place followed by selective uterine artery embolisation or inflation of angioballoons.[6-8] Resorption of the retained, poorly perfused placenta can be augmented by concurrent treatment with methotrexate.[9]

Pre-operative preparation of anaesthesia is important given the potential for rapid and massive blood loss and the possibility of emergency induction of anaesthesia in case of foetal distress. General anaesthesia is the technique of choice in these patients. The neuraxial block is best avoidable because of the possibility of hypotension and coagulopathy due to massive blood loss. In addition, these patients have to be anti-coagulated with heparin to prevent thrombosis of the intra-vascular balloon and the sheath. However, the conversion rates of spinal to general anaesthesia are 50% in such cases.[10,11]

The other challenge in these cases is transportation. There is always a chance of displacement or inadvertent

removal of the sheath during transportation. If foetal distress develops in the interventional radiology suite, then it would be mandatory to carry out the caesarean section there itself. In our case, the operation theatre and the interventional radiology suite were situated on the same floor. Conducting a caesarean section in a remote location can add to the problems such as lack of operating instruments, neonatal resuscitation, inferior lighting, wider operating table leading to poor exposure, especially with the management of torrential bleeding requiring optimal operating conditions. There are case reports documenting the delivery of the baby in the interventional radiology suite itself with all the necessary arrangements made.[12]

The transfer of the patient from operating room to the interventional radiology suite for embolisation can be a difficult task especially in a bleeding patient with haemodynamic instability and the femoral sheath *in situ*. The embolisation may be difficult with the C-arm available in the operating room as higher quality of imaging is necessary for the procedure. Since the interventional radiology suite and the operation theatre were situated on the same floor, we could successfully transport the patient back and forth. However, in places where they are located on different floors, one could be need for caesarean section in the interventional radiology suite itself, to avoid mishaps during transportation. The ideal option would be a hybrid operation theatre with interventional imaging facilities to carry out such procedures without hassles, at the same time providing optimal conditions for surgery and radiological intervention.

CONCLUSION

Placenta percreta can be successfully managed with the effective coordination of obstetrician, interventional radiologist, neonatologist, and the anaesthesiologist. The neuraxial block should be avoided in these patients, and one should consider conducting the entire procedure in the interventional radiology suite especially if the operation theatre is situated away from the operation theatre complex of the hospital.

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Conflicts of interest

There are no conflicts of interest.

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