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Perioperative Bilateral Internal Iliac Artery Balloon Occlusion, In the Setting of Placenta Accreta and Its Variants: The Role of the Interventional Radiologist

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ABSTRACT

A case of twenty eight year-old, G3P2 with placenta accreta, oligohydramnios, placenta previa and previous LSCS for placenta previa had undergone bilateral internal iliac artery balloon occlusion as a preventative measure to control anticipated intra-operative hemorrhage. Balloons were inserted in cath lab and shifted to operation theater for Cesarean Section. After the delivery of baby and during cord clamping, balloon was inflated and hysterectomy was carried out with minimal blood loss of 400ml.

Keywords: balloon occlusion, cath lab, cesarean delivery, internal iliac artery, placenta accreta

INTRODUCTION

Placenta accreta occurs when the chorionic villi abnormally invade the myometrium.[1,2] It is divided into three grades based on histopathology: placenta accreta (chorionic villi in contact with the myometrium), placenta increta (chorionic villi invade the myometrium), and placenta percreta (chorionic villi penetrate the uterine serosa).[3] Placenta accreta occurs in approximately one in 2,500 deliveries, with advanced maternal age cited as an independent risk factor.[4] Other risk factors include previous cesarean sections. Up to 88% of patients have concomitant placenta previa.[5] Placenta accreta is associated with massive blood loss at delivery,[2,6] which is over and above the risk associated with placenta previa alone.[7] The majority of these patients will require cesarean delivery. Even so, large amounts (3,000 mL or more) of intraoperative blood loss are common.[1,5]

CASE

In our case, patient had placenta previa which added a risk of placenta accreta due to previous cesarean delivery that may be associated with massive blood loss at delivery.

A twenty-eight-year-old female referred-in with diagnosis of G3P2 at 36 weeks of pregnancy with transverse lie, placenta previa, placenta accreta/increta and oligohydramnios. Patient had history of previous caesarean section. This condition can be associated with massive blood loss at delivery

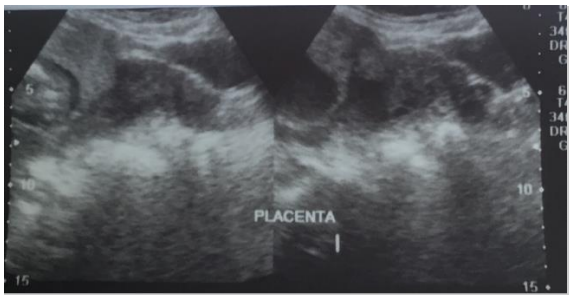

Figure-1: Placenta Previa demonstrates the low-lying echogenic placenta overing the hypoechoic internal os

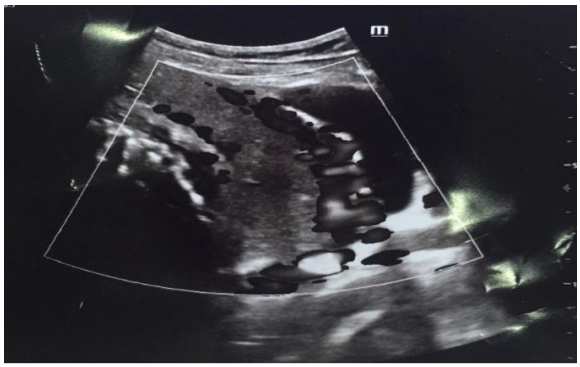

Figure-2: Sagittal transvaginal Doppler US image shows increased vascularity around the uterus with placental lacunae

There was no bleeding during admission hemoglobin levels was 10.3g/dl (hct-39%). Cesarean hysterectomy was planned and shifted to Cath lab. Bilateral femoral puncture was performed under ultrasound guidance. Local anesthesia (2% lidocaine of 10 ml on each side) was used. Puncture secured with 5Fr sheath. Monorail balloons were placed in the anterior division of each of the internal iliac arteries. It was demonstrated and confirmed by intermittent fluoroscopy. Bilateral sheath was secured with sutures and patient was shifted to surgical room for Cesarean Section.

Figure-3: Balloons in bilateral internal iliac arteries

Baby was delivered and umbilical cord was clamped followed by inflation of balloons and hysterectomy. Balloon was deflated as soon as skin closure after ensuring the hemostasis in the pelvic cavity. Vascular Sheath was removed after 2 hours, hemostasis of puncture site was achieved by manual compression for 20 minutes.

DISCUSSION

The use of BIIAB placement decreased the risk of bleeding making the management of placenta increta / percreta / accreta with risk of bleeding more secure. The use of BIIABO within emergency gynecology and obstetrics care is promising.[6] uterine artery ballooning during surgery gives the clear visual field for the better surgical outcome.

The catheter is placed in the uterine artery so when the bleeding is suspected , the patient can be assessed for possible bleeding in the fluoroscopy guidance within a short period of time and embolization can be carried out .

BIIAB occlusion is useful to decrease the bleeding complications in obstetrics and

gynecological emergencies. There are few complications which can be encountered during the procedure. Thrombotic events are the most common complication followed by limb ischemia, puncture site complications (pain, bleeding, hematoma, pseudoaneurysm, dissection).[5] Recent updated cohort study has concluded that BIIAB occlusion has no significant role but further study with multicentre experience with bigger sample study needs to be done.[8]

Certain literature claims that common iliac artery balloon occlusion is more promising in reduction in blood loss in comparison to internal iliac artery.[5] In our context, due to lack of availability of consumables and appropriate size balloons we choose for internal iliac artery balloon placement.

Thus, this procedure would be the effective intervention to prevent anticipated massive bleeding in pregnancy.

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