Interventional Radiology makes childbirth safer at Al Ain Hospital

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Interventional Radiology services at Al Ain Hospital have managed to make childbirth safer for pregnant patients associated with risks and complexities. High-risk pregnancy cases including placenta previa, accreta, increta, and percreta, pose a rising incidence of significant peripartum haemorrhage. It has become the leading cause of emergency hysterectomy with maternal morbidity and mortality.

Managing a pregnant patient in need of Interventional Radiology has a different set of needs from any other patient requiring a procedure. High-risk pregnancies are delivered in Al Ain Hospital with Interventional Radiology involved in the pre-delivery planning. The Interventional Radiologist may be consulted, often on short notice, to facilitate control of anticipated or on-going bleeding.

Uterine Artery Embolization is the approach to conservative management that not only conserves the uterus but also avoids uncontrolled massive obstetric haemorrhage at delivery. The Interventional Radiologist openly discusses with the patient the benefits, risks, and alternatives of the procedure and the potential radiation exposure to properly obtain informed consent.

The technique is done in the angiography suite immediately prior to the patient's caesarean delivery. It involves bilateral femoral artery punctures and selective catheterization of both the right and left uterine arteries. Selective catheterization of the uterine arteries can be challenging and lead to radiation exposure to the foetus. Since potential radiation exposure is involved in this procedure, multiple strategies and radiation safety features are fully utilised to decrease the radiation dose. This is governed by the principle of ‘As Low As Reasonably Achievable’ (ALARA). The National Council on Radiation Protection and Measurements states that radiation exposure less than 50 mGy to the foetus is considered negligible in comparison with baseline risks for all developmental abnormalities, but this risk increases significantly when exposure exceeds 150 mGy. However, it is mandatory to take appropriate actions to limit the dose to the mother and foetus while still accomplishing the goal of the treatment.

Interventional Radiologist use specialised techniques under fluoroscopic guidance for placement of a combination of balloon catheters inserted into uterine arteries predelivery (that could be inflated to control bleeding, if necessary), and uterine artery embolization after delivery (if the placenta could not be delivered). The 5F compliant balloon catheters are positioned in the internal iliac arteries, and secured at the skin at the inguinal creases in the IR suite. The patient is then transferred to the delivery operating room with the deflated
balloons in place. The sheath and balloons are flushed with heparinized saline continuously to prevent thrombotic complications. The balloons can be inflated immediately after the baby is delivered, if needed. After delivery, persistent haemorrhage may be secondary to uterine atony, uterine arterial injury and to the presence of placenta accreta or increta. Uterine artery embolization can be effectively done by the Interventional Radiologist to arrest postpartum bleeding from these causes. The obstetrician leaves the placenta in place; interventional radiologists usually use temporary agents such as Gelfoam for uterine artery embolization to close blood vessels to the placenta, in essence, cutting off its blood supply so that it would die and eventually be reabsorbed by the body.

Regardless of any of the clinical circumstances, Interventional Radiology stops bleeding, enabling C-section to be carried out promptly and effectively with minimal complications. High-risk pregnancies in Al Ain are managed efficiently in the multidisciplinary setting of Al Ain Hospital with the necessary medical facilities available. Further, the Interventional Radiology expertise helps in saving the lives of these high-risk pregnant females and make childbirth safer.