

Interventional Radiology in the Management of Placenta Accreta Spectrum in a Tertiary Care Centre

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INTRODUCTION

Placenta Accreta Spectrum (PAS), formerly known as morbidly adherent placenta refers to a range of pathologic adherence of the placenta, including placenta accreta, placenta increta and placenta percreta. Even though the most accepted approach to placenta accreta spectrum is a Caesarean hysterectomy with placenta left in situ after delivery of foetus, ideal management of PAS disorders is a matter of debate. PAS disorders have become significant life-threatening events due to increase in incidence, morbidity and mortality. We report 2 challenging case scenarios where a different approach of management was chosen.

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DOI: 10.18410/jebmh/2020/358

PRESENTATION OF CASE

CASE 1

A 36-year-old G3P2L2, previous 2 LSCS, RH negative blood group with anaemia, referred to us at 36 weeks with MRI suggestive of placenta percreta with bladder and anterior abdominal wall invasion. In view of maternal anaemia and also to reduce morbidity and mortality associated with blood loss and transfusion related complications, we opted for preoperative internal iliac artery occlusion balloon placement. At 36 weeks, bilateral femoral arteries are punctured under local anesthesia and balloon-tipped catheters were placed in bilateral internal iliac arteries under fluoroscopic guidance after placing abdominal lead shield to avoid radiation exposure to foetus. Patient was then anesthetized in operation theatre and proceeded with classical Cesarean.

How to Cite This Article:
Sisi S, Thalamkandathil N, Rasheeda Beegum O, et al. Interventional radiology in management of placenta accreta spectrum in a tertiary care centre. *J Evid Based Med Healthc* 2020; 7(33), 1719-1721. DOI: 10.18410/jebmh/2020/358

*Submission 11-05-2020,
Peer Review 02-06-2020,
Acceptance 14-06-2020,
Published 17-08-2020.*

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Figure 1 and 2. MRI Image of Placenta Percreta with Bladder and Anterior Abdominal Wall Invasion

The balloons are immediately inflated manually once the baby is delivered and cord is clamped. A live active male baby with good APGAR was delivered. The balloon was deflated after the procedure and haemostasis ensured. Intraoperatively blood loss was minimal (less than 1 litre) and transfusion was limited to a single pint PRBC. Both mother and baby had an uneventful postpartum and was discharged on 4th postop day.

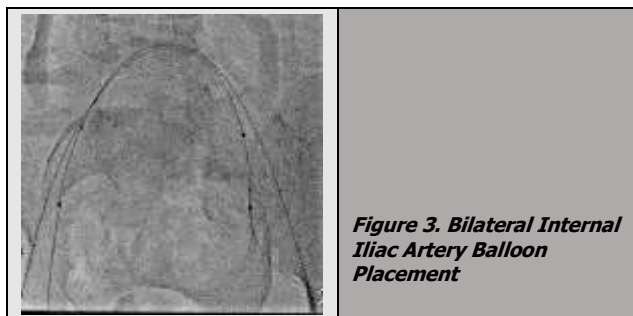


Figure 3. Bilateral Internal Iliac Artery Balloon Placement

CASE 2

A 28-year-old G4P1L1A2, with intrauterine foetal demise and placenta percreta was referred to us at 32 weeks. A fertility preserving approach was considered so we opted for perioperative bilateral uterine artery embolization along with bilateral double j stent placement. The dead foetus was delivered by LSCS; suboptimal removal of placenta and membranes was done. Placenta was found penetrating the anterior lower uterine segment. Placental bed bleeding was controlled by additional haemostatic sutures. Intraoperative blood loss estimated to be around 1 liter.



Figure 4 and 5. MRI Image of Placenta Percreta with Bladder Invasion with Intra Uterine Foetal Demise

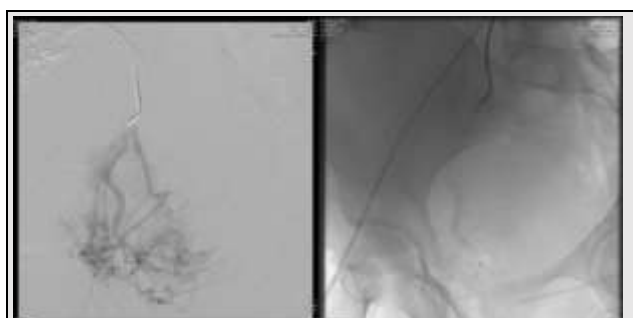


Figure 6. Fluoroscopic Imaging of Pre- and Post-Uterine Artery Embolization

Patient was transfused with 1-unit PRBC. Patient was stable postoperatively under broad spectrum antibiotic coverage and was discharged on 5th postoperative day. This case was unique in the sense that fertility preservation and maternal morbidity prevention was the priority as the foetus was not alive. Thus, a classical Caesarean section and obstetric hysterectomy were avoided and succeeded in preserving future fertility.

DISCUSSION

Placenta Accreta Spectrum

The incidence of placenta accreta spectrum varies and has dramatically increased over the past few years due to rise in Caesarean section. This spectrum involves placenta accreta, placenta increta and placenta percreta. It is one of the leading causes of obstetric hysterectomy and maternal mortality. It was Irving and Hertig first published a cohort study on placenta accreta in international literature in 1937.¹

Aetiopathology

This occurs as a consequence of partial or complete absence of decidua basalis and defective formation of Nitabuch layer which usually limit penetration of trophoblastic villi.²

Diagnosis

Antenatal diagnosis of placenta accreta spectrum is highly desirable because the delivery outcomes can be optimized at a tertiary care center. The primary diagnostic modality for antenatal diagnosis is obstetric ultrasound. When ultrasound findings are not definitive, MRI is often used to provide more details.³ Grey scale ultrasound has a sensitivity of 77-87%, specificity of 96 - 98%, while MRI has a sensitivity of 72-90% and specificity of 88%.⁴

DISCUSSION OF MANAGEMENT

Currently, the management of Placenta accreta spectrum is multidisciplinary. With proper diagnosis and preplanning, complications can be minimized, which include conservative and extirpative techniques. The conservative techniques include leaving the placenta in situ which is followed by medical management with methotrexate, uterine artery embolization and internal iliac artery ligation and embolization. The extirpative approach consists of Caesarean hysterectomy.

The use of balloon occlusion device for either internal iliac artery or uterine artery causes for decreased perfusion of uterus and reduces blood loss and improves the operating field. The balloons are placed in both internal iliac arteries by an interventional radiologist under fluoroscopic guidance after placing abdominal lead shield to avoid radiation exposure to foetus. The balloon occlusion devices are then inflated once the baby is delivered. Many of the available

studies have suggested that the amount of blood loss and transfusion requirement after prophylactic internal iliac artery occlusion is significantly less.^{5,6,7} The procedure is not devoid of problems, it may cause thrombosis, infection, ineffectiveness, risk of radiation exposure to foetus. Although radiation exposure is minimal, difficulties and prolonged exposure time may occur in obese patients. Prophylactic balloon occlusion of the internal iliac arteries as part of a multidisciplinary treatment algorithm, can be considered as a safe management of women with placenta accrete spectrum for reducing blood loss and preserving fertility.

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