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Case report

Imaging of uterine necrosis: A rare complication of uterine artery embolization for post partum hemorrhage

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ABSTRACT

Post-partum haemorrhage (PPH) is the most common cause of maternal mortality in India. Uterine artery embolization (UAE) for treating PPH is a recent developed minimally invasive method. It has high efficacy and low complication rate. Uterine necrosis is a rare and life threatening complication of UAE. Imaging features on ultrasound include distended endometrial cavity with dirty acoustic shadowing and thinning of myometrium. On CT, hypo to non-enhancing myometrium with or without air foci is seen. Contrast enhanced MRI is a key diagnostic imaging which has a high soft tissue resolution. Thinning of myometrium with non-enhancing myometrium is a key feature to the diagnosis of uterine necrosis. We present a rare case report of uterine necrosis post UAE.

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1. Introduction

Uterine artery embolization (UAE) is a recent development in treatment of postpartum haemorrhage (PPH). Its benefit is well documented for reducing the size of fibroid. Its non invasive nature makes it ideal for uncontrolled postpartum bleeding where hysterectomy is indicated. UAE gives additional advantage of retaining fertility while being less invasive. Efficacy of UAE has been shown to be as high as 70–80% in patients with life threatening PPH.¹ The overall short term complication rate is found to be 8.5%² in patients in whom UAE is done for leiomyoma and include minor complications like Hematoma, UTI, and Transient pain. The major complications of UAE include Endometritis, Deep venous thrombosis, pulmonary embolism, uterine necrosis and even death. Uterine necrosis is a rare fatal complication seen after UAE.³ Its incidence is still unknown. Further, the imaging features of uterine necrosis have not been well documented. It is postulated that small particle size used for embolization, enters the small vessels and capillary, which leads to ischemia of the tissue. On MRI, the lack of enhancement of subendometrial layer and successive myometrial layer should raise the suspicion of uterine necrosis on imaging.

2. Case report

A 34 year old primi-gravida following IVF conception with 38 weeks of gestation presented in labour at our institute. Due to poor bearing down effort, delivery was assisted by forceps. Placenta with membranes was delivered completely. However, the patient developed postpartum haemorrhage following which cervical exploration was done. However, no cervical or vaginal tears were found. In spite of all uterotonics, patient continued to have severe PPH. She was re-explored under anaesthesia in operation theatre. There were neither retained products of conception nor any vaginal or cervical tears. Bilateral UAE was planned to control PPH.

Through the right trans-femoral route, left internal iliac artery was cannulated. Super-selective uterine artery catheterisation was done which showed numerous tortuous hypertrophied branches from the basal uterine artery. Embolization was done using poly vinyl acrylic (PVA) particles of size 350 to 500 microns. Similar procedure was done on the opposite side. Check angiogram revealed significant decrease in the blood supply (Fig. 1).

Patient was shifted to surgical intensive care unit for observation and received 7 units of PCV, 2 units of FFP, and 4 units of platelets. Patient was symptomatically better. Patient was discharged in a stable condition.

Patient presented in the outpatient department after 1 month, with complaints of mass per vaginum. Pelvic ultrasound showed ante-verted uterus with distended endometrial cavity. Small

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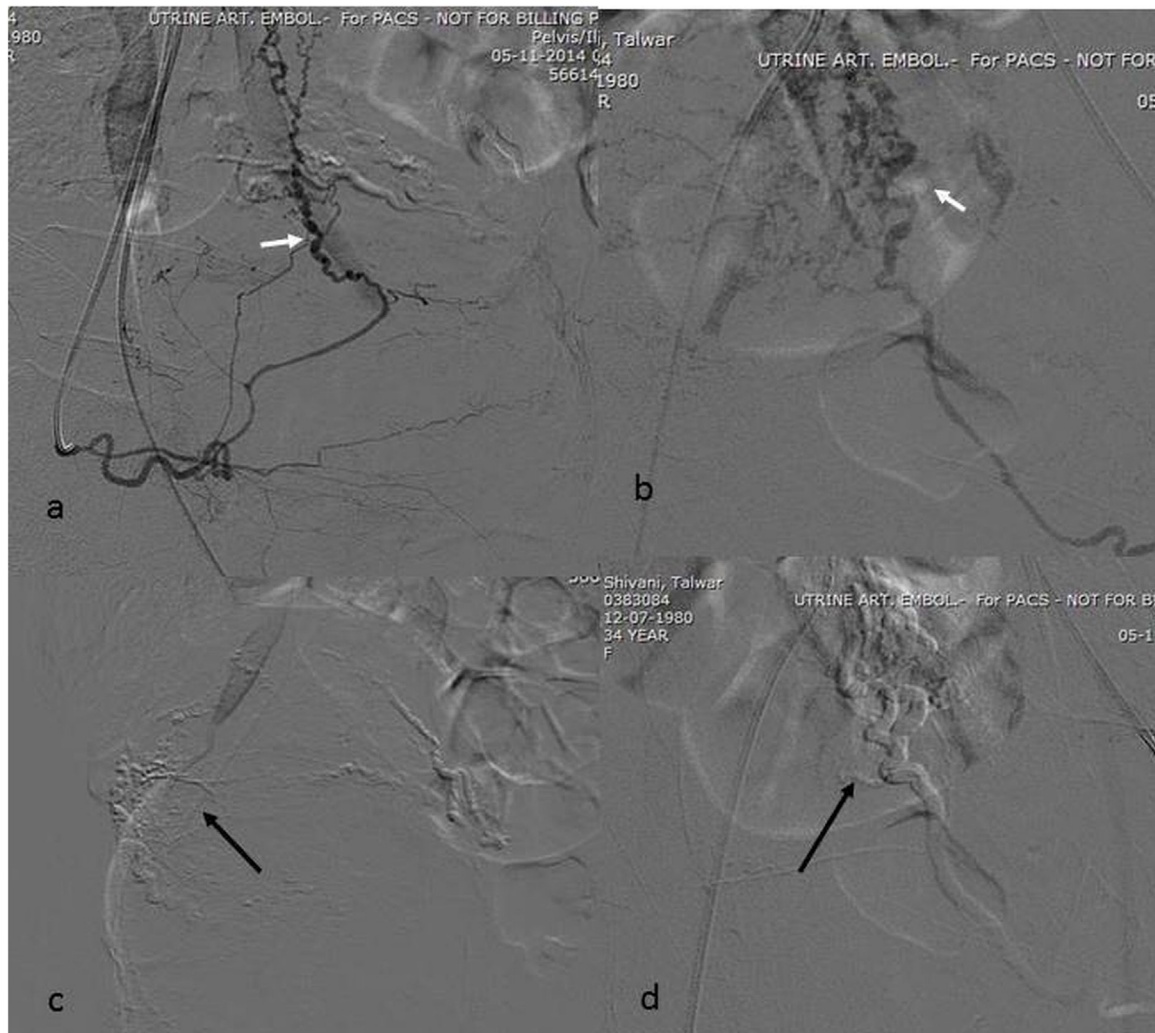


Fig. 1. Digital subtraction angiography images: a) right uterine artery angiogram showing increased vascularity with numerous tortuous arteries (white arrow). B) left uterine artery angiogram showing multiple tortuous hypertrophied arterial feeders supplying the uterus (white arrow). c, d) early angiogram images showing post embolization PVA casts in bilateral uterine arteries (black arrows).

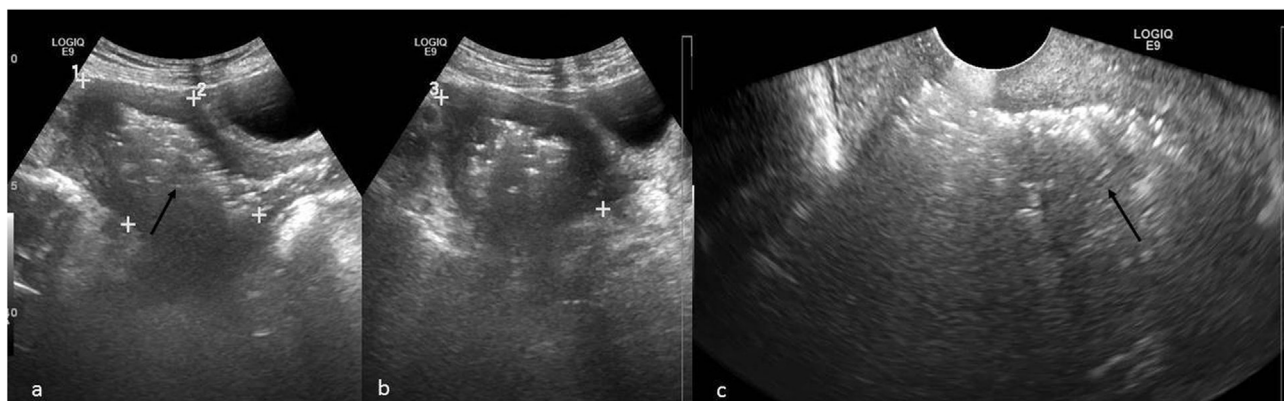


Fig. 2. Trans abdominal (a,b) and trans vaginal (c) ultrasound images showing distended endometrial cavity with multiple echogenic foci within its lumen with dirty posterior shadowing suggestive of air locules within (black arrows).

amount of fluid with multiple echogenic specks with dirty posterior shadowing suggestive of air locules was noted (Fig. 2).

Patient underwent an MRI of the pelvis. The uterus was anteverted and bulky. Heterogeneous T2 hypo intense soft tissue was seen within the endometrial cavity. The cavity measured 4.6 cm in

its antero-posterior dimension. Restriction of diffusion was noted along the inner myometrium with corresponding low ADC values on ADC maps. Susceptibility artefacts were seen within the soft tissue with blooming on gradient suggestive of air locules within the cavity. On MR angiography, the left uterine artery was not

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