

Research Letter

Multidisciplinary approach in management of placenta accreta

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The placenta is adherent to the endometrial lining in normal pregnancies. Penetration beyond this is abnormal and is categorized according to the depth of invasion [1].

The frequency of abnormal placentation varies between 1 in 333 and 1 in 70,000 births with a mean incidence of 1 in 2,500 births [2]. The incidence of placenta accreta has dramatically increased in recent years, which can be attributed to increasing caesarean rate in most countries [3]. The risk factors include a history of placenta previa, caesarean section, dilation and curettage, previous myomectomy, multiparity, elevated maternal age (>35), and erythroblastosis fetalis [4].

Several therapeutic methods are described for placenta accreta, including immediate hysterectomy after delivery, leaving the placenta in site after delivery, methotrexate (MTX) administration, uterine artery embolization, and temporary occlusion of internal iliac artery. In any given case, one or more of these techniques may be used to minimize hemorrhage [1]. In this case report, we are introducing a multidisciplinary approach, which led to uterine preservation. The main purpose of this study was to prove that there is no contraindication in using several methods simultaneously; and if indicated, we can use them together.

The patient was a 23-year-old primigravid woman without previous history of uterine surgery or curettage. She was on methyl dopa to control her chronic hypertension. Placenta did not expel after normal vaginal delivery of her term pregnancy; however, the patients' vital signs were stable. The patient was taken to the theatre for manual removal of placenta using forceps. Only a small part of the placenta was extracted. After the procedure, she had severe vaginal bleeding (around 700 cc)

and two units of packed red blood cells were infused. The hemorrhage was partially controlled with five rectal misoprostol tablets. The patient was then hemodynamically stable but still had mild vaginal bleeding. Early gray scale and Doppler sonography (Siemens, Sonoline Anthares, Germany) showed bicornuate uterus (which had not been previously diagnosed), myometrium thinning at placental implantation site in fundus, and periplacental hypervascularity suggestive of placenta accreta. Magnetic resonance imaging (GE, Signa 1.5 T, USA) also revealed bicornuate uterus and clear signs of placenta accreta and retained placenta with thinning of surrounding myometrium in its left cornua (Fig. 1, 2). Only mild anemia was noted on laboratory data, whereas FDP, D-dimer, and β -HCG titre were all normal. The patient did not convince about hysterectomy what so ever, so she was kept under close observation in the emergency ward because fatal complications were probable.

She was quite stable during the first week after delivery and placenta was not expelled. A single dose MTX (50 mg intramuscular) was administered 1 week after the NVD. Three days later, the patient expelled a small part of placenta, which was confirmed by pathology and seemed to be the injured part of the placenta during the try for manual removal. Afterward, vaginal bleeding decreased significantly; but as far as it did not cease completely, sonography revealed remained placenta and the patient still insisted on preserving her uterus, she became candidate for uterine artery embolization a week after MTX administration. After prophylactic cephazoline 1 g intravenous injection, under local anesthesia and via right transfemoral access, both uterine arteries were selectively catheterized under fluoroscopic guide. Digital subtraction angiography (GE, Innova 4200, USA) showed placental blush and enlarged uterine arteries, which were embolized on both sides with one vial of 250–355 PVA (Poly vinyl alcohol) and 1 vial of 350–500 μ PVA (Fig. 3A, B; Fig. 4A,

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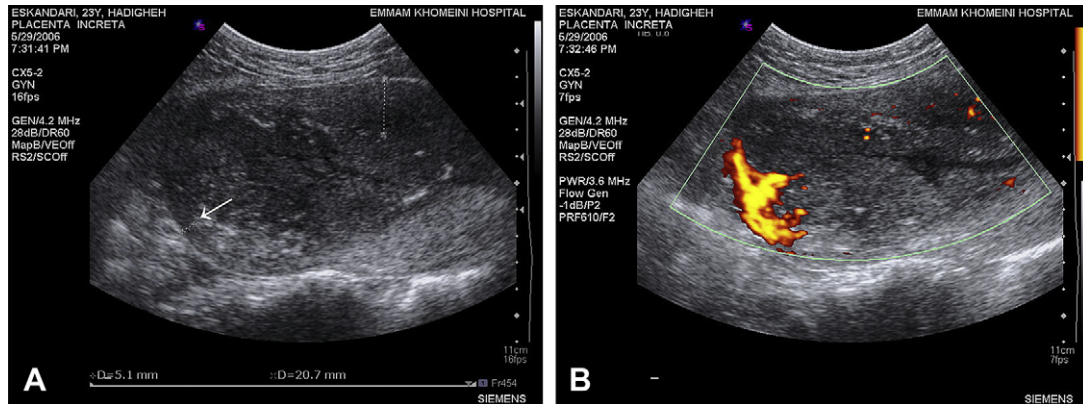


Fig. 1. (A) and (B) Gray scale and Doppler sonography shows myometrium thinning at placental implantation site in fundus (arrow), and periplacental hypervascularity.

B). The patient had pain and tenderness on her uterus and low-grade fever ($38\text{--}39^\circ\text{C}$) after embolization, which was acceptable for the first 24 hours as postembolization syndrome, but the fever did not subside and attained up to 40°C within 4 days. High-grade fever in combination with leukocytosis and neutrophilia on serial CBCs, elevated ESR (137–139) and CRP +3 were suggestive of infection in the retained placenta. The patient received broad-spectrum antibiotics (ceftriaxone in combination with clindamycin and gentamycin) and became candidate for hysterotomy. Hysterotomy was performed via a 2-cm horizontal incision in lower segment of uterus. The accreta placenta was obviously found in the endometrial cavity of one of uterine horns. Owing to previous MTX administration and embolization, placenta could be removed easily without much bleeding and the amount of hemorrhage from uterus incision was scant (4–5 cc) because of previous embolization procedure. Some necrotic and malodour tissues were found behind the placenta and removed completely. Following the surgery, antibiotic regimen continued for 14 days (after 48 hours, the patient became afebrile); and meanwhile, the leukocyte count decreased to normal (see Table 1). The patient was discharged in good general condition without vaginal bleeding while her uterus and fertility was preserved. During follow up visits within 6 months, the patient mentioned regular menstruation without abnormal vaginal bleeding.

Abnormal adherence of placenta to the uterine wall “placenta accreta” is a rare complication of pregnancy that is associated with high morbidity and mortality from severe bleeding and infection of retained placenta [5].

Despite the presence of risk factors, placenta accreta is usually diagnosed after delivery when spontaneous and manual removal of placenta fails. In our case, bicornuate uterus and its associated vascularization defect are the possible risk factors, although this condition is less common than other known risk factors [6,7].

The standard treatment of placenta accreta consists of either surgical nonconservative approach with primary total hysterectomy or extirpative approach with only resection and extraction of placenta. In cases of life-threatening vaginal bleeding, immediate hysterectomy is always indicated. If conservative management is desired, extirpative maneuvers to remove the

placenta and partial placental resections are performed to minimize placental size. Persistent excessive bleeding after conservative management necessitates hysterectomy. Additional treatments for initial management include arterial

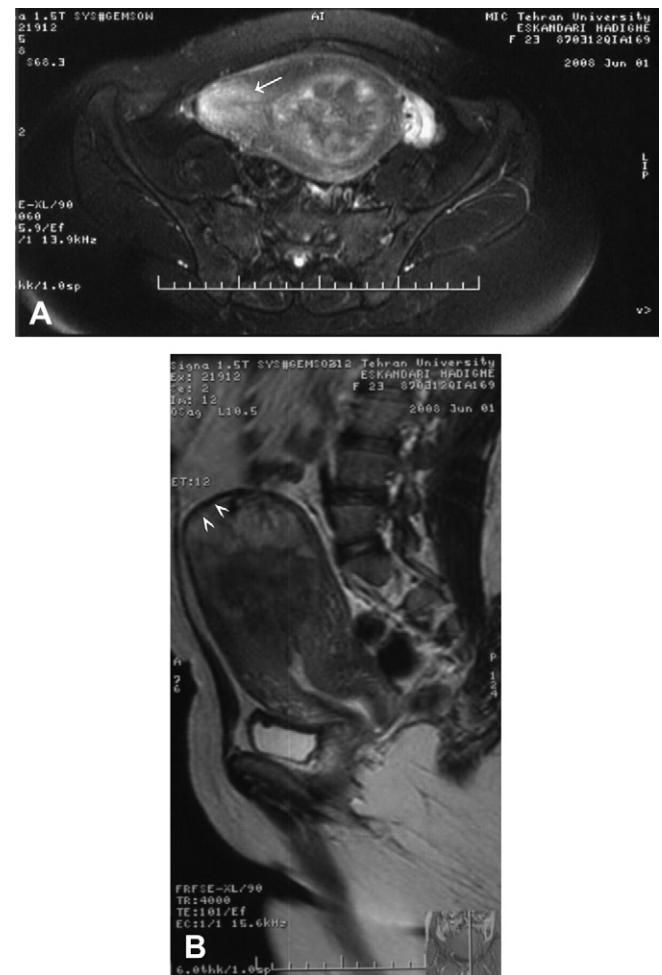


Fig. 2. Magnetic resonance imaging reveals bicornuate uterus (arrow) and retained placenta with thinning of surrounding myometrium (arrow heads) in its left cornua on (A) axial and (B) sagittal images.

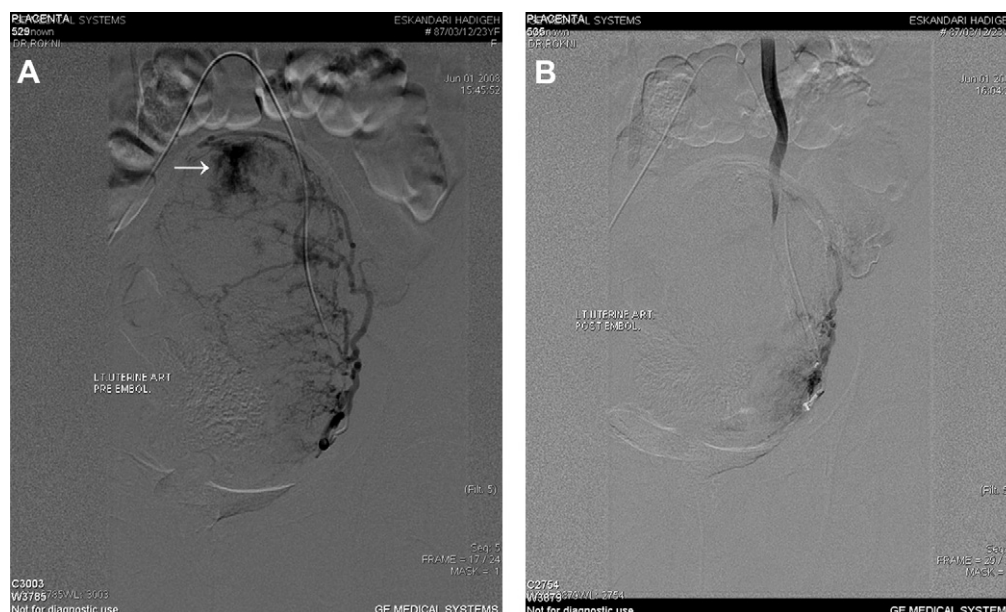


Fig. 3. (A) and (B) Digital subtraction angiography shows placental blush and enlarged uterine arteries (arrow), which are embolized on both sides with Polyvinyl alcohol.

ligation, embolization and administration of uterotonic drugs. Using a single dose of 50 mg MTX in immediate postpartum period helps to enhance placental lyses and it reduces size of the remaining placenta. Uterine artery embolization is currently a well-recognized alternative treatment in conservative management after failure of or in conjunction with local and medical treatments, preventing the morbidity of hysterectomy and preserving potential of fertility. If severe acute haemorrhage occurs secondly to placental detachment, embolization will reduce its severity. The choice of conservative management or hysterectomy is based on patient's medical history with respect to maternal age and desire for future pregnancy, severity of bleeding and hemodynamic status of the patient [8].

In this patient, conservative management was considered because of young maternal age, desire for preserving fertility and primary haemodynamic stability and scant vaginal bleeding. After attempt to manual removal of placenta and MTX administration, parts of placenta remained in uterus and bleeding did not stop completely, so uterine artery embolization was undertaken for two main goals: decreasing the life-threatening emergent bleeding and may be facilitating placental lyses with reduction in its vascularisation [9]. Embolization of the uterine arteries is currently a well recognized alternative treatment in the conservative management of postpartum

haemorrhage after the failure of or in association with local and medical treatment, thus avoiding the morbidity associated with hysterectomy and preserving potential fertility [9].

Although the patient underwent hysterotomy due to infection of retained parts of placenta (high fever with purulent cervical discharge are signs of infected retained products of pregnancy) that was manifested as high fever and signs of sepsis, placental removal was easy and bleeding at site of incision was minimal.

Therefore we find that there is no contraindication in using several methods simultaneously and if indicated, we can use them together. As mentioned, different conservative managements were used in our case and finally she was discharged in good condition while saving her uterus. Awareness of rare complications of pregnancy and knowledge towards their diagnostic and therapeutic methods in prenatal period brings better quality of life for mothers. Further investigations on approaches which can save mothers' uterus and fertility in placenta accreta are highly fostered.

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Table 1
WBC count in different times of therapy

Time	WBC count	PMN (%)
Methotrexate therapy	13,760	84
Embolization	12,699	83
Hysterotomy	7,960	77
Discharge	6,900	71

WBC = white blood cell; PMN = polymorphonuclear leukocyte.

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