

Placenta accreta: conservative approach

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Summary

Placenta accreta refers to any abnormally invasive placental implantation. Diagnosis is suspected postpartum with failed delivery of a retained placenta. Massive obstetrical hemorrhage is a known complication, often requiring peripartum hysterectomy. The authors report a case of placenta accreta in a primiparous patient with multinodular leiomyomatosis of the uterus following failed manual removals of a retained placenta. They describe a conservative management in a stable patient desiring future fertility with a unilateral prophylactic uterine artery embolization, a multidose regimen of methotrexate, and a subsequent abdominal myomectomy.

Key words: Placenta accreta; Methotrexate; MTX; Multidose methotrexate; Conservative treatment.

Introduction

The reported maternal mortality for morbidly adherent placenta ranges from seven to ten percent worldwide. The incidence of morbidly adherent placenta has increased over the past 50 years, mirroring the increase in the rate of cesarean delivery [1]. Damage to the decidua basalis secondary to previous uterine injury, such as cesarean section, myomectomy, traumatic uterine curettage, and intrauterine sepsis has been implicated. Significant maternal morbidity may occur because of massive postpartum hemorrhage and its sequelae, which include loss of fertility, multiple blood transfusions, transfusion-associated acute lung injury, coagulopathy, sepsis, multiorgan failure, and even death. Many women experience psychologic effects owing to loss of fertility secondary to peripartum hysterectomy. Additional complications include damage to the urinary bladder, bowel, or ureters including fistulae or incontinence [2, 3]. A 15-year analysis of peripartum hysterectomy reported that the procedure was associated with a maternal mortality rate of 12.5% and a urinary tract injury rate of 7.5% [4]. Separation of the placenta from its highly vascular bed is likely to cause massive obstetric hemorrhage. It is mostly diagnosed after delivery when manual removal of the retained placenta fails. The conventional treatment is hysterectomy.

Case Report

A primigravida 28-year-old patient, presented at 38 weeks plus five days amenorrhea with a premature rupture of membranes (PROM). After few hours of labor, she vaginally delivered a healthy female baby, followed by retained placenta. She underwent two unsuccessful attempts of manual removal with surgical curettages. She was conscious, cooperative, weighing 68 kilograms, with moderate pallor, regular pulse rate of 90 beats per minute, blood pressure recording of 120/75 mm of mercury, afebrile, no cyanosis with clear chest, and nothing abnormal on circulatory system examination. On abdominal examination, her uterus was 22 weeks in size, well-contracted but with an irregu-

lar surface for the presence of a bulky node myoma. The pelvic examination showed scarce amount of bleeding per vaginum. She was hemodynamically stable and her hemoglobin was 12.4 mg/dl. She was blood group B, Rh positive, with normal readings of routine urine analysis, platelet count, coagulation profile, and hepatic and renal function tests. Vaginal swab was sent for culture which later reported sterile. Transabdominal and vaginal sonography revealed uterus to be of postpartum size with endometrial cavity showing an echogenic mass of dimensions 8.11 cm x 7.0 cm, suggestive of placenta, with vascularity on colour Doppler confirming it to be adherent to the uterine wall (placenta accreta), but with no definite invasion, and a solid, inhomogeneous, poorly vascularized mass in the lower part of the anterior wall of the uterus showing typical features of an intramural fibroid measuring approximately ten cm. Supportive measures, like broad-spectrum antibiotics, were initiated. Considering the desire of the patient for retaining her uterus for future fertility, conservative management was planned. Modality adopted was: placenta left in situ and performance of a prophylactic selective right uterine artery embolization to reduce vaginal discharge, an injection of methotrexate given intramuscularly in the schedule of one mg/kg, using the multidose regimen that involves the administration of methotrexate calculated according to body weight, alternated with 0.1 mg/kg of leucovorin calcium per os after 30 hours in four doses, based on continuous monitoring of the dimensions and vascularity of the mass (representing adherent placenta) with serial sonographic and colour Doppler studies which regularly showed the reducing trend. Leucocyte counts were routinely performed on a daily basis which remained within limits. Size of the placenta decreased remarkably with a concomitant reduction by 30% in uterine myoma volume. With this conservative strategy, vaginal bleeding never became alarming and vaginal discharge never purulent. Patient was discharged, not breastfeeding, in a satisfactory condition, fulfilling her initial desire of conserving the uterus, after 12 days of hospitalization. On subsequent follow-ups, every seven days, patient remained afebrile with no history or evidence of infection. After two months she experienced her first period after childbirth. Vaginal sonography revealed uterus to be entirely occupied by the detached placenta, whose release was hampered by the myoma node. Thus, in agreement with the patient, it was decided to perform a myomectomy with concomitant removal of the placenta. She was discharged in a satisfactory condition after four days of hospitalization and the subsequent follow-up showed perfect clinical conditions of the patient.

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Discussion

Placenta accreta is a severe obstetric complication involving an abnormally deep attachment of the placenta, through the endometrium and into the myometrium. There are three forms of placenta accreta, distinguishable by the depth of penetration: accreta, increta, and percreta. Placenta accreta is the invasion of the myometrium which does not penetrate the entire thickness of the muscle. This form of the condition accounts for around 75% of all cases. The placenta usually detaches from the uterine wall relatively easily, but women who encounter placenta accreta during childbirth are at great risk of hemorrhage during its removal. This commonly requires surgery to stem the bleeding and fully remove the placenta, and in severe forms can often lead to a hysterectomy or be fatal.

One of the potentially catastrophic obstetric complications, placenta accreta is alarmingly on the rise in the developed as well as developing world given the current trend towards elective repeat cesarean sections [5]. The incidence of placenta accreta is considered between one in 7,000 to as high as one in 540 pregnancies [6]. It is a life threatening condition associated with high maternal morbidity and mortality rate reaching as high as seven percent [7]. The risk factors for placenta accreta are previous uterine surgery (myomectomy or cesarean sections, multiple cesareans are present in over 60% of placenta accreta cases), previous dilation and curettage (which is used for many indications including miscarriage, termination, and postpartum hemorrhaging), placenta previa (placenta accreta affects around ten percent of cases of placenta previa), advanced maternal age, multiparity, smoking, Asherman's syndrome, and presence of fibroids [8, 9, 10]. A thin decidua can also be a contributing factor to such trophoblastic invasion. Some studies suggest that the rate of incidence is higher when the fetus is female [11].

It is important to make an early and accurate diagnosis for appropriate management and reduction of associated morbidity, thereof, and prenatal diagnosis may be established by ultrasound, colour Doppler, and magnetic resonance imaging [7]. Premature delivery and subsequent complications are the primary concerns for the baby. Bleeding during the third trimester may be a warning sign that placenta accreta exists, and when placenta accreta occurs, it commonly results in a premature delivery. The placenta usually has difficulty separating from the uterine wall. The primary concern for the mother is hemorrhaging during manual attempts to detach the placenta. Severe hemorrhaging can be life threatening. Other concerns involve damage to the uterus or other organs (percreta) during removal of the placenta. Hysterectomy is a common therapeutic intervention, but the results involve the loss of the uterus and the ability to conceive. There is nothing a woman can do to prevent placenta accreta, and there is little that can be done for treatment once placenta accreta has been diagnosed. The safest treatment is a planned cesarean section and abdominal hysterectomy if placenta accreta is diagnosed before birth [12, 13]. Conservative treatment can also be uterus sparing but may not be as successful and has a higher risk of complica-

tions [13]. Though traditional management of this entity has centered upon hysterectomy, but there has been a gradual shift towards its management which involves uterine conservation and leaving the adherent placenta in situ with either a) adjuvant treatment with methotrexate [14] or b) by simply awaiting its spontaneous resorption [8], with the possibility to perform a complementary uterine artery embolization [15]. Percutaneous embolization was initially performed to control traumatic [16] or tumor bleeding [17, 18]. The first reported use of transcatheter arterial embolization of postpartum hemorrhage was described by Brown *et al.* [19] in 1979. The use of methotrexate in the conservative treatment of the placenta accreta left in situ was described for the first time by Arulkumaran in 1986: oral methotrexate allowed the expulsion of the placenta at a distance of 11 days after its administration [20]. Tong *et al.* [21] pioneered the conservative method by administering systemic methotrexate. The outcome varies widely ranging from expulsion at seven days to progressive resorption in roughly six months [22]. Courbiere *et al.* [15] conducted a study on conservative management in which placenta accreta was always left in situ with one of the following associated treatments: bilateral hypogastric artery ligation, medical treatment with methotrexate or uterine artery embolisation. Placental resorption occurred in the majority of their cases with no report of maternal mortality.

Conclusion

Conservative management appears to be a safe alternative to the extirpative management and is a logical option in well-selected hemodynamically stable patients with adherent placenta. Antepartum diagnosis should be improved among patients with a high risk profile for placenta accreta in order to optimize conservative strategy. Conservative treatment for placenta accreta can assist women to avoid hysterectomy and involves a low rate of severe maternal morbidity in centers with adequate equipment and resources.

References

- [1] Wu S., Kocherginsky M., Hibbard J.U.: "Abnormal placentation: twenty-year analysis". *Am. J. Obstet. Gynecol.*, 2005, 192, 1458.
- [2] Khong T.Y., Robertson W.B.: "Placenta creta and placenta praevia creta". *Placenta*, 1987, 8, 399.
- [3] Wright J.D., Devine P., Shah M., Gaddipati S., Lewin S.N., Simpson L.L. *et al.*: "Morbidity and mortality of peripartum hysterectomy". *Obstet. Gynecol.*, 2010, 115, 1187.
- [4] Okogbenin S.A., Gharoro E.P., Otoide V.O., Okonta P.: "Obstetric hysterectomy: fifteen years' experience in a Nigerian tertiary centre". *J. Obstet. Gynaecol.*, 2003, 23, 356.
- [5] Khong T.Y.: "The pathology of Placenta accreta – a worldwide epidemic". *J. Clin. Pathol.*, 2008, 61, 1243.
- [6] Wu S., Kocherginsky M., Hibbard J.U.: "Abnormal placentation: twenty-year analysis". *Am. J. Obstet. Gynecol.*, 2005, 192, 1458.
- [7] Resnik R.: "Diagnosis and management of placenta accreta". *ACOG Clin. Rev.*, 1999, 4, 8.
- [8] Fergal M.: "Placenta accreta percreta". *Contemporary Obstet. Gynecol.*, 2002, 4, 116.
- [9] Capella-Allou S., Morsad F., Rongières-Bertrand C., Taylor S., Fernandez H.: "Hysteroscopic treatment of severe Asherman's syndrome and subsequent fertility". *Hum. Reprod.*, 1999, 14, 1230.

- [10] Al-Serehi A., Mhoyan A., Brown M., Benirschke K., Hull A., Pretorius D.H.: "Placenta accreta: An association with fibroids and Asherman syndrome". *J. Ultrasound Med.*, 2008, 27, 1623.
- [11] American Pregnancy Association (January 2004) 'Placenta Accreta'.
- [12] Johnston T.A., Paterson-Brown S.: "Placenta praevia, placenta praevia accreta and vasa praevia: diagnosis and management". Green-top Guideline No. 27. Royal College of Obstetricians and Gynecologists (January 2011).
- [13] Oyelese, Yinka; Smulian, John C.: "Placenta Previa, placenta accreta, and vasa previa". *Obstet. Gynecol.*, 2006, 107, 927.
- [14] Flama F., Karlstom P.O., Bjourn C., Lena G.: "Methotrexate treatment for retained placental tissue". *Eur. J. Obstet. Reprod. Biol.*, 1999, 83, 127.
- [15] Courbiere B., Bretelle F., Porcu G., Gamorre M., Blanc B.: "Conservative treatment of placenta accreta". *J. Gynecol. Obstet. Biol. Reprod. (Paris)*, 2003, 32, 549.
- [16] Margolies M.N., Ring E.J., Waltman A.C., Kerr W.S. Jr., Baum S.: "Arteriography in the management of hemorrhage from pelvic fractures". *N. Engl. J. Med.*, 1972, 287, 317.
- [17] Rosch J., Dotter C.T., Brown M.J.: "Selective arterial embolization: a new method for control of acute gastrointestinal bleeding". *Radiology*, 1972, 102, 303.
- [18] Goldstein H.M., Medellin H., Ben-Menachem Y., Wallace S.: "Transcatheter arterial embolization in the management of bleeding in the cancer patient". *Radiology*, 1975, 115, 603.
- [19] Brown B.J., Heaston D.K., Poulson A.M., Gabert H.A., Mineau D.E., Miller F.J. Jr.: "Uncontrollable postpartum bleeding: a new approach to hemostasis through angiographic arterial embolization". *Obstet. Gynecol.*, 1979, 54, 361.
- [20] Arulkumaran S., Ng C.S., Ingemarsson I., Ratnam S.S.: "Medical treatment of placenta accreta with methotrexate". *Acta Obstet. Gynecol. Scand.*, 1986, 65, 285.
- [21] Tong S.Y.P., Tay K.H., Kwek Y.C.K.: "Conservative management of placenta accreta: Review of three cases". *Singapore Med. J.*, 2008, 49, 156.
- [22] Gupta D., Sinha R.: "Management of placenta accrete with oral methotrexate". *Int. J. Gynaecol. Obstet.*, 1998, 60, 171.

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