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Case Report

Antenatal diagnosis of placenta increta and its successful conservative management with methotrexate

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Abstract. Growing number of cesarean deliveries lead to the increased frequency of abnormally invasive placentation. Success in the management of placenta accreta relies on accurate early diagnosis with appropriate perioperative multidisciplinary planning to anticipate and avoid massive obstetric haemorrhage at delivery. In this report, a case of placenta previa increta that was diagnosed antenatally with ultrasound and magnetic resonance imaging and managed conservatively with methotrexate was presented with the discussion of literature.

Key words: Placenta accreta, placenta previa, conservative management, methotrexate

1. Introduction

Placenta accreta is an abnormal union between the placenta and the underlying uterine muscle in the absence of a decidua basalis. Normally, union is between placenta and underlying endometrial decidua. The degree of myometrial invasion of the chorionic villi distinguishes placenta accreta from placenta increta and placenta percreta (1). These three potentially life-threatening conditions have been associated with immediate postpartum hemorrhage and significant maternal morbidity and mortality (2). The incidence reported in the literature varies but averages as 1:1000 (3-5). With the growing number of cesarean sections, the frequency of abnormally invasive placentation is increasing (4,5).

Placenta increta may occur with placenta previa concurrently or even in a normally situated placenta.

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When it occurs in a normally situated placenta, it is not usually suspected antenatally, and is usually discovered during manual removal of the placenta. In this report, we presented a case of placenta previa increta that was diagnosed antenatally with ultrasound (US) and magnetic resonance imaging (MRI) and managed conservatively with methotrexate.

2. Case report

A 38-year-old, gravida 4, parity 3 pregnant with a history of 3 cesarean sections presented with the complaint of painless intermittent vaginal spotting at 33 weeks of gestation. Sonographic evaluation revealed placenta previa totalis. Since utero-placental interface was not clearly visualized sonographically, considering together with her history, a kind of placental insertion anomaly was suspected. A non-contrast MRI supported the suspicion of placenta increta (Figure 1). Vaginal bleeding did not repeat until 37th gestational week when the elective cesarean section was performed. A healthy male baby weighing 3500 g was born. Placenta was detached only partly and almost 60-70% of it was left within uterus. After the operation, passage through the cervical canal was controlled with a Hegar dilator. Preoperative hemoglobin level was

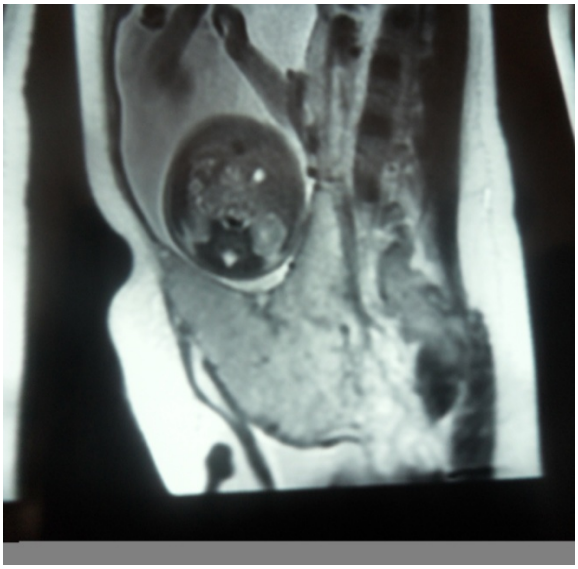

Fig. 1. Non-contrast MRI, complete type placenta previa at 33 gestational week.

Fig. 2. MRI of the uterus containing placenta on the tenth postpartum day.

10.9 gr/dL and during the operation 2 units of fresh complete blood were transfused. Hemoglobin was 8.4 gr/dL on the first day, and fell to 5.7 gr/dL on the fifth day, postoperatively. Two units of erythrocyte suspension were given. On the third day, serum beta-hCG was 6021 IU and decreased to 2182 IU on the ninth day. Beginning from the seventh day, 50 mg/m^2 methotrexate (MTX) iv was applied weekly for three times. During MTX treatment breast-feeding was avoided. Pelvic MRI was repeated on the tenth day (Figure 2) and the patient was discharged. Eighteen months later one more MRI was performed (Figure 3).

Fig.3. MRI, normal appearance of the uterus and endometrium18 months after the cesarean section.

3. Discussion

Although previously thought to be extremely rare, the incidence of placental insertion anomalies has increased ten-fold in the past 50 years. The exact aetiology is unknown, but it has been postulated to be related to damage of the decidua basalis, which allows for placental invasion into the myometrium. In our case, since there was no protrusion of the placenta into the uterine serosa, the case was thought to be “increta”.

A retrospective analysis of 310 cases of placenta accreta over a course of 10 years confirmed prior cesarean section, placenta previa, advanced maternal age, high gravidity and parity, multiple abortions with curettage and anterior low location of the placenta as risk factors for placenta accreta (6). In case of placenta previa, the risk of placenta accreta varies from 2% in women younger than 35 years old with no previous caesarean section to 39% in women at or over 35 years of age with two or more cesarean sections. In women with placenta previa, previous cesarean section and advanced maternal age are independent risk factors (7). The patient in this report was older than 35 years and placenta previa totalis together with the history of 3 previous cesarean sections were strongly suggestive of abnormally invasive placentation.

When placenta is located posteriorly or on fundal area, or when patient is obese, the

resolution will be poor with ultrasound. In these conditions, MRI will be a better modality for antenatal diagnosis (8). Ultrasound can detect the presence (80% sensitivity) and absence of accreta (95% specificity) (9-12). According to Warshak et al. (11) MRI accurately predicted placenta accreta with 88% sensitivity and 100% specificity. There is no one imaging modality that provides the gold standard for diagnosing the placental invasion.

Doppler findings in case of placental insertion anomalies include vascular lacunae noted at the placental-myometrial junction in a Swiss cheese pattern which can be seen in the 2nd trimester, prominent subplacental venous complexes giving a moth eaten appearance to the placenta, and the absence of an echolucent area between the placenta and myometrium (13). Nevertheless, a diagnosis of accreta, increta or percreta can only be confirmed with tissue histology (10,11). In our case, echolucent area indicative of normal placentation was not observed sonographically supporting the diagnosis. However, lacunar spaces that support the increta were not present.

Early antenatal diagnosis is the first requried condition for successful management of this potentially catastrophic condition. When encountered unexpectedly at delivery, placenta accreta will invariably lead to massive blood loss and death (14). In particular, this condition must be included in the differential diagnosis in women with previous caesarean sections and anterior low-lying placentas. The diagnosis in our case was suspected in antenatal follow and the cesarean was carried out electively only after that operative conditions were optimized.

Despite the increasing frequency of abnormally invasive placenta as a result of growing number of cesarean sections, as the condition is still rare, the optimal management of it remains unclear. Current practice for abnormally invasive placenta surgery ranges from caesarean hysterectomy to performing a classical caesarean section and leaving the placenta in situ (15,16). There are methods to successfully treat abnormal placentation with conservative means, but these methods must be applied only in highly selected cases and no one method has been proved to be superior to the other. Since our patient did not approve of hysterectomy before the operation, we managed the case conservatively.

It has been postulated that serum hCG levels may be useful as markers in the follow-up of placental involution if abnormally invasive placentation is treated conservatively (17,18). However, a decreasing level of serum hCG is not a reliable marker of successful conservative treatment. Placental tissue degenerates with a half-life of 5.2±0.3 days (18), which is slower than the decrease of serum hCG levels in the normal puerperium (18,19). Several cases describe the presence of placental tissue despite absent serum hCG levels (20-26). Therefore, it was concluded that low or undetectable serum hCG levels do not represent complete resorption of retained placental tissue. Due to reasonable doubts about the use of hCG as a valuable marker, Timmermans et al. (20) recommended that imaging modalities such as ultrasound or MRI be utilized for the follow-up of women with abnormally invasive placentation. Serum hCG level was measured two times in our case. But the patient was not followed until the hCG level became undetectable.

In conclusion, high resolution US and MRI are useful tools in diagnosis. Every patient should be evaluated considering the risk factors and birth should be carried out by a team in equipped hospitals electively. Close surveillance using imaging techniques is recommended. The role of methotrexate to improve the safety of conservative management and placental resorption requires further studies.

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