

Case Study: Placenta Previa, Accreta, Hypertension, and Anemia in Pregnant Women at 35-36 Weeks Gestation with Previous Cesarean Section

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Abstract:

Placenta accreta is a rare but serious pregnancy complication where the placenta attaches abnormally in the uterus. It affects around 0.9% of pregnancies and is linked to risks like placenta previa and prior C-sections, with its incidence rising due to increased C-section rates. Prompt diagnosis is essential as it contributes to 7-10% of global maternal deaths. This case study involves a 39-year-old pregnant woman at 35-36 weeks with placenta previa and suspected accreta. Vaginal bleeding and pain raised concerns. Anemia and gestational hypertension further complicated matters. Ultrasound and MRI confirmed total placenta previa and suspected accreta, with a PAI score of 4. A cesarean section and supravaginal hysterectomy successfully managed the situation. FIGO grade II placenta accreta was found. Early detection and management are key for neonatal maturity and maternal safety. Imaging and risk factor identification and diagnosis. Multidisciplinary teamwork among obstetricians, radiologists, and specialists is crucial. This case underscores diagnosing and managing placenta accreta, using imaging and teamwork for optimal outcomes. It highlights the importance of addressing abnormal placental conditions, emphasizing accurate diagnosis, and a collaborative approach for effective management. This case underscores the urgent need for early diagnosis, multidisciplinary management, and advanced imaging techniques to address the life-threatening complexities of placenta accreta, emphasizing the crucial role of collaboration among specialists, identification of risk factors, and timely interventions, especially with rising C-section rates, to enhance outcomes and minimize maternal and fetal risks.

Keywords: Total placenta previa, Placenta accreta, Gestational hypertension, Anemia.

Introduction

Placenta accreta is a rare but significant complication that occurs in approximately 0.9% of pregnancies^{1,2}. It involves abnormal placental implantation in the uterine wall, leading to potentially

life-threatening consequences for both the mother and the fetus. The condition is classified into three types: placenta accreta (invasion <50% of the myometrium), placenta increta (invasion >50% of the myometrium), and placenta percreta (invasion into the serosa and

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adjacent pelvic organs) Shepherd, A. M., & Mahdy, H. (2022).

Risk factors for placenta accreta include placenta previa and a history of previous uterine surgeries, such as prior cesarean section. The incidence of placenta accreta has been on the rise due to the increasing number of cesarean deliveries². The reported incidence has increased from 1 in 30,000 pregnancies in the 1960s to 1 in 533 pregnancies in the 2000s. Currently, it is estimated that 25-50% of patients with placenta previa have placenta accreta, making cesarean section a priority in such cases (Dwyer et al., 2008).

Placenta accreta is responsible for approximately 7-10% of maternal deaths worldwide. The most common risk factors for both placenta accreta and placenta percreta are previous cesarean section and intrauterine surgery. In the United States, the rate of cesarean section has increased from 5.5% in the 1970s to 32.8% in 2010. If the cesarean section rate continues to rise, it is projected that by 2020, more than 50% of births in the United States will be via cesarean section. This trend may result in over 6,000 cases of placenta previa, 4,500 cases of placenta accreta, and 130 maternal deaths Shepherd, A. M., & Mahdy, H. (2022).

The diagnosis of placenta accreta is typically confirmed based on pathological examination of specimens obtained after hysterectomy. The definitive diagnosis relies on the visualization of chorionic villi embedded within the myometrium without an intervening decidua layer. Prenatal diagnosis of placenta accreta can be achieved through ultrasound (USG) and magnetic resonance imaging (MRI). Conventional 2D sonography is a good screening tool for detecting placenta accreta. For patients with a history of previous cesarean section and placenta previa, antenatal ultrasound examination can be performed, but a definitive diagnosis is typically made after delivery (Piñas Carrillo & Chandraharan, 2019).

Placenta accreta can lead to serious complications, such as massive bleeding, uterine damage, and injury to the ureter and intestines. In many cases, cesarean hysterectomy is required to control bleeding. Prenatal diagnosis of placenta accreta can help minimize the occurrence of complications^{4,5}. Accurate prenatal identification allows for optimal management planning, including decisions about the timing and location of delivery, availability of blood, skilled operators, anesthesia, and the surgical team. This reduces the risk and complications for patients suspected of having placenta accreta (Adu-Bredu et al., 2022).

This report presents a case of a 39-year-old woman, G5P3A1H3, at 35-36 weeks of gestation, with a single live intrauterine pregnancy in head presentation. The patient had a history of placenta previa and one

previous cesarean section. The diagnosis was confirmed as total placenta previa with placenta accreta^{4,5}.

In conclusion, placenta accreta is a serious complication of pregnancy that requires early diagnosis and appropriate management to reduce maternal morbidity and mortality. The rising incidence of placenta accreta due to the increasing number of cesarean deliveries calls for heightened awareness among healthcare professionals and appropriate prenatal screening using ultrasound and MRI. Timely recognition and multidisciplinary collaboration are essential in providing optimal care for patients with suspected placenta accreta, ensuring a better outcome for both the mother and the baby (Cunningham, 2021).

Case(s) and Operation Technique

Mrs H, a 39-year-old multigravida patient at 35-36 weeks gestation, presented with vaginal bleeding and a history of total placenta previa, suspected placenta accreta, gestational hypertension, and moderate microcytic hypochromic anemia. Her medical history included no prior complaints of similar nature, with no history of hypertension, diabetes mellitus, heart disease, malignancy, and allergies. She had used contraceptive pills for a year and had two previous marriages, the current one lasting for 33 years. Menarche occurred at approximately 17 years, with regular 28-day menstrual cycles, lasting for 5 days with no severe dysmenorrhea. The patient's obstetric history included three live births and one abortion, with the current pregnancy's last menstrual period on 4th May 2022 and expected delivery date on 11th February 2023. She had received four antenatal care visits and consultations with an obstetrician. The physical examination revealed a conscious patient with vital signs showing elevated blood pressure and moderate anemia. The obstetric examination indicated the fetus was head presentation, and normal fetal heart rate were detected. Laboratory tests showed microcytic hypochromic anemia, hypokalemia, and hyperchloremia. Urinalysis indicated eritrosit count +2. Ultrasonography confirmed a live, intrauterine fetus with total placenta previa and suspected placenta accreta (grade II according to FIGO classification). Cardiotocography revealed a normal fetal heart rate pattern. Chest radiography demonstrated normal cardiac and pulmonary findings. The patient's Placenta Accreta Index (PAI) score was 4. The patient underwent a successful cesarean section and supravaginal hysterectomy with proper hemodynamic control and received necessary fluid and blood transfusions. Post-surgery, she was stable and transferred to obstetric ward. The baby was transferred to the NICU for further medical treatment. This

comprehensive multidisciplinary management ensured optimal clinical outcomes for the patient and the fetus.



Figure 1. Uterus post Supravaginal hysterectomy

Discussion

In this case, we discussed a 39-year-old female patient with a diagnosis of G5P3A1H3 at 35-36 weeks of gestation, with a cephalic presentation, total placenta previa, suspected placenta accreta (with an accreta score of 4), gestational hypertension, a history of 1 previous cesarean section (CS), and moderate microcytic hypochromic anemia. The patient's primary complaint was the passage of fresh red blood with a foul odor from the birth canal, soaking her underwear (Senkoro et al., 2017). This presentation is a common objective symptom experienced by patients with placenta previa. The patient had a history of one previous cesarean section, and this, along with maternal age, is associated with an increased risk of placenta accreta. The incidence of placenta accreta is approximately 44.2 per 100,000 individuals or 36% of all pregnancies. The risk of placenta accreta is higher in primiparous women of advanced maternal age and in multiple pregnancies (Cunningham, 2021). For primiparous women, being aged ≥ 40 years increases the risk by 19.1 times compared to those aged < 30 years. Nonetheless, the age range for placenta accreta is 21-55 years with an average age of 35 years. The current twin pregnancy in primiparous women increases the risk by 6.1 times (Senkoro et al., 2017). In multiparous women (as in this case), independent risk factors for placenta accreta include a history of previous cesarean section, with a risk more than 2 times greater than women without a history of cesarean section, and current placenta previa, with a risk 36.3 times greater than women without current placenta previa (Senkoro et al., 2017).

The diagnosis of placenta accreta is established using prenatal imaging with ultrasound having a sensitivity of 77-100% and specificity of 70-98%. Some ultrasound findings indicative of placenta accreta include the presence of lacunae, thin and irregular myometrium, loss of the retroplacental clear space, and bridging vessels connecting the placenta to the bladder

(Rahimi-Sharbat et al., 2014). This examination is sufficient to diagnose placenta accreta with a sensitivity of 77-87%, specificity of 96-98%, positive predictive value (PPV) of 65-93%, and negative predictive value (NPV) of 98%. In this case, the patient's placenta accreta was detected during the second trimester of pregnancy. However, there have been studies testing the accuracy of ultrasound examination for placenta accreta detection during the first trimester. Findings of low-lying gestational sac, hypoechoic placental region, irregular placenta-myometrial interface, and current placenta previa increase the accuracy for placenta accreta. Low-lying gestational sac is associated with trophoblast implantation at the site of a previous uterine scar. The sensitivity of this examination was found to be 41%, and its specificity was 88%, indicating lower accuracy compared to examinations in the second or third trimesters. Another examination with comparable accuracy to ultrasound is MRI, which has a sensitivity of 88%, specificity of 100%, PPV of 100%, and NPV of 82%. Although deemed comparable, MRI is better at detecting the depth of invasion in cases of placenta accreta. Therefore, MRI is considered an additional modality to slightly improve the diagnostic accuracy of ultrasound (Baughman et al., 2008).

The patient's Placenta Accreta Index (PAI) score was 4, which is a probability index based on a combination of ultrasound findings and clinical manifestations of the patient. The PAI score of 4 in this patient was attributed to the presence of lacunae grade III and myometrial thickness of 2 mm. The PAI score for this patient indicated a 51% probability of placenta accreta (Elbohoty et al., 2020). However, further examinations such as MRI are needed to determine the extent of placental invasion to facilitate the decision for conservative or definitive management, such as total hysterectomy (Berhan & Urgie, 2020). However, in this case, total hysterectomy was not performed due to cost limitations and its lack of routine use at this hospital. Nonetheless, the definitive diagnosis of placenta accreta relies on examination of uterine tissue specimens after hysterectomy. A definitive diagnosis is based on the visualization of chorionic villi attached to the myometrium without a decidua layer (Perlman & Carusi, 2019).

Conclusion

The diagnosis in this patient is in line with the results of the anamnesis, physical examination, and supporting tests, which are as follows: G5P3A1H3 at 35-36 weeks of gestation, with a cephalic presentation, total placenta previa, suspected placenta accreta (with an accreta score of 4), gestational hypertension, a history of 1 previous cesarean section (CS), and moderate microcytic hypochromic anemia.

From this case, it can be concluded that the importance of diagnosing and managing pregnancies with abnormal placental implantation. The diagnosis is primarily emphasized through the detection of maternal risk factors that may increase the risk of abnormal placental implantation, accompanying abnormalities such as placenta previa, and the optimal use of imaging modalities to establish the diagnosis. The management of placenta accreta requires multidisciplinary collaboration to anticipate potential comorbidities that may arise.

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