

Distinct Placenta Increta and Percreta in the Setting of Dichorionic Diamniotic Twin Gestation: A Unique Histological Finding

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Abstract

Multiple gestations have been reported as a risk factor for placenta accreta spectrum (PAS) but the evidence is limited. Previous reports showed that PAS degrees (creta, increta, percreta) were similar in multiple gestation placentas. To our knowledge, there have been no reports of PAS in dichorionic placentas with different degrees of invasion. Here, we report dichorionic diamniotic placentas with two different degrees of invasion, one increta and another percreta.

Keywords

Placenta Accreta Spectrum, Increta, Percreta, Differential Placental Invasion, Twin

1. Introduction

Placenta accreta spectrum, including creta, increta, and percreta, describes the range of pathologic adherence of the placenta to the uterus and surrounding pelvic organs [1]. It occurs when there is trophoblastic invasion into the myometrium, specifically an area of defective decidualization usually secondary to prior damage at the endometrial-myometrial junction [2] [3].

In the United States, the rates of placenta accreta spectrum have increased by 9- to 14-fold since the 1970s [4] [5] [6] [7]. In the 1970s and 1980s, the incidence

of placenta accreta spectrum was 1/2510 to 1/4027 pregnancies [5] [6]. In a 2016 study, the incidence was as frequent as 1/272 pregnancies [7].

There are many known risk factors for placenta accreta spectrum, including placenta previa, prior uterine incisions, most notably prior cesarean deliveries, prior curettage or Asherman syndrome, advanced maternal age, and multiparity [1]. The additional risk imposed by multiple gestations has only been recently established [8]. In a retrospective study including 918,452 live births, Miller *et al.* showed that twin pregnancy was associated with a 2.96 relative risk of placenta accreta spectrum compared to singleton pregnancy, after adjusting for maternal age, previous cesarean birth, and sociodemographic factors. Furthermore, placenta accreta spectrum has been shown to be less likely detected in twin gestations compared to singleton gestations [9]. In a retrospective study including 555 patients with placenta accreta spectrum, Shamshirsaz *et al.* showed that traditional risk factors such as placenta previa and previous cesarean deliveries were less frequent in twin gestations compared to singleton gestations, resulting in a lower index of suspicion for placenta accreta spectrum antenatally in twin gestations. They also acknowledged that imaging twin gestations have more limitations, including increased difficulty with visualizing the entire placenta(s) [9].

Our case highlights these unique challenges with imaging twin gestations and the importance of focusing on both placentas. In doing so, we present the first case of dichorionic diamniotic placentas with different degrees of invasion, one increta and one percreta [10] [11] [12] [13].

2. Case Description

A 43-year-old G3P2002 Caucasian woman was transferred to our facility after presenting at 31w1d with her second episode of vaginal bleeding and passage of small clots within a week in the setting of known anterior placenta previa. She did not report any other symptoms and her review of systems was negative. Her pregnancy was also notable for being a result of in vitro fertilization, dichorionic diamniotic twin gestation, and a history of two prior cesarean sections. Her medical history was otherwise non-contributory. Upon admission for monitoring of further vaginal bleeding, she received her first course of betamethasone for fetal lung maturation and magnesium for fetal neuroprotection. After being monitored for 24 hours during labor & delivery, she had minimal further vaginal bleeding and as such, magnesium was stopped, and she was transferred to the antepartum floor. For the remainder of the patient's antepartum course, she had a few additional episodes of scant vaginal bleeding, none of which required prolonged monitoring. External fetal monitoring was reassuring throughout her hospitalization.

On serial ultrasounds, there was an increasing suspicion for placenta accreta spectrum for Twin A's placenta. Of note, her admission ultrasound at 31w2d showed an anterior placenta previa overlying a thin lower uterine segment as well as a posterior fundal placenta. On follow up about two weeks later at 33w3d,

there was a “loss of demarcation in two distinct regions of the lower anterior placenta,” “lacunae noted,” and “increased vessels over the bladder” for Twin A (**Figure 1**). A multidisciplinary care team including maternal-fetal medicine, gynecologic oncology, interventional radiology, obstetrical anesthesiology, and neonatology was convened for delivery planning at 33w5d with the placenta accreta spectrum team. The patient started having regular, frequent contractions the day prior to her planned surgery and the decision was made to expedite delivery.

The cesarean hysterectomy with bilateral salpingectomy was uncomplicated other than an estimated blood loss of 2.5 L. She tolerated volume resuscitation very well and remained hemodynamically stable throughout. As there was a high preoperative suspicion for placenta accreta spectrum in Twin A, no efforts were made to deliver either placenta after delivery of the twins. The hysterotomy was quickly sutured close with both placentas in situ in order to minimize blood loss and the hysterectomy immediately followed.

The final pathology report was notable for placenta percreta in Twin A and placenta increta in Twin B (**Figure 2**). Her post-operative course was unremarkable, and she was discharged home on post-operative day 5. She and her newborns were doing well at her 6-week post-partum visit.



Figure 1. Ultrasound imaging concerning for placenta accreta in Twin A. Loss of demarcation between placenta and myometrium (left, middle). Prominent vessels abutting the bladder (right).

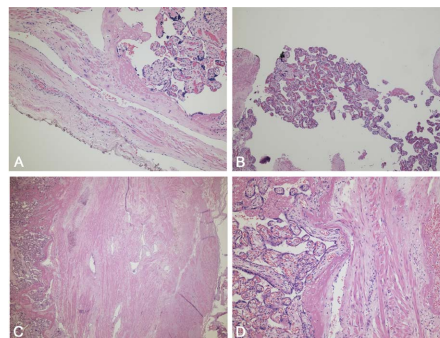


Figure 2. (A) (100×). Twin A: H&E stained section of area adjacent to percreta showing invasion of chorionic villi into deep myometrium. (B) (50×). Twin A: H&E stained low power section of area of disruption of uterine serosa with chorionic villi invading through serosal disruption (placenta percreta). (C) (50×) and (D) (100×). Twin B: Low and high power H&E stain of sections showing area with chorionic villi having invading upper third of myometrium (placenta increta).

3. Discussion

In summary, this patient was initially admitted in the third trimester after her second episode of vaginal bleeding in the setting of known anterior placenta previa and dichorionic diamniotic twin gestation. On presentation, the patient's previous providers had appreciated an anterior placenta previa, but without creta. During her antepartum course, her vaginal bleeding was minimal, but her serial ultrasounds showed increasing suspicion for placenta accreta spectrum for Twin A. She eventually underwent an uncomplicated cesarean hysterectomy and bilateral salpingectomy.

This case is unique given that the final pathology showed that the two distinct placentas were both on the placenta accreta spectrum, but with differing degrees of placental invasion, one percreta and one increta. It also demonstrated that while Twin B's placenta was posterior and fundal, it had a separate morbidly adherent component from Twin A's placenta. This patient had around a 40% chance of placenta accreta spectrum based on her one anterior placenta previa and a history of two prior cesarean sections (1). While the placenta accreta spectrum for Twin A was diagnosed antenatally, this case accentuates the lower index of suspicion for a second placenta accreta spectrum in a twin gestation as well as the challenges with imaging twin gestations. Our case highlights the importance of paying attention to all placentas in multiple gestations.

Lastly, while antenatal diagnosis of the second placenta accreta spectrum would not have changed the mode of delivery, it definitely could have impacted delivery timing and surgical planning. Although it is not surprising that Twin A's placenta was more invasive given that it was overlying the prior cesarean section scar and a previa, if Twin B had a more severe degree of placenta accreta spectrum diagnosed antenatally, the patient may have required sooner delivery to avoid preterm labor and hemorrhage. Furthermore, knowing about Twin B's placenta accreta spectrum antenatally would also have affected the location of the hysterotomy during surgery as we generally try to incise the uterus as far away from placental tissue as possible to avoid bleeding.

Statement of Equal Authors' Contribution

All authors contributed equally to this manuscript.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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