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CASE REPORT

HDliveFlow with HDlive Silhouette Mode in Antenatal Diagnosis of Bilobed Placenta

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ABSTRACT

We present a case of bilobed placenta diagnosed by HDliveFlow with the HDlive silhouette mode early in the 2nd trimester of pregnancy. A 29-year-old Japanese pregnant woman, gravida 4, para 1, was referred to our hospital based on the patient's wish at 23 weeks and 3 days of gestation. Two-dimensional (2D) sonography showed a single live fetus with biometry consistent with the gestational age. Moreover, two separated parts of the placenta were noted at the anterior and posterior uterine walls. HDliveFlow with the HDlive silhouette mode clearly depicted two lobes of the placenta (near equal size), and the main umbilical cord attached to the periphery of the anterior part of the placenta. One large connecting vessel between these two placental parts was also clearly identified. Bilobed placenta was strongly suggested. After birth, the gross specimen of the placenta confirmed the diagnosis. HDliveFlow with the HDlive silhouette mode may be an adjunctive tool to 2D sonography to diagnose abnormalities of the placenta *in utero*.

Keywords: Antenatal diagnosis, Bilobed placenta, HDliveFlow, HDlive silhouette mode.

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INTRODUCTION

Bilobed placenta, also known as placenta duplex, is not rare but often missed, especially with the use of the conventional two-dimensional (2D) sonography.[1] The human placenta demonstrates several ranges of morphologic variation. Bilobed placenta is one of the variations in placental morphology; the placenta divides into two equal-sized parts or lobes. This placental morphology carries a higher incidence of placenta succenturiata and placenta membranacea, and it may cause serious perinatal problems, such as fetal hemorrhage or maternal postpartum hemorrhage.[1,2] Therefore, an accurate prenatal diagnosis of bilobed placenta is clinically important. We present our experience of using HDliveFlow with the HDlive silhouette mode to construct an image of bilobed placenta early in the 2nd trimester of pregnancy. To the best of our knowledge, this is the first report to present HDliveFlow with HDlive silhouette mode imaging for the antenatal diagnosis of bilobed placenta.

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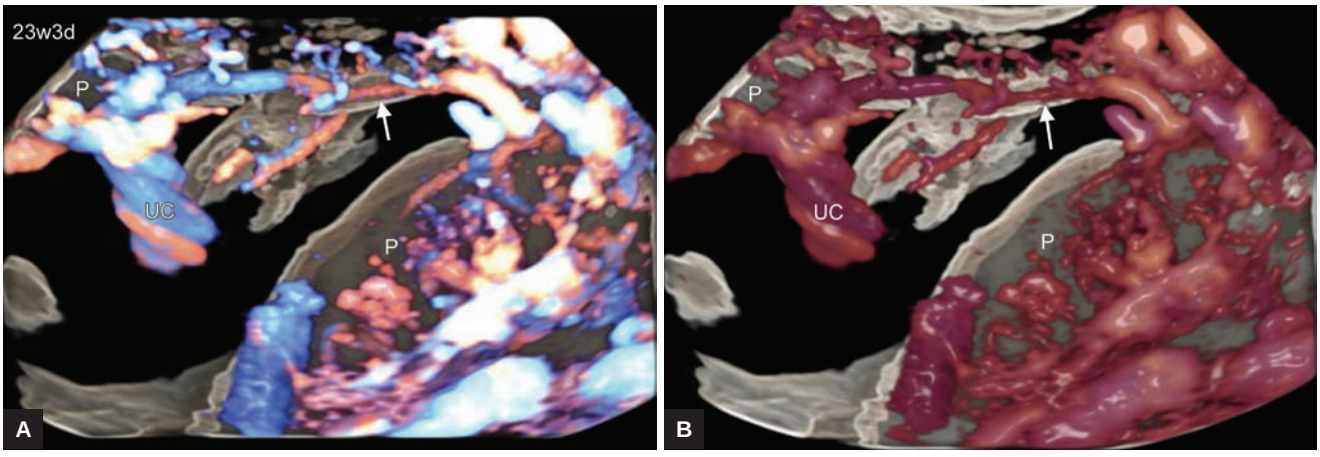
CASE REPORT

A 29-year-old pregnant Japanese woman, gravida 4, para 1, with a history of Hashimoto disease under control was referred to our outpatient clinic based on the patient's wish at 23 weeks and 3 days of gestation. According to the referral letter, the previous antenatal course was uneventful. Conventional 2D sonography revealed a single living fetus with normal growth consistent with the gestational age. Moreover, two parts of the placenta at the anterior and posterior uterine walls were noted. HDliveFlow with the HDlive silhouette mode (Voluson E10, GE Health care Japan, Tokyo, Japan) demonstrated the two lobes of the placenta (near equal size) and the umbilical cord attached to the periphery of the anterior lobe (Figs 1A and B). One large connecting vessel between these two lobes of the placenta was also clearly depicted (Figs 1A and B). Bilobed placenta was strongly suggested.

One male newborn was vaginally delivered at 39 weeks and 5 days of gestation with a body weight of 3,086 gm and Apgar score of 8/9 at 1 and 5 minutes respectively. The placenta separated from the uterus smoothly, weighing 655 gm, and the umbilical cord was 54 cm in length. The macroscopic findings were two equally sized, separated lobes of the placenta and some obvious connecting vessels, which then flowed together with small vessels into the umbilical cords in one of the two lobes (Fig. 2). The prenatal diagnosis of bilobed placenta was confirmed.

DISCUSSION

Conventional 2D sonography has been widely used for evaluation of the placenta.[1,2] With color/power and



Figs 1A and B: (A) HDliveFlow with HDlive silhouette mode display of the bilobed placenta at 23 weeks and 3 days of gestation. The main umbilical vessels with branches and the connecting one (arrow) are clearly depicted. Umbilical cord insertion is noted at the periphery of the anterior lobe; and (B) the bilobed placenta at a gestational age of 23 weeks and 3 days is demonstrated by HDliveFlow with the HDlive silhouette mode with a monochromatic map. The umbilical vessels with branches and the connecting vessel (arrow) form spatial vascular networks. P: Placenta; UC: Umbilical cord

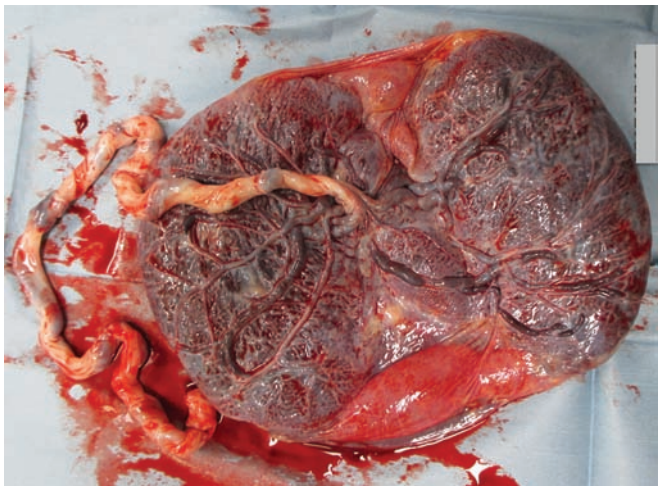


Fig. 2: The gross specimen of the placenta at 39 weeks and 5 days of gestation. Two equal-sized lobes, some obvious connecting vessels, and the cord insertion at the periphery of one lobe are evident

pulsed Doppler three-dimensional (3D) ultrasound, it provides improved visualization of the fetal anatomic morphology compared with conventional 2D sonography.[3,4] The HDlive silhouette mode is a novel 3D technology that shows vitreous-like density of the normal and abnormal fetus and placenta.[5-9] This technique can preserve the border of the fetus or placenta while showing some details of the inner composition. HDliveFlow with the HDlive silhouette mode when applied to normal and abnormal fetal circulation, the placenta, and gynecologic disorders can facilitate spatial visualization and demonstrate the relationship among them.[10-13] In the present case, a succenturiate lobe or bilobed placenta was suspected using 2D sonography. With the use of HDliveFlow with the HDlive silhouette mode, the major vessels of the two lobes, the connecting vessel, and the peripheral insertion of the umbilical cord were all clearly depicted. The spatial relationships between vessels and the placenta were also well demonstrated. Therefore, bilobed placenta without velamentous insertion of the cord could be precisely diagnosed. To the best of our knowledge, this is the first case of bilobed placenta presented with this technique.

Bilobed placenta is a variation in placental morphology, and it refers to a placenta separated into two equal lobes. The cord usually insets to a thin connecting rim of chorionic tissue, which bridges the two lobes.[14] Sometimes, it carries a higher incidence of vasa previa and velamentous insertion of the cord. These carry some risks for the fetus, such as hemorrhagic shock due to unstable vessel rupture, and for the mother, such as postpartum retained placenta if a precise prenatal diagnosis is not achieved.[14,15] So, HDliveFlow with the HDlive silhouette mode can assist with and strengthen the prenatal diagnosis of bilobed placenta. Further studies involving larger sample sizes are needed to confirm the usefulness of this technique in clinical practice.

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