Fused Umbilical Artery Found in a Case of Twin Pregnancy: A Case Report

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Abstract

In this manuscript, a fused umbilical artery found in a case of diamniotic-dichorionic twin pregnancy is reported. One of the twins was found to be deceased in utero. The living fetus have not had any perinatal complication. The antenatal sonographic evaluation of the umbilical cord is important in perinatal follow-up. The anomaly of fused umbilical arteries are frequently encountered in the proximal part of the umbilical arteries. For this reason, multiple cross sectional examinations must be performed during the sonographic evaluation of the cord.

Keywords: umbilical cord, umbilical cord abnormalities, prenatal diagnosis

Özet

Bir İkiz Gebelik Olgusunda Tespit Edilen Birleşik Umbilikal Arter: Olgu Sunumu


Anahtar sözcükler: umbilikal kord, umbilikal kord anomalileri, prenatal tanı

Introduction

Ultrasoundographic assessment, although not always possible, throughout the entire length of the umbilical cord with two arteries and one vein embedded in a Wharton’s jelly, may assist in the diagnosis of various congenital and functional abnormalities of the cord such as cord cysts, hematomas, umbilical vein varix, aneurysms, single umbilical artery, fused umbilical arteries, velamentous insertion and vasa previa (1). The pathogenesis of single umbilical artery is assumed to result from the aplasia and atrophy of the missing vessel. At least in some cases, single umbilical artery may result from incomplete splitting of the single artery, leading to fused umbilical artery (2). Fused umbilical arteries near the placental insertion have been found in several studies, despite its evidence for the association with fetal anomalies has been rarely documented (3). However, the presence of a single umbilical artery is recognised as a soft marker for congenital anomalies, aneuploidy, earlier delivery and low birthweight (4,5,6).

We describe a diamniotic, dichorionic twin pregnancy showing a fused umbilical artery and dead co-twin in utero on prenatal ultrasonography.

Case Report

A 31-year-old women in her sixth pregnancy (G:6,P:4) was referred to our clinic due to inaccessibility of fetal cardiac signals on cardiocography. On ultrasound examination at 36th weeks of gestation, she was found to have a diamniotic, dichorionic twin pregnancy. However, one of the fetus was dead in utero, with the additional findings of ascites, hydrothorax and hyperchogenic bowel. Both amniotic fluids and placentas were normal in appearance. On Doppler examination of the co-twin, near the placental insertion (<4 cm to placental insertion), a single umbilical artery was noticed (Figure 1). Further insonation along the cord revealed ‘two- arteries-one vein’ appearance. No fetal anomalies was present in the live fetus. The patient was delivered with cesarean section following which a 2960 g dead and 1890 g live neonates were born. Indication of cesarean section was elective and dependent on maternal request. Postcesarean follow-up of the live neonate was uneventful and discharged from the hospital on day 7 following the delivery together with her mother. No gross
anomaly was seen in the live co-twin. Autopsy of the dead twin was declined by the family. A cross-sectional view of the umbilical cord near the placental insertion (Figure 2a) and at mid-segment (Figure 2b) depicted the same anatomy, as shown also on color Doppler findings.

Discussion

Although prenatal complications and congenital malformations are assumed to be rare in fused umbilical arteries, anomalies such as renal agenesis, Hallermann-Streiff syndrome, velamentous and marginal placental insertions have been reported in some studies (2,6,7). Likewise, if the cord is sectioned near the chorionic plate, fused umbilical arteries may be misdiagnosed as true SUA. Hence, single umbilical artery should be confirmed following the multi-sectional analysis of the umbilical cord at different points. Since, when a true single umbilical artery diagnosis was made on routine ultrasound, high incidence of major chromosomal and congenital anomalies, justifying a fetal ultrasonography, invasive tests and fetal echocardiography and fetal karyotyping (8). This issue is especially crucial with regard to the prognosis of such pregnancies. However, presence of fused umbilical arteries especially near the placental insertion, following a multi-segmental analysis and confirmation of normal vessel anatomy elsewhere in the cord, should refrain the physician to proceed to further extensive fetal evaluation. On Doppler ultrasonography, demonstration of a single umbilical artery around the bladder facilitates the diagnosis of single umbilical artery (4).

To conclude, on the basis of aforementioned case, it is noteworthy that the cord should be insonated sufficiently distant from the placental insertion (>4 cm) as two arteries may fuse into one trunk giving rise to an erroneous diagnosis to a single umbilical artery. But, in determining the number of umbilical vessels, nake-eye or sonographic views can be misleading and histology should be the definitive method of ascertainement.

References