

Single Umbilical Artery

Sir,

The single umbilical artery (SUA) is a congenital anomaly where the umbilical cord (UC) contains only one umbilical artery (UA) and one umbilical vein (UV). It occurs in approximately 0.5-5% of all pregnancies.¹⁻⁶ It can be diagnosed by prenatal ultrasonography (PUS) and can be associated with other fetal anomalies and poor obstetric outcomes.⁴ We report a case of a SUA associated with a preterm birth.

A 24-year women, gravida 1, with unremarkable medical history, was followed up in our department for her pregnancy of 12-week gestation (WG). Her medical examinations, routine laboratory tests, and PUS of the first trimester were unremarkable. The PUS of 23 WG revealed two vessels UC with one UA and one UV. The artery was dilated and the ratio of UV diameter/UA diameter was < 2 , with no other fetal abnormality. At 36 WG and 1 day, she delivered a female newborn, Apgar 10, 2650 g weight, with no external congenital or placental anomalies. The infectious tests were negative and the postpartum period was uneventful. The macroscopic and microscopic examinations of the UC showed one UA and one UV (Figures 1 and 2). Postnatal echocardiography and kidney ultrasonography were normal.

The UAs is reported in isolation in 64% to 96% of cases.⁴ Its etiopathogenesis remains complex and debated, but the most probable theories are the agenesis of one of the UAs or the atresia or atrophy of an UA appearing secondarily because of a thrombosis.¹⁻⁴ The UAs can be detected on US with color Doppler at the level of the free UC or at the level of the fetal bladder by showing the vascular course in perivesical region.⁶ Both suspected SUA and three vessel UC in the first trimester must be controlled in the second trimester. In monofetal pregnancy with SUA, there is an adaptive dilatation of the artery, with a ratio of UV diameter/UA diameter of < 2 , while it is > 2 in normal UC.^{5,6} Finally, in postpartum period, it is recommended to perform a microscopic examination of the UC.⁵ The SUA is associated with chromosomal and structural abnormalities in 4-36% of pregnancies.⁴ The most common chromosomal defect is trisomy 18 and the most common structural abnormalities are found in genitourinary, cardiovascular, musculo-skeletal system, as well as gastrointestinal and central nervous system.⁴ It is also associated with placental anomalies and UC insertion anomalies.⁵ The SUA is called isolated SUA (ISUA) if no chromosomal or structural abnormalities are found. The fetuses' prognosis depends largely on the severity of the coexisting anomalies.³ In many studies, the SUA in monofetal pregnancies impacts the obstetric outcomes and induces intrauterine growth restriction (IUGR),



Figure 1: Macroscopic examination of the umbilical cord. Axial section of the umbilical cord showing one umbilical artery (Blue) and one umbilical vein (Red).

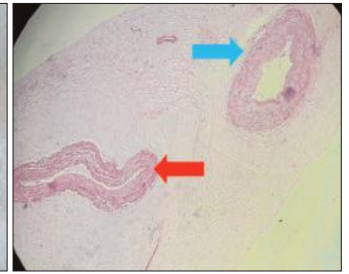


Figure 2: Microscopic examination of the umbilical cord. Hematoxylin and eosin stained axial section of the umbilical cord showing one umbilical artery (Blue arrow) and one umbilical vein (Red arrow).

intrauterine fetal death, preterm delivery, low birth weight, maternal hypertensive disorders, even in the case of an ISUA.^{1-3,6}

Finally, when a SUA is found, it must be followed by a careful structural US examination.⁶ Also, the physician must inform properly the parents and be careful about the appearance of maternal high blood pressure or IUGR even in case of an ISUA.^{2,3,8} Such cases may have legal implications, if not managed correctly.⁸

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