

# SINGLE UMBILICAL ARTERY

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## REZUMAT

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**Introducere.** Artera ombilicala unica (SUA) este o malformatie care poate fi prezenta singura sau poate fi asociata de alte malformatii. Din acest motiv, cazurile la care diagnosticul a fost stabilit trebuie urmarite cu foarte multa atentie. **Prezentare de caz.** Lucrarea prezinta un caz diagnosticat cu SUA ca malformatie unica care a prezentat la nastere retard de crestere intrauterina. **Discutii.** Prezenta SUA ne obliga la investigarea mai atenta a cazului datorita asocierii posibile cu alte malformatii. Efectuarea cariotipului fetal, examinarile ecografice repetate si o foarte buna monitorizare a nou-nascutului pot scoate in evidenta modificarile patologice pentru un mai bun management al cazului.

**Cuvinte cheie:** artera ombilicala unica, malformatie fetala, ruptura precoce de membrane

## ABSTRACT

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**Introduction.** The single umbilical artery (SUA) is a malformation which can exist alone or can be accompanied by more or less other malformations. This is the reason why, the cases where the diagnosis was established must be very carefully monitored. **Case report.** The paper presents a case with a SUA as unique malformation which presented an intrauterine growth retardation at the moment of birth. **Discussions.** The presence of SUA implies more investigations because of the possible association with other malformation. Fetal karyotype, regular ultrasound examination and a very good monitoring of the baby after birth can evidence any other problems and can help us to manage them better.

**Keywords:** single umbilical artery, fetal malformation, precocious membrane rupture

## INTRODUCTION

The umbilical cord contains usually two arteries and one vein. SUA affects between 1 in 100 and 1 in 500 pregnancies and it is the most common vascular anomaly in human.<sup>1</sup> The cause of the anomaly is unknown. Studies demonstrated that in 75% of cases the baby which had been born was healthy. Because in 25% of cases are described other anomalies association,

these cases it is better to be monitored with more attention.<sup>2</sup> SUA can be associated with cardiovascular abnormalities, gastro-intestinal defects, a variety of renal defects, and other genetic anomaly syndromes.<sup>1,3</sup> Prenatal diagnosis of SUA is very important, additional ultrasound scans can identify many of the anomalies prior to birth and can help the obstetrician to have the better medical conduct in these cases.<sup>1</sup>

## CASE REPORT

A 32 years old G1P1 was for the first time in the pregnancy at the Clinic of Obstetrics and Gynecology "Bega" from Timisoara. After an ultrasound examination was established the diagnosis of 18 weeks of pregnancy. Biometry of the fetus showed that his growth up was corresponding with the date of late menstrual period. Morphologically it wasn't identified any other anomalies. The placenta was anterior, the inferior pole was inserted at 2 cm from the cervix. The placental umbilical insertion was central. The ultrasound examination evidenced just two vessels in the umbilical cord (figure 1).

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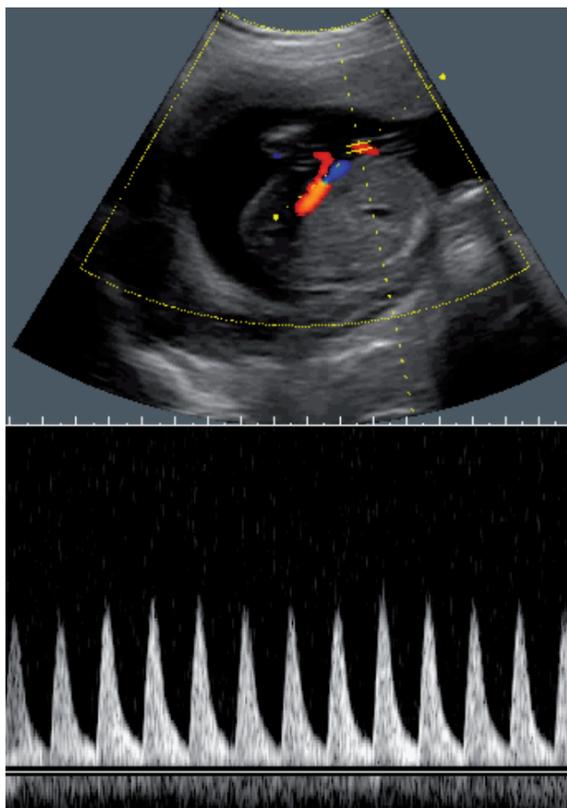
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**Figure 1.** Single umbilical artery - 2D ultrasound examination

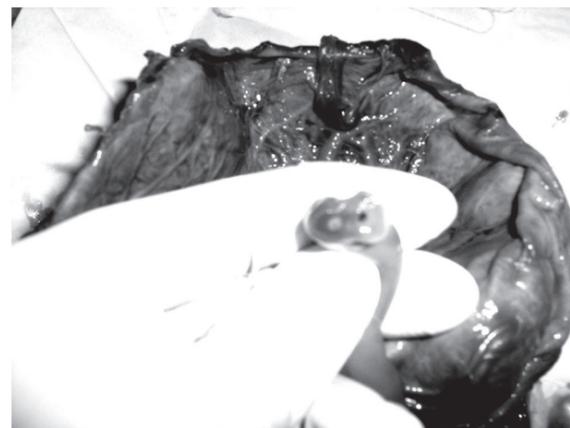
At the Doppler ultrasound examination was very clear that it were a vein and an artery. The aspects of the waves were normal at that moment (figure 2).



**Figure 2.** Doppler ultrasound examination – normal waves on the umbilical artery

Because the SUA can be associated with other anomalies, the parents were announced about the identified problem. Taking in consideration the great concern to the parents regarding wellbeing of the

baby, as obstetricians we had to manage the situation medical and counsel the patients. The couple decided to continue the pregnancy. Together we decided and made the amniocentesis, after a few days. The fetal karyotype was normal: 46, XX. More 2D and 3D ultrasound examination were made periodically completed with Doppler examination to identify any anomalies. The fetus grown well until 35 weeks of gestation. At this time, the biometry identify a fetal retardation with approximately 1 week. The Doppler flow velocimetry was also normal. The arterial blood pressure was 145/90mmHg. No others associated pathology were found from the anamnesis of the patient. Rigorous diet was imposed. The values of the arterial blood pressure was maintained lower than this values until 37 weeks of gestation, when the pregnant was admitted with precocious rupture of membrane without uterine contraction. After 12 hours begun the antibioprofilaxy with Ampicilinum 1g at 6 hours, administrated intravenous. Labour was augmented with 10 units of oxytocine in 5% glucose. After 10 hours, she delivered a healthy female baby weighing 2,6kg with 8/9 apgar score. There weren't identified gross fetal anomalies. The examination of the placenta identify no pathological changes. At the umbilical cord was evidenced the presence of the single umbilical artery (figure 3). The placenta and the umbilical cord were studied until and after plastination. The patients were discharged 4 days later. After 1 year, the baby has normal developed.



**Figure 3.** Placenta with the umbilical cord after delivery: the presence of two umbilical vessels.

## DISCUSSIONS

The fetoplacental circulation is very important to assure a good oxygenation and nutrition of the fetus. Ultrasound examination can establish the SUA

diagnosis. Using the Doppler can be appreciate the velocimetry to identify any pathological changes in the blood flow. Other associated anomalies must be excluded with regular ultrasound examination.<sup>4</sup> The amniocentesis is very important to exclude genetic anomalies of the fetus. If no other anomalies are present the prognostic of the fetus at birth are very good. In our case, the karyotype was normal, no other ultrasound examination were identified. At 35 weeks of gestation the patient presented some decreased value of the blood pressure and an intrauterine growth retardation corresponding to 1 week. The labour was stimulated after the precocious rupture of the membranes and the patient had vaginal delivery with no important fetal distress signs. The cord had central insertion on the placenta. Placenta with no associated pathology. The baby was investigated to exclude other anomalies and no other anomaly was found just the SUA. The parents karyotype were normal. Placenta plastination identify at the umbilical cord the presence of just a single umbilical artery distributed helicoidal related to the umbilical vein. Both vessels had dichotomic ramification in the placenta. The data will serve to the computerized 3D modeling of the umbilical and placental vasculature.

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