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## **Umbilical artery aneurysm**

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A 37-year-old pregnant woman (GII PII) had a routine ultrasound examination in the third trimester, at 30 weeks of gestation. Previous ultrasound tests, both in the first and the second trimester, showed no abnormalities. The patient remained under the supervision of a gynecologist (first visit at 5 weeks of gestation). The first pregnancy resulted in the delivery of a healthy child.







The current pregnancy was complicated by diet-treated gestational diabetes (G1). Assessment of the glycemic profile revealed no abnormalities.

An ultrasound examination revealed a single, male fetus (gestational age consistent with 30 weeks of pregnancy) with an estimated weight of about 1700 g and normal amount of the amniotic fluid (MVP/AFI). An anechoic cyst (40 × 35 mm) in communication with the umbilical artery was visualized near the umbilical cord attachment. Doppler examination showed turbulent flow in the dilated vessel. Fetal vascular flows, both arterial and venous, showed no abnormalities. No other fetal structural defects were found.

The next ultrasound examination was scheduled for and performed at 34 weeks of pregnancy and showed no signs of chronic hypoxia or fetal growth restrictions. The pregnant woman was referred to a pregnancy pathology ward for intensive supervision. The welfare of the fetus was monitored throughout the entire period by serial ultrasound and cardiotocography. At 37 weeks of pregnancy, cesarean section was performed electively (born: male, live, full-term, weight: 3050 g, length: 53 cm). Assessment of the postnatal state: Apgar 10 at 1, 3, 5 and 10 min after delivery, without visible dysmorphic features.

Histopathological examination of the placenta confirmed the three-vessel umbilical cord with an eccentric attachment. In the area of the umbilical cord attachment, an aneurysm-dilated vessel and the adjacent pseudocyst, probably due to the degeneration of Wharton's jelly, were found.

Until now (at 3 and 6 months of life), the psychophysical development of the child remains normal.

Umbilical artery aneurysm (UAA) is the least common anomaly of the umbilical vessels caused by abnormal structure of the umbilical artery wall. Wharton's jelly has a protective role in formatting the UAA, even in the case of significant thinning of the vessel wall. To the best of our knowledge, there were 17 cases of UUA published, out of which only 6 led to the delivery of a healthy newborn. UAA is correlated with a high risk of aneuploidy and intrauterine deaths. UAAs are most often located at the placental umbilical cord attachment, where the branching of the vessels causes a loss of the protection provided by Wharton's jelly. In the 17 described cases, as many as 11 umbilical artery aneurysms were located at the umbilical cord placental insertion. It often coexists with the Wharton jelly degenerative pseudocyst, which has also been described by other authors. This seems to confirm the aforementioned protective effect of Wharton jelly on the umbilical vessels [1–3].

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According to the literature, 63% of UAA cases are associated with a single umbilical artery. It may be the result of a compensatory enlargement of a single umbilical artery, with an increase in the cardiac output of the developing fetus. It also explains why all cases were diagnosed after 21 weeks of pregnancy [1, 2].

There were 4 cases of UAA in fetuses with chromosome 18 trisomy. This may be associated with abnormal placental vasculature in this aneuploidy. UAA is also more common in male fetuses (60%) [1–5].

An aneurysm of the dilated umbilical artery can cause intrauterine asphyxia, disseminated intravascular coagulation (DIC) and fetal anemia. As mentioned above, only one-third of cases ended up in the delivery of a healthy child. Other cases were associated with intrauterine fetal demise or death shortly after delivery. This pathology is the result of clot formation in the lumen of the vessel, an expanding aneurysm can compress the umbilical vein leading to fetal anemization or an abnormal, thin wall of the vessel is also prone to rupture, which may result in perivascular hematoma. The risk of rupture is highest during delivery; therefore, a cesarean section should be the suggested mode of delivery [1–5].

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