



Case Report

Volume 3 Issue 1 - January 2018
DOI: 10.19080/MABB.2018.03.555601

Mod Appl Bioequiv Availab

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Multivessel Umbilical Cord: Case Report



Paramanantham P* and Srujana Swarna

Department of paediatrics, SRM medical college hospital and research centre, India

Submission: December 12, 2017; **Published:** January 09, 2018

***Corresponding author:** Paramanantham P, NICU, Department of paediatrics, SRM medical college hospital and research centre, Katankulathur, India, Email: paramanandham59@yahoo.com

Introduction

The umbilical cord normally contains three vessels-two umbilical arteries and one umbilical vein (UV). Abnormalities leading to multiple vessels in the cord are rare with majority of the reported cases in literature highlighting four vessels due to a persistent right UV [1-3]. There are only occasional reports mentioning the presence of live vessels in the cord [3]. Out of the 432 placentas examined in our laboratory over a period of 2 years (2009-2011), 4 (0.93%) showed the presence of more than three vessels on cross section of the umbilical cord. We found three cases with five vessels in the cord and one case with four vessels. In all the four cases, the diagnosis of multiple vessels in the cord was made postnatally on gross examination, and was confirmed by histopathologic examination. One of the 4 cases in the present study showed the presence of five vessels running along the central portion of the cord, while the maternal and fetal ends showed only three vessels: branching of the vessels could be a possible explanation for this finding.

The umbilical cord is an important vascular appendage which plays a key role in fetal well-being and development. The prenatal as well as postnatal examination of the placenta has contributed significantly to the current knowledge of umbilical cord anomalies and their impact on fetal outcome. Examination of the cord for the number of vessels is a standard part of routine prenatal ultrasonography (USG). Current guidelines emphasize on the utility of gross examination of the placenta for determining the number of vessels [4]. Thus a careful gross examination and proper sectioning of umbilical cord is extremely important.

Case

38 year old second gravida mother who is gestational diabetic delivered a female baby with weight of 3.1 kg in SRM medical college and hospital in July 2016. The baby cared well at birth. Apgar score one minute 8 by 10 and 5 minute 9 by 10. The cut end of the umbilicus of the baby showed one vein and 6 arteries the baby was feeding well cry color and activity was good with normal neonatal reflexes and muscle tone. Postnatal ultrasound of the abdomen was normal. Other systems were

normal. Antenatal ultrasound/ Doppler for the mother was not done. The baby was kept under observation in NICU and discharged after 3 days of life the baby is being followed, the development and growth of the baby is normal.

Discussion

Most common cause of four vessels in umbilical cord is persistent right umbilical vein which normally involutes at 6th-7th week of intrauterine life. This condition is often associated with congenital malformations (in around 18% cases) like duodenal atresia, imperforate anus, bowel malrotation, annular pancreas, atrial septal defect and situs inversus [1-3] but no anomaly seen in our case. There are many reports describing the presence of four vessels and their possible mechanisms discussed in detail [1-3,5]. However literature regarding significance of five vessels in umbilical cord is sparse. The association of five vessel cord with congenital anomalies is not clearly understood due to the scarcity of literature pertaining to this condition. However, five or more vessels in the cord have mostly been described as a part of conjoined twinning [5]. Out of the three cases of five-vessel cord encountered by us, only one had an unfavourable clinical outcome in the form of anencephaly. The other two patients delivered twins with no evidence of any congenital malformations. None of our cases had conjoined twinning.

To summarise simple tests like USG examination of placenta and color Doppler are valuable for prenatal diagnosis, which can alter the radiologist to look for congenital malformation and twinning. However, a simple gross examination of the cord postnatally for the number of blood vessels provides a valuable clue for a thorough examination of the neonate to look for subtle anomalies. Five vessels in the cord are frequently associated with twinning not necessarily of conjoined type only and do not always herald an adverse perinatal outcome.

Common cause (up to 5% of the cords) for the fourth vessel is the persistence of small vitelline arteries. These rarely exceed 0.5mm in diameter [5]. In velamentous insertion, the cord is not connected to the placental plate and its vessels travel between

the membranes before attaching eccentrically to the placenta. It happens in 1.1% in singleton pregnancies and 8.7% of twins [6].

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DOI: [10.19080/MABB.2018.03.555601](https://doi.org/10.19080/MABB.2018.03.555601)

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