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Umbilical cord hemangioma diagnosed at 31 weeks of amenorrhea: A rare case report

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Abstract

Umbilical cord hemangioma is a rare benign vascular tumor, not always detected prenatally, several fetal complications can occur such as fetal prematurity, intra uterine growth restriction, fetal malformations, intra uterine death. We describe a case of Umbilical cord hemangioma diagnosed at 31 weeks of amenorrhea complicated with an intra-uterine growth restriction and preterm delivery at 31 weeks of amenorrhea with good maternal and fetal outcome. We reviewed the literature data.

Keywords: umbilical cord hemangioma; benign; rare; fetal complications.

Introduction

Umbilical cord hemangioma is a benign vascular tumor rarely described, several complications of which can occur including fetal prematurity, fetal death in utero [1,2] and intrauterine growth retardation [3] a second localization, hydramnios, intrauterine hemorrhage as well as fetal malformations may be associated with this tumor [4,5]. We describe a case of umbilical cord hemangioma diagnosed at 31SA complicated with an IUGR and preterm delivery at 31 SA, we reviewed the data of literature.

Case report

We present the case of 28-year-old patient, gestation 1, para 0, the gestational age of the current pregnancy was estimated at 31 weeks of amenorrhea. without pathological history, the ultrasound of the first trimester was without peculiarity. The screening of trisomy 21 and alpha foeto-protein biochemical marker were not done. The patient consulted in the emergency room for uterine contractions at 31 weeks of amenorrhea. Obstetric examination objectified a parturient at the beginning of labor. Pelvic ultrasound objectified a fetus in presentation of breech, fetal biometrics lower than the 3rd percentile with an estimate fetal weight of 1300 g. We discovered a voluminous mass of the free segment of the umbilical cord near its placental insertion. In axial section of the cord, we visualized cystic images anechogenic non-vascularized with a hyperechogenic component measuring 109 X 100 mm.

The mass was clearly distinguished from the surrounding tissues (wharton's jelly) which appeared enlarged and edematous (Figure 1).

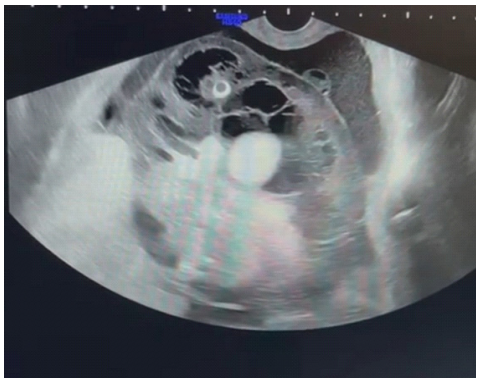

Figure 1: Voluminous Hyper echogenic mass of the umbilical cord in ultrasound.

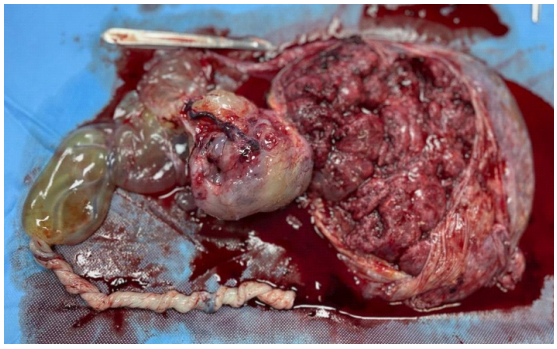

Figure 2: Voluminous umbilical cord hemangioma near the placental insertion of umbilical cord with gelatinous and edemated cord.

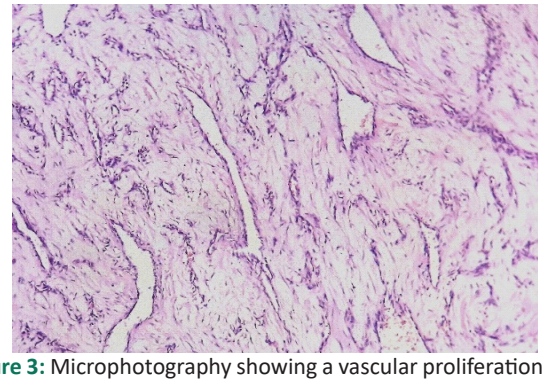

Figure 3: Microphotography showing a vascular proliferation made of small vessels, inbeded in the loose wharton jelly. (HE, 100X).

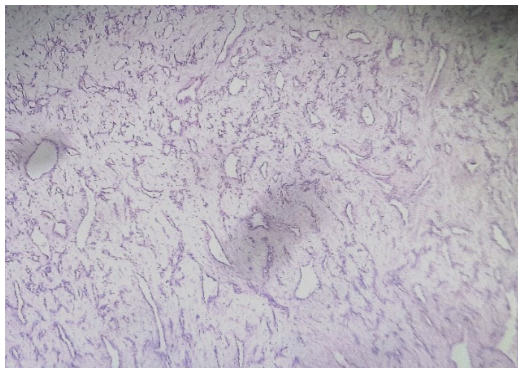

Figure 4: Microphotography at higher magnification showing that neoplastic vessels are made of bland endothelial cells, with no atypia or mitoses. (HE, 400X).

The biological assessments were without peculiarity. The recording of the fetal heart rate was normal.

She spontaneously has progressed to the second stage of labor hence the decision of a delivery by cesarean out of fear of mechanical dystocia during a vaginal delivery if the tumor were engaged at the same time as the abdomen, given the large size of the tumor as well as the presentation breech which was an added factor for our decision.

The male newborn weighed 1292 g, the Apgar score was 9 to 5 minutes of life with harmonious growth restriction. He was admitted in neonatology unit for further management. The physical examination showed no birthmarks, and an ultrasound examination that was performed the second day postpartum to exclude any haemangiomas in the baby's liver was normal. The infant is currently healthy with 5 months of hindsight.

The grossing of the placenta identified a 10 X 10 X 6 cm mass on the umbilical cord near the placental insertion of the cord which measured 39 cm (Figure 2), the cord was gelatinous and edemated near the tumor. On cut section, the mass was heterogenous showing foci of hemorrhage and cystic degeneration.

Microscopic examination of samples taken from the mass has shown a benign vascular proliferation made of small vascular channel. Endothelial cells showed no atypia or mitotic activity. The surrounding stroma was myxoid with presence of rare inflammatory cells. Some calcifications were observed in the lumen of umbilical vessels. Chorangiosis lesions was also observed. These observations are consistent with a capillary hemangioma of the umbilical cord (Figures 3,4).

Discussion

Cord hemangioma is a rare tumor, only 40 cases have been described in the literature including our case, which are summarized in the table below (Table 1).

We note that the postnatal diagnosis was made in 15 cases, the majority of which were carried out before 1999 (10 cases) [1,6,5], while antenatal diagnosis has been made in most recent studies, this is explained by the change in the quality of the screening ultrasound

Usually the diagnosis of umbilical cord hemangioma is made In the 2nd and 3rd trimester except in one case where the diagnosis was made at 16 WA leading to an intra-uterine fetal death (IUD) at 17 WA [5]. The tumor is located almost twice more frequently towards the placental than the fetal end of the cord [5]. The differential diagnosis must include hematomas and teratomas of the umbilical cord, placental masses, and abdominal wall defects [7-9] near the placental insertion, the distinction with a placental chorioangioma can be problematic because these two tumors look similar to ultrasound [5]. The nodule size ranged from 0.2 to 13 cm in literature [10].

Hemangiomas have been associated with raised MS-AFP, congenital anomalies, hydramnios, preterm labor and increased perinatal mortality, especially intrauterine deaths (IUDs). One of the cases reported in 1987 by Dombrowski et al. was revealed by rupture of the cord causing intrauterine hemorrhage in the context of premature rupture of membranes in a patient with heroin addiction, whose pregnancy had not been followed

[11,12]. A case has been mistaken for an omphalocele [13].

There is an increase in alpha-foeto-protein in the presence of this tumor in the literature, the mechanism of which has not been identified. There are several probabilities in the literature regarding the increase in AFP levels including rupture of the foeto-amniotic barrier similar to the omphaloceles and neural tube defects mechanism [14,15], with leakage of AFP from the fetus to the Amniotic Fluid (AF) via the hemangioma. This implies that at the level of the fine tumor vessels, there is the passage of fetal serum an additional flow to the amniotic fluid through the permeable amniotic membrane and a subsequent increase in maternal serum.

The findings of increased levels of AFP in the AF [15,16] as well as in the cystic lesion surrounding the tumor [15] support this speculation.

In the literature review (Table 1), this was the case in 10 cases [17,5,18]. There are 11 cases of childbirth between 28 and 36 weeks including our case (Table 1). Of these, only three were presented with the spontaneous onset of labor as is the case for our patient, however the establishment of a direct relationship between this tumor and preterm delivery is an unsupported fact [19,20,8].

In total, out of series of 41 cases, including our case, there were 12/41 (29%) children born alive without any associated anomaly [5]. Nine cases of IUDs [1,2,5,13] have been documented. We only notice a growth below the 3rd percentile in five cases, ours included. We noted five cases of associated hemangiomas (four cutaneous [11,21,4,5] and one of the anterior abdominal wall [22]) one case of hypospade [5], two cases of fetal hydrops [21,5], one case of only two lobes of right lung,one case of gastrointestinal malformation [5], one case of heart faillure[18], two cases of oligoamnios [5], and three cases of hydramnios [4,5].

In our case, a cesarean was performed for the rapid evolution of labor at 31 weeks and the large size of the mass; in the literature there are no precise indications for the delivery. The maximum size of umbilical cord hemangioma for which delivery was vaginal was 70 mm [5] and for cesareans, 130 mm [18].14 deliveries out of 28 were carried out by cesarean section, 9 of them were urgent CS for AFCR, fetal hydrops [11] severe pre-eclampsia [5]All scheduled cesarean sections were performed after 36–37 weeks.

Table 1: Review of the literature of cases of hemangioma of the cord.

Reference	Case number	Size (cm)	Diagnosis	Localisation	Alpha-fœtoprote´ine	Diagnosis term	Delivery	Associated anomalies
Barryandal 1951	1	12	Postnatal	Placental	–	P	–	Neonatal death/ liver angioma
Benirschke 1967	1	7	Postnatal	Placental	–	P	vaginal delivery 40AW	1Atrophic UO
Carvounis 1978	1	6	Postnatal	Placental	–	P	vaginal delivery	–
Fortune 1980	1	10	Postnatal	Placental	–	P	IUFD at 30AW	–
Barson 1980	1	1.5	Postnatal	Placental	H	P	MTP 20SA	–
Heifetz 1983	4	9.5/0.5/ 0.2/NA	Postnatal	Placental(1case)	–	P	2 IUFD	IUFD+PE
Seifer et al. 1985	1	_	prenatal	Fetal	–	30AW	Urgent CS31AW for AFHR	IUFD+abruption
Dombrowski 1987	1	NA	Postnatal	Fetal	–	P	Metrorrhagia and AFHR	Cord rupture, DIC, ileal atresia,
Mishriki 1987	1	13	prenatal	Placental	–	30AW	–	RDS, NEC, Hydrocephalous
Restaandal 1988	1	3.2	prenatal	Placental	H	17AW	IUFD20AW	IUFD–cordstenosis
Yavner 1989	1	5	prenatal	Fetal	H	20AW	38AW	–
Pollack 1989	1	4.5	prenatal	Placental	H	20AW	vaginal delivery term	–
Ghidini 1990	1	3.7	prenatal	Fetal	–	34AW	vaginal delivery37AW	Hypospadias
Jauniaux 1990	1	8	prenatal	Placental	H	20AW	scheduled CS 37AW	Skin lesion, cord oedema
Tekant 1993	1	7	Postnatal	Fetal	–	P	vaginal deliveryterm	–
Weyerts et al. 1993	1	4.8	prenatal	Fetal	N	33AW	scheduled CS37AW	Anterior wall hemangioma
Armes 1994	1	1.5	prenatal	Placental	–	32AW	Urgent CS34AW	NND-Twins, limb deformities
Sondergaard 1994	1	4	Postnatal	Placental	–	P	IUFD28AW	–
Carles 1994	1	_	prenatal	–	–	21AW	Urgent CS 28AW	Neonatal death, foetoplacentary anasarch
Wilson 1994	1	5	prenatal	Fetal	–	17AW	vaginal delivery36AW	Oligoamnios

Shipp 1995	1	6	prenatal	Placental	–	33AW	36AW	Oligoamnios
Miller 1997	1	2	Postnatal	Fetal	H	15AW	vaginal delivery38AW	–
Tennstedt 1998	1	8	prenatal	Fetal	N	18AW gemellar pregnancy	scheduled CS 36AW	–
Kamitomo1999	1	2.5	prenatal	Placental	H	16AW	IUFD17AW	–
Caldarella 2003	1	13	prenatal	Placental	N	32AW	Urgent CS32AW for end UD	Fetal anasarch
Daniel-Spiegelandal 2005	1	2.5	prenatal	Placenta	N	27AW	vaginal delivery 38AW	Multiple skin angiomas
Vougiouklakis 2006	1		Postnatal	Fetal	–	P	IUFD38AW	Cordrupture
Lyoob 2006	1	8	prenatal	Placental	N	31AW	Urgent CS31AW sever PE	Hydramniosis, UUA
Nataluci 2007	1	4	prenatal	Fetal	H	33AW	vaginal delivery 38AW	–
Malliahandal 2007	1	2	prenatal	Placental	–	19AW	Urgent CS 37AW	Hydramnios, Skin angioma
Papadopoulost andal 2009	1	4	prenatal	Placental	N	22AW	scheduled CS37AW	–
Sathiyathasan et al. 2011	1	2	prenatal	–	–	22AW	IUFD26AW	–
Matsudaandal 201	1	4	Prenatal	Fetal	–	18AW	vaginal delivery39AW	–
Jacques and Qureshi 2013	1	NA	Postnatal	Placental	_	Postnatal	IUFD26AW	Right lung: 2 lobes, UD: Notch, IUGR
Smulian 2015	1	NA	Prenatal	Fetal	_	22 AW	Urgent CS 36SAforAFHR	-
Hara et al. 2015	1	5	Prenatal	Placental	H	26 AW	Urgent CS 29AW for heart failure	–
M. Berar et al 2018	1	10	Prenatal	Placental	H	31 AW	scheduled CS38SA	Preterm delivery, IUGR
Our serie 2021	1	10	prenatal	placental	_	31 AW	urgent CS 31 AW	

Abbreviations: Na: Not Available; Mtp: Medical Termination of Pregnancy; Iufd: Intra Uterine Fetal Death; Ud: Umbilical Diastole; Afhr: Abnormal Fetal Heart Rate; Uua: Unique Umbilical Artery; Iugr: Intrauterine Growth Retardation; Cs: Cesarean Section.

Conclusion

Umbilical cord hemangioma is a rare benign vascular tumor, the diagnosis can be prenatal thanks to the evolution of the quality of screening ultrasound, but there are still cases which are mistaken for other diagnoses. It is a tumor that can be associated with several fetal congenital anomalies as well as several complications during pregnancy hence the need for close monitoring of the pregnancy, the delivery mode is still questionable and the prognosis remains obscure.

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