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Cervical Congenital Hemangioma: Prenatal Diagnosis and Care Plan

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ABSTRACT: Congenital hemangioma, a subtype of benign vascular tumor, is a rare and unique vascular lesion that is fully formed at birth and does not proliferate after birth. The article describes a rare case of a 32-year-old Caucasian woman, clinically healthy, having no pathological personal antecedents and no heredocolateral antecedents, who was pregnant for the first time and presented for a second opinion fetal ultrasound scan. In accordance with the results of the ultrasonography, the following ultrasound diagnosis was established: Monofetal pregnancy at 29.1 (chronological) / 30.2 (biometric) weeks at the time of the ultrasound examination. Left lateral cervical fetal hemangioma. Estimated weight: 1386g. Biometric indices are within normal limits. The prenatal diagnosis was confirmed afterbirth, and the child was directed to the pediatric surgery department, for additional investigations and specialized treatment.

KEYWORDS: Congenital hemangioma, Prenatal diagnosis, Ultrasound examination.

I. INTRODUCTION

Congenital hemangioma (CH), a subtype of benign vascular tumor, is a rare and unique vascular lesion that is fully formed at birth and does not proliferate after birth. [1, 2, 3]

What causes a CH is not known, as no risk factors or genetic causes have been found, although hemangiomas sometimes run in families. [4]

CHs, equally common in boys and girls, occurs when blood vessels form abnormally. [5]

After birth, CHs has a proportional growth, which means that it may grow as the baby grows. [4]

Based on their clinical progression, CHs are usually divided into major types: rapidly involuting congenital hemangioma (RICH) and non-involuting congenital hemangioma (NICH). [2]

Usually, the lesions are round or oval in shape, dark pink to blue or purple in color, with lots of tiny red veins visible on the skin (telangiectasias). [2]

CHs are quite rare. CHs can sometimes be seen on prenatal ultrasound during the second-trimester of pregnancy. [3, 4, 6-11]

The most common location for RICH is on the limb, head, neck, or in the posterior nuchal area. [5]

The literature describes some genetic syndromes that associate hemangiomas in the clinical phenotype, such as Von Hippel–Lindau (VHL) syndrome, an autosomal dominant disease with a predisposition to benign and malignant tumors, and Maffucci syndrome, that combines hemangiomatosis and enchondromatosis. [3]

II. MATERIAL AND METHODS

A 32-year-old, caucasian woman, was referred to our private medical center, in Bucharest, Romania, at 29 weeks of pregnancy for a second opinion fetal ultrasound scan.

The couple was non-consanguineous and clinically healthy, having no pathological personal antecedents and no heredocolateral antecedents.

After obtaining the consent of the patient regarding the fetal ultrasound examination, the investigation was performed using General Electric Voluson E10 Ultrasound system, BT18 produced by General Electric, GE Healthcare division (Wauwatosa, WI, USA).

III. RESULTS AND DISCUSSIONS

Ultrasound examination pointed out a monofetal pregnancyin a cephalic presentation at29 weeks of pregnancy, in evolution.

Ultrasound examination of the fetal head showed following biometric parameters: biparietalcranial diameter (BPD): 77.9 mm; fronto-occipital diameter (OFD): 97.1 mm; cranial circumference (HC): 277.6 mm; cerebellum with normal structure and configuration: 39.1 mm;

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normally conformed cerebral hemispheres; homogeneous choroid plexuses; cisterna magna, cavum septum pellucidum and ventricular system of normal size.

Blood flow in the middle cerebral artery shows the following values: peak systolic velocity (PSV): 59.71cm/s, end diastolic velocity (EDV): 7.69cm/s, systolic/diastolic velocity ratio (S/D): 7.76, pulsatility index (PI): 1.91, and resistive index (RI): 0.89, showing a normal spectrum.

At the level of the neck, in the left laterocervical area towards the back, a solid formation of 43/41mm, vascularized, with lacunar areas was evident, which in the three-dimensional (3D) and four-dimensional (4D)vascular reconstruction appears as a hemangioma with cavernous areas (Fig. 1 - 6).

The fetal morphology assessment continuedwith the detailed ultrasonographic investigation of the fetal thorax, abdomen, upper and lower limbs, umbilical cord, amniotic fluid, placenta and Doppler velocimetry in the uterine arteries, elements where no particularly abnormal aspects were identified.

After the ultrasound examination, the following prenatal diagnosis was established: Pregnancy of 29.1 (chronological) / 30.2 (biometric) weeks in progress. Left lateral cervical hemangioma. Estimated weight: 1386g. Biometric indices within normal limits.

The prenatal diagnosis was confirmed afterbirth, and the child was directed to the Department of Pediatric Surgery, for diagnostic evaluation, additional investigations, care, and specialized treatment.

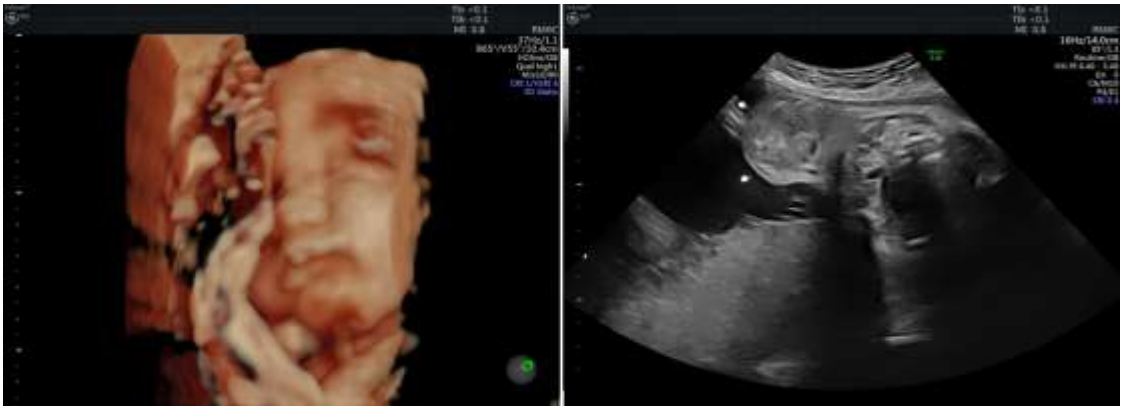

Figure 1. 3D Static Ultrasound examination at 29 weeks of gestation showing the fetal face.
Figure 2. SRI II 4 Ultrasound examination of the fetusat 29 weeks of gestation indicating the localization of the tumor.

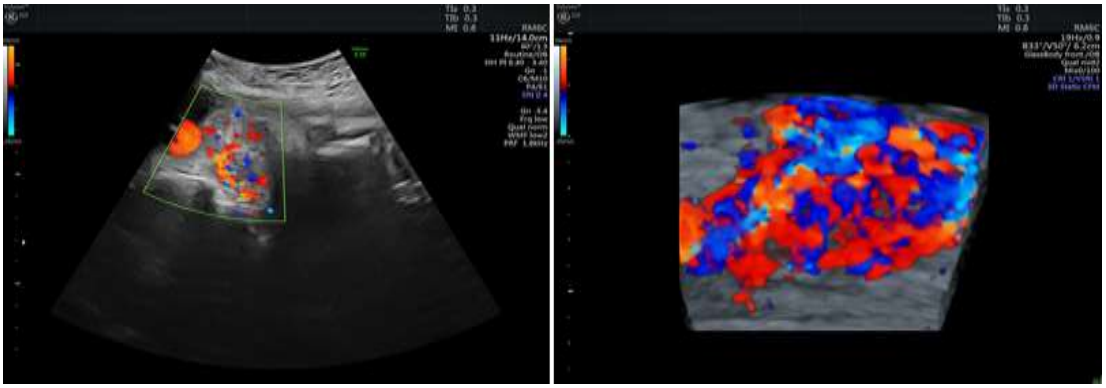

Figure 3. SRI II 4 Ultrasound examination at 29 weeks of gestation showing the tumor vascularization.
Figure 4. Prenatal images of Color Doppler ultrasonography at 29 weeks of gestation showing the tumor formation and blood flow in the tumor.

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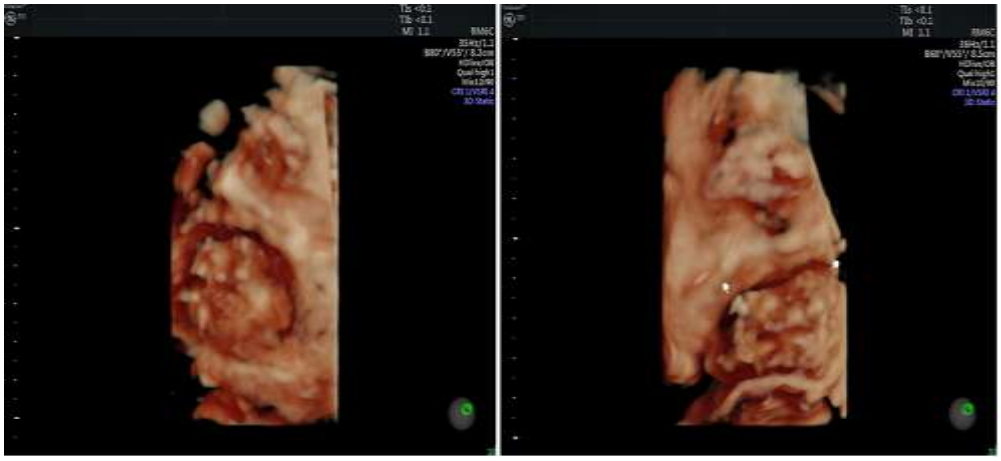

Figure 5. 3D Static Ultrasound examination at 29 weeks of gestation showing the delineation of the cervical tumor.

Figure 6. 3D Static Ultrasound examination at 29 weeks of gestation pointed the position and accurate delineation of the cervical tumor.

IV. CONCLUSION

In summary, the article presents an extremely rare case of congenital cervical hemangioma, successfully diagnosed prenatally at 29 weeks gestation and confirmed postnatally.

It is critical to understand that fetal ultrasound examination, a non-invasive method of prenatal diagnosis, very performant and efficient today, can successfully diagnose CHs, which are rare solitary vascular lesions that are completely formed at birth.

Compliance with ethical standards

Acknowledgments

We gratefully acknowledge to the patient for giving the necessary permission to report this research.

Disclosure of conflict of interest

The authors declare no conflict of interest.

Statement of informed consent

Informed consent was obtained from the patient included in the study.

Authors' contributions

Authors C.-C.A., D.-F.A. and Ş.-D.A. contributed to this work in conceptualization, methodology, software, and formal analysis.

Ş.-D.A. contributed in software, formal analysis, and data curation.

C.-C.A. and D.-F.A. contributed in validation, supervision, project administration.

All authors have read and agreed to the published version of the manuscript.

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