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CORRESPONDENCE

Another merit of fetal MRI in prenatal diagnosis of right aortic arch

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Yerlikaya et al. [1] summarized 36 fetuses prenatally diagnosed with a right aortic arch. They concluded that fetal magnetic resonance imaging (MRI) is a promising diagnostic tool for assessing congenital cardiovascular abnormalities and extracardiac anomalies. We fully agree with this statement. We would like to describe our experience to provide readers with additional information.

The first point is the prenatal diagnosis of tracheal stenosis. A right aortic arch itself rarely requires acute treatment immediately after birth. However, accompanying abnormalities, both cardiac and extracardiac, usually require immediate life-saving treatment at this time. Thus, one of the most important steps after prenatally diagnosing a right aortic arch is to prenatally diagnose conditions requiring immediate treatment. Of the 36 patients in Yerlikaya et al.'s series, two required surgery due to airway obstruction. Whether prenatal diagnosis of airway obstruction was made is not stated; however, the context suggests that it was not. Prenatal diagnosis of airway (tracheal) obstruction sometimes requires planned cesarean section: planned surgery with full deployment of pediatric cardiac and pulmonary surgery specialists. Fetal MRI can detect the presence or absence of tracheal stenosis, as previously described [2]. In tracheal stenosis (−) cases, tracheal lumen can be easily followed throughout the entire trachea (Fig. 1), whereas this is difficult or impossible in stenosis (+) cases. These signs are considered to reflect morphological features of the fetal tracheal lumen. We would ask Yerlikaya et al. to re-check MRI findings to assess whether these signs are present in the two cases of airway obstruction.

The second point is postnatal progression of the condition. This indicates that not only the original degree of compression by vascular rings but also abnormal cardiac flow after birth may affect the postnatal vascular morphology, and, thus, the degree of compression of the trachea. Other intracardiac malformations frequently coexist in a right aortic arch. For example, if pulmonary artery atresia is present, ductus arteriosus flow persists to maintain the pulmonary flow (left to right shunt), and, thus, pulmonary venous return increases, which leads to left heart volume overload. This may increase the flow volume, and, thus, the size, of the vascular ring, leading to prolonged tracheal compression or worsening tight tracheal compression. This may hold true to many cardiac abnormalities that cause left to right shunt after birth. Even without evident manifestations of airway obstruction at the time of birth, we must be aware that tracheal stenosis may become evident after birth due to above-mentioned postnatal flow-changes. The prenatal evaluation of tracheal stenosis is more important in such a case, in which postnatal flow-changes can worsen pre-existing but dormant tracheal stenosis.

We would like to commend Yerlikaya et al. for their viewpoint on the importance of MRI for a fetus with a right aortic arch. Evaluations of the presence or absence of not only associated complications but also airway obstruction on MRI should be performed.

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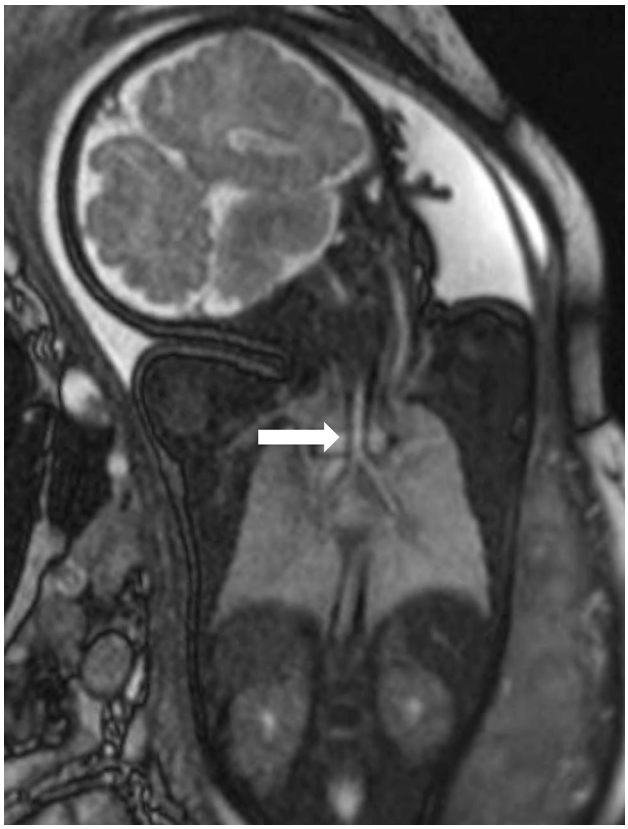

Fig. 1 Coronal view of the trachea on fetal MRI (T2-weighted image) in a fetus with tracheal stenosis (–). Tracheal lumen (arrow) is evident in this view. This "intact lumen" is observed throughout the entire length of the trachea. In tracheal stenosis (+) case, "observation of the tracheal lumen throughout the trachea" is difficult or impossible

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Compliance with ethical standards

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Ethical approval This manuscript was written in accordance with the provisions of the Declaration of Helsinki.

Patients' anonymity Preserved

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