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Letter to Editor

Fetal biparametric MR imaging in the diagnosis of congenital mesoblastic nephroma

Konjenital mezoblastik nefroma tanısında fetal biparametrik MR görüntüleme

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Dear Editor,

Congenital mesoblastic nephroma (CMN) is the commonest neonatal renal tumor. Diagnosis is usually made during the antenatal period or immediately after birth. Approximately half of the cases occur during neonatal period and most of them are diagnosed within the first 3 months of life.[1] Ultrasonography (US) is the diagnostic method of choice for the fetal examination.[2] Magnetic resonance (MR) imaging is a complementary technique that contributes to the accurate identification of fetal anomalies, especially in the identification of urogenital and encephalic malformations.[3]

In this brief report, we emphasize the advantages of biparametric MR imaging, including T2-weighted images (T2WI) and diffusion-weighted images (DWI) in the diagnosis of CMN.

A 34-year-old primigravid woman was admitted to our hospital at her 32 gestational week because of respiratory difficult. US showed polyhydramnios and therapeutic amniocentesis was performed, and about 1500 mL of amniotic fluid was drained. MR imaging showed enlargement of the right kidney with an inhomogeneous and an isointense mass containing cystic lesions on T2WI and areas of restriction of the diffusion on DWI (Figure 1). No ascites was found. The lung intensity was reduced and polydramnios was present. The polydramnios in this case is considered as a risk factor.

Two weeks later, the mother developed early labor pain and delivered vaginally. The infant was apneic, cyanotic and bradycardic; nevertheless, she was resuscitated successfully. She required mechanical ventilation and surfactant therapy, and immediately after birth, a condition of malignant hypertension developed. After stabilizing the cardiorespiratory status, nephrectomy was performed. Gross pathological examination revealed a solid renal tumor measuring 4 cmx3.8 cmx3 cm. The histopathological diagnosis of typical CMN was reported. Six months after nephrectomy the infant is free of disease.

There are two main subtypes of CMN: the classic (typical) subtype which is more frequent and characterized by a benign behavior with favorable prognosis, and the cellular (atypical) variant which is less common and burdened by an unpredictable course. A mixed type may be also found.

US in antenatal life evaluates the presence of an inhomogeneous solid mass. Computed tomography (CT) scanning is not suitable as antenatal imaging modality, because of exposure of the patients to ionizing radiation and use of intravenous contrast. Postnatally, the same disadvantages exist. In the classic type, a hypoattenuating solid lesion with variable contrast enhancement is evident. Cystic areas, necrosis, and hemorrhage are present only in the cellular type. No calcifications are usually found.[4]

Our case highlights the great diagnostic value of MR imaging, higher than that of US, because it is able to provide a better tissue contrast and a variety of imaging planes regardless of the

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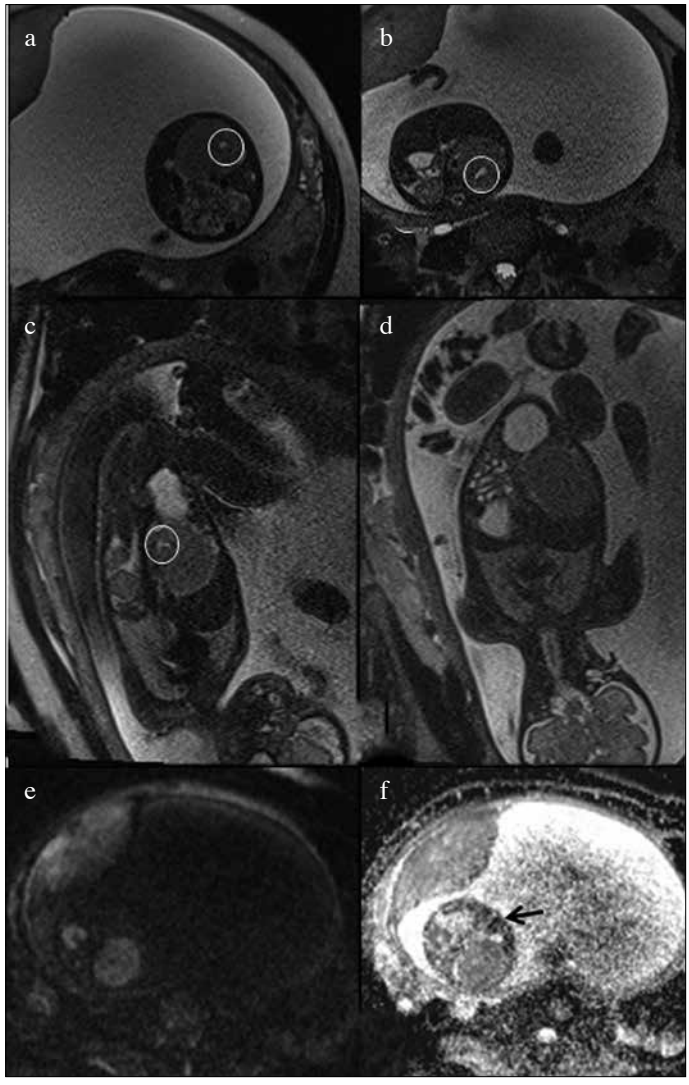

Figure 1. a-f. Fetal biparametric MR imaging in mesoblastic nephroma. T2-weighted images (a-d), diffusion-weighted images (e), and apparent diffusion coefficient map (f). Biparametric MR imaging shows an inhomogeneuos isointense mass of the right kidney containing cystic lesions (O in a-c) on T2-weighted imaging, and areas of restriction of the water signal on apparent diffusion coefficient map (arrow in f).

fetal orientation.[5] It may be particularly useful in conditions as oligohydramnios or fetal head engagement where sonographic images are impaired . As in other diagnostic areas [6-8], in the reported case we emphasized the role of biparametric MR imaging and underlined the usefulness of DWI.

In conclusion, we believe that a MR imaging control should be performed in all cases in which a suspicion of urogenital and encephalic fetal malformations arises based on US findings.[2,3,9-12] Its systematic use could help to identify in many cases the nature of the fetal problem and to predict the risk of stillbirth[10,11], as a complementary to other sophisticated research methods.[13-17] This would be very important in order to try to prevent stillbirth itself, an event that too often remains unexplained even today.

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