Prenatal brain imaging in isolated vs. complicated club foot: MR and neurosonography study
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Objective
Talipes equinovarus (TEV) is a common birth defect. Differentiation between isolated and complex TEV is fundamental due to its effect on prognosis. Association between TEV and poor neurological outcome is more prominent in complex cases and highlights the significance of brain evaluation. The aim of the current study was to evaluate the contribution of fetal brain MRI to sonographic evaluation.

Methods
In this retrospective cohort study, we evaluated records of cases referred for fetal brain MRI due to a fetal TEV between 01-January-2011 and 31-December-2014 in a single tertiary referral center. Isolated and complex TEV were differentiated according to associated anomalies. Brain US and MRI results were compared.

Results
Twenty-eight pregnant patients were included with average gestation and parity of 2.5 and 1.5, respectively. Both isolated and complicated TEV groups included fourteen fetuses after initial TEV diagnosis on anatomical survey. Brain sonography and MRI were normal among 13/14 patients with isolated TEV while one patient had mild ventriculomegaly in both methods. US brain evaluation revealed abnormal findings in four (28.6%) cases in the complicated TEV group, while MRI demonstrated abnormal findings in eight (57.1%) cases with notable severity diversity. In six cases, MRI diagnosed additional pathologies which were not demonstrated by US.

Conclusion
Brain fetal MRI is efficient tool during antenatal evaluation of complicated TEV with high percentage of additional findings not demonstrated sonographically, while its efficacy in isolated cases is less clear. The current study expands the relevance of fetal brain MRI in cases of non-CNS anomalies.