Objective: Toxoplasmosis, cytomegalovirus (CMV), and Zika virus (ZIKV) are among the common infectious agents that may infect the fetuses vertically. Clinical presentations of these congenital infections overlap significantly, and it is usually impossible to determine the causative agent clinically. The objective was the comparison of imaging findings in fetuses who underwent intrauterine infection by toxoplasmosis, CMV, and ZIKV.

Methods: Confirmed cases of congenital toxoplasmosis (2), CMV (3), and ZIKV (7) infections were included in the study over 10 months prospectively. Prenatal ultrasound (US), fetal magnetic resonance imaging (MRI), and postnatal neuroimaging (CT or MRI) were performed on all of the included cases and interpreted by an expert radiologist.

Results: The mean GA at the time of prenatal imaging was 33.6 ± 3.4 weeks. The main neuroimaging findings in congenital toxoplasmosis were randomly distributed brain calcifications and ventricular dilatation on US, as well as white matter signal change on fetal brain MRI. The main neuroimaging findings of congenital CMV infection included microcephaly, ventriculomegaly, and periventricular calcifications on US, as well as pachygyria revealed by fetal MRI. The case of congenital ZIKV infection showed microcephaly, ventriculomegaly, and periventricular calcifications on US, as well as brain atrophy and brain surface smoothness on fetal MRI. Increased placental thickness, hyperechogenic bowel, ascites and oligohydramnios were found CMV (1) and toxoplasmosis (1). IUGR was found in a CMV (2) and toxoplasmosis (1). Arthrogryposis was found in one case of ZIKV.

Conclusion: Although the imaging findings in congenital infections are not pathognomonic, in combination with the patient history may be suggestive of one of the infectious agents, which will guide the management strategy.