Neural tube defects evaluated by fetal ultrasound and magnetic resonance imaging

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Objective

To report the findings observed in two fetuses of neural tube defects using ultrasound and magnetic resonance imaging.

Methods

Report of 2 cases.

Results

The first patient was a 18-year-old pregnant woman. The sonographic evaluation at 26 weeks showed the presence of polyhydramnios, lemon and banana signs, and defective fusion of the spine at lumbosacral level. Magnetic resonance imaging (MRI) also revealed ectasia of the lateral and third ventricles, and herniation of the cerebellar tonsils into the spinal canal (Arnold-Chiari type II). The child was born by cesarean section at 33 weeks' gestation, weighing 2264 grams. The postnatal ultrasound evaluation confirmed the ventriculomegaly (right ventricle: 1. 9 cm). The second case is also a 18-year-old pregnant woman. Fetal ultrasound performed at 29 weeks of pregnancy showed lemon sign, ventriculomegaly, no visualization of the cerebellum and spine with extensive lumbosacral defect, compatible with rachischisis. MRI also showed signs of agenesis of the corpus callosum and septum pellucidum, dilatation of the lateral ventricles (especially of the occipital horns) and cerebellar hypoplasia with tonsillar herniation into the vertebral canal (Arnold-Chiari type II). A female neonate, was delivered by caesarean section, weighing 3015 grams.

Conclusion

Neural tube defects are common congenital malformations caused by a failure in the closure of the embryonic neural tube. Our findings illustrate the importance of the combined use of US and MRI in cases of fetal neural tube defects, especially to evaluate the brain.