Tuberous Sclerosis Complex - The role of ultrasonography in the detection of different brain manifestations

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Introduction
• Tuberous sclerosis complex (TSC) is a multisystemic autosomal dominant disorder caused by TSC1 or TSC2 mutation that manifests with the growth of benign hamartomas in various organ systems. The gene products hamartin (TSC1) and tuberin (TSC2) which are tumor suppressors, have significant importance in regulation of cell growth and proliferation. Multiple cardiac rhabdomyomas, cerebellar lesions as well as subependymal nodules, subcortical tubers and subependymal giant cell astrocytoma are the main ultrasound findings of TSC during the fetal period.
• Two cases below show the role of ultrasonography in detection of different cerebral manifestations of TSC. The diagnosis of definitive TSC in both cases were based on two major criteria and both of the cases were sporadic.

Case 1 - 22 weeks pregnancy, cardiac lesions were multiple cardiac rhabdomyomas, brain lesion was subependymal giant cell astrocytoma - the rare variant of brain lesion in TSC. Although this variant is very rare in the prenatal period, it is easy to find it by ultrasound, and ultrasonography is a reliable method in the detection of subependymal giant cell astrocytoma.

Case 2 - 32 weeks pregnancy - also with multiple cardiac rhabdomyomas, during brain ultrasound examination we have found multiple little hyperechoic brain lesions which depict subependymal nodules and subcortical tubers. In order to evaluate little lesions we also did MRI and found correlation between ultrasound findings. For evaluation of little lesions we also did MRI and found correlation between ultrasound. Brain lesions were T1-hyperintense and T2-hypointense in comparison to non-myelinated white matter.

Conclusion
These cases show that ultrasonography is useful in detection of different brain manifestations of TSC - subependymal giant cell astrocytoma (SEGA), subependymal nodules, subcortical tubers. Therefore, we can conclude that the ultrasonography findings are correlated with MRI results. There are appropriate correlation between ultrasonography and MRI in the detection of brain manifestations of TSC.