Title:	Effect of Retinal Injury Induced by Laser Photocoagulation on Visuospatial Memory in Mouse Model
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Abstract:	Visual pathway reveals the connection between neuronal activity of the brain and eye. The neural networks of brain amplify the retinal signals resulting in the formation of visual image. The laser injury in the retina may affect the visual pathway and may lead to disruption of neuronal signals/activity. Therefore, we aimed to study the effect of retinal injury induced by laser on cognitive abilities in laser-induced mouse model. We have established laser model to understand the relation between retina and brain by disrupting retinal pigment epithelial (RPE) layer and evaluate the effect of laser-induced retinal injury on visuospatial memory. Age- and sex-matched C57BL/6J male mice were taken for conducting the experiments. The laser model was established by using laser photocoagulator to disrupt the RPE layer of the retina. After defined irradiation of laser onto mouse retina, the fundus fluorescein angiography was performed to confirm the laser spots. The visuospatial and short-term memory was performed using neurobehavioral test, that is, Morris water maze (MWM), and passive avoidance, respectively. In MWM experiment, results showed that escape latency time, which was taken by healthy and laser-injured mice was comparable. This was further validated by another neurobehavioral analysis, that is, passive avoidance that showed nonsignificant difference between these two groups using independent t-test. Visuospatial memory may not be affected by retinal injury induced by laser photocoagulation. It may depend on the power of the laser and duration of the laser. The severe injury in the retina such as optic nerve damage may cause dysfunctioning of visual pathway.
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