

## Fetal brain lesions caused by cotyledon damage of *Androctonus turkiyensis* venom in pregnant rats and the protective effects of the monovalent antivenom

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Scorpion envenomation is one of the severe public health problems, particularly children and pregnant women. Increased oxidative stress in the brain during the first couple of weeks in the gestational period may limit the efficacy of antioxidants after the scorpion envenomation. High ROS activity during brain organogenesis may damage the forebrain and midbrain of fetuses. In this study, we examined cellular alterations in the fetal brain and cotyledon of *in utero* exposure to scorpion venom and antivenom during pregnancy in rats. The study focused on establishing a correlation between fetal brain and cotyledonary lesions due to altered oxidative stress. Eighteen pregnant *Wistar albino* rats were randomly divided into three groups envenomated group (EG) by *Androctonus turkiyensis* Yagmur venom, antivenom group (AVG), and physiological saline solution (1 mL, PSS: NaCl 0.85%) treated control group (CG). Pregnant rats in the EG (n=6) were injected sublethal doses of *A. turkiyensis* every day between 7-13<sup>th</sup> days of pregnancy. AVG, pregnant rats (n=6) were envenomed with *A. crassicauda* venom. After 4 h of each venom injection, these pregnant rats were administered a specific antivenom. The pregnant rats in groups were operated aseptically on the 21<sup>st</sup> day of pregnancy. Ovariohysterectomy was performed to remove the fetus with cotyledons. Fetal central nervous systems and cotyledons were examined histopathologically and immunohistochemically. To demonstrate ROS-related damages, iNOS, 8-OHdG, 4HNE and RIPK3 were quantified and analysed statistically. As a result, expressions correspondingly to venom administration were increased in EG despite of a decrease in AVG. In conclusion, it was found that the antivenom administration regarding scorpion envenomations can diminish ROS-related-cotyledonary and neuronal damages.

**Keywords:** Black scorpion, Immunoexpression, Oxidative stress, Pregnancy.