

## **A novel murine model of orbital inflammation**

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**Purpose:** To create a novel mouse model of orbital inflammation using oxazolone, a potent chemical sensitizing agent, inducing a delayed type hypersensitivity reaction.

**Methods:** Female BALB/c mice were sensitized with topical oxazolone on shaved abdomens. Five days later oxazolone was injected into the sun-Tenon's space of the right eye and vehicle was injected into the left as a control. Mice were observed for several days, magnetic resonance imaging was performed, and mice were sacrificed and histopathology was performed on orbital exenteration specimens.

**Results:** Mice predictably developed proptosis of the treated side several days after injection. Magnetic resonance imaging of the mouse orbits revealed proptosis and inflammation of orbital structures on the treated side. The exenterated orbit specimens on the treated side on day 1 demonstrated neutrophils and retrobulbar edema. On day 3, lymphocytic inflammation was noted in extraocular muscle and Harderian glands. On day 7, there was mixed inflammatory infiltrate with fibroblasts. Control orbits were without identifiable inflammation.

**Conclusion:** The sensitizing agent oxazolone was effective in creating a murine model of non-specific orbital inflammation as demonstrated by phenotypic, radiographic and histologic evidence.