

## THALAMIC GLIAL RESPONSE TO A NEOCORTICAL ASPIRATION LESION IN THE IMMATURE RAT BRAIN

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The perinatal brain is a good model for the study of nervous tissue plasticity. The aim of the present work was to analyze the glial

reaction pattern in secondary degenerative areas following a non-axon sparing lesion in the immature rat brain.

Rat pups, 9 day old, were lesioned by cortical aspiration of the forelimb. After survival times ranging from 4 hours to 30 days, animals were killed and the brains processed for Tomato lectin histochemistry and GFAP immunohistochemistry to selectively stain microglia and astroglia respectively.

Our results showed that primary cortical lesion was able to induce a rapid and prominent glial response in some thalamic nuclei where secondary degenerative changes could be expected in base to their connectivity.

Microglial activation, detected by an increase in lectin binding and early morphological changes, was already found at 10 hours postlesion (PL) in both the ventrobasal complex (VB) and the posterior nucleus (Po). At 24 h PL, microglial reactivity increased and extended to the anterior ventral (AV), the ventral anterior (VA) and the antero dorsal (AD) nuclei. At this time, in all these nuclei microglial cells have changed their ramified morphology and transformed into high reactive pseudopodic cells. From 3 days PL microglial reactivity decreased and from 5 days PL normal ramified morphologies were observed. In addition to microglial changes, an important astroglial reaction was also found in the same thalamic nuclei between 3 and 5 days PL.

When comparing these observations with previous studies using the same lesion model in the adult brain, we conclude that microglial and astroglial reactions are more rapid in the immature brain. In another hand when compared the present observations with previous studies in the immature brain using an axon sparing lesion (NMDA injection) we conclude that in the present model the microglial and astroglial reactions are more intense and wider.