

POSSIBLE TRANSFORMATION OF ASTROCYTES IN SPINDLE SHAPED CELLS FOLLOWING BRAIN INJURY.

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In the present work we have undertaken the study of the nature of the so-called spindle shaped cells whose presence has been reported by some authors after brain experimental damage was inflicted. Laser wounds were made in cerebral cortex of adult quails. After different times, animals were fixed by perfusion and tissue slices containing lesioned areas were processed to electron microscopy. Examination of samples denotes that twenty four hours after injury, astrocytes, located in neighbourhoods of the lesioned area, suffer a pronounced hypertrophy increasing the number of microfilaments presents in cytoplasm and processes. Four days later, astrocytes near blood vessels display several ultrastructural transformations such as appearance of smooth endoplasmatic reticulum, and small vacuoles containing semi-electron-dense material. Ten days after lesion was performed, spindle shaped cells can be observed inside the wound and in their boundaries in close relationship to vascular elements. Such cells show a light nucleus with non-condensed chromatin, and a cytoplasm with bundles of microfilaments, cisterns of smooth endoplasmatic reticulum and a well developed amount of vacuoles of the same size and aspect that that of astrocytes.

Our observations suggest that reactive astrocytes can constitute the source of such spindle shaped cells whose function or functions were still unknown.