Topical application of fibrin adhesive in the rat brain: Effects on different cellular elements of the wound.

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Abstract:

Although fibrin adhesives are popular in the field of neurosurgery, the medical literature is devoid of study elucidating their effects on the brain tissue. To study the safety of applying fibrin glue to the brain and to explore new surgical potentialities, we implanted soft pellets made of fibrin glue into the brains of Wistar rat. Following 6 h and 3, 7 and 14 days post- implantation survival, the brains were removed and paraffin sections were processed for hematoxylin-eosin staining, as well as immunohistochemistry for microtubule-associated protein (MAP-1A) and glial fibrillary acidic protein. The changes in the neuronal and glial elements and also the numbers of inflammatory and endothelial cells in the vicinity of implanted fibrin glue pellets were compared with those of gelfilm pellets. The results demonstrated that topical application of fibrin glue to the brain causes significantly enhanced local accumulation of mononuclear cells and promoted angiogenesis close to the wound while not affecting the neuronal and glial elements. These findings suggest that fibrin glue can be considered as a safe supportive material for intradural procedures directly involving the brain tissue.