

عنوان مقاله:

Comparison Outcome of Nerve Regeneration across an Eggshell Membrane Guidance Channel and Autograft

محل انتشار:

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نویسندگان:

Hossein Farjah Gholam - PhD, Neurophysiology Research Center, Department of Anatomy, Faculty of Medicine, Urmia University of Medical Sciences, Urmia, Iran

Malak-Sadat Naeimi - MD, Resident of Emergency Medicine, Tabriz University of Medical Sciences, Tabriz, Iran

Ali Saberi - MD, Graduated from School of Medicine, Faculty of Medicine, Urmia University of Medical Sciences, Urmia, Iran

خلاصه مقاله:

Background: Peripheral nerves may be damaged during an injury and its current standard treatment is using an autologous nerve. Objectives: The purpose of this experimental study is to evaluate and compare the histological results of nerve regeneration after using the eggshell membrane (ESM) guidance channel with autograft. Materials and Methods: Thirty adult male rats were divided into three experimental groups: ESM guidance channel, autograft, and sham surgery. The decalcifying membrane of egg rotated over the Teflon mandrel and dried at 37°C. A 10 mm nerve segment of left sciatic nerve was cut and removed. In ESM group, the ends of the sciatic nerve were telescoped into the nerve guides. In autograft group, the nerve segment was reversed and used as an autologous nerve graft. At 90 days after surgery, all animals were evaluated by histological and immunohistochemical assessment. Results: The diameters of regenerated myelinated fibers were $5.24 \pm 2.14 \mu\text{m}$ for the ESM group, and $5.89 \pm 2.99 \mu\text{m}$ for the autograft group. The number of myelinated axons regenerated in the ESM group (9824 ± 218 nerve fibers) was significantly greater than autograft group (7865 ± 314 nerve fibers) ($p < 0.05$). Conclusion: These findings demonstrate that ESM effectively enhances nerve regeneration in injured rat sciatic nerve.

کلمات کلیدی:

Nerve Regeneration; Nerve Fibers, Myelinated; Rats

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