

论文

激光扫描共聚焦显微镜观察烧伤创面组织神经纤维的变化

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摘要:

目的 探讨激光扫描共聚焦显微镜观察烧伤后创面组织中神经纤维的形态结构及其分布特点的可行性。方法 取烧伤后1、2、3、4周创面组织,以神经丝蛋白(NF)为标记物,利用荧光免疫技术显示组织中的神经纤维,利用激光扫描共聚焦显微镜进行分层扫描,观察不同层面神经纤维的形态;并进行三维重建,观察神经纤维的立体形态。结果 伤后3周内神经纤维数目低于正常,3周后神经数目开始高于正常,并逐渐变长,随着时间延长出现扭曲缠绕或交错排列,分布呈现区域性集中。分层扫描和三维重建可见伤后2周神经稀疏、短小,3周后神经纤维有不规则肿胀和扭曲变形,内部结构不完整并伴有局部断裂、破损甚至崩解,可见明显的皱褶和出芽,并呈现较正常神经纤维更强的荧光信号,在不同层次以及不同角度的切片上观察到的病理改变程度不同。结论 激光扫描共聚焦显微镜能观察到烧伤后伤区神经纤维三维结构,发现组织修复过程中神经存在再生和重塑现象。

关键词: 激光扫描共聚焦显微镜; 烧伤; 神经构筑

Observation of morphology of nerve fibers with a laser scanning confocal microscope after burns

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Abstract:

Objective To observe the morphology of nerve fibers during reinnervation after burn. Methods Neurofilaments of wound tissue after 1,2,3,4 weeks were determined by fluorescent immunohistochemistry. The morphology of nerves was evaluated under a fluorescent microscope and laser scanning confocal microscope(LSCM). Results Numbers of nerve fibers within 3 weeks were less than that of normal, while these post 3 weeks were increasing. Nerve fibers got gradually longer and were arranged parallel or like a staggered mesh with more branches and sprouting. Uneven thickness with some swelling, distortion and local fracture were found 3 weeks after burns. Conclusion The three dimension structure of nerve fibers can be obtained with a LSCM and remodeling was found during the reinnervation after burns.

Keywords: Laser scanning confocal microscope; Burns; Innervation

收稿日期 2010-01-10 修回日期 网络版发布日期

DOI:

基金项目:

山东省自然科学基金资助项目(Y2002C29)

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