Morphological Study of Domestic Rabbit Median Nerve Acute Injury By Fixed Quantity of Tension.
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Through the establishment of living nervous tissue quantitative instant stress and strain simple traction animal model, we used exponential type of load addition method to investigate the morphological changes of isolated nerve and non-isolated nerve after traction and the critical point of various degrees of injury. The results showed that: (1) Pathological changes occurred mainly at the center of the nerve fascicle. The node of Ranvier was the weak part, myelin sheath was a characteristic injury of a sensitive structural component widely distributed longitudinally, they were the main mark of acute traction injury. (2) For isolated nerve the physiological limit of elongation was 2.85%±1.44%, stress was 12.63±4078g (mm²)⁻¹; critical point of injury was when elongated 8.57%±1.14%, stress was 22.56±3.28g (mm²)⁻¹; breaking point of nerve fibers was when elongated 32.85%±5.11%, stress was 182.08±26.11g (mm²)⁻¹; breaking point for nerve trunk was when elongated 72.5%±9.4%, stress was 361.04±85.69g (mm²)⁻¹. (3) For non-isolated nerves the physiological limit of elongation was 1.51±0.28mm, loading was 18.28±3.09g. Critical point of injury was when elongated 15.65±3.1mm, loading was 266.74±84.27g. (4) Breaking of the nerve started from the axons. The sequence of rupture was from axon, capillary blood vessels, endoneurium, fascicular membrane and adventitia. Myelin sheath was the most seriously injured component, due to its wide detachment, there was no way to differentiate ulceration from rupturing. In this paper, the possible cause and clinical significance of the morphological changes in acute traction injury has been discussed.