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## **MORPHOLOGICAL CHANGES OF RAT PERIPHERAL NERVE UNDER CHRONIC MICROMERCURIALISM AND ITS PHARMACOLOGICAL CORRECTION IN DIFFERENT TERMS AFTER INJURY**

*The study was performed as a part of research work “Organs of the nervous, immune and urogenital systems in conditions of experimental injury” (state registration number 0112U001413).*

**ABSTRACT. Background.** Search for new pharmacological agents that activate processes of traumatized nerve regeneration at the condition of mercurial intoxication remains urgent. **Objective.** The aim of this study was a comparative morphometric analysis of rat peripheral nerve under micromercurialism using antioxidant drug without pharmacotherapy. **Methods.** Experimental model of sciatic nerve trauma under conditions of chronic micromercurialism was investigated in experiments on two groups of white rats. Micromercurialism was modeled by intraperitoneal injection of mercuric chloride during 10 weeks before sciatic nerve trauma. The rats of the first group received no pharmacological drugs in postoperative period. The second group of animals received 100 µg/kg solution of Thiotriazolinum intraperitoneally daily during 2 weeks after operation. The morphological organization and morphometric data of regenerative neuroma and adjoining parts (proximal and distal) of sciatic nerve were studied in 6 and 12 weeks after damage using morphometric and statistic methods. **Results.** Basing on the results of the second group of animals the average angle of axon deviation from the axis of the nerve in the neuroma sufficiently decreases and distribution density of neuron fibers in distal part increases comparing with the first group. **Conclusion.** Taken together these data evidence that Thiotriazolinum improves the process of traumatized nerve regeneration.

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Shamalo SN. [Morphological changes of peripheral nerve rats under chronic micromercurialism and its pharmacological correction in different terms after injury]. *Morphologia*. 2015;9(3):95-8. Ukrainian.

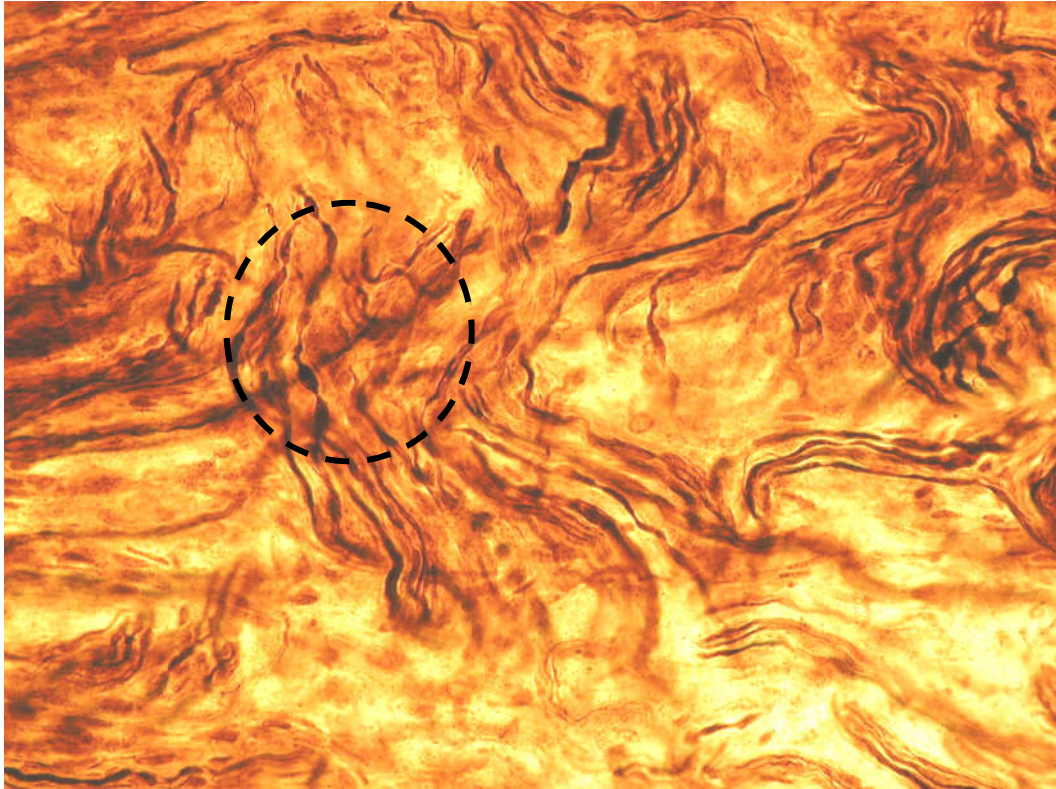


Fig. 1. Irregular distribution of nerve fibers (O). Rat sciatic nerve regenerative neuroma, 12 weeks after trauma in conditions of chronic micromercurialism. Silver nitrate impregnation.  $\times 400$ .

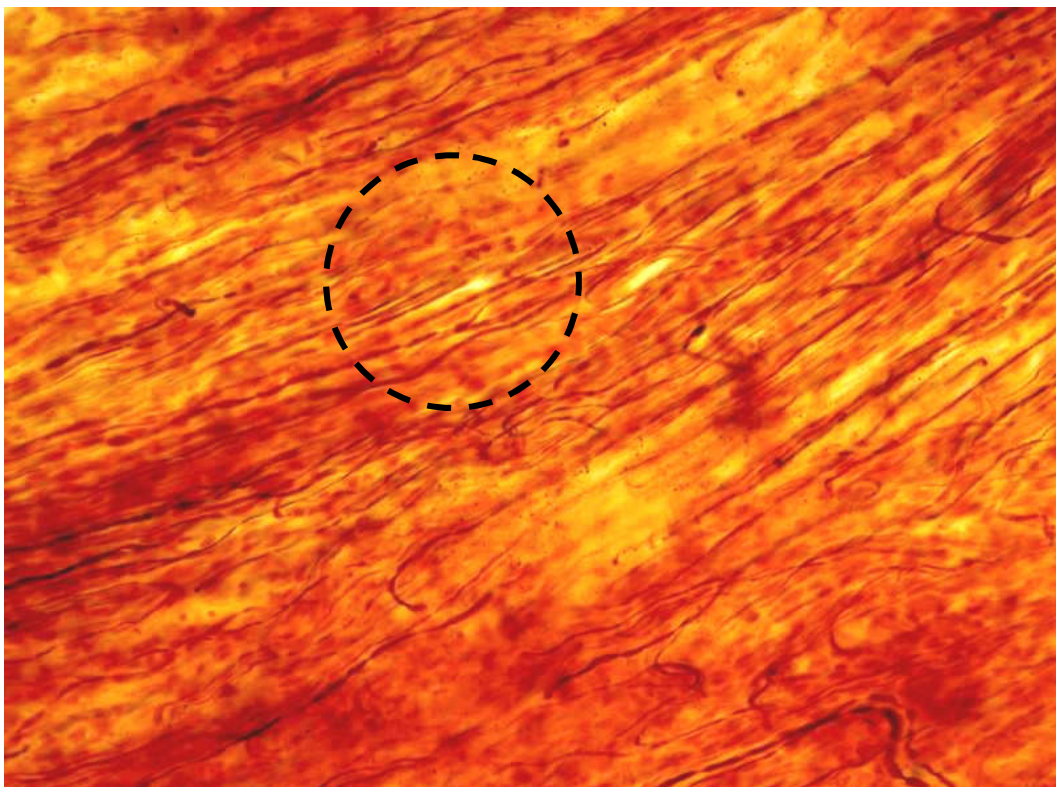


Fig. 2. Increased amount of regenerating axial cylinders with relatively regular distribution of nerve fibers (O). Rat sciatic nerve regenerative neuroma, 12 weeks after trauma in conditions of chronic micromercurialism and thiotriazolinum administration. Silver nitrate impregnation.  $\times 400$ .

## *References*

1. Andreychyn MA, Trachtenberg IM. [To experience the differential diagnosis of some poisoning and infections]. *Modern problems of toxicology*. 2008;3:45-52. Ukrainian.
2. Vashkulat NP. [Established levels of heavy metals in soils in Ukraine]. *Environment and Health*. 2002;2(21):44-6. Russian.
3. Clarkson TW. Silent latency periods in methyl mercury poisoning and in neurodegenerative disease. *Environ, health perspect*. 2002;5(110):851-4.
4. Trachtenberg IM. [Heavy metals as the chemical pollutants of working and living environment (eco-hygienic aspects)]. *Environment and Health*. 1997;2:48-51. Russian.
5. Mondal TK, Swami K. [Mercury impairment of mouse thymocyte survival in vitro: involvement of cellular thiols] *J Toxicol Environ Health*. 2005;68(7):535-56.
6. Litus VI, Chaikovskiy YuB. [Morphological changes of rats' thymus in conditions of micromercurialism and use of metabolic and antitoxic therapy]. *Morphologia*. 2007;1(4):55-8. Ukrainian.
7. Romanyuk AM, Hryntsova NB. [Histology and morphometric changes of structural components of the cerebellar cortex in conditions of influence of salts of heavy metals]. *Visnyk morpholohii*. 2007;13(2):234. Ukrainian.
8. Gosk JR, Rutowski JG. [The lower extremity nerve injures: own experience in surgical treatment]. *Neuropathology*. 2005;43:148-52.
9. Tyrgut M, Uyanikgil Y, Baka M. Pinealtctomy exaggerates and melatonin treatment suppresses neuroma forma tion of, transected sciatic nerve in rats: gross morphological, histological and stereological analysis. *J Pineal Res*. 2005;38(4):284-91.