

MORPHOGENESIS OF ATELECTASES IN THERMAL LUMEN DAMAGE (EXPERIMENTAL STUDY).

**Jumanazarov Dostonbek Dilshod ugli., Karimov Rasulbek Khasanovich.,
Sultanov Bektemur Bakhramovich.
Urgench State Medical Institute.**

Relevance of the topic: Thermal injuries cause severe pathophysiological changes in the organism of rats. In this case, their respiratory system is one of the most frequently affected organs, with impaired microcirculation in the lungs, edema of alveolar walls, impaired surfactant system function, and the development of atelectasis. Atelectasis reduces the gas exchange surface of the lungs, creating a prerequisite for the development of acute respiratory failure and polyorgan failure. Therefore, the study of the morphogenesis of atelectases in rat lungs under the influence of heat under experimental conditions is of great scientific and practical importance.

Purpose of the work: to determine the stages of morphogenetic development of atelectases in the lungs of rats during experimental thermal injury and their morphological characteristics.

Research materials and methods: The study was conducted under conditions of simulated thermal injury in laboratory animals. Morphological studies of lung tissue from the control and experimental groups were conducted on days 1, 3, 7, and 14. Histological sections were stained using hematoxylin-eosin and Van Gieson methods. Morphometric analysis assessed the area of atelectasis, alveolar diameter, interstitial edema, and microcirculatory changes in the blood vessels.

Results obtained: In the early stages of thermal damage, interstitial and alveolar edema, blood congestion in the capillaries, and microhemorrhages were detected in the rats' lungs. In subsequent stages, as a result of surfactant deficiency and alveolar collapse, foci of atelectasis of various sizes were formed. Inflammatory infiltration around atelectasis, thickening of alveolar septa, and microcirculation disorders intensified. In the late stages of observation, signs of fibrosis were also noted in certain areas. Morphometric analysis showed a statistically significant increase in the area of atelectasis over time ($p < 0.05$).

Conclusion: in conclusion, it can be said that experimental thermal damage forms the morphogenesis of atelectasis through impaired microcirculation in the lungs, interstitial edema, surfactant system dysfunction, and alveolar collapse. Identifying early morphological signs of atelectasis and the patterns of their gradual development

is of great importance for the early diagnosis and prevention of pulmonary complications in severe burn injuries.

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