

## TECHNICAL ASPECTS OF A NEW METHOD OF SURGICAL TREATMENT OF COMPLICATED ECHINOCOCCOSIS OF THE LUNGS

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### ABSTRACT

Despite significant progress in the treatment of echinococcosis of the lungs (EL), there are still controversial issues of choosing a method of surgical intervention for complicated and giant cysts. The purpose of the study. To development of a method of surgical treatment of complicated EL. Material and methods. The objective of these studies was to develop an experimental model of lung lobe resection against the background of microbial contamination. Experimental studies were carried out in the laboratory of experimental surgery of the State Institution "RSSPMCS named after academician V. Vakhidov" from 2021 to 2022. Results. When performing lung resection by the type of lobectomy, almost all rats received a small amount of air through the puncture sites of the lungs, even with the use of atraumatic needles 4/0 and the use of U-shaped sutures. Conclusion. For practical thoracic surgery, a method of surgical treatment of giant infected echinococcal lung cysts is proposed, which consists in performing anatomical resection of the lung with manual suturing of the bronchus stump according to the proposed scheme, followed by local laser exposure and application of a powdered Hemoben composition to the wound surface of the lung and bronchus stump.

**Keywords:** echinococcosis of the lungs; ruptured echinococcal cysts; Hemoben; lobectomy.

### INTRODUCTION

**The relevance of the problem.** Despite significant progress in the treatment of echinococcosis of the lungs (EL), there are still controversial issues of choosing a method of surgical intervention for complicated and giant cysts. Also important are the issues of assessing lung damage, determining the optimal surgical tactics for ruptured echinococcal cysts in the bronchus or pleural cavity, treatment strategies taking into account the critical analysis of complications of the early and late postoperative periods and the quality of life of patients.

**The purpose of the work:** to develop a method of surgical treatment of complicated EL.

## MATERIAL AND METHODS

The objective of these studies was to develop an experimental model of lung lobe resection against the background of microbial contamination. Further, on the tested model, comparative studies of the healing process after resection of the lobe of the lung without the use of a coating (control) and also using a composite hemostatic coating "HEMOBEN" with laser stimulation should be carried out. The results obtained will allow us to develop a new method of resection intervention in complicated EL. Experimental studies were carried out in the laboratory of experimental surgery of the State Institution "RSSPMCS named after academician V. Vakhidov" from 2021 to 2022.

## RESULTS

When performing lung resection by the type of lobectomy, almost all rats received a small amount of air through the puncture sites of the lungs, even with the use of atraumatic needles 4/0 and the use of U-shaped sutures.

In the control group of animals in the postoperative period, hypoxia phenomena were observed, which was manifested by a delayed recovery of physical activity. During the studies, the accumulation of blood in the right pleural cavity and partial lung collapse were noted in dynamics, the healing process was delayed up to 14-21 days.

In the experimental group of animals, respiration began to be carried out immediately after surgery due to hemo- and aerostasis after the use of Hemoben. Laser stimulation promoted rapid healing of wounds without signs of infection. During euthanasia, the lungs are completely straightened out within the prescribed time. There was no effusion and accumulated hematoma in the right pleural cavity.

Thus, the use of the domestic Hemoben wound coating contributes to the rapid and final stop of bleeding, as well as persistent aerostasis from the area of the sutured lung and bronchial tissue. The technique of using Hemoben powder has shown that as a result of polymerization, this agent seals the area of the bronchial stump and punctures of lung tissue. The use of laser radiation makes it possible to have a stimulating wound healing effect even in the presence of contaminated pathogenic microflora. The conducted experimental and morphological studies have convincingly demonstrated all the advantages of the proposed method, which allowed it to be introduced into clinical practice and actively used in EL surgery.

The following are the technical aspects of the method of surgical treatment of giant infected echinococcal lung cysts, which includes opening the fibrous capsule and removing the chitin shell of the echinococcal cyst, treating the residual cavity of the echinococcal cyst with a germicidal agent, performing lobectomy (or bilobectomy, or pneumonectomy, or marginal lung resection), suturing the bronchial stump, laser

exposure and wound suturing. At the same time, the bronchial stump is sutured manually, for which separate octagonal nodular sutures are applied to the membranous and cartilaginous edges of the bronchial stump with atraumatic monofilament absorbable suture material 3/0 in the following order: one suture loop is applied to the side wall of the bronchial stump, and the second to the upper edges of the bronchial stump, 2-3 octagonal nodular sutures are applied between these sutures with a similar suture material the suture at a distance of 4-5 mm between the sutures, laser exposure includes the treatment of the bronchial stump with a Matrix laser with a wavelength of 365-400 nm at a power density of 3 MW / cm<sup>2</sup> for 1 minute, after which a powdered Hemoben composition in the amount of 60 mg per 4 cm<sup>2</sup> is applied to the lung wound and the bronchial stump, then the operation is completed in the conventional manner.

### CONCLUSION

For practical thoracic surgery, a method of surgical treatment of giant infected echinococcal lung cysts is proposed, which consists in performing anatomical resection of the lung with manual suturing of the bronchus stump according to the proposed scheme, followed by local laser exposure and application of a powdered Hemoben composition to the wound surface of the lung and bronchus stump.

This method is characterized by the fact that the imposition of separate octagonal sutures on the stump of the bronchus, in contrast to the hardware suture, can be used with a short stump of the bronchus, which eliminates excessive compression and trophic disturbance in the infected, edematous wall of the bronchus stump, and unlike a simple nodular or continuous suture provides better sealing, less trauma and reduced risk of insolvency seams. Laser radiation in the spectrum of 365-400 nm accelerates wound healing, and also has an antimicrobial effect due to increased local immunity. HEMOBEN powder, when applied to the resection zone, adheres to the wound surface, forms a translucent film that provides additional sealing of the bronchial stump, prevents the penetration of microflora into the area of the sutured bronchial stump, provides hemo and lymphostasis.

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