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Estimation of the Efficiency of Antis Seal Coating on the Model of Lung Wound in Experiment

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ABSTRACT: Until now, a number of methods and anti-adhesive coatings have been developed, which have been successfully used in experimental studies. Their role is to activate fibrinolysis, hinder coagulation, reduce the inflamma -tory response, inhibit collagen synthesis, or create a barrier between adjacent wound surfaces [1].

KEYWORDS: lung, pectoral muscles, microcatheter, thoracotomy, macros-copic

INTRODUCTION

As you know, some basic surgical principles must be followed in all abdominal surgeries. Injury to the peritoneum should be avoided by careful tissue handling, careful hemostasis, continuous irrigation and avoidance of unnecessary drying out, ineffective use of foreign bodies, and suturing or clamping of tissue [2]. An ideal anti-adhesion coating should be biodegradable, non-inflammatory, non immuno- genic, persist during the critical remesothelization phase, remain in place without stitches or staples, remain active in the presence of blood, and apply quickly and easily, and should not interfere with healing, promote infection, or cause adhesions [4]. Anti adhesion coatings are currently considered the most beneficial additions that can reduce the formation of postoperative peritoneal adhesion.There are non-absorbable and bio-absorbent films, gels or hard anti-adhesion membranes. The most commonly used mechanical barriers are oxidized regenerated cellulose, expandedpolytetrafluoroethylene, hyaluronic acid carboxymethyl cellulose, and polyethylene glycol [6]. The most widely studied bioabsorbable films are Seprafilm and Interceed. Seprafilm is absorbed within 7 days and excreted from the body within 28 days. Prospective randomizedcontrolled trials have shown that Seprafilm is effective in reducing the incidence and severity ofposto - perative adhesions [7].

Materials and research methods. Experiments on the formation of a lung wound with the subsequent assessment of the effectiveness of the anti-adhesive coating made of cellulose derivatives were carried out on the basis of the State Institu -tion "RSNPMTSH named after Acad. V. Vakhidov", Department of

Experimental Surgery in 2019. White outbred rats in the amount of 32 individuals were used as experimental animals. In total, 2 series of experiments were performed for the control and experimental

groups.Anesthesia was carried out using a RO-6 anesthesia machine with oxygen supply. The ventilation mode was carried out at a frequency of 24 per minute and a volume of up to 30 ml. For mask anesthesia, a special rubber nozzle was used, which was put on the animal's face and hermetically covered the area of the tran - sition from the head to the neck. The volume of the mask is 50ml. The mask has a check valve for breathing out air.Method of surgery. An incision of the skin and superficial muscle in the area of the 6th intercostal space up to 3 cm long. The pectoral muscles were rippling along the course of the muscles (Fig. 1).

Figure: 1. Skin incision in the area of the right half of the chest

In the area of the 6th intercostal space, thoracotomy was performed using a mosquito-type instrument bluntly (Fig. 2)

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Figure: 2. Breeding the muscles of the chest, highlighting the intercostal space

The wound was divorced to 1.5 cm and then hooks were inserted to widen the wound (Fig. 3).

Figure: 3. Using a clamp of the Mosquito type for opening the pleural cavity and diluting the intercostal space

The right lung is moderately collapsed, breathing during mask anesthesia, air. Using atraumaticmicroclamps, the right lung was removed into the thoracotomy wound. The anterior surface of the lung was damaged using a bipolar coagulator (Fig. 4).

Figure: 4. Damage to the lung using a bipolar coagulator

On a surface of 1 cm2 there are 5 damages, each up to 2 mm in diameter. During the test with the introduction of saline, no air bubbles were observed.

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Figure: 5. Application of anti-adhesive coating on the wound surface of the lung

In the control group of animals, the lung sank back into the right pleural cavity. Then a micro catheter was left and the thoracotomy wound was sutured hermetically at first by suturing the edges of the chest muscles in the subsequent skin wound. After achievinghermeticity, air from the pleural cavity was aspirated through the catheter and the catheter was removed. The lungs were ventilated with oxygen until the animal was fully awakened. Then the rat was moved to a separate cage for observation. For 3 days, water was given with the addition of ipobrufen at the rate of 0.5 g per 100 ml of water. In the experimental group of animals, a special anti-adhesive coating made of cellulose derivatives was applied to the area of lung injury (Fig. 5)

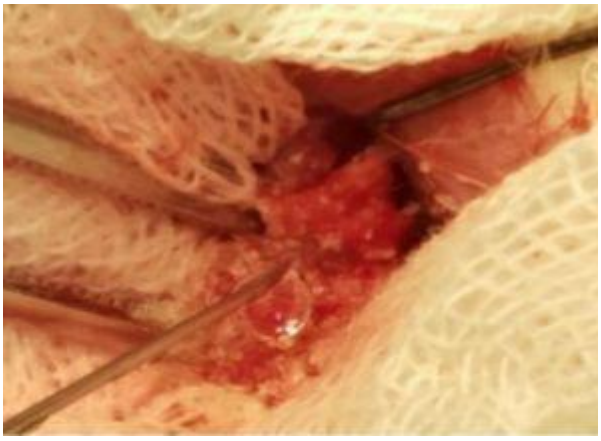

Figure: 6. Application of blood serum to a powder coating in order to form

a translucent film on the surface of the wound.

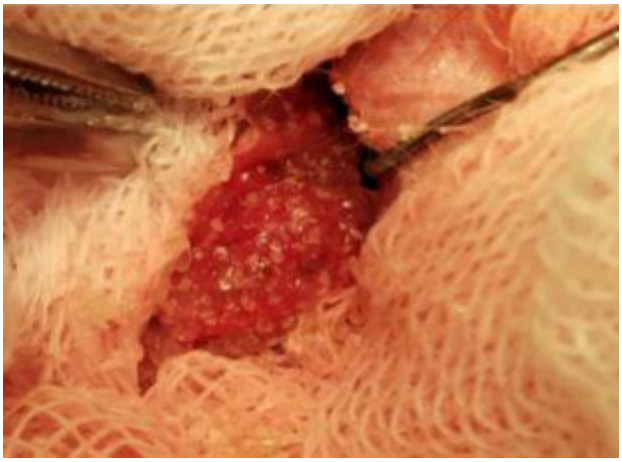

Figure: 7. Formed coating on the surface of the lung wound.

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When a coating is formed using blood, it acquires the character of a thrombus, which contributes to the formation of a denser coating, followed by biodegradation by the type of cellular inflammation during the resorption of thrombotic masses (Fig. 8).

Figure: 8. The nature of the coating when using blood to form a hemostatic coating using the Heprocel implant.

A similar coating was also formed on the wound surface of the parietal pleura, where access to the pleural cavity was made. Further, the operation was completed in the same way as in the control group. During the experiments, death was observed in 2 cases. In the first case, in the control group, the lethal outcome occurred due to depression of breathing in the early post-anesthetic period. In the second case, in the early postoperative period, mortality occurred as a result of lung collapse in the control group.

In the control group.

1 day. After the operations on the first day, all the other operated animals were alive, active, ate food and drank water (with the addition of ipobrufen for pain relief). In the area of the postoperative wound, crepitus and pathological mobility of the chest were not observed. The sutures are well laid, no signs of inflammation were found. The right and left half of the chest are actively involved in breathing.

3 days. Animals are active, move around the cage. Drink water well and eat well. There are no signs of inflammation in the area of the operating wound. The chest is evenly involved in the act of breathing. When the animals were picked up, no painful sensations were observed in the area of the postoperative wound.

The main group of animals. In the main group of 15 animals in the postoperative period, care and anesthesia were carried out similarly to the control group. There were no significant changes in behavior, physiological functions and general condition. Complications in the form of superficial wound suppuration were noted in 1 rat, which was docked after removal of the skin thread. The wound healing period was on average 5-6 days.The dynamics of animal weight indicators are presented in table. one.

Macroscopic data. As planned, on the 7th day after the operation, 5 rats from each group were withdrawn from the experiment to assess the state in the pleural cavity after modeling the lung wound (2 animals in the control group died in the early postoperative period).

In the control group on the 7th day. When opening the chest after euthanasia, in accordance with the provisions on humane treatment of animals, it was revealed: the left pleural cavity is intact, the lungs after the intake of air collapsed, airy. The pleural cavity is clean. Adhesions and pathological manifestations were not revealed. The right pleural cavity (from the side of the performed operation), without pathological effusion. There are massive adhesions between the lungs and the parietal pleura. The area of operational access in the 6th intercostal space is also in adhesions with the right lung, In the area of the surgical approach in the 6th intercostal space, adhesions in the form of thin strands with the right lung were also revealed. The adhesions are detached from the lung with the formation of tears of the visceral pleura. Of the 5 rats studied, in all cases there was an adhesive process. The area of the soft tissues of the chest and skin had no signs of infection, no discharge. In the main group, 5 animals were withdrawn from the experiment on day 21.

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No pathological changes were found in the left pleural cavity. When the right pleural cavity is opened, the lungs collapse, no signs of formed adhesions between the visceral and parietal pleura were found. Only in 1 case there was a thin cord between the area of the surgical wound and the visceral pleura (Fig. 13). At the site of the lung injury - small whitish scars, the lung tissue is airy, elastic The operating wound is completely healed, there is no infiltration, the layers of tissue are distinguishable.

LIST OF USED LITERATURE:

1. Vorobiev A.A., Kalashnikov A.V.,SalimovD.Sh. Pathological manifest tations ofintrapleuraladhesion. Modern science and innovation.2017; 1: 183-189.
2. KouritasVK, Kefaloyannis E, Tcherveniakov P, et al. Do pleural adhesions influence the outcome of patients undergoing major lung resection? InteractCardiovascThoracSurg. 2017;25(4):613-619.
3. Kalashnikov A.V., DvoretskayaYu.A. Comparative morphological analysis of intraperitoneal and interpleural adhesions. Journal of Anatomy and Histopathology.2016; 51: 26-31.
4. Tamura M, Matsumoto I, Saito D, et al. Dynamic chest radiography: Novel and less-invasive imaging approach for preoperative assessments of pleural invasion and adhesion. RadiolCaseRep.2020;15(6):702-704. Published 2020 Apr 6. doi:10.1016/j.radcr.2020.02.019
5. Baxter J, Lima TA, Huneke R, et al. The efficacy of hydrogel foams in talc Pleurodesis. J CardiothoracSurg. 2020;15(1):58. Published 2020 Apr 15. doi:10.1186/s13019-020-01098-y

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