



**PATHOMORPHOLOGY OF REGENERATORY CHANGES DURING EXPERIMENTAL
ULCERS UNDER THE ACTION OF SERICIN**

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Abstract

In reaserch, this was studied on experimental wounds by coating the skin and subcutaneous structures with gauze impregnated with a sericin-preserving mixture for regenerative processes, during which it was found that the acceleration of regenerative processes occurs on average 5-7 days earlier than in the control group, there are no rough scars on the wounds. This gauze bandage, which has absorbed the sericin-containing composition, creates and maintains a moist environment in the wound for up to 3-4 days. It actively promotes the painless removal of necrosis and fibrin, absorbs ulcer exudate for a long time, accelerates its purification, reduces the influence of infectious factors. This will prevent the wound exudate from sticking. They allow you to control the wound process.

Keywords: experimental wound, epidermis, dermis, sericin, regeneration.

Relevance:

currently, trophic ulcers are one of the most common diseases around the world, they are of important medical and social importance. Trophic ulcers cause patients to lose their ability to work, disability, and increased mortality. In the world, this pathology occurs in 2.2-5% of the working population, and after 65 years of age-in 6% of the population [1, 2, 3, 4, 7, 8, 10].

The appearance of trophic ulcers is associated with impaired hemodynamics of blood and lymphatic circulation, impaired peripheral nerve innervation, various lesions of soft tissues, which cause pathological changes in cells, tissues and microcirculation lesions, leading to tissue degradation [4, 5]. Currently, drugs and methods of various composition and origin are being proposed in the treatment of these wounds, many of which, due to their long application at the same time with a positive effect on local tissues, are prescribed to the internal organs (liver, kidneys, etc.) negative effects are also noted. At the latest, attention is paid to natural medicinal substances with low toxicity, obtained from the world of nabobat. Sericin is a waste product of production in sawmills and silk production. Sericin has antioxidant, anti-ultraviolet and anti-apoptotic properties, helping to activate collagen production. Skin structures need these properties because they support and support the growth and renewal of keratinocyte cells. Sericin and its compounds can be widely used in the fields of Pharmacology, biomedicine and biotechnology[9, 11, 12, 13].



The Purpose of the Work:

To study the effect of Sericin on pathomorphological changes and regeneration of the skin in experimental wounds in rats.

Materials and Methods:

The objects of research were 50 rats, which were divided into 2 Groups: 1-group of rats with experimental trophic ulcers (3-7-15-30-45 in each group, 5 in each group, 25 in total), 2-group of rats with experimental trophic ulcers and with Sericin-based hydrofoal-binding fabric applied to wounds (5 in 3-7-15-30-45 days, 25 in total). The animals were kept in vivarium conditions. Experimental trophic ulcers O. V. It was carried out according to the patented method of Falco and his co-authors (2017yil patent of Ukraine, useful model No. 100068) [5]. In an experimental wound caused by acid exposure, a cascade of pathological processes develops in tissue (hypoxia), cell (activation of leukocytes with the production of lysosomal enzymes), microcirculation (microtromboses, stasis of blood-shaped elements). As a result, the skin's barrier (ximoya) funkstia is disrupted. Damage to the skin layers is accompanied by necrosis of soft tissues and massive exudative processes.

Serisin Z.U.Sherov and hammualliflari (2018y) [6] were extraxtized in a method developed by, blended into a binder cloth (Sericin 50% and 50% lanolin+glycerin (ratio 1:9) and placed on the wound surface. The drugs Lanolin and glycerin do not affect regenerative processes in the skin. Rats were decapitated after 3-7-15-30-45 days and patomorphological changes in the skin were studied. To achieve the research goal and solve the tasks set, the following methods were used: experimental, morphological, histochemical and statistical research methods.

Results of the Study:

In the stage of exudation in the trophic ulcer (up to the 15th day), a strong inflammatory reaction was noted. On the 3rd, these wounds were separated from the surrounding normal tissues by a pronounced inflammatory reaction, the presence of a purulent sheath at the bottom of the wound, swelling of the wound edge and surrounding soft tissues, infiltration consisting of a large number of neutrophil leukocytes, some of which were observed to be fragmented and in a pycnotic state. They recorded reduced glycogen. Tumor and hyperemia of the tissue around the wound gradually decreased in the first week and in the second week. On the 7th-15th day, oysters appeared, granular tissue growth was observed under the oysters; in Group 1, a small amount of pus exudate was found under the oysters, the inflammatory reaction was reduced and granulation was found to develop at a sluggish level.

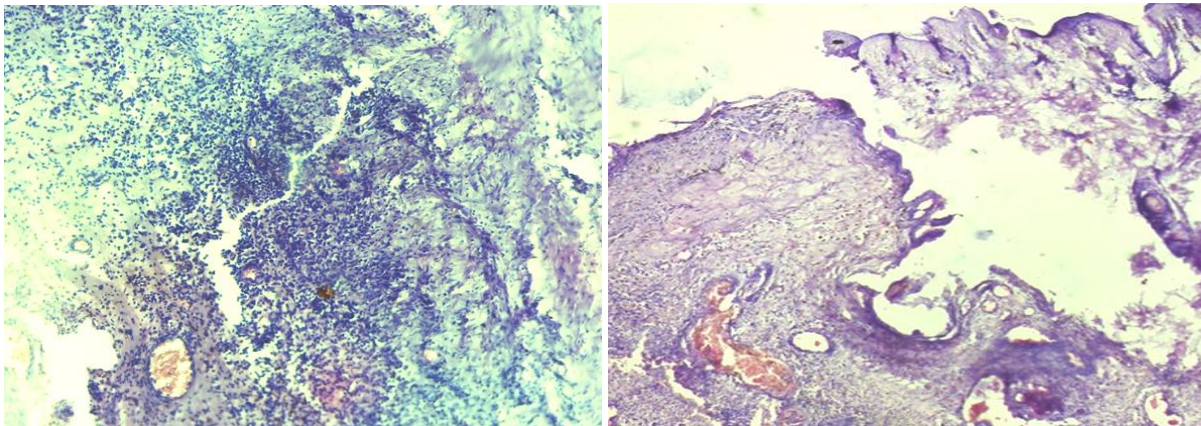
At the same time, under the influence of a hydrofoal-binding cloth based on Sericin, active rehydration and elimination of fibrin, activation of inflammation, angiogenesis stimulation, restoration of damaged tissues increased (rapid increase in the number of collagen structures, formation of mature blood vessels, infiltration of histiogenic cells (fibroblasts and keratinocytes). This hydrofoal binding fabric created a damp environment in the wound for 3-4 days, preventing the fabric from sticking to the surface of the wound. It actively helps to remove necrosis and fibrin painlessly, accelerates the cleansing of exudate in the wound, reduces the amount of microbes, accelerates wound healing at all stages of



inflammation. These processes make it possible to control the course of wounds. The ties were replaced and used 2-3 times a week.



Picture-1. Changes in the 10th day of the experimental wound. a-control group, when a hydrofaol cloth is applied in the B-research group. The study group observed a decrease in the amount of exudate in wounds, cleaning of the wound, and an increase in granular tissue.



Picture -2. Changes in the 7th day of the experimental wound. a-control group, when a hydrofaol cloth is applied in the B-research group. In the control group, there was a sharp manifestation of exudative inflammation, and in the wounds of the Study Group, a decrease in the exudative inflammatory process, an increase in granular tissue. Staining is in the hemmatoxylin-eosin method. Zoom ob. 12.5 ok.10.

As a result of the use of this hydrofaol fabric in the treatment of wounds, positive shifts were noted in the completion of the wound defects on the 10th day of the study. The wounds were completely cleared of fibrin, exudative changes decreased, the lower part of the wounds were occupied by granular tissue and raised to the surface of the skin. Within three weeks, once every 6 days, its use accelerated regenerative processes, creating conditions for a complete cleansing of the wound surface, reducing the experimental wound area by more than one and a half times, epithelializing the surface, optimally maintaining moisture in the wound area. 30 days after the experiment, the oath began to separate. Epithelization began to appear on the edge of the wounds. Under the STEM-Young granulation tissue growth was observed. The proportion of cells in necrotically altered tissue decreased by 0.3 in Group 1 and 0.4 in Group 2.



The amount of dystrophically altered neutrophils decreased by 4-9 times, respectively, in groups of 1-2. Against the background of exudative changes against the background of reduced alterative changes, the number of neutrophils with normal nuclei increased by 2 and 4 times, respectively, in groups 1-2, in Group 2 there was an increase in RNA, DNA and glycogen in relatively cells.

The migration of the vesicle on the surface of the wound was 13.1+0.4 days in Group 1, 11.0+0.4 days in Group 2, and 35.1+0.5 days in Group 1, 28.2+0.6 days in Group 2. At the same time, the proportion of necrotically altered neutrophil leukocytes was observed in Group 1 (32.1+2.3%) and Group 2 (26.1+2.4%), with a decrease in the amount of dystrophically altered cells in Group 1 (27+5.6%) and Group 2 (19.4+2.3%).

Hulosa: application of Sericin-based hydrofaol-binding fabric in experimental surface wounds in laboratory animals, positively affected regenerative processes in these wounds, reduced dystrophic changes, accelerated regenerative processes on average by 5-7 days, and the formation of coarse scars in wounds was not observed. The use of this hydrophaol-binding fabric has provided an opportunity to control the course of the wound healing process, to prevent inflammation of the wounds by infectious factors.

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DOI: <https://doi.org/10.1039/C8BM00934A>