

**WOUND TREATMENT IN ANIMALS**

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Abstract: *This article presents an overview of modern methods for treating wounds in animals based on a literature review. It includes information on wound healing techniques, clinical diagnosis, and the factors contributing to tissue damage. The study highlights the importance of identifying causes and utilizing contemporary approaches to shorten healing times and improve treatment efficiency.*

Keywords: *wound, injury, organ, tissue, trauma, surgery.*

Introduction

A wound is defined as mechanical damage to the body tissues, including skin, mucous membranes, muscles, nerves, major blood vessels, bones, joints, and internal organs, resulting in a loss of anatomical integrity. The main signs of a wound include pain, bleeding, and tissue exposure.

Research Objective

The aim of this study is to develop and implement modern wound treatment methods in animals, with a particular focus on reducing healing time and improving clinical outcomes using advanced veterinary techniques.

Research Results

Surgical conditions, particularly wounds, are common among animals and often result in significant economic losses. These losses are associated with prolonged treatment periods, extensive use of pharmaceuticals, and the temporary or permanent removal of animals from productive service.

In recent years, various protective substances have been developed to cover wound surfaces. These products vary in terms of their **physical properties, chemical composition**, and the diversity of active ingredients used [1].

Causative Factors



According to K.I. Shakalov (1981), many diseases in dogs arise from damage to organs and tissues. The severity of tissue damage depends on the intensity and force of the mechanical impact. The heavier and more rigid the object, the greater the damage it inflicts on soft and hard tissues [3].

Clinical Signs

N.P. Pirogov classified wound healing into three clinical stages:

1. Inflammation and swelling
2. Wound cleansing (1–14 days)
3. Formation of granulation tissue [5]

Clinically, wounds in animals may present with tissue necrosis, putrefaction, foul-smelling and cloudy exudate, elevated body temperature, loss of appetite, and impaired digestion. According to M.V. Plakhotin, the primary clinical signs include **pain, bleeding, wound opening, and loss of function** [4].

Diagnosis

Various diagnostic methods have been developed to assess wound progression. These include:

- **Planimetry** – to estimate the rate of wound closure.
- **Cytological analysis** – to evaluate cellular changes.
- **Biochemical tests** – to assess inflammatory response.
- **Electro-thermometry** – to detect localized temperature changes.
- **Immunological assessments** – to monitor immune response.

The **planimetric method** is used to measure wound healing speed, tissue granulation, epithelialization, scar formation, and eventual closure.

Based on cytological and pathological changes, N.F. Kamayev divides the wound healing process into the following stages:

1. **Initial phase (up to 12 hours):** Onset of inflammation
2. **Degenerative-inflammatory phase**
3. **Regenerative phase**, consisting of:
 - Necrotic tissue clearance
 - Formation of granulation tissue



- Healing and epithelial restoration [5]

Treatment

Modern veterinary wound management incorporates advanced techniques. As understanding of the wound healing process evolves alongside medical and technological progress, new treatment opportunities continue to emerge.

The surgical approach to fresh wounds was first proposed by **Charukovsky**, later refined by **Friedrich**. Their theory was based on the observation that within the first six hours after injury, microorganisms remain localized on the wound surface and have not yet penetrated the lymphatic system, allowing for safe primary closure.

B.V. Ognev demonstrated experimentally that microorganisms can be found in regional lymph nodes just 30 minutes after injury [2].

In 1896, **N. Preobrazhensky** introduced the concept of **physical antiseptics**, focusing on the **hygroscopic properties** of materials like gauze to absorb pus and promote wound drainage [2].

According to **M.V. Plakhotin**, two healing phases are observed: **hydration** and **dehydration**. In animals, wound cleansing is often achieved through enzymatic debridement, where necrotic tissue is broken down and eliminated as a liquid due to enzyme activity [4].

Conclusion

1. Early and proper wound treatment significantly shortens healing time and restores the animal's functional capacity.
2. Successful wound management requires understanding the **cause of the injury, initial first aid provided, and which organ or tissue** has been affected.

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