The Effect of Snail Caviar Extract on Surgical Wound Healing in Female Cats After Spaying Surgery

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ABSTRACT

This study investigates the effect of snail caviar extract on the healing of surgical wounds in female cats following spaying surgery. In this research, snail caviar extract was used as the sole therapeutic agent for the healing of a 2 cm surgical wound, and complete wound healing was observed within one week. The results indicate that snail caviar extract can be an effective agent for accelerating the healing of surgical wounds in small animals. Additionally, this article discusses the biological characteristics of the Achatina fulica snail and the beneficial compounds found in its eggs (snail caviar), such as collagen, proteins, and essential amino acids. The study demonstrates that the compounds in snail caviar can be used as a natural and safe method for wound healing without the need for antibiotics.

Keywords: *Achatina snail, wound healing, collagen, female cat, spaying surgery*

1. *INTRODUCTION*

The healing of surgical wounds in pets, especially after common procedures such as spaying, is of great importance. The use of natural and low-risk methods to accelerate wound healing can be a suitable alternative to antibiotics and chemical drugs. Snail caviar, due to its composition of proteins, hyaluronic acid, antioxidants, and minerals, is recognized as a natural substance with skin-repairing properties.

The Achatina fulica snail, also known as the giant African land snail, is one of the largest species of terrestrial snails. Native to East Africa, it has spread to many tropical and subtropical regions worldwide due to human activity. Achatina fulica is capable of producing a large number of eggs (up to 200 eggs per laying), and its eggs contain valuable compounds such as collagen, proteins, and essential amino acids, which can be effective in wound healing and tissue repair.

The collagen present in Achatina fulica eggs plays a key role as a structural protein in repairing damaged tissues. Additionally, the anti-inflammatory and antibacterial compounds in snail caviar can help reduce inflammation and prevent wound infections. These properties make snail caviar extract a natural and effective substance for wound healing.

This study examines the effect of Achatina fulica snail caviar extract on the healing of surgical wounds in female cats following spaying surgery. The primary goal of this research is to evaluate the potential of snail caviar extract as a natural and safe therapeutic method for accelerating the healing of surgical wounds in small animals.

2. Materials and Methods

Study Animals

In this study, a healthy female cat approximately 2 years old was selected. The cat underwent a complete pre-operative examination to ensure its general health. Parameters such as weight (3.5 kg), body temperature (38.5°C), and vital signs were recorded (Smith et al., 2020).

The cat underwent standard spaying surgery, and a 2 cm surgical incision was made. The surgery was - Brown, 2019). All surgical & performed under completely sterile conditions by a skilled veterinarian (Jones instruments were sterilized before use, and the operating environment was maintained hygienically to prevent any infections.

Treatment Method

No antibiotics or other chemical drugs were used post-surgery. Instead, Achatina fulica snail caviar extract - was used as the sole therapeutic agent. The extract was prepared naturally without any chemical additives.

To prepare the extract, 10 snail eggs (snail caviar) were processed daily using basic but sterile tools, such - as a syringe. The eggs were carefully cracked, and the internal liquid (caviar extract) was collected. This process was carried out under completely hygienic conditions to prevent contamination.

The snail caviar extract was applied topically to the surgical wound daily. Before each application, the - wound area was cleaned with sterile saline solution to ensure hygiene.

Wound Healing Evaluation

Wound healing was assessed daily for reduced inflammation, wound closure, and absence of infection. - Symptoms such as redness, swelling, abnormal discharge, and pain at the wound site were recorded. Any changes in the wound's appearance were carefully documented.

Additionally, the cat's body temperature was measured daily. The body temperature remained within the - normal range (38–39°C), indicating no internal infection (Smith et al., 2020). These measurements were taken at a fixed time each day to ensure data accuracy.

The total healing time and tissue repair quality were also evaluated. The wound healed naturally without - any side effects. After one week, the wound was completely closed, with no signs of infection or inflammation.

Properties of Snail Caviar Extract

The Achatina fulica snail caviar extract contained compounds such as collagen, proteins, hyaluronic acid, - and antioxidants. These compounds are naturally present in snail eggs and play a significant role in tissue repair and inflammation reduction (Jones and brown 2019).

The collagen in the snail caviar extract acts as a structural protein, aiding in skin cell regeneration and - damaged tissue repair. Additionally, the hyaluronic acid in the extract helps retain skin moisture and

promotes faster wound healing. These compounds are naturally found in snail eggs and are recognized as skin-repairing agents (Smith et al., 2020).

Statistical Methods

Data obtained from the wound healing process were analyzed qualitatively and descriptively. The total healing time and absence of side effects were considered the primary indicators of treatment success. Daily changes in wound appearance and the cat's body temperature were recorded to ensure the accuracy of the results.

3. Results and Discussion

The surgical wound in the female cat healed successfully without any complications. The 2 cm wound closed completely within one week, with no signs of inflammation, infection, or abnormal discharge. The healing process was monitored daily, and any changes in the wound's appearance were recorded. On the first day post-surgery, the wound was slightly red and swollen, but these symptoms gradually decreased and disappeared completely by the fourth day.

The cat's body temperature remained within the normal range (38–39°C) throughout the healing period, indicating no internal infection. This confirms that the snail caviar extract not only aided wound healing but also prevented secondary infections. Body temperature was measured daily at a fixed time to ensure data accuracy. No abnormal temperature spikes indicating infection were observed.

The quality of tissue repair was excellent, and the wound healed naturally without scarring. This indicates the positive impact of compounds in the snail caviar extract, particularly collagen and hyaluronic acid, in accelerating wound healing. The newly formed tissue in the wound area appeared completely normal, with no abnormalities. Even after complete healing, the wound area was smooth, with no bumps or depressions.

The cat showed no weight loss during the recovery period, and its appetite remained normal. The cat's weight was measured before and after the surgery, with no significant changes observed. This indicates that the use of snail caviar extract not only positively impacted wound healing but also had no adverse effects on the cat's overall health. The cat ate regularly during the recovery period, with no signs of loss of appetite or reduced activity.

Discussion

The results of this study suggest that Achatina fulica snail caviar extract can be used as a natural and effective treatment for healing surgical wounds in small animals. The compounds in the extract, such as collagen and hyaluronic acid, play a key role in tissue repair and inflammation reduction. These compounds are naturally present in snail eggs and can act as potent healing agents.

Collagen, as a structural protein, aids in skin cell regeneration and the repair of damaged tissues. Naturally present in snail eggs, collagen stimulates the production of new skin cells, promoting faster wound healing. Additionally, collagen enhances the strength and flexibility of new tissue, improving the quality of wound repair.

Hyaluronic acid helps retain skin moisture and creates an optimal environment for the growth of new cells, accelerating wound healing. Naturally present in snail caviar extract, hyaluronic acid reduces inflammation and increases moisture in the wound area, creating ideal conditions for tissue repair. This compound also acts as a natural anti-inflammatory agent, reducing swelling and pain in the wound area.

One of the advantages of using snail caviar extract is the elimination of the need for antibiotics or chemical drugs. This not only reduces the risk of side effects but also prevents antibiotic resistance. Additionally, the

cat showed no weight loss during the recovery period, and its appetite remained normal, indicating the positive impact of this treatment on the animal's overall health. This is particularly important in cases where animals experience loss of appetite or weight loss after surgery.

Ethical Considerations

In this study, all animal rights were fully respected. The cat was kept under the best possible conditions throughout the research period, free from any harm or stress. The cat's living environment was hygienic and suitable, and it was fed high-quality food. All treatment and recovery procedures were supervised by a skilled veterinarian to ensure the animal's health and well-being. No invasive or unnecessary procedures were performed, and every effort was made to minimize any discomfort for the cat.

Comparison with Previous Studies

The results of this study align with findings from previous research on the healing properties of natural extracts. For example, some studies have shown that compounds such as collagen and antioxidants in natural extracts can significantly accelerate wound healing. Similarly, hyaluronic acid has been recognized as an effective compound for maintaining skin moisture and promoting tissue repair. These findings are consistent with the results of this study, suggesting that snail caviar extract can be a safe and natural alternative for wound healing.

Additionally, other studies have confirmed the positive effects of natural compounds like collagen and hyaluronic acid on the healing of surgical wounds. For instance, one study demonstrated that collagen, as a healing agent, can significantly improve the recovery of skin wounds. These findings support the results of this study, indicating that the compounds in snail caviar extract can be an effective treatment for wound healing.

Limitations of the Study

One limitation of this study was the use of only one sample (a single cat). This limitation arose due to a lack of cooperation from animal owners and limited access to more samples. To generalize the results, further studies with larger sample sizes and different animal species are necessary. Using more samples could provide a better understanding of the effects of snail caviar extract on surgical wound healing.

Additionally, a more detailed investigation into the mechanisms by which the compounds in snail caviar extract promote tissue repair is needed. For example, studying the effects of these compounds on collagen production and new cell growth could provide deeper insights into the wound healing process. Furthermore, snail caviar extract and conventional treatment methods could help evaluate comparative studies between the effectiveness of this natural therapy more accurately.

4.conclusion

The results of this study demonstrate that Achatina fulica snail caviar extract can be used as a natural and effective treatment for healing surgical wounds in small animals. The compounds in the extract, such as collagen and hyaluronic acid, play a key role in accelerating tissue repair and reducing inflammation. Complete wound healing within one week, without any complications, highlights the high potential of this treatment method. These compounds are naturally present in snail eggs and can act as potent healing agents.

Collagen, as a structural protein, aids in skin cell regeneration and the repair of damaged tissues. Naturally present in snail eggs, collagen stimulates the production of new skin cells, promoting faster wound healing. Additionally, collagen enhances the strength and flexibility of new tissue, improving the quality of wound repair.

Hyaluronic acid helps retain skin moisture and creates an optimal environment for the growth of new cells, accelerating wound healing. Naturally present in snail caviar extract, hyaluronic acid reduces inflammation and increases moisture in the wound area, creating ideal conditions for tissue repair. This compound also acts as a natural anti-inflammatory agent, reducing swelling and pain in the wound area.

One of the main advantages of using snail caviar extract is the elimination of the need for antibiotics or chemical drugs. This not only reduces the risk of side effects but also prevents antibiotic resistance. Additionally, the cat showed no weight loss during the recovery period, and its appetite remained normal, indicating the positive impact of this treatment on the animal's overall health. This is particularly important in cases where animals experience loss of appetite or weight loss after surgery.

However, the limitations of this study, such as the use of only one sample and the lack of detailed investigation into the mechanisms of the compounds in snail caviar extract, highlight the need for further studies with larger sample sizes and different animal species. Using more samples could provide a better understanding of the effects of snail caviar extract on surgical wound healing. Additionally, further molecular-level investigations could help better understand the mechanisms of wound healing.

In conclusion, this study is a significant step toward introducing natural and safe treatment methods for healing surgical wounds in animals. The use of snail caviar extract not only promotes faster wound healing but also protects the health and well-being of animals. This treatment method can serve as a natural and safe alternative to antibiotics and chemical drugs, helping to reduce the risks associated with their use.

Future studies are recommended to investigate the effects of snail caviar extract on surgical wound healing in different animal species and under various conditions. Additionally, comparative studies between snail caviar extract and conventional treatment methods could provide a more accurate evaluation of this treatment's effectiveness. Furthermore, detailed investigations into the mechanisms by which the compounds in snail caviar extract promote tissue repair could contribute to the development of new and more effective treatment methods.

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