RESEARCH ARTICLE

Role of Saliva in Healing Process of Cutaneous Wounds

Muna A. Abdullah, Mohammed R. Ali,* Bil Sheet, Ahmed Kamil, Hussam Essa

College of Dentistry, University of Tikrit, Tikrit. Iraq

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ABSTRACT

Oral sores heal more quickly and without the creation of scars that cutaneous lesions do. People generate a periodic version of histatin that has 1000 times the activity of linear histatin, making this periodic version a promising factor in the creation of a novel wound treatment. Recognizing the several functions salivary proteins play in wound healing makes saliva a viable source for the creation of novel tissue regeneration medicines. To assess the role of human saliva on healing process of cutaneous wounds of rabbits. Five rabbits were selected. Two cutaneous wounds (about 3 cm) were created on each rabbit thighs, one on the right thigh and other at the same position in the left one, the right wound washed by human saliva three times daily while the left one leaved to heal normally without managing it by saliva, the healing process was assessed clinically and compares was done between wounds that treated by saliva and that not. Wounds treated with saliva show fast healing, less complications, and early epithelization. Saliva plays a variety of roles that aid in the healing of wounds, making it a viable source for the creation of novel medicines for wound healing and tissue regeneration.

Keywords: Cutaneous wound, Redeployment, Saliva, Swelling.

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INTRODUCTION

Wound healing is a dynamic process that requires the capacity to dissolve in something, as well as blood cells, matrix cells, and extracellular matrix cells. Swelling, redeployment, and tissue re-presentation are the three phases of wound healing. Hemostasis occurs when a blood clot forms during the swelling stage. Some individuals believe that releasing and recruiting neutrophils will address the problem. Access to neutrophils and buds cleans infected areas of bacteria, bacteria, and infected tissues.[1] The reproductive stage is seen as the spread of fibroblasts and extracellular matrix removed from the judgment site and reintroduced in relation to the surrounding organs. The rearrangement and regulation of a strong, flexible fiber-like protein change from one particle to another from the granular tissue to the scars of objects. Excessive excess protein is supple strong, flexible, and similar to fibers at the wound site, and not much protein digestion enzymes and leads to complete tissue repair.[2] Materials such as cytokines, chemicals, and growth factors, which are involved in the body's function of organisms, are known to have a role in each stage of wound healing. Many growth factors are thought to be stored in the salivary gland of rats.

Saliva includes many components that appear to have a role in wound healing, including epidermal growth factor (EGF) layers, nerve growth factor (NGF), and SLPI release. This depends on the behavioral conditions that appear or the observation or making statements that increase licking and common among the animals after the wounds. These substances stimulate the invasion of degrading cells that swell in the wound area.[3] Which cause the proliferation of protein cells to the skin cells and fibroids, lead to the formation of blood vessels and new granule tissue of saliva also contains active substances (such as calcicrin, amylase, lezosimol, immunoglobulin, and renin).[4,13]

It is believed that lezosim improves healing by effectively stopping infection; local application of certain growth factors: wound healing in the skin is likely to improve by licking animals such as mice due to the accumulation of the growth factors in the wounded area. The study aims to ask many questions about trying to find the truth in respect of the effect of the glands. Antibacterial (AMPs), initially detected due to their microbial properties, have multiple functional molecules that play roles in infants who are unable to develop disease and repair the wound of uterine multi-cell types.[5] A family of amperes is formed, which occurs especially in the saliva of monkeys by histatin. Only the fluid is released in the salivary glands, while other AMPs generally have wider tissue expansion. Until not too long ago, direct histatin effects were not reported on host cells. We were the first to demonstrate or demonstrate that histatin was the main part of the saliva that improved related to the surrounding organs of the cell body organs from one place to another. It was then shown that

*Author for Correspondence: mohammed.alsad3@gmail.com

histatin improves regeneration in relation to the surrounding organs in the skin injury length, width, and depth model. Also, we have shown that, unlike its antimicrobial activity, cell moving from one place to another by histatin is a special, non-sensitive saline solution.[6]

Constant reduction of pressure during cyclization can increase histatin activity by 1000 times. Histatin increases fibroblast DNA production, according to another research. Other AMPs, such human cathlicidin LL-37, have different effects on host cells depending on the dose used. For example, in low concentrations compared to other things, LL-37 improves the growth of fibroblasts associated with surrounding organs, fibroids associated with surrounding organs, fibroblast fibrosis, and proliferation. Also, sticks and stops a strong and flexible protein similar to protein creation and fibrous activity, which also helps in healing wounds appropriately.[7] LL-37, on the other hand, induces late necrosis death, or simply "cell death," at higher doses than those employed in the research above. to make the challenge more challenging.[8]

MATERIALS AND METHODS

All tests were carried out in compliance with the Tikrit University's Animal Ethics Committee on five one-year-old rabbits. Before the wound induction process, the rabbits were

Figures 1 to 6: Preparing and creating the wounds on the thighs of rabbits.

randomly allocated to one of two treatment groups (each with six rabbits). To be ready to use, human saliva was obtained from the same individual.

In the right and left thigh areas of each rabbit, the skin was shaved and disinfected with 70% ethanol. The surgical location of the animals was anesthetized using xylocaine HCl (5 mg/kg) infiltration method.

On each rabbit's thigh, 3 cm longitudinal full-thickness incisions with the same depth and diameter were created with a scalpel blade. The wound was closed in an interrupted way at the end of the surgery (with 3-0 silk suture) (Figure 1-6). The right thigh incisions were deemed treated wounds because of contact with human saliva (from the same individual), but the left thigh incisions (control wounds) were not.

Each post-operative day, clinical changes in the appearance of the wounds were assessed to record edema, hyperemia, re-epithelialization, debris, exudation, and wound quality.

Table 1: Clinical assessments of the wounds

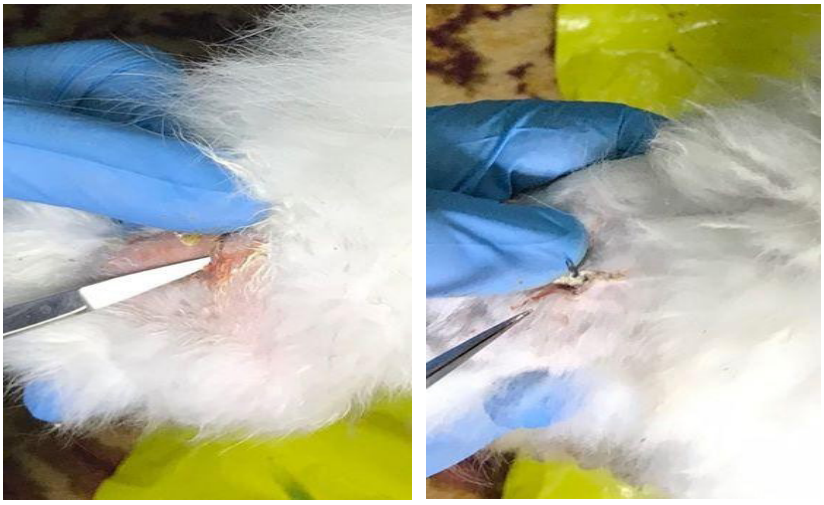
Clinical features of wounds at day seven	*Wounds treated with saliva*	*Wounds not treated with saliva*
EDEMA	Same	Same
Crustation	Less	More
Hyperemia	Less	More
Re epithelization	More	Less

RESULTS

The healing process of 10 wounds created on the thighs of five rabbits in oral and maxillofacial surgery theater room of Tikrit dentistry college was examined clinically. Five of wounds were washed with human saliva three times daily while other fives not. At day seven after surgery, clinical changes in the appearance of the wounds were assessed to record edema, hyperemia, re-epithelialization, debris, exudation, and wound quality (Figure 7-10). The wounds treated with saliva show fast healing, less debris, and more epithelization compared to those not treated with saliva. Table 1.

DISCUSSION

It is worth noting that saliva is a major role in healing wounds, especially when repeated saliva on the wounds of rabbits



Figures 7 and 8: Wounds healed normally without managing by saliva.

Figures 9-10: Healing of wounds treated with saliva.

at different times, Compared to the wounds of the rabbits that were left and did not put saliva. Our study shows that washing of cutaneous wounds of rabbits by human saliva will fasten the healing process, decrease crustations, and increase re-epithelialization of the wound. This study agrees with Behnam Abbasian *et al,*[9,12] which shows improvement in wound healing of rates histologically and clinically after washing it by with And agree with Jia J, Sun Y, *et al*.[10,11] study who show that human saliva fastens and improve wound healing in rabbits ($p < 0.05$).

CONCLUSION

The results of this study indicated that licking activity could aid wound healing. Salivary chemicals might be distinguished from others in this way, mass-manufactured, and have the potential to become as widespread as germ-killing substance cream. Topically applied leptin has been demonstrated to aid wound healing in the oral mucosa by speeding up cell movement between sacs that surround bodily organs and promoting the formation of new blood vessels surrounding the damaged region. These findings clearly imply that topical leptin control might be beneficial in aiding wound healing in the oral mucosa.

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