



# Regeneration In a Model of The Nonhealing Skin Wound In Mice



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Nonhealing wound is an abundant heterogeneous pathology that depends on etiology, age of wound and other influence on wound healing factors [Das, 2016].

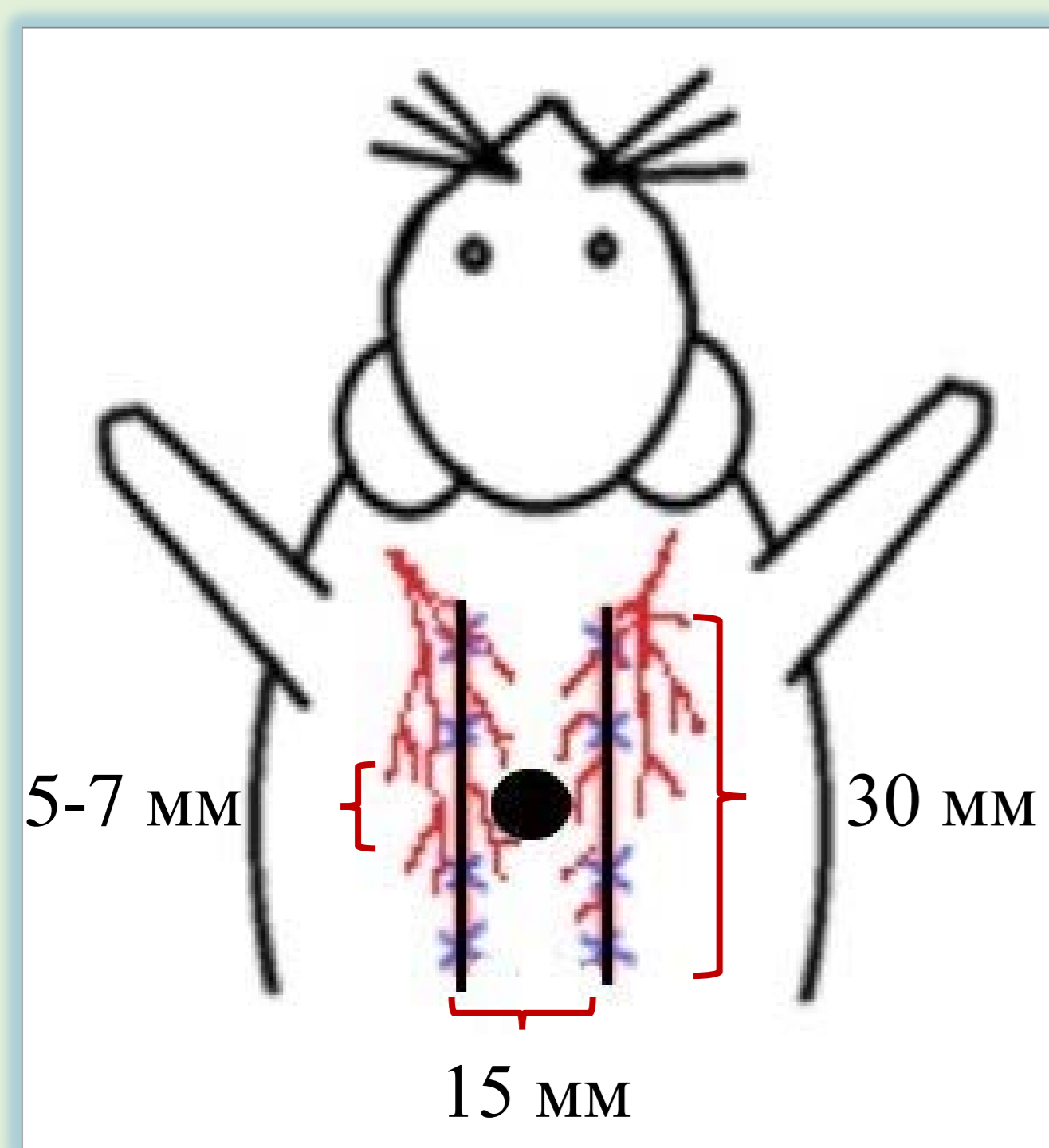


Development of the nonhealing wound model for investigation of potential therapy by the biomedical cell product is actual because there isn't any unified small rodent model of this pathology [Gould, 2005].

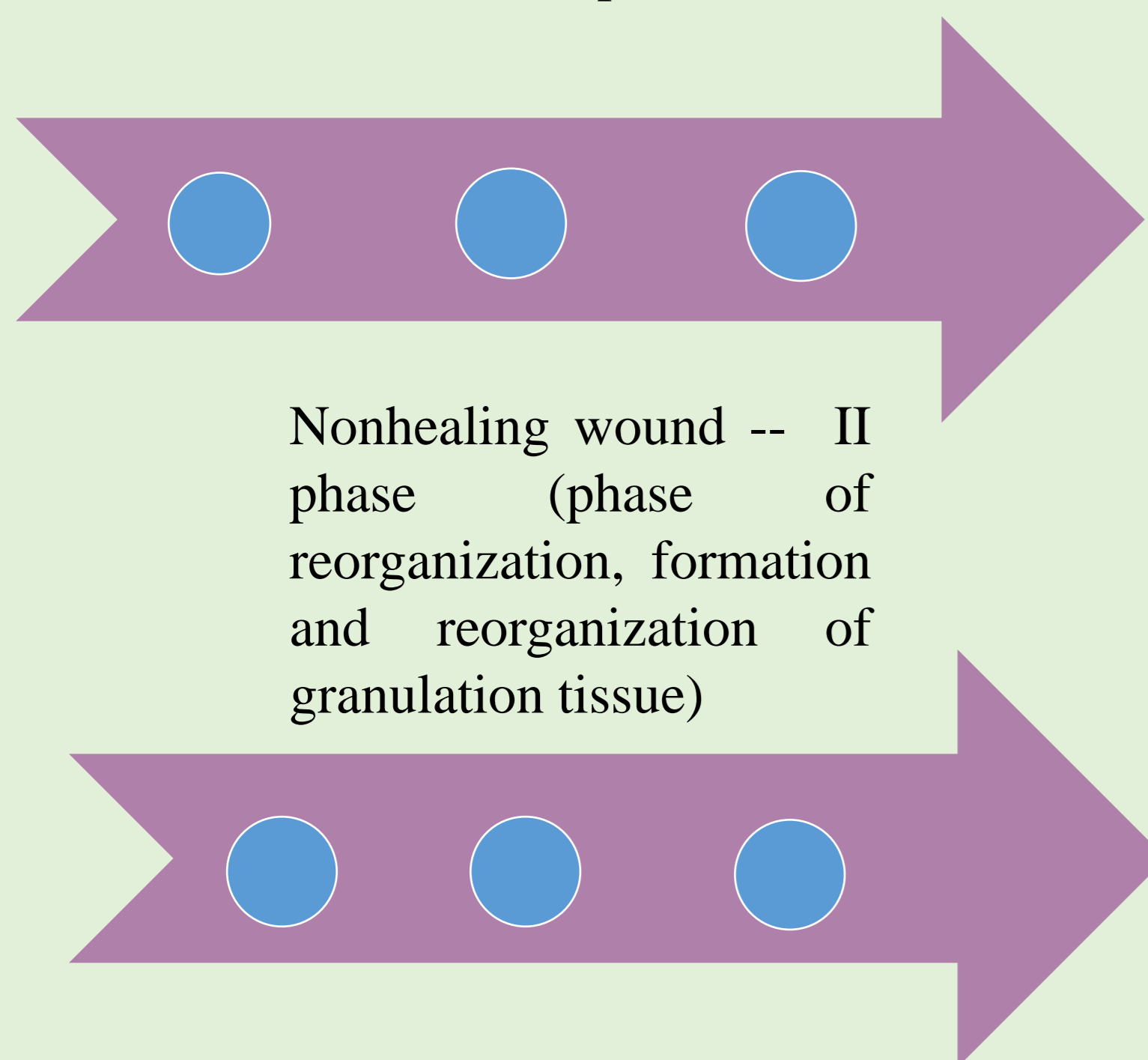


**The purpose of our research was morphological description of the nonhealing wound model in mice.**

**Materials and methods:** balb/c mice were used in experiment. The H-shaped 10×30 mm skin flap and full-thickness circular wound 5-7 mm in diameter in the middle of the flap were inflicted onto the back of an animal. Induced skin flap ischemia provoked transition of the wound status to nonhealing one. Animals were eutanized on day 5, 7, 14, and 21. Nonhealing wounds were characterized by histological methods.

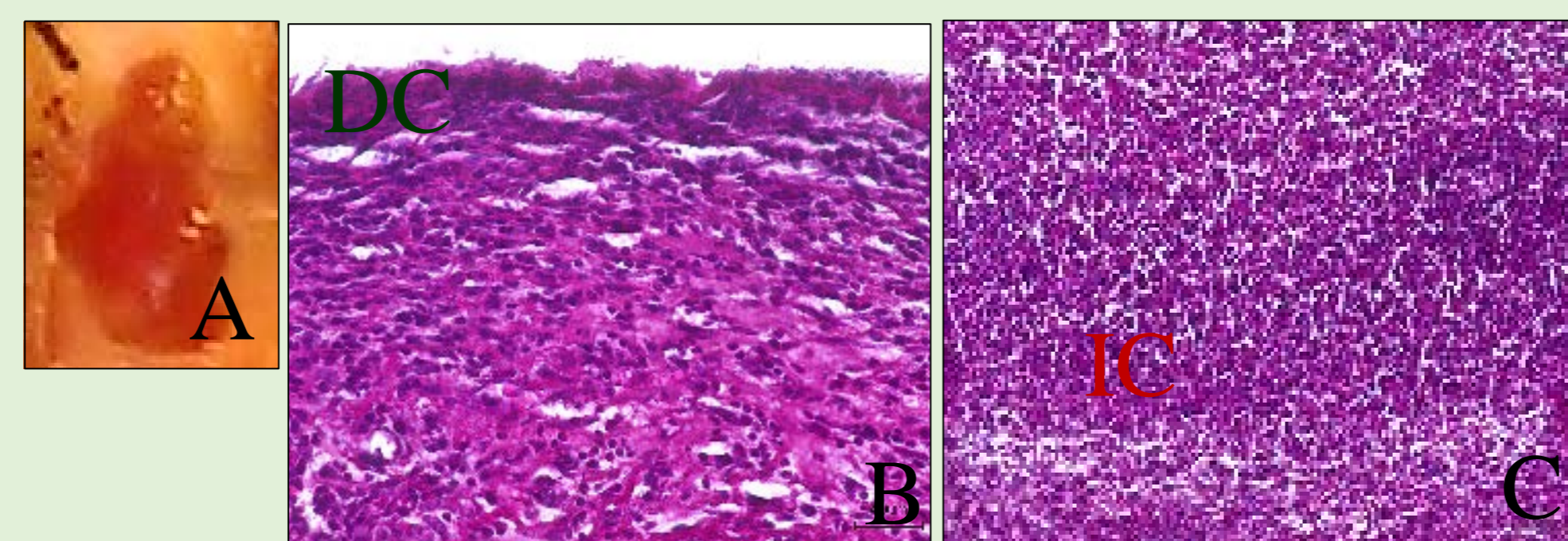


Acute wound -- III phase (scar reorganization and epithelization)

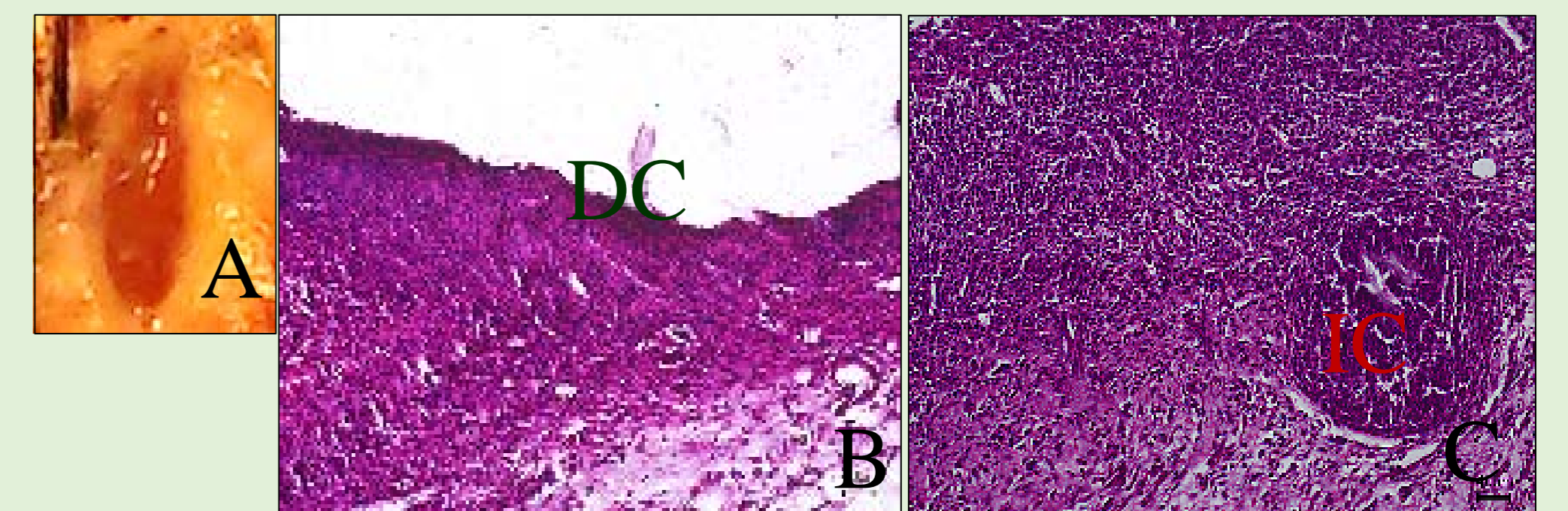


**Acute and nonhealing wounds are being on the different phases of the wound healing on the same time.**

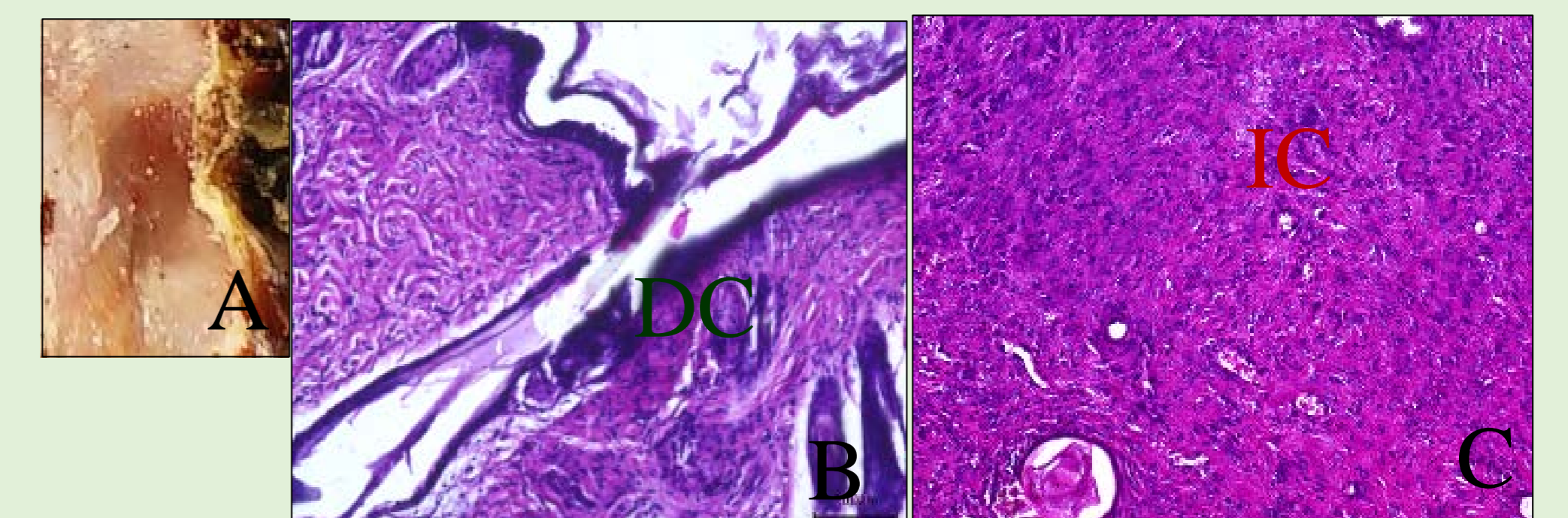
Day 5



Day 7



Day 21

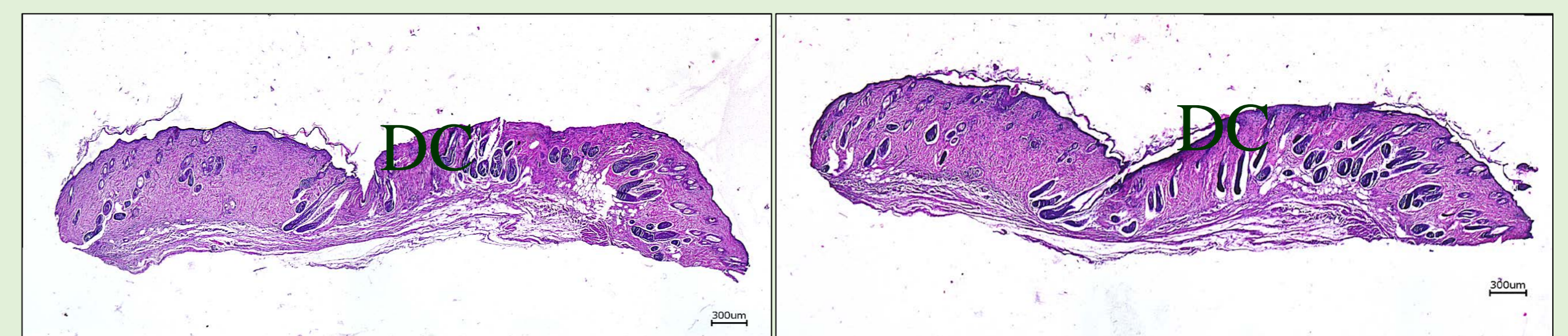


A. Photograph of nonhealing wounds on day 5, 7, and 21. B, C. Hematoxylin and eosin staining of ischemic wounds on day 5, 7, and 21. IC – inflammatory cells; DC – Death and degradation of cells in the wound bed.

Day 7



Day 21



Hematoxylin and eosin staining of ischemic wounds on the day 7, and 21. IC – inflammatory cells; DC – Death and degradation of cells in the wound bed and in margins of the wound. Edema in margins of the wound on the day 7.

## Results:

Such abnormalities as death and degradation of cells in the wound bed and areas of inflammatory infiltration persisted to the day 21 in the majority of mice and this was the result of ischemia.

## Conclusion:

Wound healing during 21 days is abnormally long term for mouse organism. The developed model corresponds to nonhealing wound and it may be used for studying of mechanisms of regeneration and methods of potential influence on them.

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