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Evaluating the effect of autologous fat grafting on wound healing - An animal study

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1.) Abstract

Animal Study: The Effects of Adipose Extract on Wound Healing

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Background:

Adipose derived stem cells have been shown to enhance skin wound healing. The stem cells are harvested , purified, cultured and the viability assessed to provide adequate cellular yield. The isolation process requires trained laboratory staff, intensive procedures utilizing multiple purification solutions and expensive equipment for culturing and interpretation of viability of the isolated stem cells. The aim of the study was to investigate the effect of simple lipo-aspirate on wound healing.

Methodology:

This is a prospective , interventional study to investigate the effect of adipocyte extract on wound healing. Young, healthy female large white pigs were used in the study. Fat was harvested using standard liposuction technique and injected around the defects created. Skin defects were evaluated for wound healing.

Results:

Histological evaluation shows accelerated wound healing with the treatment of adipose tissue compared to control groups. There was an increased rate of wound surface reduction and epidermal thickness in the wounds treated with lipo-aspirate. Bacteriology results showed no significant differences.

Conclusion:

Results indicate a benefit in the treatment of wounds with the use of lipo-aspirated extract. Fat processed via routine liposuction without isolation, culture and expansion of adipose derived stem cells allowed for accelerated wound healing. The procedure allows for a cost-effective method to enhance wound healing in a developing country.