



IMPROVED ADIPOSE REMOVAL FROM FULL THICKNESS SKIN

USING MOTORIZED ROTARY BLADE DEVICE



PRIMARY OBJECTIVE/ISSUE STUDIED

Many tissue banks in the U.S. recover full thickness skin grafts from posterior torso and anterior or posterior aspects of the lower extremities in order to meet the growing demands for larger grafts measuring greater than four inches in width. Much of this tissue is processed into acellular dermal allografts. To attain optimal thickness and avoid punctures or tears to the skin, the dissection plane targeted is the adipose tissue. Consequently, a significant layer of adipose tissue may be associated with the dermal layer after dissection. It is imperative to remove the adipose tissue without damaging the skin and dermis.

The purpose of this work was:

- To remove the adipose tissue in an efficient manner that prevents processing dissection errors
- To decrease the amount of time required to remove the adipose tissue during processing
- To increase tissue yields to provide more useable skin graft tissues

All three objectives help to maximize the gift of donation.

PROJECT

American Donor Services in Hastings, MN was in search of instrumentation to use during the recovery of full thickness skin which would assist in obtaining the optimal thickness without compromising integrity. With the significant number of skin donors being recovered and shipped to Bacterin International, Inc. in Belgrade, MT, American Donor Services sought to decrease dissection or strikethrough errors, thus increasing skin yield; decrease shipment costs from heavy freight; and provide a well-prepared full thickness skin graft to Bacterin International, Inc. for processing, hence maximizing the throughput process and effectively reallocating workforce resources into other processing needs.



CONVENTIONAL



MOTORIZED

PRIMARY OBJECTIVE/ISSUE STUDIED

Many tissue banks in the U.S. recover full thickness skin grafts from posterior torso and anterior or posterior aspects of the lower extremities in order to meet the growing demands for larger grafts measuring greater than four inches in width. Much of this tissue is processed into acellular dermal allografts. To attain optimal thickness and avoid punctures or tears to the skin, the dissection plane targeted is the adipose tissue. Consequently, a significant layer of adipose tissue may be associated with the dermal layer after dissection. It is imperative to remove the adipose tissue without damaging the skin and dermis.

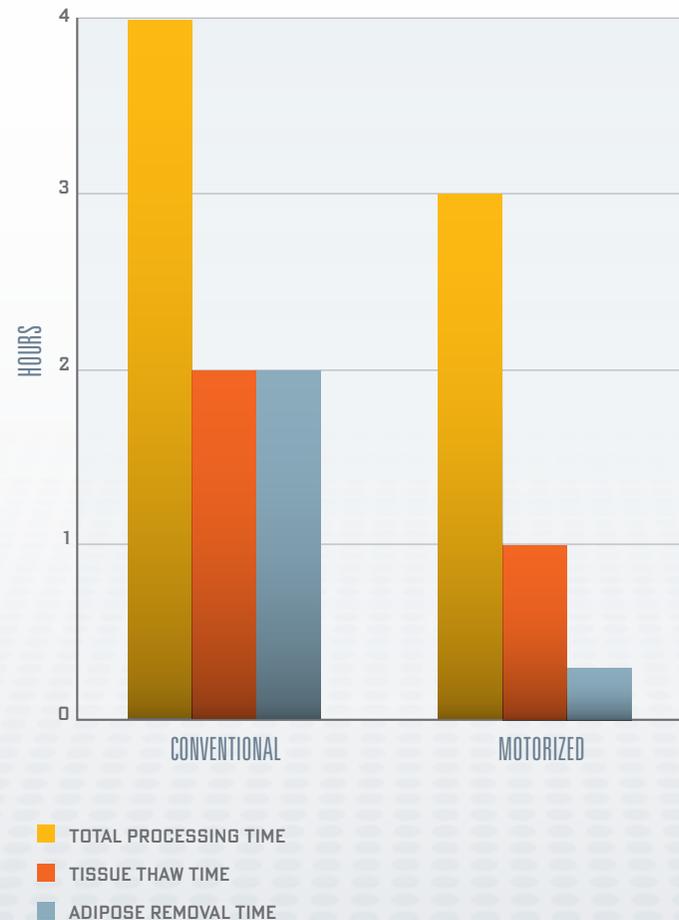
The purpose of this work was:

- To remove the adipose tissue in an efficient manner that prevents processing dissection errors
- To decrease the amount of time required to remove the adipose tissue during processing
- To increase tissue yields to provide more useable skin graft tissues

All three objectives help to maximize the gift of donation.

American Donor Services began using a motorized rotary blade device, called an Amalgatome[®] made by Exsurco Medical, Inc., during their skin recoveries. The unique, motorized rotary blade device is packed along with other recovery supplies and taken to each recovery site. The recovery technicians use the device to remove the adipose tissue immediately after the tissue is dissected from a specific anatomical area.

The tissue is placed on the sterile back table, the device power is activated and the technician uses the rotary blade held at a 20° angle in a back-and-forth motion, removing layers of adipose tissue up to several inches in thickness with each pass. This is completed in 5 to 10 minutes. The tissue is then packaged for shipment.



RESULTS SUMMARY/OUTCOME/IMPLEMENTATION STRATEGY

- Dissection errors from procurement decreased significantly, resulting in more useable grafts
- Total processing time decreased by approximately 25%
- Tissue thaw time decreased by approximately 50%
- Adipose removal time decreased by approximately 90% using the rotary blade device relative to using a scalpel during processing
- Additional savings were realized in decreased shipping costs to the processor, due to 50% less weight in shipment

LESSONS LEARNED/ AUTHOR(S) RECOMMENDATION

Using a scalpel and forceps to dissect adipose tissue in skin grafting procedures is tedious work. In addition, it is possible that the scalpel can puncture or strikethrough the full thickness skin graft, thus compromising quality and affecting the desired graft size. Using the motorized rotary blade device decreased the amount of time needed to process the dermal tissue, reduced the incidence of procurement errors, and decreased shipment costs due to decreasing the mass of tissue being shipped. Specifically, the removal of the adipose tissue during procurement can be completed with the rotary blade device in 5 to 10 minutes and decreases the total time to process acellular dermis by approximately 25%.



AMERICAN DONOR SERVICES, INC.

KEVIN NOYES

Quality Assurance Officer

RICHARD HALIBURTON

Executive Director

Office: 651-437-1058 • www.americandonorservices.org



KATHY SIMKINS

Donor Relations Manager

Office: 406-388-0480

www.bacterin.com



AMBER McAFEE

Certified Tissue

Banking Specialist

Office: 440-204-3269

Email: ambermcafee@exsurco.com