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IMPACT OF TISSUE-ENGINEERED DERMIS* ON HEALING OF LOWER EXTREMITY WOUNDS: A RETROSPECTIVE FOUR-YEAR REVIEW

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At St. Michael's Hospital, a biological wound healing clinic was established to address patients with wounds that have failed best practice interventions including: moist wound healing, treatment of underlying infection, debridement, off-loading and/or compression therapy.

A retrospective chart audit was undertaken to assess our efficiency, outcomes and associated costs when incorporating tissue-engineered dermis* in the management of chronic lower extremity wounds.

- More diabetic foot wounds were treated, some of the identified tissue-engineered dermis* recipients were lost to follow-up (failed to return to clinic), did not close (lack of availability of tissue-engineered dermis*) or experienced an infection or amputation.
- Positive outcomes related to percentage of closure by wound type, specifically, diabetic foot and decubitus wounds (not statistically significant).
- Data suggests that venous leg wounds take longer to heal (Table 2), have a higher probability of not closing and require more grafts, although not statistically significant.
- Cost analysis suggest that the average cost of tissue-engineered dermis* to achieve wound closure is \$406.26 CAD.

Wound closure was achieved using tissue-engineered dermis* in 74% of this patient cohort identified with protracted wound healing. This protocol offers health care teams an efficient and safe method of delivering expensive treatment to multiple recipients.

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THE EFFECTS OF CONTINUOUS AND INTERRUPTED SUTURATION TECHNIQUES ON THE WOUND HEALING PROCESS IN THE TREATMENT OF DIAPHRAGMAL RUPTURE

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Aim: To compare the wound healing processes in the treatment of diaphragmal rupture either by interrupted or continuous suture techniques.

Methods: In this study, 18 female rabbits (mean body weight 3.5±0.21 kg) were used as study animals. After thoracotomy operations, the animals were then randomly divided into three groups and 3 mm. length lacerations were done either in the central, anterior, or posterior diaphragmal regions. The wounds closed either by interrupted or continuous suture techniques in the half of the animals in each group. One week after the operation, the sutured region was removed and following tissue processing and staining with thricorome and HE was examined by a light microscope. Four fields for each animal were transferred into the PC environment and the numbers of lymphocytes, fibrocytes, capillaries, and collagen fibers were counted in the 0, 1 µm² areas by using image analysis program.

Results: Statistically significant higher numbers of lymphocytes, fibrocytes, and capillaries were detected in the interrupted suture group compared to the continuous suture group (all p<0.05). Although the numbers of collagen fibers were found to be higher in the interrupted suture group, the difference did not reach a statistical significance (p>0.05). These results were similar for each diaphragmatic region.

n/0.1 µm ²	Lymphocytes	Fibrocytes	Capillaries	Collagen fibers
Continues	32.11±4.45	26.86±3.33	4.50±1.25	27.28±4.44
Interrupted	40.39±13.72	34.27±7.89	6.25±2.81	31.92±4.93

Conclusion: Well known factors in the early wound healing process such as lymphocyte transport, and fibroblastic and capillary proliferations were more prominent in the interrupted sutures compared to the continuous suture. We recommend using of interrupted sutures in the treatment of diaphragmal ruptures.