Dehydrated human amniotic membrane allograft (DAMA) Used to Treat Recalcitrant Wounds: A Case Series

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Abstract
Chronic wounds can require advanced wound care modalities to achieve closure. These products derived from amniotic tissue are newer tools in the wound care armamentarium. 

A case series is presented of four patients with stalled wounds of unusual etiology. The patients had wounds that had not progressed despite advanced care; including negative pressure wound therapy, low-frequency, non-contact ultrasonic and other cellular and tissue-based products. The DAMA matrix and a cryo-preserved autologous suspensory allograft (CASA) liquid were trialed over a 6 month period. The DAMA/UCLA was applied every 2 weeks. 2 patients treated completely within the first month and the other two patients had wound closure of 33% and 70% respectively.

DAMA/CASA is a very effective therapy for closure in recalcitrant wounds. It should be considered as a therapy for wounds of all etiologies based on its ability to convert chronic wounds to acute healing wounds.

Methods and Materials

Each patient was treated on a 2 week interval. If the CASA liquid was applied before (2-4) the wound bed was prepared using a chlorhexidine scrub and then a sterile dressing was placed. The CASA liquid was placed on the wound at approximately 0.5cm away from the wound and 1.5cm deep. For the patient who received DAMA matrix (cases 2-4), the wound beds were prepared using a chlorhexidine scrub and then the matrix was placed in the wound with sterile technique and covered with a non-contact layer and a polyurethane foam dressing. Each patient was assessed 2-3 times per week. The DAMA was left undisturbed and the secondary dressing was replaced. 

The liquid CASA was used on 2 of 4 cases. The matrix was placed 1-1.5cm away from the wound bed and 1.5cm deep. If there was bone close to the surface of the wound, there may not be enough subcutaneous tissue present to absorb the product effectively. If there is bone close to the surface of the wound, prior to treatment, patient was assessed 2-3 times per week. The DAMA was left undisturbed and the secondary dressing was replaced. 

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Case 1

The 1st patient is a 29 year old male who sustained a 3rd degree burn on the dorsum of the 4th digit on his right hand after sustaining 3rd degree burns in a car accident 6 months prior. It was closed in 4 weeks. The 5th digit was retracted back over his left hip. He is a left hip amputee. He was left with a residual non-healing wound of 2.8 x 1.6 x 0.1cm. 

After application of DAMA matrix. The CASA liquid was not used to the extensive bone formations in the subcutaneous tissue. 

Case 2 and 3

The 3rd patient is a 35 year old male with full-thickness wounds on the dorsum of the 4th digit on his right hand after sustaining 3rd degree burns in a car accident 4 months prior. It was closed in 4 weeks. The 3rd digit was not salvageable due to osteomyelitis.

Case 4

The 4th patient is a 23 year old with 2 open wounds from an IED blast. His wounds closed by an advancement of a fasciocutaneous flap retracted back over his left hip. He is a left hip amputee. He was left with a residual non-healing wound of 2.8 x 1.6 x 0.1cm.

Initial wound measurements: Proximal tract was 2.8 x 1.6 x 0.1cm. 

Discussion and Conclusions

The use of DAMA and CASA gives yet another powerful tool for the wound care armamentarium. Here, a case series was presented of 4 patients with stalled wounds of unusual etiology. The patients had wounds that had not progressed despite advanced care; including negative pressure wound therapy, low-frequency, non-contact ultrasonic and other cellular and tissue-based products. The DAMA matrix and a cryo-preserved autologous suspensory allograft (CASA) liquid were trialed over a 6 month period. The DAMA/UCLA was applied every 2 weeks. 2 patients healed completely within the first month and the other two patients had wound closure of 33% and 70% respectively.

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Overall, the DAMA and CASA products were successful in closing extremely recalcitrant wounds over the course of this trial. These patients were young and otherwise healthy, without the typical chronic diseases associated with delayed wound healing, yet their wounds did not close. A wider analysis of these products on patients with chronic diseases, such as venous insufficiency and Type 2 Diabetes Mellitus is warranted due to the remarkable fast response seen in these patients. Dosing parameters and treatment regimens will be adjusted as more data is gathered.

References


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I wish to thank the men and women of our Armed Forces for their sacrifice for our country and all of the good humor that they had during the course of this treatment. I am forever grateful for your willingness to advance science and wound healing. You are my heroes.

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