

The Use of a Pure Hypochlorous Acid Based Antimicrobial Wound Gel* with Concurrent Compression Therapy in the Treatment of Lymphedematous Legs with Dermatitis

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Introduction

Lymphedematous legs have dermatitis, or highly inflamed skin, which is often found in edematous flaps, lobes, and skin folds, and is a result of irritation from trapped perspiration, lymphorrhea (leakage of protein rich fluid), and wound exudate from minute skin breakdown hidden within intertriginous areas. Dermatitis can present as red, pruritic, dry, flaky skin. While the edema aspect of lymphedema can be well controlled with effective compression, the inflammation of the skin is an undertreated aspect of lymphedema care. We describe here the use of a pure hypochlorous acid (pHA) based antimicrobial wound gel in the management of inflamed skin and skin folds of lymphedema patients since in busy wound/vein/lymphedema clinics.

Methods and Materials

We describe here the results from 26 patients who were diagnosed with acute dermatitis associated with lymphedema, but had no full thickness wounds present. We applied the gel to the skin folds liberally, applying it deep within the folds. Post application, the legs were wrapped with a Dual Compression System (DCS)** product, which we regularly use to control lymphedema. We report skin improvement results concurrent with lymphedema control with compression. Measurements at calf, ankle, and midfoot were taken on Day 1 and for each subsequent follow-up visit over the course of 4-6 weeks. Measurements were taken at the same anatomical and numerical landmarks unique for each patient for each visit. Patient pain level was assessed at each visit via the pain visual analogue scale.

Results

Table 1 represents patient details along with description of the skin condition reported by the patient on initial evaluation and edema improvement from both our clinic as well as another large academic center where the same practice is followed. We report increased improvement in skin quality and reduction of edema in all 26 patients who presented with uncontrolled dermatitis in lymphedematous legs. Patients in each case also reported reduction in pain/discomfort with use of the pHA-gel under the compression with the DCS product. Figures 1 and 2 represent the typical dermatitis that we are addressing. Figures 3 and 4 are of the same patient legs with improvement of dermatitis 3 days after use of pHA gel and compression

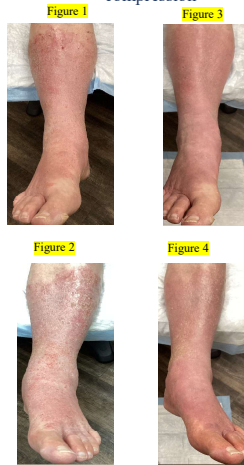


Table 1: Reduction of Pain and Edema Circumference with Use of Hypochlorous Acid Gel and Compression

Patient - Leg	Calc follow up (cm)	Calc follow up (cm)	Calc Difference (cm)	Ankle follow up (cm)	Ankle follow up (cm)	Ankle Difference (cm)	Midfoot follow up (cm)	Midfoot follow up (cm)	Midfoot Difference (cm)	Dermatological	Pain Initial Day	Pain Follow up Day
BB - Left Leg	50	47.7	-2.3	33.9	32.2	-1.7	32.6	29.9	-2.7	Redness, itching, mild weeping	5	3
BB - Right Leg	52.6	48.9	-3.7	35.8	33.1	-2.7	32.9	30.2	-2.7	Redness, itching, mild weeping	5	3
DB - Left Leg	49.2	47	-2.2	32.5	31.4	-1.1	28.8	28.7	-0.1	Redness, itching	6	3
DB - Right Leg	49.1	41.1	-8	34.5	30.5	-4	28.8	25.5	-3.3	Redness, itching	5	3
EB - Left Leg	43.2	40.9	-2.3	37.7	36.1	-1.6	29.3	28.4	-0.9	Redness, itching	5	2
EB - Right Leg	49.3	36	-13.3	37	34	-3	31.2	27.4	-3.8	Itching, burning	6	5
FB - Left Leg	52.4	56	3.6	35.3	31.4	-3.9	29.1	29	-0.1	Redness, itching	4	2
FB - Right Leg	56.5	55.5	-1	38.4	36.1	-2.3	29	27.1	-1.9	Redness, itching	4	2
GB - Left Leg	48	46.6	-1.4	28.1	26.3	-1.8	27.1	26.6	-0.5	Itching, burning	4	2
GB - Right Leg	53.2	48.5	-4.7	35.1	29.7	-5.4	27.9	27.2	-0.7	Redness, itching	4	2
HB - Left Leg	39	32.5	-6.5	32.5	31.5	-1	29	27.6	-1.4	Itching, burning	5	4
HB - Right Leg	38.5	30.8	-7.7	40	37.3	-2.7	30	28	-2	Redness, itching	5	2
IB - Left Leg	43	34.8	-8.4	30	31.6	1.6	28.5	25.2	-3.3	Redness, itching, mild weeping	5	2
IB - Right Leg	49.5	39.7	-9.8	32	31.8	-0.2	32	31.4	-0.6	Redness, itching	4	1
MB - Left Leg	53.6	51	-2.6	31	30	-1	23	23.1	0.1	Redness, itching, mild weeping	5	0
MB - Right Leg	55.7	54	-1.7	31.6	30.6	-1	25	22.7	-2.3	Redness, itching, mild weeping	5	0
OB - Left Leg	56.5	52	-4.5	29.3	29	-0.3	24.7	25.2	0.5	Itching, burning	3	1
OB - Right Leg	54.6	51	-3.6	28	25.5	-2.5	24.8	24	-0.8	Redness, itching, burning	6	1
SB - Left Leg	54.1	52.7	-1.4	43.3	43.1	-0.2	28.5	27.7	-0.8	Redness, itching	4	2
SB - Right Leg	55.4	52.6	-2.8	38.4	36.1	-2.3	28.5	27.6	-0.9	Redness, itching	2	2
TB - Left Leg	38.5	35.5	-3	28.5	24.5	-4	28.1	27	-1.1	Redness, itching	5	1
TB - Right Leg	49.7	38.4	-11.3	27.5	24.2	-3.3	23.1	23.2	0.1	Itching, burning	5	1
UB - Left Leg	55.5	55.5	0	36.2	29	-7.2	27	25.5	-1.5	Redness, itching	2	1
UB - Right Leg	59.5	44	-15.5	28.6	27.5	-1.1	25.4	25	-0.4	Redness, itching, mild weeping	4	1
VB - Left Leg	48.6	45.6	-3	31.6	30.4	-1.2	28.5	28.2	-0.3	Redness, itching	4	2
VB - Right Leg	52.5	51.5	-1	38.4	32.5	-5.9	24.9	23.5	-1.4	Redness, itching	5	2
WB - Left Leg	49.1	48.6	-0.5	35	29.4	-5.6	23.2	23	-0.2	Redness, itching	4	3
WB - Right Leg	54.5	52.2	-2.3	42.5	37	-5.5	24.8	23	-1.8	Redness, itching, mild weeping	5	3
XB - Left Leg	71	70.1	-0.9	45.7	41	-4.7	34.5	33.9	-0.6	Redness, itching	4	0
XB - Right Leg	69.5	69.1	-0.4	43.4	41	-2.4	32.6	31	-1.6	Itching, burning	4	0
YB - Left Leg	60	57.9	-2.1	35.4	29	-6.4	29.3	29	-0.3	Redness, itching	3	1
YB - Right Leg	49.1	45.4	-3.7	29.3	29	-0.3	23.2	23.2	0	Itching, burning	4	0
ZB - Left Leg	48.5	45.4	-3.1	28.8	26.1	-2.7	24.5	23.4	-1.1	Itching, burning	4	0
ZB - Right Leg	55.2	51.2	-4	39	35.6	-3.4	25.9	25.5	-0.4	Redness, itching	3	1
AB - Left Leg	58.6	58.2	-0.4	37.4	32.4	-5	26.1	24.8	-1.3	Redness, itching, burning	6	1
AB - Right Leg	54.5	53.5	-1	33.4	31.3	-2.1	24.9	24.4	-0.5	Itching, burning	4	1
CB - Left Leg	61.4	59	-2.4	32.5	32.5	0	24.4	24.1	-0.3	Redness, itching	4	1
CB - Right Leg	57.5	54	-3.5	38.4	36.3	-2.1	24.5	24.3	-0.2	Redness, itching, burning	4	3
DB - Left Leg	59.9	57	-2.9	35.4	32	-3.4	23.5	23.2	-0.3	Redness, itching, burning	5	2
DB - Right Leg	49.8	47	-2.8	33.3	31.1	-2.2	22.4	21.4	-1	Itching, burning	4	2
EB - Right Leg	38.8	38	-0.8	35.3	32	-3.3	23.2	22	-1.2	Redness, itching, mild weeping	4	2

Discussion

Hypochlorous acid has antimicrobial (preservative) and bioburden control.¹ The germ control properties appear to reduce inflammation in the management of various skin disorders, such as atopic and seborrheic dermatitis.³ Though the skin condition we managed are not generally describable as wounds, the resolution of the dermatitis condition which is highly inflammatory and painful with the use of the pHA-gel is remarkable.

Discussion

Untreated dermatitis in the presence of already fragile edematous skin can quickly lead to further skin breakdown and ulcerations. We believe that the use of this pHA-gel product as a primary dressing for dermatitis conditions in lymphedema is an essential part of a preventative wound protocol.

Discussion

Additionally, compression therapy has been shown to also assist in reduction of various inflammatory dermatological conditions. The hypothesis is that the inflammation leads to increased edema, slowing healing.⁴ Therefore, reduction of edema will lead to reduction of the inflammatory process. We believe the combination of the pHA-gel and compression therapy is absolutely essential for treating the dermatitis seen in lymphedematous legs and this is our standard of care today for patients with the conditions described.

*Vashe Antimicrobial Wound Gel.

**UrgoK2 Compression System

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Acknowledgments

Sponsored by Urgo North America