Case Report

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A Small WIN: A Case Series on Amniotic Grafting for Wound Healing and the importance of Good Standard of Care

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ABSTRACT

This case series examines the healing process of three types of wounds: Diabetic Foot Ulcers (DFU), Venous Stasis Leg Ulcers (VLU), and Pressure Ulcers (PU). The study highlights the challenges of wound healing and the transformative impact of Amniotic Grafts. The dedication and expertise of healthcare providers are also emphasized, as their efforts were crucial in achieving wound closure for all patients discussed.

Abbreviations: DFU: Diabetic Foot Ulcers; VLU: Venous Leg Ulcers; PU: Pressure Ulcers; SOC: Standard of Care

Introduction

Wound healing, particularly for chronic wounds such as DFU, VLU, and PU, presents significant challenges. This study explores the efficacy of Amniotic Grafts in addressing these challenges. The use of Acesso Biologics' Amniotic Grafts has shown promising results, facilitating wound closure and improving patient outcomes.

Methods

Ten patients (3 DFU, 5 VLU, 2 PU) were treated with a combination of Acesso Biologics' Amniotic Grafts and providers Standard of Care (SOC). The treatment duration ranged from 4 to 54 weeks. The study compares the effectiveness of Amniotic Grafts versus SOC in promoting wound healing.

Treatment Modalities

Amniotic Membrane Grafts (Graft):

Acesso Biologics provides three levels of amniotic grafts:

1. Single Layer: For superficial wounds (ideal for VLU and burns, 0.1 cm depth).
2. Dual Layer: For chronic wounds (ideal for DFU and MOHS, 0.2 cm to 0.4 cm depth).
3. Triple Layer: For deep wounds (ideal for PU and post-operative, >0.3 cm depth).

Standard of Care (SOC)

SOC includes wound debridement (irrigation, surgical, enzymatic, and/or biologic), proper packing of the wound area, and the use of various wound dressings (foams, alginates, hydrocolloids, and hydrogels). Adjunctive therapies such as hyperbaric oxygen therapy or topical oxygen therapy were also utilized [1].

Results

All ten patients in the study achieved wound closure. The treatment protocols, which integrated Acesso Biologics' Amniotic Grafts with standard of care (SOC), proved effective in promoting wound healing. The duration of treatment varied, with the shortest period being 4 weeks and the longest extending to 54 weeks.

Discussion

The application of Amniotic Grafts has revolutionized the treatment of chronic wounds. The stringent quality and safety standards upheld by Acesso Biologics, in conjunction with the dedication of healthcare providers, have resulted in notable improvements in patient outcomes. The skill and persistence of the providers were essential in achieving successful wound closure for all patients in this study. These findings highlight the potential of Amniotic Grafts as a critical component in chronic wound care, emphasizing the importance of high-quality biological products and proficient clinical application in enhancing healing rates and overall patient health [2].

Conclusion

This case series illustrates the efficacy of Amniotic Grafts in treating diabetic foot ulcers (DFU), venous leg ulcers (VLU), and pressure ulcers (PU). The combination of advanced graft technology and committed healthcare providers has led to successful wound healing, suggesting a promising potential for broader application in chronic wound management.

Patient Case Study Diabetic Foot Ulcer

Patient Profile Diabetic Foot Ulcer

Age/Gender: 52-year-old male.

Primary Complaint: Chronic wound on the plantar area of the left foot

Medical History:

1. Type II Diabetes mellitus
2. Diabetic peripheral neuropathy
3. Diabetic retinopathy
4. Hypertension
5. Hyperlipidemia
6. COVID-19
7. Complete heart block with pacemaker in situ

Recent HbA1c Readings: 6.7% to 8%.

Treatment Overview

The patient was selected for Acesso graft application after a previous round of non-Acesso grafts applied four months prior did not result in healing.

Treatment Data (Table 1)

Table 1: Treatment Data.

Treatment eek	Length (cm)	Width (cm)	Depth (cm)	Area (cm^2)	Volume (cm^3)	Therapy
Week 1	1	1	0.3	1	0.3	Graft
Week 2	1	1	0.2	1	0.2	Graft
Week 3	0.6	0.6	0.5	0.36	0.18	Graft
Week 4	0.6	0.6	0.3	0.36	0.108	Graft
Week 5	0.6	0.6	0.4	0.36	0.144	Graft
Week 6	0.7	0.6	0.5	0.42	0.21	Graft
Week 7	0.7	0.6	0.5	0.42	0.21	Graft
Week 8	0.5	0.5	0.4	0.25	0.1	Graft
Week 9	0.5	0.5	0.3	0.25	0.075	Graft
Week 10	0.5	0.5	0.3	0.25	0.075	Graft
Week 11	1	0.5	0.3	0.5	0.15	SOC
Week 12	0.5	0.5	0.3	0.25	0.075	SOC
Week 13	0.3	0.2	0.2	0.06	0.012	SOC
Week 14	0.2	0.2	0.3	0.04	0.012	SOC
Week 15	0.2	0.3	0.2	0.06	0.012	SOC
Week 16	0.4	0.4	0.2	0.16	0.032	SOC
Week 17	0.4	0.2	0.1	0.08	0.008	SOC
Week 18	0.5	0.3	0.2	0.15	0.03	SOC
Week 19	0.2	0.2	0.1	0.04	0.004	SOC
Week 20	0.3	0.2	0.2	0.06	0.012	SOC
Week 21	0.3	0.2	0.2	0.06	0.012	SOC
Week 22	0.5	0.3	0.2	0.15	0.03	SOC
Week 23	0.2	0.2	0.2	0.04	0.008	SOC
Week 24	0.2	0.2	0.2	0.04	0.008	SOC
Week 25	0.1	0.2	0.1	0.02	0.002	SOC
Week 26	0.1	0.2	0.1	0.02	0.002	SOC
Week 27	0.3	0.2	0.1	0.06	0.006	SOC
Week 28	0.2	0.2	0.1	0.04	0.004	SOC
Week 29	0.2	0.2	0.1	0.04	0.004	SOC
Week 30	0.1	0.1	0.1	0.01	0.001	SOC
Week 31	0.1	0.1	0.1	0.01	0.001	SOC
Week 32	0	0	0	0	0	RESOLVED

Analysis of Treatment Progression

Initial Graft Therapy (Week 1 to Week 10)

1. The wound started at 1 cm in length and width with a depth of 0.3 cm.
2. Despite graft therapy, there were fluctuations in depth and dimensions, indicating variability in wound healing response.
3. By Week 10, the wound dimensions remained stable at 0.5 cm in length and width with a depth of 0.3 cm, suggesting partial improvement but not complete healing.

Transition to Standard of Care (SOC) Therapy (Week 11 onwards)

1. The decision to switch to SOC therapy at Week 11 may have been due to the plateau in improvement with grafts or other clinical considerations.

2. There were ongoing fluctuations in wound dimensions during SOC therapy, with periods of slight reduction and stability in length, width, and depth.
3. The wound continued to show variability in response, with some weeks showing slight increases in dimensions (Week 14 with increased depth) and others showing stability or minor reductions.

Resolution (Week 32)

1. The wound finally resolved completely by Week 32, marked by all measurements (length, width, depth, area, and volume) reaching 0.

Conclusion

After the application of Acesso grafts, diligent Standard of Care (SOC) measures contributed to the closure of this hard-to-heal wound.

Visual Progression (Figures 1-3)

Figure 1: Week 1: Graft application.

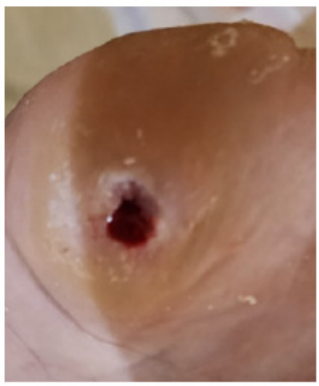

Figure 2: Week 11: Transition to SOC.

Figure 3: Week 32: Wound Closure

Additional Patient Summaries Diabetic Foot Ulcers

Overview

Two patients with primary complaints of diabetic foot ulcers had previously failed to close hard-to-heal wounds with amniotic grafts. Their recent HbA1c levels ranged between 6.2% and 6.4%. The provider determined that the application of Acesso grafts might benefit these patients.

Treatment Overview

The provider determined that the application of Acesso grafts may benefit these patients.

Treatment Data for Patient 1 (Table 2)

Treatment Week	Length (cm)	Width (cm)	Depth (cm)	Area (cm^2)	Volume (cm^3)	Therapy
Week 1	0.9	1.2	0.2	1.08	0.216	Graft
Week 2	0.8	1	0.1	0.8	0.08	Graft
Week 3	0.8	1	0.1	0.8	0.08	Graft
Week 4	0	0	0	0	0	RESOLVED

Treatment Data for Patient 2 (Table 3)

Treatment Week	Length (cm)	Width (cm)	Depth (cm)	Area (cm^2)	Volume (cm^3)	Therapy
Week 1	0.9	1.1	0.2	0.18	0.198	Graft
Week 3	1.1	0.5	0.2	0.55	0.11	Graft
Week 4	0.5	0.6	0.1	0.3	0.03	Graft
Week 5	0.5	0.6	0.1	0.3	0.03	Graft
Week 6	0.3	0.4	0.1	0.12	0.012	Graft
Week 8	0.3	0.4	0.1	0.12	0.012	Graft
Week 10	0.3	0.4	0.1	0	0	SOC
Week 12	0	0	0	0	0	RESOLVED

Results

After 3-8 applications of Acesso grafts, there was a reduction in wound size ranging from 26-87% from week 3 to week 8. Full closure was achieved as early as 4 weeks and up to 12 weeks.

Comparative Summary

Initial Response: Both patients showed a decrease in wound area and volume with the initial use of grafts.

Resolution Time

1. Patient 1: The wound resolved quickly within four weeks.
2. Patient 2: The wound took longer to resolve, with complete healing occurring by week 12.

Effectiveness of Grafts

1. Patient 1: Consistent graft therapy resulted in complete resolution within a short time frame.
2. Patient 2: While graft therapy was effective, the wound size fluctuated before achieving complete resolution with the introduction of SOC therapy.

Role of SOC Therapy:

Patient 2: SOC therapy in the final stages was critical for complete wound resolution, indicating that SOC therapy may enhance or finalize the healing process after graft therapy.

Overall Conclusion

Both treatments ultimately led to wound resolution, but the timing and consistency of the wound closure varied. Patient 1 showed a more straightforward path to resolution with consistent graft application, while Patient 2 required a transition to SOC therapy to achieve final healing. This highlights the potential need for a combined or phased approach to optimize wound healing, particularly in cases where initial graft therapy alone may not suffice.

Patient Case Study Venous Leg Ulcer

Patient Profile Venous Leg Ulcer

Age/Gender: 57-year-old male.

Primary Complaint: Chronic wound on the right leg.

Medical History:

1. Obesity
2. Peripheral Vascular Disease (PVD)
3. Chronic Obstructive Pulmonary Disease (COPD)
4. Oxygen dependency
5. Peripheral edema
6. Peripheral venous hypertension
7. Venous ulceration.

Treatment Overview

The patient was selected for Acesso graft application after a previous round of non-Acesso grafts applied four months prior did not result in wound closure.

Treatment Data (Table 4)

Treatment Week	Length (cm)	Width (cm)	Depth (cm)	Area (cm^2)	Volume (cm^3)	Therapy
Week 1	1	2	0.1	2	0.2	Graft
Week 2	1	0.9	0.1	0.9	0.09	Graft
Week 3	1	1.8	0.1	1.8	0.18	Graft
Week 4	1	2	0.2	2	0.4	Graft
Week 5	0.9	1.9	0.2	1.71	0.342	Graft
Week 6	0.9	2	0.1	1.8	0.18	Graft
Week 7	1	1.8	0.1	1.8	0.18	Graft
Week 8	0.8	1.5	0.1	1.2	0.12	Graft
Week 9	1	1	0.1	1	0.1	Graft
Week 10	0.5	1.5	0.1	0.75	0.075	Graft
Week 11	1.2	1	0.1	1.2	0.12	SOC
Week 12	1	1	0.1	1	0.1	SOC
Week 13	1	1	0.1	1	0.1	SOC
Week 14	0.6	1.2	0.1	0.72	0.072	SOC
Week 15	0.6	1	0.1	0.6	0.06	SOC
Week 16	0.5	0.5	0.1	0.25	0.025	SOC
Week 17	0.6	0.7	0.2	0.42	0.084	SOC
Week 18	0.3	0.2	0.2	0.06	0.012	SOC
Week 19	0.2	0.2	0.2	0.04	0.008	SOC
Week 20	0.2	0.2	0.2	0.04	0.008	SOC
Week 21	0	0	0	0	0	RESOLVED

Analysis of Treatment Progression

Graft Therapy (Weeks 1-10)

1. Weeks 1-8: Displayed consistent area and volume values with slight variations in length and width. The maximum area recorded was 2.0 cm^2 (Week 1 and Week 4) and the maximum volume was 0.4 cm^3 (Week 4).
2. Weeks 9-10: Showed a reduction in area and volume, with the lowest volume recorded being 0.075 cm^3 (Week 10).

Standard of Care (SOC) Therapy (Weeks 11-20)

1. Transition to SOC therapy began after Week 10.
2. Weeks 11-13: Area and volume stabilized at lower values, with consistent measurements at 1.0 cm^2 for area and 0.1 cm^3 for volume.
3. Weeks 14-20: Ongoing reduction in size, with notable reduction towards the end. The area ranged from 0.04 cm^2 (Week 19-20) to 0.72 cm^2 (Week 14).

Resolved State (Week 21)

By Week 21, all measurements indicate resolution, with all parameters recorded as zero (0).

Conclusion

Eleven weeks following the completion of Acesso graft therapy, diligent SOC along with compression treatment led to the successful healing of the wound.

Visual Progression (Figures 4-6)

Figure 4: Week 1 (Graft).

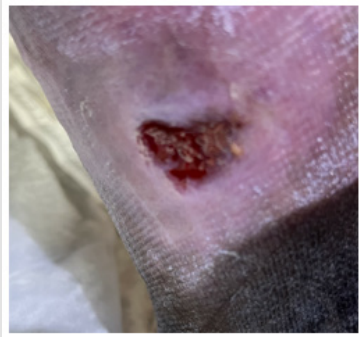

Figure 5: Week 11 (Transition to Standard Wound Care).

Figure 6: Week 21 (Wound Closure Achieved).

Patient Case Study: Chronic Non-Healing Venous Leg Ulcer

Patient Profile

1. Age: 70-year-old female
2. Primary Complaint: Chronic non-healing venous leg ulcer
3. Medical History: Chronic pain, fibromyalgia, hypothyroidism, peripheral edema, schizoaffective disorder, spinal stenosis, and Type 2 Diabetes Mellitus
4. Recent HbA1c Levels: 8.1% – 10.7%.

Treatment Plan

The provider determined that the patient might benefit from Acesso graft application.

Treatment Progress (Table 5)

Treatment Week	Length (cm)	Width (cm)	Depth (cm)	Area (cm^2)	Volume (cm^3)	Therapy
Week 1	1	1.3	0.1	1.3	0.13	Graft
Week 2	1.5	1.5	0.2	2.25	0.45	Graft
Week 3	1	2	0.1	2	0.2	Graft
Week 4	2	2	0.1	4	0.4	Graft
Week 6	3	3	0.1	9	0.9	Graft
Week 7	3	3	0.1	7.5	0.75	Graft
Week 9	3	2.5	0.1	4.62	0.462	Graft
Week 10	2.1	2.2	0.1	4.62	0.462	Graft
Week 11	2.3	2	0.1	4.6	0.46	Graft
Week 16	2.1	2.1	0.1	4.41	0.441	Graft
Week 17	2	2	0.1	3.8	0.38	SOC
Week 21	1.7	1.9	0.1	0.68	0.068	SOC
Week 30	1	0.9	0.1	0.9	0.09	SOC
Week 40	0.5	0.4	0.1	0.2	0.02	SOC
Week 54	0	0	0	0	0	RESOLVED

Observations

The wound initially increased in size and volume during the first few weeks, indicating potential challenges or an early phase of adaptation to the treatment.

Throughout the graft treatment phase, the wound size fluctuated but eventually showed a reduction in area and volume.

The transition to SOC was effective in significantly reducing wound dimensions and achieving resolution by Week 54.

Conclusion

While Acesso grafts provided initial treatment benefits, SOC ultimately played a crucial role in the final stages of wound healing. This case highlights the importance of a combined approach, utilizing both grafts and SOC, to achieve optimal wound healing outcomes.

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Visual Summary (Figures 7-9)

Figure 7: Week 1 (Graft).

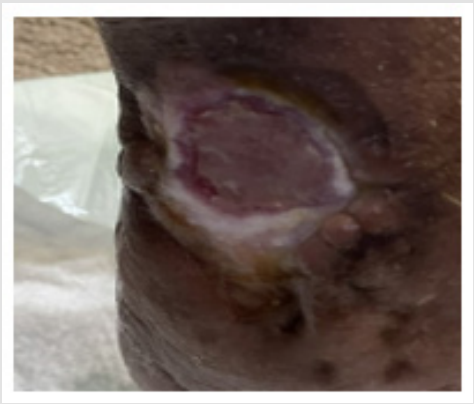

Figure 8: Week 11 (SOC).

Figure 9: Week 54 (Resolved).

Additional Patient Summaries Venous Leg Ulcers

Overview

Threes patients with primary complaints of venous leg ulcers received 4-10 Acesso graft application resulted in reduction of wound size from 50 -86%.

Treatment Overview

The provider determined that the application of Acesso grafts may benefit these patients.

Treatment Data for Patient 2 (Table 6)

Treatment Week	Length	Width	Depth	Area	Vol	Therapy
Week 1	1	0.8	0.4	0.4	0.32	Graft
Week 3	0.6	0.8	0.2	0.12	0.096	SOC
Week 4	0.7	0.6	0.3	0.21	0.126	Graft
Week 5	0.5	0.6	0.3	0.15	0.09	Graft
Week 6	0.5	0.5	0.3	0.15	0.075	Graft
Week 7	0.5	0.5	0.3	0.15	0.075	Graft
Week 9	0.5	0.6	0.2	0.1	0.06	Graft
Week 10	0.6	0.8	0.3	0.18	0.144	SOC
Week 11	0	0	0	0	0	RESOLVED

Treatment Data for Patient 3 (Table 7)

Treatment Week	Length	Width	Depth	Area	Vol	Therapy
Week 1	2.4	1.9	0.1	4.56	0.456	Graft
Week 2	2.5	1.7	0.1	4.25	0.425	Graft
Week 3	1.9	1.2	0.1	2.28	0.228	Graft
Week 4	1.9	1.2	0.1	2.28	0.228	Graft
Week 5	2.1	0.9	0.1	1.89	0.189	Graft
Week 6	2.1	0.9	0.1	1.89	0.189	Graft
Week 7	2.1	0.9	0.1	4.56	0.456	Graft
Week 8	2.4	1.9	0.1	4.56	0.456	Graft
Week 9	2.4	1.8	0.1	4.32	0.432	Graft
Week 10	2.1	1.4	0.1	2.94	0.294	Graft
Week 11	2.1	1.4	0.1	2.94	0.294	SOC
Week 12	1	0.9	0.1	0.9	0.09	SOC
Week 13	1	1.8	0.1	1.8	0.18	SOC
Week 14	0.9	0.8	0.3	0.72	0.216	SOC
Week 15	0.9	0.8	0.3	0.72	0.216	SOC
Week 16	0.5	0.5	0.1	0.25	0.025	SOC
Week 17	1.8	2.2	0.2	3.96	0.792	SOC
Week 18	0	0	0	0	0	RESOLVED

Treatment Data for Patient 4 (Table 8)

Treatment Week	Length	Width	Depth	Area	Vol	Therapy
Week 1	1	1.5	0.1	1.5	0.15	graft
Week 3	1	1	0.1	1	0.1	graft
Week 4	0.8	0.5	0.1	0.4	0.04	graft
Week 5	0.8	0.5	0.1	0.4	0.04	graft
Week 6	0.8	1.4	0.1	1.12	0.112	SOC
Week 7	1	1.5	0.1	1.5	0.15	SOC
Week 8	1	1	0.1	1	0.1	SOC
Week 9	1	1	0.1	1	0.1	SOC
Week 10	0.4	0.5	0.1	0.2	0.02	SOC
Week 25	0.5	0.3	0.1	0.15	0.015	SOC
Week 28	0	0	0	0	0	RESOLVED

Results

All subjects experienced a reduction in wound size and achieved resolution by the end of their respective treatment periods. The treatment protocols varied but included initial graft application followed by SOC, which was effective for all subjects. The transition from graft to SOC generally coincided with the final stages of wound healing and contributed to complete resolution.

Patient Case Study Pressure Ulcer

Patient Profile Pressure Ulcer

Age/Gender: 75-year-old female.

Primary Complaint: Chronic pressure ulcer on the sacral area.

Medical History:

1. Peripheral arterial disease
2. Stage 3 sacral pressure ulcer
3. Osteoporosis
4. Rheumatoid arthritis
5. Viral hepatitis C
6. Essential hypertension
7. Chronic back pain, predominantly bedridden with limited mobility.

Treatment Overview

The provider determined that the patient would benefit from an Acesso grafts application, as a previous round of non-Acesso grafts applied four months ago did not result in healing.

Treatment Data (Table 9)

Treatment Week	Length (cm)	Width (cm)	Depth (cm)	Area (cm^2)	Volume (cm^3)	Undermining	Therapy
Week 1	2.2	2.1	0.9	4.62	4.158	1-o'clock, 0.5 cm	Graft
Week 2	2.5	3.1	0.1	7.75	0.775	1-3 o'clock, 1.4 cm	Graft
Week 3	2.6	2.4	0.3	6.24	1.872	1-o'clock, 0.5, 0.6 cm	Graft
Week 4	2.7	1.9	0.3	5.13	1.539	-	Graft
Week 5	2.4	2.1	0.3	5.04	1.512	-	Graft
Week 6	2.4	2.1	0.3	5.04	1.512	2-4 o'clock, 0.5 cm	Graft
Week 7	2.3	1.8	0.4	4.14	1.656	3-5 o'clock, 0.4 cm	Graft
Week 8	1.8	0.7	0.3	1.26	0.378	3-6 o'clock, 0.4 cm	Graft
Week 9	1.5	1.3	0.2	1.95	0.39	2-4 o'clock, 0.3 cm	Graft
Week 10	1.5	1.3	0.2	1.95	0.39	3-5 o'clock, 0.4 cm	Graft
Week 11	1.5	1.7	0.2	2.55	0.51	3-5 o'clock, 0.4 cm	SOC
Week 12	2.1	1.5	0.2	3.15	0.63	3-5 o'clock, 0.4 cm	SOC
Week 13	1.5	1.3	0.2	1.95	0.39	3-5 o'clock, 0.5 cm	SOC

Week 14	1.1	1.2	0.2	1.32	0.264	4-6 o'clock, 0.3 cm	SOC
Week 15	1.9	0.8	0.4	1.52	0.608	None	SOC
Week 16	0.7	0.9	0.4	0.63	0.252	None	SOC
Week 17	1.9	0.8	0.4	1.52	0.608	None	SOC
Week 18	0.5	0.6	0.1	0.3	0.03	None	SOC
Week 19	2.4	2.1	0.1	5.04	0.504	None	Graft
Week 20	0	0	0	0	0	None	RESOLVED

Results

All subjects experienced a reduction in wound size and achieved resolution by the end of their respective treatment periods. The treatment protocols varied but included initial graft application followed by SOC, which was effective for all subjects. The transition from graft to SOC generally coincided with the final stages of wound healing and contributed to complete resolution.

Analysis of Treatment Progression

1. Week 1: The wound measured 2.2 cm in length, 2.1 cm in width, and 0.9 cm in depth, with an area of 4.62 cm^2 and a volume of 4.158 cm^3. There was undermining at the 1-o'clock position with a depth of 0.5 cm. Treatment involved graft application.
2. Week 2: The wound dimensions increased to 2.5 cm in length and 3.1 cm in width, but the depth decreased to 0.1 cm. The area measured 7.75 cm^2 with a volume of 0.775 cm^3. Undermining extended from 1 to 3 o'clock with a depth of 1.4 cm. Graft therapy was continued.
3. Week 8: Significant reduction in wound size to 1.8 cm in length, 0.7 cm in width, and 0.3 cm in depth. The area decreased to 1.26 cm^2 with a volume of 0.378 cm^3. Undermining was observed at the 3-6 o'clock position with a depth of 0.4 cm. Graft therapy continued.
4. Week 16: Further reduction in wound dimensions to 0.7 cm in length, 0.9 cm in width, and 0.4 cm in depth, with an area of 0.63 cm^2 and a volume of 0.252 cm^3. Therapy transitioned to Standard of Care (SOC).
5. Week 20: Complete resolution of the wound with all measurements at 0 cm.

Throughout treatment, the wound exhibited fluctuations in size and depth, experiencing periods of both improvement and regression. Two weeks after the end of graft therapy, the pressure ulcer worsened from Stage 3 to Stage 4, manifested by increased wound size and undermining. The approach to therapy alternated between grafts and diligent Standard of Care (SOC) based on the wound's condition. Graft therapy was reintroduced on Week 19, leading to full closure of the hard-to-heal wound by the following week.

Visual Progression (Figures 10-14)

Figure 10: Week 1: Graft applied.

Figure 11: Week 11: Transition to SOC.

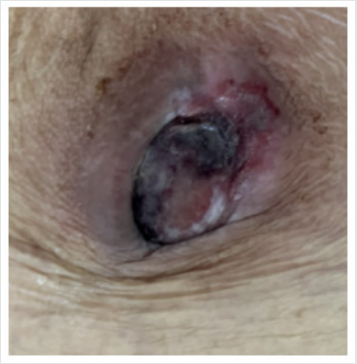

Figure 12: Week 12: Wound Categorized from Stage 3 to Stage 4

Figure 13: Week 19: Graft reapplied.

Figure 14: Week 20: Wound closure achieved.

Additional Patient Case Study: Chronic Pressure Ulcer

Patient Profile

Age: 76-year-old female.

Primary Complaint: Chronic pressure ulcer on the right heel.

Medical History: Adenocarcinoma of the lung, left hip fracture, hypertension, GERD, Type 2 Diabetes Mellitus, diabetic neuropathy, and polymyositis.

Mobility: Predominantly bedridden due to recent hip fracture.

Previous Treatment: Standard of care (SOC) for six months without healing.

Treatment Plan

Given the lack of healing with SOC, the provider recommended an Acesso graft application.

Treatment Progress (Table 10)

Treatment Week	Length (cm)	Width (cm)	Depth (cm)	Area (cm^2)	Volume (cm^3)	Therapy
Week 1	2.5	2.2	0.1	5.5	0.55	Graft
Week 2	1.8	1.7	0.9	3.06	2.754	Graft
Week 3	1.4	1.3	0.4	1.82	0.728	Graft
Week 4	1.9	2.1	0.9	3.99	3.591	Graft
Week 5	1.8	1.9	0.7	3.42	2.394	Graft
Week 6	1.5	1.7	1.1	2.55	2.805	Graft
Week 7	1.1	1.4	0.9	1.54	1.386	Graft
Week 8	1.3	1.4	0.4	1.82	0.728	Graft
Week 9	1.1	1.2	0.3	1.32	0.396	Graft
Week 10	1.1	0.9	0.3	0.99	0.297	Graft
Week 11	0.6	0.8	0.3	0.48	0.144	SOC
Week 19	0	0	0	0	0	RESOLVED

Initial Phase (Weeks 1-10)

1. Week 1: The wound measured 2.5 cm in length, 2.2 cm in width, and 0.1 cm in depth, with an area of 5.5 cm^2 and a volume of 0.55 cm^3. The treatment involved a graft.
2. Week 2: The wound size reduced to 1.8 cm by 1.7 cm in width and increased in depth to 0.9 cm, resulting in an area of 3.06 cm^2 and a volume of 2.754 cm^3. The graft treatment continued.
3. Week 5: The wound measured 1.8 cm by 1.9 cm, with a depth of 0.7 cm, leading to an area of 3.42 cm^2 and a volume of 2.394 cm^3. The graft treatment was maintained.
4. Week 8: The dimensions were 1.3 cm by 1.4 cm, with a depth of 0.4 cm, resulting in an area of 1.82 cm^2 and a volume of 0.728 cm^3. The graft was still used.
5. Week 10: The dimensions were 1.1 cm by 0.9 cm with a depth of 0.3 cm, resulting in an area of 0.99 cm^2 and a volume of 0.297 cm^3. A remarkable reduction of 91% in wound area from the first graft application was noted using the same graft.

Transition to Standard of Care (Week 11 onwards)

1. Week 11: The wound size further decreased to 0.6 cm by 0.8 cm with a depth of 0.3 cm, resulting in an area of 0.48 cm^2 and a volume of 0.144 cm^3. The treatment shifted to SOC.
2. Week 19: The wound completely healed, with all measurements at zero, indicating full resolution.

Summary

Throughout the treatment period, the wound initially showed variable progress with both increases and decreases in size. However, as treatment transitioned to SOC in Week 11, the wound continued to decrease in size and depth, eventually resolving by Week 19. This case highlights the effectiveness of combining graft applications with SOC to achieve optimal wound healing outcomes.

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