

### Introduction

It is general practice to excise infected wounds like necrotizing soft tissue infection (NSTI), pyoderma gangrenosum and stage III hidradenitis suppurativa (HS) in stages during the first hospitalization. Patients are then given several weeks to months, typically in a long term care facility, for the wound to stabilize/fill in before definitive reconstruction. Due to the antimicrobial and anti-inflammatory nature of CFSG, we begin reconstruction during the first hospitalization in order to decrease deconditioning due to immobility and protein leak from large wounds, to decrease time away from work, and to improve quality of life. (1,2)

### Methods

We present a case series of seven patients (n=7) ages 31-73, 3 male and 4 female patients who had resection of infected wounds in a variety of areas (groins, buttocks, axillas, lower extremities) with immediate reconstruction either after the first debridement/excision or within the same hospitalization in the case of NSTI. Two patients had lower extremity NSTI due to uncontrolled diabetes. Two patients had resection of extensive stage III HS in the axilla and groin/buttocks, one patient had infected acutely worsened venous stasis ulcerations with eschar, and the final had a dehisced flap over a patellar rupture complicated by pyoderma gangrenosum (PG) and infection. Secondary dressings ranged from compression wraps to NPWT.

### Results

In all cases, patients had application of at least one CFSG in their first hospitalization as soon as the wound bed was free of all nonviable tissue, typically after 1-2 operative debridements. In many cases, antibiotics were continued as patients were still being actively treated for infection. No case became infected after CFSG application or required removal of the product. All cases had rapid healing (3,4). In PG, no pathology was noted after debridement with application of CFSG.

### Conclusions

It is safe to apply CFSG in the initial hospitalization after excision of infected tissue, even in highly contaminated areas, once all nonviable tissue is removed. The unique antimicrobial and anti-inflammatory properties of CFSG accelerates healing and decreases the patient's recovery time, in turn reducing the strain on medical resources. This is further advantageous as it improves time spent off work in a long-term care facility and gets patients back to their lives more rapidly. Faster wound closure prevents muscle wasting from protein loss and immobility, avoids further infection and returns to the acute hospital, and improves the management of other co-morbidities. CFSG may be used immediately after excision of infected tissue to accelerate closure.

### CASE # 1

#### Patient History:

31 M T1DM  
Admitted with NSTI, HA1c 11.6

#### Wound History:

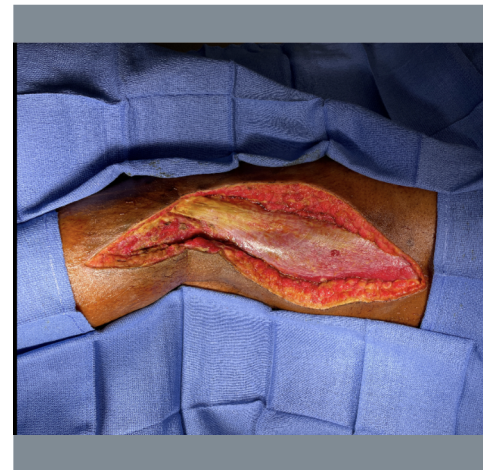
First debridement 7/27/21, next 8/1/21

#### CFSG Applications:

Partial closure and fish skin application 8/4/21  
Fish skin fenestrated and used to encourage contracture, slid under closures to prevent adhesions

#### Patient Outcomes:

Discharged 8/6/21  
STSG 9/16/21  
100% take, full closure 9/27  
Full ROM



Case #1



Case #1



Case #1



Case #1



Case #2



Case #2

### CASE # 2

#### Patient History:

7/14/21 – recent R hallux, 2<sup>nd</sup> and 3<sup>rd</sup> partial toe amputation due to acute OM  
7/23/21 – presents to ED at 10 pm  
Xrays with gas up to mid calf  
WBC 26, Na 126, glucose 297  
HA1c – 9.8  
Counselled BKA – refused

#### Wound History:

7/24/21 – first OR debridement at 5 pm  
7/25/21 – 2nd OR debridement  
7/26/21 – 3<sup>rd</sup> OR debridement  
CX – Morganella, Enterococcus, Proteu

#### CFSG Applications:

8/2/21 – 10/25/22 – CFSG x 6  
CFSG wrapped around tendon to prevent adherence and scarring

#### Patient Outcomes:

10/29/21 – split thickness skin graft



Case #2



Case #2



Case #2



Case #2



Case #2



Case #2

Type of wound	Diabetic necrotizing soft tissue infection		Venous Stasis (Pyoderma Gangrenosum?)	Infected full thickness thermal injury	Radical Hidradenitis Suppurativa Resection		Infection post knee reconstruction with Pyoderma Gangrenosum
	77 M	31 M	62 M	60 F	44 F	41 F	47 F
Time from last debridement to first application (days)	7	3	3	0	13	0	0
Primary healing	26%	87%	12%	100%	75%	100%	66%
Time to heal/reconstruct (days)	95	21	106	29	29	118	172 (ongoing)
Number of applications	6	1	5	6	2	1	9
Final closure type	Tertiary Closure + Skin Graft (100% take)		Skin Graft 85% take (pseudomonas infection)	Secondary intention	Primary closure & secondary intention	Secondary intention	Ongoing secondary intention
Notes			11 year old wound	3 mo post burn without treatment	26 years of disease	20 years of disease	On high dose prednisone and cyclosporine, actively treating osteomyelitis

### References

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- Badois N, et al. J Wound Care. 2019;28(9):624-628.
- Lullove EJ, et al. Wounds. 2021;33(7):169-177.
- Yang CK, Polanco TO, Lantis JC 2nd. Wounds. 2016;28(4):112-8